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20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016</i> [2016] NZCC 26
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016</i> [2016] NZCC 27
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016</i> [2016] NZCC 28
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Wellington, New Zealand

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Key decisions on the IM review

Changes since draft decision

- We have removed ACAM as a stand-alone option from the cost allocation IM for EDBs and GPBs. Our draft decision was to keep ACAM but tighten the threshold for using it.
- We have adopted an asset beta of 0.35 for EDBs and Transpower, 0.40 for GPBs, and 0.60 for airports. Our draft decision was to adopt an asset beta of 0.34 for EDBs, Transpower, and GPBs, and 0.58 for airports.
- We have moved to an historic averaging approach for the debt premium. Our draft decision was to retain a prevailing rate approach.

Other key decisions

- EDBs will move from a weighted average price cap to a 'pure' revenue cap.
- GTBs will move from a 'lagged' revenue cap to a 'pure' revenue cap.
- We will allow non-exempt EDBs to recover the cost of assets more quickly (ie, shorten average remaining asset lives by up to 15%).
- We have removed the separate WACC for CPPs; instead the DPP WACC will apply.
- We have reduced the allowance for debt issuance costs within the cost of debt from 0.35% to 0.20%.
- We have introduced greater flexibility in CPP information and verifier requirements.
- We have replaced the quality-only CPP with a quality reopener in the DPP.
- We will publish a mid-point WACC and standard error estimate for airports, rather than a WACC range.
- We now require that airports disclose target profitability when setting prices.
- We are providing airports with increased flexibility to disclose information in a way that best reflects their pricing approach.

Purpose of this paper

1. The purpose of this paper is to provide an overview of our findings on the input methodologies review (**IM review**) under Part 4 (**Part 4**) of the Commerce Act 1986 (the **Act**).
2. This paper begins by providing a general overview of our findings. The paper summarises our decisions by topic for emerging technology and cost of capital, and then by sector for electricity lines businesses, gas pipeline businesses, and regulated airports.

General overview of our findings

3. We have made only a small number of substantive changes to the input methodologies (**IMs**), along with a number of incremental improvements.
4. The Part 4 regime seeks to promote the long-term benefit of consumers of regulated services. These are electricity line services, gas pipelines services, and specified airport services at Auckland, Wellington and Christchurch international airports.
5. We promote the long-term benefit of those consumers by promoting the following outcomes consistent with the way they are promoted in workably competitive markets – namely that suppliers of regulated services:¹
 - 5.1 have incentives to innovate and invest, including in replacement, upgraded, and new assets;
 - 5.2 have incentives to improve efficiency and provide services at a quality that reflects consumer demands;
 - 5.3 share with consumers the benefits of efficiency gains in the supply of the regulated services, including through lower prices; and
 - 5.4 are limited in their ability to extract excessive profits.
6. The IMs are an important input to regulation under Part 4. The purpose of IMs is to provide certainty to both regulated suppliers and consumers about the rules, requirements and processes applying to Part 4 regulation. A stable and predictable regime provides suppliers and investors in regulated firms with the confidence to invest in long-lived infrastructure that provides essential services to all New Zealanders.

¹ Commerce Act 1985, s 52A(1)(a)-(d).

7. We set the original IMs in December 2010 after extensive engagement with interested parties.² There was a subsequent merits appeal process that reviewed the majority of those IMs. The review resulted in specific aspects of a small number of IMs being amended. Some of the IMs have also been amended pursuant to s 52X.
8. We have conducted the IM review under s 52Y of the Act, which requires us to review the IMs within 7 years of setting them.
9. From the outset, we anticipated that substantial changes to the IMs would not be necessary.³ Through the review, we have maintained our focus on only making changes likely to:
 - 9.1 promote the Part 4 purpose in s 52A more effectively;
 - 9.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose);⁴ or
 - 9.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
10. The IM review is now complete for all areas within the scope of the notice of intention, except for the three areas where we have not yet reached decisions:⁵
 - 10.1 the Transpower Incremental Rolling Incentive Scheme (**IRIS**);
 - 10.2 the customised price-quality path (**CPP**) information requirements for gas; and
 - 10.3 related party transactions provisions.
11. These areas are still within the scope of the IM review, and our timeframes for reaching decisions on them are set out in the Introduction and process paper.⁶ The Transpower Capex IM is the only IM outside the scope of this review; we expect to provide an update on the timing for commencing our review of the Transpower Capex IM in Q1 2017.

² The input methodologies for Transpower's capital expenditure proposals were published on 9 February 2012, and are the only IMs outside the scope of the current review.

³ Commerce Commission "Open letter on our proposed scope, timing and focus for the review of input methodologies" (27 February 2015) para 28.

⁴ Section 52R sets out the purpose of the IMs, which is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation.

⁵ Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015); subsequently amended by Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

⁶ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

12. The IMs are an important input to the regulatory regime. But what ultimately delivers benefits to consumers is the application of the IMs through price-quality regulation or information disclosure (**ID**) regulation. The influence on the price and quality of services consumers receive will generally not be evident until the next price setting events. These are in:
 - 12.1 2017 for gas pipeline businesses (**GPBs**), Christchurch Airport, and Auckland Airport;
 - 12.2 2019 for Wellington Airport; and
 - 12.3 2020 for electricity distribution businesses (**EDBs**) and Transpower.

Overview of key findings relating to emerging technology

13. We are very aware of the potential for significant change to arise from the improving capabilities of new technology, new business models, and evolving consumer preferences. Together these offer significant opportunities, especially for consumers.
14. What this changing technology means for regulated suppliers is not currently clear, but it seems that it will blur the boundaries between participants in the electricity market, change the way that electricity networks are used, and create challenges for policy makers and regulatory agencies.
15. We have reviewed our IMs for EDBs and GPBs to test their fitness for purpose in this changing landscape. We consider that the IMs can deal appropriately with foreseeable developments and do not currently consider that major changes to IMs are needed at the present time. The changes that we consider are needed now are explained below.
16. We do not consider that the IMs should discourage suppliers (or others) from exploring opportunities to use new technology and new business models to benefit consumers. We will continue to engage with stakeholders on how the sector is developing to ensure we are ready to make any changes that may be required to IMs in the future.
17. Stakeholders have identified a number of possible concerns with emerging technology. In particular:
 - 17.1 if enough consumers elect to disconnect from electricity distribution networks, EDBs may not be able to fully recover their historic capital investment (we have termed this 'partial capital recovery'); and
 - 17.2 EDBs may have a significant competitive advantage in emerging energy-related markets.

18. In our judgement, the available evidence is inconclusive on whether the risk of partial capital recovery for EDBs regulated business has increased, and, if it has, by how much. We consider that partial capital recovery is unlikely to be a significant concern in the short term, but may be an issue over the longer term. The long-term view on how electricity networks might be used in the future has become more uncertain compared to 2010.
19. As a precautionary measure, consistent with our concern about increased uncertainty, we will allow EDBs to apply to recover the cost of assets more quickly by allowing up to a 15% reduction in the average remaining asset lives.
20. This measure has been designed so the total cost to consumers does not increase in net present value terms over the life of the assets, while reducing the possible need for subsequent 'regulatory catch-up' (ie, the need to shorten asset lives in future by a greater amount than if we take this precautionary measure now) resulting in price shocks in the future. We consider it should give suppliers confidence to invest in the face of emerging developments.
21. Our review of emerging technologies has highlighted concerns from some stakeholders (mainly energy retailers and the Electricity Authority) that EDBs may have a significant competitive advantage in emerging energy markets. Their key concern is that EDBs' status as regulated monopoly providers may give them an undue competitive advantage in, or otherwise distort, competitive emerging energy-related markets (either existing or new), and that our cost allocation rules would not adequately deal with this.
22. The cost allocation IM is intended to ensure that consumers of regulated services benefit over time from any efficiency gains achieved by EDBs supplying regulated and unregulated services together. We consider the cost allocation IM is largely fit for purpose except that we have decided to remove the avoidable cost allocation methodology (**ACAM**) as a stand-alone option from the cost allocation IM for EDBs and GPBs. The potential benefits from sharing efficiency gains are just as relevant for any regulated and unregulated service. Therefore, our decision to remove ACAM applies to all regulated EDBs and GPBs, and makes no distinction in respect of certain types of unregulated services.⁷

⁷ Under the cost allocation IMs for airports and Transpower, ACAM is not an available option.

23. This decision will ensure that consumers are not permanently precluded from sharing in efficiency gains from suppliers providing regulated and unregulated services together, consistent with s 52A(1)(b) and (c). We consider the additional benefits to consumers, from sharing in those efficiency gains over the long term, are likely to exceed any one-off or short-term costs incurred by suppliers in changing from ACAM to the other cost allocation options of:
- 23.1 the accounting-based allocation approach (**ABAA**); or
 - 23.2 the optional variation to the accounting-based allocation approach (**OVABAA**).
24. The legislation requires us to ensure that our cost allocation rules do not unduly deter investment by EDBs in unregulated markets. We note that matters of industry structure raised by some stakeholders and the Electricity Authority may be more appropriately handled by policy makers than through adjustments to the IMs.

Overview of key findings relating to cost of capital

25. We have reviewed our cost of capital IM and consider it remains broadly fit for purpose. Our review included:
- 25.1 reviewing key parameter estimates such as the tax-adjusted market risk premium (**TAMRP**);
 - 25.2 updating our estimates of beta and leverage to reflect more up-to-date information of the observed beta and leverage for comparable companies;
 - 25.3 considering whether any adjustment to beta is required in light of our changes to the form of control for EDBs (see paragraphs 40 to 42 below);
 - 25.4 re-examining the case for a trailing average cost of debt in response to the substantive stakeholder submissions on this;
 - 25.5 examining a proposal by Major Electricity Users' Group (**MEUG**) for a cross-check with the Black's Simple Discounting Rule (**BSDR**); and
 - 25.6 examining the issues raised by the High Court (ie, alternative models, split cost of capital, and the term credit spread differential (**TCSD**)).⁸
26. We have adopted an asset beta of 0.35 for EDBs and Transpower, and 0.40 for GPBs.
27. These asset beta estimates have been updated using more recent data. We estimate that the average unadjusted asset beta for the electricity and gas businesses is 0.35 (a 0.01 increase from our 2010 estimate, reflecting updated comparator sample analysis, including corrections since the draft decision). This estimate is based on a sample of 71 overseas electricity and gas companies and Vector.

⁸ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289.

28. We have also reviewed the uplift to asset beta that we apply for GPBs, given questions raised as to its appropriateness. We consider that based on the available evidence, reducing the uplift from 0.10 to 0.05 would improve our asset beta and WACC estimates for gas businesses, better promoting the long-term benefit of consumers.
29. We already recognise the possibility of estimation error through our estimate of the standard error of the WACC, and use of the 67th percentile when setting price-quality paths. We consider that also applying a 0.10 uplift to the asset beta for GPBs largely based on precedent, without other robust supporting evidence, would be likely to over-compensate suppliers of gas pipeline services.
30. We considered the following evidence in reaching our decision to reduce the asset beta uplift for GPBs. We consider that, individually, these factors are insufficient to support an uplift, but when combined justify an upwards adjustment of 0.05 (but not the 0.10 we applied previously).
- 30.1 Gas has a higher income elasticity of demand than electricity. Although higher income elasticity of demand typically is expected to lead to a higher asset beta, we consider that regulation is likely to dampen this effect. We also consider that there is no robust evidence regarding the materiality of differences in income elasticity on asset beta.
- 30.2 Gas penetration is relatively low in New Zealand compared to other countries included in our comparator sample. This potentially increases the exposure of GPBs to systematic risk associated with economic network stranding (relative to EDBs/Transpower), and suggests that greater growth options will exist (although the value of these growth options will be significantly limited by regulation).
31. We also note that analysis of the comparator sample data supports a gas asset beta uplift over the most recent ten years (2006-2016), but not for the previous ten years (1996-2006).
32. In our view, there is no robust empirical evidence to support making an adjustment to the asset beta based on the form of control. Although, in principle, regulatory differences could potentially have an effect on asset beta, we consider there is insufficient evidence to make an adjustment.
33. Our asset beta estimate for airports remains at 0.60.⁹ This reflects the continued application of a 0.05 downwards adjustment to the average asset beta of the comparator sample to reflect the lower risk of the regulated airport activities.

⁹ Our draft decision was to adopt an asset beta of 0.58 for airports.

34. We have also introduced an historic averaging approach for the debt premium. The risk-free rate will continue to be estimated using the prevailing rate, but will now use a three-month determination window. However, the debt premium will be estimated using a five-year historical average.
35. Other changes to the cost of capital IM include:
- 35.1 removing the separate WACC for CPPs so we do not disincentivise CPPs where they are in the long-term benefit of consumers;
 - 35.2 making minor changes to some aspects of the cost of debt, including simplifying the TCSD, to reduce complexity in light of experience and new information;
 - 35.3 amending estimates of leverage slightly, taking into consideration changes in leverage for comparable companies; and
 - 35.4 reducing the allowance for debt issuance costs within the cost of debt from 0.35% to 0.20%.
36. We also considered proposals regarding the use of a trailing average cost of debt, split cost of capital and BSDR, but have not made any changes in response, other than moving to a five-year historic average for the debt premium.
- 36.1 The High Court (in its judgment on the merits appeal of the original IMs) outlined that it expected us to consider a split cost of capital approach, whereby a higher WACC is applied to new investment, given its scepticism about the original IMs using a WACC substantially higher than the mid-point (ie, the 75th percentile). Submissions on the split cost of capital approach have not changed our view that there is unlikely to be any long-term benefit to consumers from introducing a split cost of capital.
 - 36.2 We consider that BSDR is an intuitively appealing way of assessing the appropriate rate of return for a regulated business. However, there are a number of challenges that would need to be overcome before we could use it to provide material benefits in our regulatory regime. As a result, we will not use BSDR as a cross-check on the WACC until some of the identified issues have been resolved.

37. We also undertook reasonableness checks, to test whether the revised IMs will produce commercially realistic estimates of the cost of capital. Based on the analysis we have undertaken, we consider that our WACC estimates based on the amended cost of capital IMs are reasonable.¹⁰ In particular:
- 37.1 Our 67th percentile post-tax WACC estimate for EDBs and Transpower of 5.37% is within the range of independent post-tax WACC estimates for regulated energy businesses in New Zealand. This is similar to regulatory WACC estimates from Australia and above regulatory WACC estimates from the UK (after normalising for differences in risk-free rates).¹¹
- 37.2 Although limited evidence is available to test the reasonableness of our 67th percentile post-tax WACC estimate for GPBs of 5.76%, the observed RAB multiples for the recent sales of Vector and Maui's gas businesses to First State Funds suggest that the current regulatory settings are more than sufficient to compensate investors for putting their capital at risk (even after allowing for the expected impact of reducing the asset beta for GPBs).
- 37.3 Our mid-point post-tax WACC for airports of 6.29% is within the range of alternative New Zealand sourced post-tax WACC estimates for airports, and within the range of overseas WACC estimates from the UK and Ireland (after normalising for differences in risk-free rates).

Overview of key findings for electricity line services

Our key findings for EDBs

38. We have made a number of improvements to the way we set default price-quality paths (**DPPs**), we have expanded the range of circumstances in which we can reopen price-quality paths, and we have reduced the cost and complexity of the CPP process. These changes are intended to ensure that the DPP/CPP regime as a whole for EDBs delivers greater long-term benefits to consumers.
39. For EDBs, we have made changes to the detailed CPP proposal requirements in the IMs to reduce complexity and compliance costs and improve effectiveness, such as:
- 39.1 removing the separate WACC for CPPs so we do not disincentivise CPPs where they are in the long-term benefit of consumers, as mentioned above;
- 39.2 removing the quality-only CPP and instead providing for a quality reopener in the DPP;

¹⁰ Our WACC estimates referred to in this paragraph were calculated using a risk-free rate of 2.60%, estimated as at 1 April 2016.

¹¹ Our reasonableness checks analysis focusses on the 67th percentile WACC estimates for EDBs, Transpower and GPBs, given that this is the percentile used for price-quality path regulation of these businesses. However, we note that our mid-point post-tax WACC estimates of 4.92% and 5.30% respectively, are also within the range of comparative information considered.

- 39.3 introducing greater flexibility in the CPP information and verifier requirements (eg, provision for the verifier to select the number of projects it is required to assess);
 - 39.4 better aligning information requirements for a CPP to information already disclosed under ID;
 - 39.5 clarifying expectations around consumer consultation (eg, require CPP applicants to notify consumers of the price and quality impact of key alternative investment options in their CPP proposal); and
 - 39.6 clarifying the role and purpose of the verifier.
40. The next price-quality path that we set for EDBs will be regulated under a 'pure' revenue cap (a revenue cap that does not use lagged quantities) rather than a weighted average price cap (**WAPC**). This will remove:
- 40.1 the quantity forecasting risk, which may create disincentives to efficient expenditure;
 - 40.2 potential disincentives on EDBs to shift to more efficient pricing, resulting from the current WAPC and associated compliance requirements; and
 - 40.3 potential disincentives on EDBs to pursue energy efficiency and demand-side management initiatives.¹²
41. Both we and the Electricity Authority consider that there are significant long-term benefits to consumers from reforming the pricing of the services that EDBs deliver. Given the Electricity Authority's responsibility for EDB pricing, the IMs do not contain specific requirements relating to pricing.
42. However, our change to the form of control for EDBs was adopted partly because we consider this may remove a potential barrier to EDBs reforming their tariffs.
43. There were other areas where, having considered proposals suggested by stakeholders or raised in our emerging views papers, we have decided against making a change, such as:
- 43.1 introducing a DPP reopener for constant price revenue growth (**CPRG**), where the supplier is on a WAPC;
 - 43.2 introducing a DPP reopener for contingent projects, or other adjustments to a supplier's capital expenditure (**capex**) forecasts (we consider a CPP remains appropriate for significant increases in capex above previous levels);

¹² For this reason we consider that moving EDBs from a weighted average price cap to a revenue cap will help to better promote s 54Q of the Act.

- 43.3 allowing expenditure, above what is allowed for in a DPP, incurred prior to the submission of a CPP to be recovered; and
- 43.4 amending the quality-standard or change event reopeners to apply in the current regulatory period, which would allow us to reopen the DPP for all EDBs to account for changes to the industry's health and safety policy.¹³

Our key findings for Transpower

- 44. We have not made significant changes to the IMs for Transpower.¹⁴
- 45. In our draft decision we suggested the possible introduction of a mechanism to protect Transpower and its consumers from inflation risk. However, following further consideration and submissions from stakeholders, we consider that the benefits are not sufficiently large to justify the costs of introducing this type of mechanism.

Overview of key findings for gas pipeline services

- 46. One factor influencing our decision to undertake the current statutory review of the IMs at this time was to allow any IM changes to be implemented as part of the 2017 gas DPP reset. Accordingly, the processes of reviewing the IMs and resetting the DPPs for GPBs have been running in parallel. In February 2017, we expect to publish our draft decisions on the 2017 gas DPP reset which will take into account these IM review decisions.
- 47. We have adopted a 'pure' revenue cap for gas transmission businesses (**GTBs**), which will adjust for previous under- or over- recovery of revenue. We consider that changing from a lagged revenue cap to a pure revenue cap will:
 - 47.1 avoid any windfall gains and losses due to the lagging mechanism; and
 - 47.2 remove compliance barriers for GTBs to offer more innovative tariffs, and in particular it should allow for capacity auction-based pricing to be more readily introduced.
- 48. We have maintained the WAPC for gas distribution businesses (**GDBs**). Our reasons for maintaining a WAPC for GDBs while moving EDBs to a revenue cap are:
 - 48.1 the WAPC provides incentives for GDBs to pursue new gas connections and we consider this to be a more important factor for GDBs than EDBs;
 - 48.2 unlike for EDBs, we do not have significant concerns about continuing to use CPRG forecasting for GDBs; and

¹³ We consider that s 53ZB of the Act prevents any amendments made to re-opener provisions from taking effect during the current regulatory period.

¹⁴ As noted above, our review of the Transpower IRIS IM is ongoing and the Transpower Capex IM is outside the scope of the current IM review. We expect to reach a draft decision on whether changes to the Transpower IRIS IM are required in Q1 2017, and a final decision in Q2: Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

- 48.3 unlike for EDBs, we do not consider the WAPC creates the same level of concern about tariff restructuring or efficient pricing for GDBs (eg, GDBs have the ability to store gas through the line pack of distribution networks, meaning that introducing peak charging signals is less valuable for gas than for electricity. We also consider that it is unlikely that GDBs might restructure tariffs to the same extent that EDBs may want to).
49. Regarding the CPP requirements for gas, we have made some changes to improve the roles of the independent verifier and auditor, and to clarify our consumer consultation expectations.¹⁵ However, as noted above, we have not yet completed our review of the CPP information requirements for GPBs. While we consider that there are areas of the CPP information requirements for GPBs that could be improved, at this stage we consider that we will be in a better position to determine specific amendments after we have set the DPP for gas pipeline services by 31 May 2017.
50. We continue to consider that a CPP is the appropriate tool for addressing major, one-off, capital investments, such as that proposed for the realignment of the transmission network at White Cliffs.
51. We have decided not to implement an IRIS for opex or capex for GTBs or GDBs under a DPP, and we have removed the existing opex IRIS applying to CPPs in relation to GPBs. We consider that the benefits from implementing a capex and opex IRIS for gas pipeline services are unlikely to outweigh the costs at this time.

Overview of key findings for regulated airports

52. We have made a number of changes to the disclosure requirements and associated IMs for airports that will improve the transparency and timeliness of the information disclosed about airport charging.
53. These changes will apply for the next airport price setting events, which will be in 2017 for Auckland and Christchurch Airports and 2019 for Wellington Airport.
54. We have made changes to disclosure requirements and associated IMs to help improve stakeholder understanding of the profitability being targeted by major international airports at periodic price setting events.
55. When airports release information following a price setting event, we now require that they disclose a forward-looking profitability indicator (for the regulated assets, and for the pricing asset base). We have set a number of requirements to operationalise this decision.

¹⁵ These changes were made because these aspects of the CPP process are equally applicable to EDBs and GPBs.

56. The disclosure of an airport's pricing intentions in the manner we have specified reveals the airport's target profitability which was not previously made clear. It will also expedite our own analysis of disclosed information. Requiring airports to disclose such an indicator may influence them to set prices that do not target excessive profits.
57. We have also made changes to provide airports greater flexibility to disclose information in a way that best reflects their pricing approach. This includes:
- 57.1 allowing airports to disclose land revaluation information on the basis of an un-indexed approach, which is Auckland Airport's current approach; and
 - 57.2 allowing airports to apply either a CPI-indexation or an un-indexed approach to parts of the asset base separately.
58. We now require that airports disclose additional information to facilitate stakeholder understanding. For example, we require airports to disclose additional information:
- 58.1 when they adopt a non-standard approach to depreciation (eg, as happened when Christchurch Airport changed its depreciation to reflect the forecast utilisation of existing assets in its proposed depreciation profile); and
 - 58.2 explaining how any revaluation gains/losses will be treated in the next pricing period.
59. We will no longer publish the 25th and 75th percentile of our WACC estimate. Instead we will publish our mid-point estimate of WACC along with an estimate of the standard error.
60. Airports are free to set their own WACC and target return. However, we now require them to explain why their target return differs from their WACC estimate, and to explain and provide evidence why their WACC estimate should differ from our WACC estimate to the extent it does.
61. We have also decided to adopt a pragmatic approach to establishing regulatory values for land as at 2010 (as required by the High Court) through interpolation of previously disclosed values. In order to reduce complexity and compliance costs, we allow airports to set the initial RAB value of land using a pragmatic proxy of land as at 2010 by interpolating existing 2009 and 2011 market value alternative use (**MVAU**) land valuations.
62. These changes, in combination with amendments we have made to the Airports ID Determination, are intended to:
- 62.1 ensure stakeholders have access to the information they require about the airport's target returns; and
 - 62.2 increase the likelihood that airports will provide additional information to assess whether those target returns are acceptable.

Our decisions package

63. Our decisions package comprises a number of papers, which are listed in the associated documents page at the beginning of this paper.
64. This paper provides a summary of our key findings. Alongside this paper, we have also published the papers listed below.
- 64.1 An introduction and process paper, which describes the IM review process and explains the structure of the package of decisions papers.
 - 64.2 A framework paper, which describes the decision-making framework and key economic principles we applied in reaching our decisions.
 - 64.3 Six topic papers which, for each of the key topics for the review,¹⁶ explain the problems we have identified and our solutions for addressing those problems. Each topic paper begins with an executive summary, which includes a table summarising the changes in that topic area.
 - 64.4 The Report on the IM review, which records our decisions on whether and how to change the IMs as a result of the IM review, and explains when the IM changes come into effect. Our IM review decisions, as presented in the Report on the IM review, reflect both our findings in the key topic areas and the findings of our wider effectiveness review of the IMs.¹⁷
 - 64.5 IM (and airports ID) amendment determinations, which give effect to our decisions on the IM review.

¹⁶ Except for the related party transactions topic; as noted at paragraph 10, our review of the related party transactions provisions is ongoing.

¹⁷ Our effectiveness review is explained in the Introduction and process paper.



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20 December 2016	978-1-869455-45-3	Input methodologies review decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower
20 December 2016	978-1-869455-46-0	Input methodologies review decisions: Topic paper 2 – CPP requirements
20 December 2016	978-1-869455-47-7	Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector
20 December 2016	978-1-869455-48-4	Input methodologies review decisions: Topic paper 4 – Cost of capital issues
20 December 2016	978-1-869455-49-1	Input methodologies review decisions: Topic paper 5 – Airports profitability assessment
20 December 2016	978-1-869455-50-7	Input methodologies review decisions: Topic paper 6 – WACC percentile for airports
20 December 2016	978-1-869455-51-4	Input methodologies review decisions: Report on the IM review
20 December 2016	1178-2560	<i>Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24</i>
20 December 2016	1178-2560	<i>Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25</i>
20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26</i>
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27</i>
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28</i>
20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29</i>

Commerce Commission
Wellington, New Zealand

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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to:
- X1.1 describe the process we have followed in reaching our decisions on the input methodologies review (**IM review**);
 - X1.2 explain the package of papers we have released to communicate our decisions on the IM review; and
 - X1.3 provide an update on the next steps for those areas where we have not yet reached decisions.

What are input methodologies?

- X2. Input methodologies (**IMs**) are the upfront rules, processes and requirements of Part 4 regulation. Their purpose is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation of the supplier under Part 4. IMs apply to all suppliers of electricity distribution services, gas pipeline services, specified airport services and Transpower.
- X3. We determined the original IMs on 22 December 2010.¹ In 2012, following judicial review proceedings, we re-determined the IMs to extend our IM decisions on cost allocation, asset valuation and the treatment of taxation to also apply to default price-quality paths (**DPPs**).² In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.³ Some of these IMs have also been subject to amendment pursuant to s 52X of the Commerce Act 1986 (the **Act**).

What is the IM review?

- X4. The Act requires us to review all IMs no later than 7 years after their publication.⁴
- X5. We commenced the current review of all IMs (except the Transpower Capex IM) on 10 June 2015 by issuing a notice of intention.⁵ We must review all IMs within the scope of the notice of intention. We may then amend, replace, decide to amend or replace the IMs at a later point, or make no changes to the IMs we have reviewed.

¹ The input methodologies for Transpower's capital expenditure proposals were determined on 31 January 2012 and published on 9 February 2012.

² See footnote 9.

³ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289; *Vector Ltd v Commerce Commission* [2012] NZCA 220.

⁴ Section 52Y of the Act.

⁵ Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015); subsequently amended by Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

- X6. The IM review is now complete for all areas within the scope of the notice of intention, except for the three areas where we have not yet reached decisions.⁶
- X7. The review will be complete when our final decisions are made on all IMs within the scope of the review.

Our process for reviewing the IMs

- X8. We adopted a tailored, fit-for-purpose approach to reviewing the IMs and reaching decisions. Our approach to the review involved two main components:
- X8.1 **Our effectiveness review** – a review of the effectiveness of all input methodologies subject to review.
- X8.2 **Our consultation on the key topics for the review** – where stakeholders or our internal review suggested there were particular problems that we might be able to address in the IM review, we engaged with stakeholders and experts to review and test potential solutions to these problems. This consultation was largely organised around key topics for the review.
- X9. Our decisions on whether and how to change the IMs have drawn on both of these components.

Our package of decisions papers

- X10. Our decisions package comprises a number of papers, which are listed in Table 1 on page 16. There are broadly four elements to the package of decisions papers:
- X10.1 the overarching papers; being the summary paper, this introduction and process paper, and the framework paper;
- X10.2 topic papers, which, for each of the key topics for the IM review,⁷ explain the problems we have identified and our solutions for addressing those problems;
- X10.3 the Report on the IM review, which presents our decisions on whether and how to change the IMs as a result of the IM review; and
- X10.4 the amendment determinations that give effect to our decisions.

⁶ These are the Transpower IRIS, the CPP information requirements for gas, and the related party transactions provisions.

⁷ Except for the related party transactions topic; as noted at paragraph 23, our review of the related party transactions provisions is ongoing.

Next steps for areas where we have not yet reached decisions

X11. Our current decisions package presents decisions on all IMs within the scope of the review except for three areas where we have not yet reached decisions. An overview of the anticipated process for reaching our decisions on these areas is set out in Table X1.

Table X1: Anticipated process steps for areas where we have not yet reached decisions

Step	Date
Related party transactions – Emerging views paper	February 2017
Transpower IRIS – Draft decision	Q1 2017
Related party transactions – Draft decision	Q2 2017
Transpower IRIS – Final decision	Q2 2017
CPP information requirements for gas pipeline businesses – Draft decision	Q3 2017
Related party transactions – Final decision	Q4 2017
CPP information requirements for gas pipeline businesses – Final decision	Q4 2017

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to:
 - 1.1 describe the process we have followed in reaching our decisions on the input methodologies review (**IM review**);
 - 1.2 explain the package of papers we have released to communicate our decisions on the IM review; and
 - 1.3 provide an update on the next steps for those areas where we have not yet reached decisions.

Where this paper fits in to our package of decisions papers

2. This paper provides an introduction to our package of decisions papers. It explains the structure of the package of decisions papers and how they fit together.
3. To help readers identify which papers might of be most interest to them, it includes a table (Table 1) describing which sectors each paper applies to.

Structure of this paper

4. Chapter 2 provides some essential background to the IM review, including an introduction to what the input methodologies (**IMs**) are and what the IM review is.
5. Chapter 3 explains the process that we have followed in reaching decisions on the IM review.
6. Chapter 4 explains the package of decisions papers, how to navigate them, and which papers are likely to be of interest to which sectors.
7. Chapter 5 provides an update on the next steps for those areas where we have not yet reached decisions.
8. Attachment A lists the key steps in the IM review process to date.
9. Attachment B lists all IM determinations and their accompanying reasons papers.

Chapter 2: Background to the IM review

Purpose of this chapter

10. This chapter provides some background to the IM review, including explaining:
 - 10.1 what the IMs are; and
 - 10.2 what the IM review is.

What are input methodologies?

11. IMs are the upfront rules, processes and requirements of Part 4 regulation. Their purpose is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation of the supplier under Part 4.
12. We determined the original IMs required by s 52T(1) on 22 December 2010.⁸ In 2012, following judicial review proceedings, we re-determined the IMs to extend our IM decisions on cost allocation, asset valuation and the treatment of taxation to also apply to default price-quality paths (DPPs).⁹ In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.¹⁰ Some of these IMs have also been subject to amendment pursuant to s 52X.
13. IMs apply to:
 - 13.1 all suppliers of electricity lines services, gas pipeline services and specified airport services subject to information disclosure regulation; and
 - 13.2 all suppliers of gas pipeline services, 17 suppliers of electricity distribution services and Transpower New Zealand (**Transpower**) subject to price-quality regulation.
14. A list of all IM determinations and their accompanying reasons papers can be found at Attachment B.

⁸ We also determined an IRIS IM not required by s 52T for EDBs, GPBs and Transpower. The input methodologies for Transpower's capital expenditure proposals were determined on 31 January 2012 under s 54S of the Act and published on 9 February 2012.

⁹ Originally, our IM decisions for these matters were only specified as applicable to customised price-quality path proposals, and to information disclosure regulation. We extended the application of those IM decisions to apply to DPPs by taking the existing IMs as a starting point and simplifying the components where necessary. See: Commerce Commission "Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper" (28 September 2012), available at: <http://www.comcom.govt.nz/dmsdocument/9506>.

¹⁰ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289; *Vector Ltd v Commerce Commission* [2012] NZCA 220.

Introduction to the IM review

15. Section 52Y(1) of the Act requires us to review each IM no later than 7 years after its date of publication. It is open to us to conduct the review earlier within the seven year timeframe (as long as it is completed for each IM no later than 7 years after publication).
16. We are not obliged to review all IM determinations at the same time. Nevertheless, we were alert to the general desirability of taking a cross-sectoral approach when determining which IMs should be reviewed at this time, and in conducting the review.
17. We decided to begin the IM review of all IMs except Transpower's Capex IM in June 2015, with an indicative end date of December 2016, on the basis that:
 - 17.1 A final decision for the reset of the default price-quality paths for gas pipeline businesses (**GPBs**) is due by 31 May 2017. Completing the IM review in December 2016 allows any resultant change to the IMs to be applied before the 2017 reset of the DPP for GPBs. If the review was not completed until after the reset, any updated input methodologies would not be given effect to in the default price-quality paths for gas pipeline businesses until the following reset in 2022.
 - 17.2 Resets of the price-quality paths applying to 17 electricity distribution businesses (**EDBs**) and Transpower must be determined by 30 November 2019. Completing the IM review in December 2016 provides increased certainty for electricity distributors and Transpower on the input methodologies that will apply to the resets.
 - 17.3 Price setting events by Auckland and Christchurch airports are expected to occur in July 2017. The next Wellington Airport price setting event is due in April 2019. Completing the IM review in December 2016 allowed us to address issues with the IMs identified in the s 56G reports, and, in particular, to consider the appropriate weighted average cost of capital (**WACC**) estimates to publish for airports, prior to the next price setting events.
18. Although we considered incorporating the Transpower Capex IM in the review, ultimately we considered it appropriate to defer the review of the Capex IM. The Transpower Capex IM was originally determined in January 2012, separately from the other IMs, has recently been amended, and does not substantially drive decisions in relation to the other IMs. We expect to provide an update on the timing for commencing our review of the Transpower Capex IM in Q2 2017.

19. The IMs within the scope of the IM review are therefore (in each case including all subsequent amendments, including the fast track amendments already made as part of the IM review):¹¹
- 19.1 *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010);
 - 19.2 *Transpower Input Methodologies Determination 2012* [2012] NZCC 17;
 - 19.3 *Gas Distribution Services Input Methodologies Determination 2012* [2012] NZCC 27;
 - 19.4 *Gas Transmission Services Input Methodologies Determination 2012* [2012] NZCC 28; and
 - 19.5 *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26.
20. Once we decide to conduct an IM review, the process in s 52V of the Act applies to the review. Accordingly, on 10 June 2015, as required under s 52V(1), we issued a notice of intention to commence the review of all IMs, except the Transpower Capex IM, under s 52Y.¹²
21. We must review all IMs within the scope of the notice of intention.¹³
22. The review will be complete when our final decisions are made on all IMs within the scope of the review. Our decision on an IM in the review may include a decision to amend it as part of the IM review; to not amend it as part of the review; or to not amend it as part of the review and instead:
- 22.1 consider whether to change the IM at a later date (under s 52X or at the next s 52Y review);
 - 22.2 undertake a separate process involving our summary and analysis or compliance function;
 - 22.3 change s 52P determinations;
 - 22.4 publish guidance; or

¹¹ Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015); subsequently amended by Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

¹² Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015); subsequently amended by Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

¹³ Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015); subsequently amended by Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

22.5 a combination of the above.

23. The IM review is now complete for all areas within the scope of the notice of intention, except for three areas where we have not yet reached decisions:

23.1 the Transpower Incremental Rolling Incentive Scheme (**IRIS**) IM;

23.2 the IMs relating to customised price-quality path (**CPP**) information requirements for gas; and

23.3 related party transactions provisions.

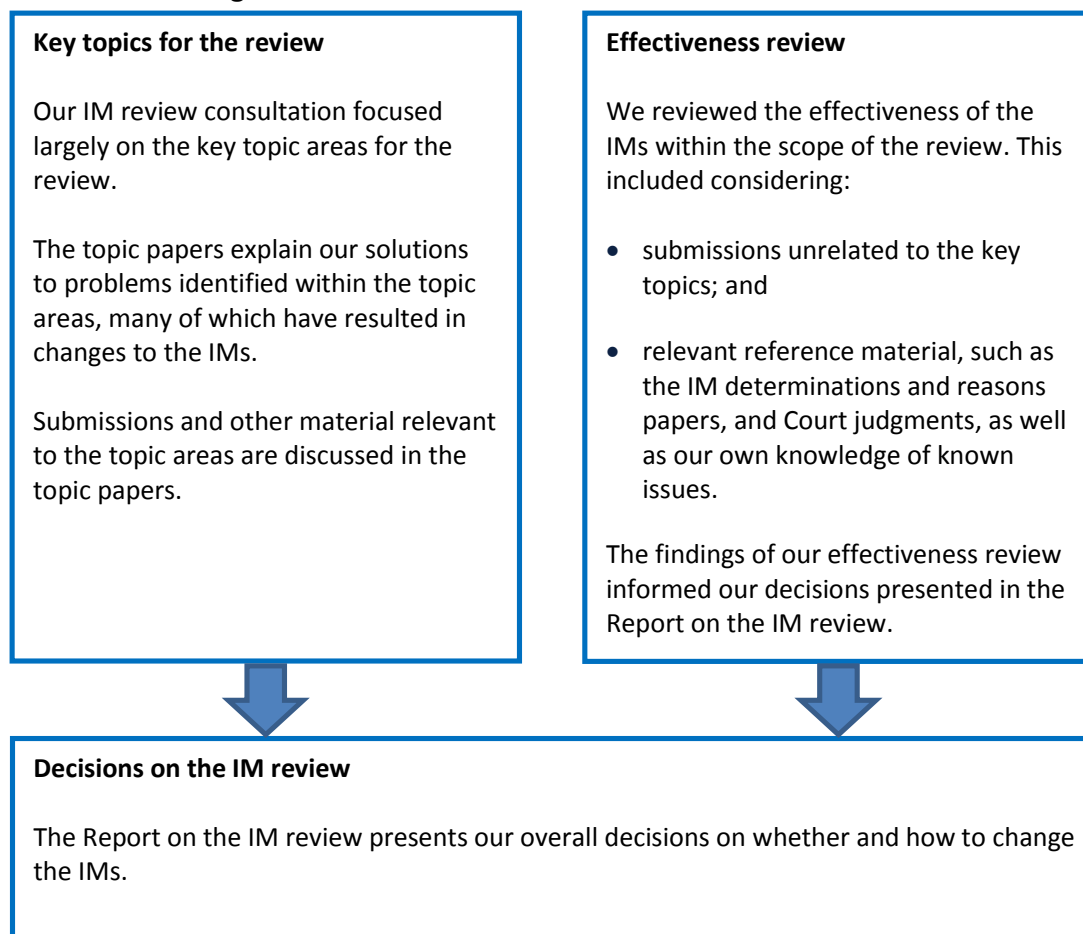
Chapter 3: The IM review process

Purpose of this chapter

24. The purpose of this chapter is to explain the process that we followed in reaching decisions on the IM review.
25. A table summarising the key steps in the IM review process is provided at Attachment A.

The process we followed in reaching decisions on the IM review

26. Today we published our decisions on the IM review. We have reached decisions on whether and how to change all existing IMs within the scope of the review, except for those areas noted at paragraph 23.
27. We adopted a tailored, fit-for-purpose approach to reviewing the IMs and reaching decisions. We have reviewed the IMs for effectiveness, while drilling down into a number of specific topics that were identified by us and stakeholders as potentially containing problems that could be addressed by changing the IMs.
28. Our approach to the review involved two main components:
 - 28.1 **Our effectiveness review** – a review of the effectiveness of all input methodologies subject to review.
 - 28.2 **Our consultation on the key topics for the review** – where stakeholders or our internal review suggested there were particular problems that we might be able to address in the IM review, we engaged with stakeholders and experts to review and test potential solutions to these problems. This consultation was largely organised around key topics for the review.
29. As illustrated by Figure 1, our decisions on whether and how to change the IMs have drawn on both of these components of the IM review.

Figure 1: The sources of our decisions on the IM review

30. We describe each of the two main components of the review below.

Our effectiveness review of the IMs

31. We reviewed the IMs for effectiveness based on:

31.1 stakeholder submissions on the IM review; and

31.2 relevant reference material, such as the IM determinations and reasons papers, and Court judgments, as well as our own knowledge of known issues.

32. The framework paper discusses the types of questions we considered when reviewing the IMs.¹⁴

¹⁴ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

33. Where the results of our effectiveness review related to one of the key topic areas for the review, we considered them in that context. Our effectiveness review also led us to make a number of minor changes that are generally outside the scope of the key topics for the review. The bulk of the changes are to clarify the IMs, remove ambiguities, correct errors, or reduce unnecessary complexity and compliance costs.
34. As shown in Figure 1, the findings of our effectiveness review informed the decisions presented in the Report on the IM review.

Consultation on the key topics for the review

35. Our engagement with stakeholders was primarily issue driven (as opposed to IM driven), and organised according to a number of key topics for the review. The rationale for this approach was our desire to:
- 35.1 focus stakeholder efforts on the most significant problems that the review could address, and on which we needed the most input;
 - 35.2 develop solutions only in light of clearly defined problems, rather than considering potential solutions before clearly defining the problem those potential solutions might seek to address;
 - 35.3 only make changes to the IMs where doing so is likely to:
 - 35.3.1 promote the Part 4 purpose in s 52A more effectively;
 - 35.3.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 35.3.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
36. Before commencing the review, we consulted with stakeholders on what the key focus areas for the review should be, as well as the appropriate timing for the review.¹⁵ These key topic areas largely remained the same as we moved through the review, although the key topics and their scope were refined through the various consultation processes we held.
37. The key topics for the review were:
- 37.1 form of control and regulated asset base (**RAB**) indexation for EDBs, GPBs and Transpower;
 - 37.2 CPP requirements;

¹⁵ Commerce Commission "Open letter on our proposed scope, timing and focus for the review of input methodologies" (27 February 2015).

- 37.3 the future impact of emerging technologies in the energy sector;
 - 37.4 cost of capital issues;
 - 37.5 airports profitability assessment;
 - 37.6 WACC percentile for airports; and
 - 37.7 related party transactions.
38. Within the key topic areas, we sought to identify and define the specific problems that we could seek to address through the IM review. Our problem definitions were influenced by both our effectiveness review, and topic-focussed consultation with stakeholders.
39. Stakeholders also played an important role in shaping our solutions to the problems identified within the key topic areas. Our solutions to problems identified within the key topic areas are explained in the topic papers released today as part of our decisions package.
40. To the extent they involve changes to the IMs, our solutions to topic-based problems informed our decisions on whether and how to change the IMs.

Some issues were fast tracked as part of the IM review

41. A number of specific issues relating to airports and CPPs were progressed at a faster pace to the rest of the review. This occurred:
- 41.1 to ensure amendments to specific IMs for airports services, such as land valuation rules were available in time to be used for the 2017 airport price setting events; and
 - 41.2 to provide benefits for CPP applications that we anticipated receiving before the scheduled completion of the IM review in December 2016.¹⁶
42. We published our decision on the fast track CPP amendments on 12 November 2015,¹⁷ and the airports fast track amendments on 24 February 2016.¹⁸

¹⁶ In the event, Powerco decided to defer its intended CPP application beyond 2016. See: Commerce Commission "Input methodologies review process update paper: Second update on CPP fast track amendments" (9 October 2015). As a result, we deferred our decision on the alignment of the WACC for CPPs with the prevailing WACC for DPPs, which was originally part of the fast track, until today. See: Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital (20 December 2016).

¹⁷ *Electricity and Gas (Customised Paths) Input Methodology Amendments Determination 2015* [2015] NZCC 28.

¹⁸ *Airport Services (Land Valuation) Input Methodologies Amendments Determination 2016* [2016] NZCC 3.

43. Once made, these amendments were rolled back into, and considered as part of, the overall IM review.

The amendments determinations process

44. We published our draft decisions on the IM review on 16 and 22 June 2016 (**June draft decisions**), which included draft amended IM determinations.^{19, 20} We also published draft amendments to the airports information disclosure (**ID**) determination at that time under s 52Q of the Act.²¹
45. In October 2016 we consulted on changes we had made to our June draft determinations by publishing revised draft determinations.²² This consultation included:²³
- 45.1 drafting refinements to better give effect to our June draft decisions;
 - 45.2 new drafting to give effect to areas where our views had been updated;²⁴ and
 - 45.3 new drafting to give effect to timing and transition arrangements for the introduction of the amendments.

¹⁹ These are: Draft amendments to Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 (22 June 2016); Draft amendments to Gas Distribution Services Input Methodologies Determination 2012 [2012] NZCC 27 (22 June 2016); Draft amendments to Gas Transmission Services Input Methodologies Determination 2012 [2012] NZCC 28 (22 June 2016); Draft amendments to Commerce Act (Specified Airport Services Input Methodologies) Determination 2010 (Decision 709, 22 December 2010) (22 June 2016); Draft amendments to Transpower Input Methodologies Determination 2012 [2012] NZCC 17 (22 June 2016); Draft amendments to Commerce Act (Specified Airport Services Information Disclosure) Determination 2010 (Decision 715, 22 December 2010) (22 June 2016) (together, the **June draft determinations**).

²⁰ Following submissions on the June draft decisions, in September we published our updated draft decision on cost allocation for electricity distribution and gas pipeline businesses. See: Commerce Commission "Input methodologies review – Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (22 September 2016).

²¹ See footnote 19.

²² These are: [REVISED DRAFT] Electricity Distribution Services Input Methodologies Amendments Determination 2016 (13 October 2016); [REVISED DRAFT] Gas Distribution Services Input Methodologies Amendments Determination 2016 (13 October 2016); [REVISED DRAFT] Gas Transmission Services Input Methodologies Amendments Determination 2016 (13 October 2016); [REVISED DRAFT] Transpower Input Methodologies Amendments Determination 2016 (13 October 2016); [REVISED DRAFT] Airports (Specified Airport Services) Input Methodologies Amendments Determination 2016 (13 October 2016); [REVISED DRAFT] Commerce Act (Specified Airport Services) Information Disclosure Amendments Determination 2016 (13 October 2016) (together, the **revised draft determinations**).

²³ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016).

²⁴ In its submission to this consultation, Transpower noted that the consultation contained significant new policy proposals that interested parties had not previously had the opportunity to comment on. We do not share Transpower's concerns as one of the purposes of the technical consultation was to seek submissions on the areas where we had updated our views from the June draft decisions. See: Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 1.

46. Submissions received on the revised draft determinations have been considered and, where appropriate, incorporated in the amendments determinations published today.

The record for the IM review

47. We reviewed nearly all IMs at the same time out of recognition of the general desirability in taking a cross-sectoral approach, particularly in relation to topics such as cost of capital.²⁵
48. While the review involved a number of focussed topic areas (some of which were sector specific), we consider this to be consistent with a cross-sectoral approach to reviewing the IMs (by reviewing nearly all IMs at the same time and considering alignment issues where appropriate).
49. Any material on our website that is relevant to the IM review forms part of the record for the IM review.
50. The record therefore includes any material provided during Commission workshops or other engagements held in the course of the IM review, including any material that may cover matters wider than the IMs. For instance, the airports profitability topic concerned changes to both the IMs and the airports ID determination, and our consultation on the 2017 gas DPP reset also highlighted matters relevant to the IM review. We consider that this is appropriate because it was impractical to separate IM review material and material that may be wider than the IMs. It was also beneficial to engage on these topics with a wider view as it was a pragmatic approach to the process and allowed consideration of how the IMs are implemented in practice.
51. As previously indicated,²⁶ submissions or material provided in relation to the gas DPP reset that was also relevant to the IM review, and was received before we reached our final decisions on the IM review, also forms part of the record for the IM review.
52. In reaching our decisions on the IM review, we only took into account written, published material.²⁷ This includes:
- 52.1 published written submissions; and
 - 52.2 published transcripts and minutes from forums, workshops and other stakeholder meetings.

²⁵ Commerce Commission "Open letter on our proposed scope, timing and focus for the review of input methodologies" (27 February 2015), para 9.

²⁶ See, for example: Commerce Commission "Default price-quality paths for gas pipeline services from 1 October 2017: Process and issues paper" (29 February 2016), para 2.7.

²⁷ Except where information is explicitly identified as confidential.

Chapter 4: The package of decisions papers

Purpose of this chapter

53. The purpose of this chapter is to explain the package of papers we have released to communicate our decisions on the IM review.

Our package of decisions papers

54. Our decisions package comprises a number of papers, which are listed in Table 1. There are broadly four elements to the package of papers for our decisions:
- 54.1 the overarching papers, being the summary paper, this introduction and process paper, and the framework paper;
 - 54.2 topic papers, which, for each of the key topics for the review,²⁸ explain the problems we have identified and our solutions to address those problems;
 - 54.3 the Report on the IM review, which presents our decisions on whether and how to change the IMs as a result of the IM review; and
 - 54.4 the amendments to the IM (and airports ID) determinations.
55. Table 1 also indicates which papers apply to which sectors. We note that these papers might also be of interest to stakeholders other than those to whom they directly apply, as identified in the introduction of each topic paper.

Table 1: The package of decisions papers

Paper name	Applies to
Overarching papers	
Summary paper	All sectors
Introduction and process paper	All sectors
Framework for the IM review	All sectors

²⁸ Except for the related party transactions topic; as noted at paragraph 23, our review of the related party transactions provisions is ongoing.

Topic papers	
Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower	Applies to the following sectors: <ul style="list-style-type: none"> • Electricity distribution businesses • Gas transmission businesses • Gas distribution businesses • Transpower²⁹
Topic paper 2: CPP requirements	Applies to the following sectors: <ul style="list-style-type: none"> • Electricity distribution businesses • Gas transmission businesses • Gas distribution businesses
Topic paper 3: The future impact of emerging technologies in the energy sector	All of the solutions and changes to IMs described within this paper apply to electricity distribution businesses, and the changes to the cost allocation IM presented in Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) also apply to gas pipeline businesses
Topic paper 4: Cost of capital issues	All sectors
Topic paper 5: Airports profitability assessment	Airports
Topic paper 6: WACC percentile for airports	Airports
Report on the IM review	All sectors
IM amendments	
EDB IM amendment determination	Electricity distribution businesses
Transpower IM amendment determination	Transpower

²⁹ For Transpower, we only discuss RAB indexation, not the form of control.

GDB IM amendment determination	Gas distribution businesses
GTB IM amendment determination	Gas transmission businesses
Airports IM amendment determination	Airports
ID amendments for airports	
Airports ID amendment determination	Airports

How the decisions papers fit together

Summary paper

56. The summary paper sits across our decisions package, providing a summary of the key findings in our decisions.

Introduction and process paper

57. This paper:
- 57.1 describes the process we followed in reaching our decisions on the IM review;
 - 57.2 explains the package of papers we have released to communicate our decisions on the IM review; and
 - 57.3 provides an update on the next steps for those areas where we have not yet reached decisions.

Framework paper

58. The framework paper describes the decision-making framework and key economic principles we applied in reaching our decisions. This framework supports our solutions to problems identified in each of the key topic areas for the review, as well as our ultimate decisions on whether and how to change the IMs, which are recorded in the Report on the IM review.

Topic papers

59. We have published six topic papers, one for each of the key topics for the review.³⁰ These papers explain the problems we have identified within each topic area and our solutions for addressing them. In doing so, these papers:
- 59.1 explain how we arrived at the particular problems we identified in each topic area; and
 - 59.2 explain why we favoured our chosen solutions to these problems, as opposed to alternative solutions considered.
60. As our consultation on the IM review has been aligned with the key topics for the review, the topic papers provide the most comprehensive discussion of, and response to, submissions.

Report on the IM review

61. The Report on the IM review records our decisions on whether and how we have changed the IMs as a result of the IM review. Unlike the topic papers, which are structured by problems within topic areas, the Report on the IM review is structured by IM.
62. The Report on the IM review presents our IM review decisions against the pre-review IM decisions.³¹ We consider that this is easier to follow, and more useful, than presenting the results of the review on an IM determination, clause-by-clause basis. Presenting the results of the IM review in terms of the pre-review IM decisions allows us to illustrate where our IM review decisions involve changes to:
- 62.1 the policy intent of a pre-review IM decision; and/or
 - 62.2 the way a pre-review IM decision is implemented.
63. The Report on the IM review also explains the timing for when the IM changes we have made as a result of the IM review come into effect.

Amendment determinations

64. To give effect to our decisions, we have published IM (and airports ID) amendment determinations.³²

³⁰ Except for the related party transactions topic; as noted at paragraph 23, our review of the related party transactions provisions is ongoing.

³¹ As discussed in the Report on the IM review, we have derived the pre-review IM decisions from our previous IM reasons papers. The set of pre-review IM decisions were given effect through the IM determinations published prior to today.

³² For convenience, we have also published consolidated versions of the airports IM and ID determinations that incorporate today's amendment determinations. We will publish consolidated versions of the IM determinations for EDBs, GTBs and Transpower in Q1 2017.

Chapter 5: Next steps for areas where we have not yet reached decisions

Purpose of this chapter

65. The purpose of this chapter is to provide an update on the next steps for those areas of the IM review where we have not yet reached decisions.

Areas of the IMs where we have not yet reached decisions

66. Our current decisions package presents decisions on all IMs within the scope of the review except for:³³
- 66.1 the Transpower IRIS IM;
 - 66.2 the IMs relating to CPP information requirements for gas; and
 - 66.3 related party transactions provisions.
67. While these areas are still within the scope of the IM review, we have not yet reached decisions on them.
68. The anticipated process steps for these areas are summarised in Table 2.

Table 2: Anticipated process steps for areas where we have not yet reached decisions

Step	Date
Related party transactions – Emerging views paper	February 2017
Transpower IRIS – Draft decision	Q1 2017
Related party transactions – Draft decision	Q2 2017
Transpower IRIS – Final decision	Q2 2017
CPP information requirements for gas pipeline businesses – Draft decision	Q3 2017
Related party transactions – Final decision	Q4 2017
CPP information requirements for gas pipeline businesses – Final decision	Q4 2017

³³ All IMs are within the scope of the IM review, except for the Transpower Capex IM. See: Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

Related party transactions

69. In February 2017 we expect to publish an emerging views paper on the problem definition for our review of the related party transaction provisions. The paper will build on the related party transactions topic paper we published in June 2016.³⁴ It will present our emerging views on the problem definition based on further work we have undertaken since June 2016. It will also include a proposed outline of the next phases of our review in 2017. As previously advised, we will invite interested parties to submit on the paper.
70. To assess the workability of the related party transaction regime and see whether there is any broader problem that needs addressing in the IMs, we have been meeting with a sample of EDBs which have a variety of ownership and operating structures. We received a positive response from the industry. The meetings have helped us to better understand typical company structures and the variety of methods of valuation of related party transactions between entities in the electricity distribution sector. This better informed us of the potential issues faced by the industry in applying the current regime.
71. Our emerging views paper will seek public consultation on our emerging views on the workability of the current regime, where we will welcome formal input from all stakeholders, including the gas sector, on refining the problem definition and suggested solutions.
72. Following consultation on our emerging views paper, we expect to publish:
- 72.1 our draft decision in Q2 2017; and
 - 72.2 our final decision in Q4 2017.³⁵

Transpower IRIS

73. In respect of the Transpower IRIS IM, we expect to publish our:
- 73.1 draft decision in Q1 2017; and
 - 73.2 final decision in Q2 2017.

³⁴ Commerce Commission "Input methodologies review draft decisions: Topic paper 7 – Related party transactions" (16 June 2016).

³⁵ We are aiming to ensure that any IM or ID amendments are published with sufficient time for regulated suppliers to implement any system or process changes for 2018/19 disclosure year data, which may be used in the next EDB price-quality path reset.

CPP information requirements for gas pipeline business

74. In respect of the CPP information requirements for gas, we expect to publish our:

74.1 draft decision in Q3 2017; and

74.2 final decision in Q4 2017.

Attachment A: Key steps in the IM review process

75. The table below lists the key steps in the IM review process to date.

Table A1: Key steps in the IM review process

Date	Process step
27 February 2015	Published open letter on our proposed scope, timing and focus for the IM review
7 May 2015	Published IM review update email No. 1 – proposed timing and next steps for the IM review
3 June 2015	Published IM review update email No. 2 – dates for forum and update on notice of intention
10 June 2015	Published the notice of intention to commence the IM review, along with a covering letter
16 June 2015	Published invitation to contribute to problem definition for the IM review
3 July 2015	Published IM review process paper: Decision on whether to fast track certain amendments
22 July 2015	Published the discussion draft decision-making frameworks document for the IM review
27 July 2015	Published the programme for the IM review forum 29-30 July 2015
29–30 July 2015	Hosted IM review forum
7 August 2015	Published the transcript of the IM review forum 29-30 July 2015
7 September 2015	Published draft decision on limb 1 CPP fast track amendments
15 September 2015	Published draft agenda and workshop papers for the airports land valuation workshop 2 October 2015
18 September 2015	Published IM review process update email
18 September 2015	Published Dr Martin Lally’s paper on complications arising from the option to apply for a CPP
2 October 2015	Hosted airports fast track land valuation workshop
9 October 2015	Published CPP fast track process update paper on the decision to discontinue CPP limb 2

20 October 2015	Published summary of views and final agenda and workshop papers from the airport land valuation workshop
30 October 2015	Published IM review process update paper
6 November 2015	Published draft agenda for the first airports profitability assessment workshop
10 November 2015	Published draft decision for fast track review of IMs for the application of airport land valuation methodology – Mark-up of proposed amendments to Schedule A for airports fast track
10 November 2015	Published Ernst and Young’s supporting paper for amendments to Schedule A for airports fast track review of IMs
12 November 2015	Published final reasons paper for limb 1 of the CPP fast track
12 November 2015	Published the final CPP fast track amendments (<i>Electricity and Gas Customised Paths Input Methodologies Amendments Determination 2015</i> [2015] NZCC 28)
30 November 2015	Published update paper on the IM review of the cost of capital
30 November 2015	Published draft agenda for the emerging technology workshop
30 November 2015	Published pre-workshop paper for the emerging technology workshop
1 December 2015	Hosted first airports profitability assessment workshop
2 December 2015	Published our amended notice of intention
3 December 2015	Published agenda for gas pipeline stakeholder meeting
8 December 2015	Met with gas pipeline stakeholders
11 December 2015	Published CEPA’s regulatory practice paper on weighted average cost of capital
14 December 2015	Hosted emerging technology workshop
14 December 2015	Published Powerco’s presentation slides from the emerging technology workshop
16 December 2015	Emailed stakeholders to encourage those submitting evidence on the TAMRP for the IM review to consider and comment on the final decision on the TAMRP for the UBA/UCLL FPP, released on 15 December 2015
16 December 2015	Published final agenda for the emerging technology workshop

16 December 2015	Published Commission presentation slides from the emerging technology workshop
18 December 2015	Published final agenda for the first airports profitability assessment workshop
18 December 2015	Published final workshop papers for the first airports profitability assessment workshop
18 December 2015	Published summary of views for the first airports profitability assessment workshop
22 December 2015	Published Commission presentation slides from the meeting with gas pipeline stakeholders (held 8 December 15)
22 December 2015	Published summary of views from the meeting with gas pipeline stakeholders (held 8 December 15)
22 December 2015	Published consolidated list of all material released since October 2015 for the IM review
22 December 2015	Published terms of reference for Dr Lally's expert advice on cost of capital topics
22 December 2015	Published the transcript from the emerging technology workshop
1 February 2016	Published submissions received on the gas pipeline stakeholder meeting
3 February 2016	Published consolidated EDB IM Determination
3 February 2016	Published consolidated GDB IM Determination
3 February 2016	Published consolidated GTB IM Determination
11 February 2016	Published process update email and the submissions received on our cost of capital update paper
11 February 2016	Published submissions received on our cost of capital update paper
12 February 2016	Published consolidated Transpower IM Determination
19 February 2016	Published Professor George Yarrow's expert advice on airport WACC percentile, our emerging views, and the terms of reference for expert advice on cost of capital
24 February 2016	Published our final decision on the airports fast track amendments (<i>Airport Services (Land Valuation) Input Methodologies Amendments Determination 2016</i> [2016] NZCC 3)

24 February 2016	Published consolidated Airports IM Determination
25 February 2016	Published Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule
29 February 2016	Published our emerging views on opportunities to improve the way default and customised price-quality paths work together
29 February 2016	Published notification email on the process update paper and other documents published
29 February 2016	Published default price-quality paths for gas pipeline services from 1 October 2017 – Process and issues paper
29 February 2016	Published an IM review process update paper
29 February 2016	Published our emerging views on form of control
3 March 2016	Published Sue Begg's Downstream 2016 presentation, 'Regulation and the future impact of emerging technologies'
9 March 2016	Published an infographic giving an overview of the 29 February 2016 publications and key dates leading up to June 2016
10 March 2016	Hosted gas pipeline DPP reset 2017 question and answer session on process and issues paper
18 March 2016	Published the questions and answer session notes for gas pipeline DPP reset 2017 – Process and issues paper
30 March 2016	Notification email CPP workshop for EDBs – Pre-draft decision workshop on CPP information requirements and number of projects verifier must assess
30 March 2016	Published materials ahead of the pre-draft decision workshop for EDBs on CPP information requirements and number of projects verifier must assess – Overview of matters to be discussed at the workshop
30 March 2016	Published materials ahead of the pre-draft decision workshop for EDBs on CPP information requirements and number of projects verifier must assess – Electricity distribution services input methodology Determinations 2016 – Proposed Schedule D – Capital and operating expenditure information

30 March 2016	Published materials ahead of the pre-draft decision workshop for EDBs on CPP information requirements and number of projects verifier must assess – Electricity distribution services input methodology Determinations 2016 – CPP proposal – Capital and operating expenditure Templates – Tables 1-10
31 March 2016	Published comments received on IMs matter in the Gas DPP process and issues paper
19 April 2016	Hosted pre-draft decision workshop for EDBs on CPP information requirements and number of projects verifier must assess
19 April 2016	Published agenda, workshop papers and stylised examples for the second airports profitability workshop held 26 April 2016
21 April 2016	Emailed stakeholders advising that we have entering the drafting stage and will not be seeking further engagement until after the draft (other than planned workshops)
26 April 2016	Hosted second airports profitability workshop
10 May 2016	Published email confirming the mid-year publication dates for the IM review draft decision, related Determinations, due dates for submissions, and the Gas DPP paper
20 May 2016	Published notification email advising of date change for the release of Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP
25 May 2016	Published email notifying of the release of Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP
25 May 2016	Published Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP
7 June 2016	Published notification email inviting interested persons to attend the market analyst briefing following the release of our draft decisions
16 June 2016	Published our draft decisions package (excluding draft determinations and the Report on the IM review)
22 June 2016	Published the Report on the IM review
22 June 2016	Published our draft amended determinations (including draft amended information disclosure determination for airports)

28 June 2016	Published Gas DPP reset paper discussing implementation matters arising from proposed IM changes
7 September 2016	Held additional workshop on cost of capital
14 September 2016	Published a process update paper
22 September 2016	Published further targeted consultation paper on cost allocation for electricity and gas businesses
6 October 2016	Published transcript from 7 September 2016 cost of capital workshop
13 October 2016	Published a technical consultation package: revised draft determinations and a supporting technical consultation update paper
9 December 2016	Published early confirmation of our IM review risk-free rate decision for the cost of capital
20 December 2016	Published our final decisions package

Attachment B: List of all IM determinations and reasons papers

76. Table B1 lists the pre-review, consolidated versions of the IM determinations. These include all IM amendments made prior to 20 December 2016. As such, these consolidated versions represent the IMs that were the subject of the IM review (with the exception of the Transpower Capex IM Determination).
77. Tables B2–B7 list all IM determinations and reasons papers published by the Commission.³⁶ It also includes a brief description of each.

Table B1: List of pre-review consolidated IM determinations for all sectors

Sector	Current consolidated IM determination	Date published
Electricity distribution	<u>Electricity Distribution Services Input Methodology Determination 2012 [2012] NZCC 26 – consolidated as of 15 December 2015</u>	3 February 2016
Gas distribution	<u>Gas Distribution Services Input Methodology Determination 2012 [2012] NZCC 27 – consolidated as of 15 December 2015</u>	3 February 2016
Gas transmission	<u>Gas Transmission Services Input Methodology Determination 2012 [2012] NZCC 28 – consolidated as of 15 December 2015</u>	3 February 2016
Transpower	<u>Consolidated Transpower Input Methodologies Determination 2012 [2012] NZCC 17 – consolidated as at 12 February 2016</u>	12 February 2016
Transpower Capex	<u>Transpower Capital Expenditure Input Methodology Determination 2012 [2012] NZCC 2 – consolidated as at 5 February 2015</u>	5 February 2015
Airports	<u>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010, decision number 709 (22 December 2010) – consolidated as of 29 February 2016</u>	29 February 2016

³⁶ We have published various consolidated versions of the IMs as we have made IM amendments. Consolidated determinations are not actually determinations and so are not listed in Tables B2–B7.

Table B2: List of IM determinations and reasons papers published by the Commission in respect of electricity distributors

IM determination	Associated reasons paper	Brief description of determination
<u>Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010, decision number 710 (22 December 2010)</u>	<u>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</u>	Original IMs determination for EDBs.
<u>Electricity and Gas Input Methodologies Determination Amendments (No. 1) 2012 [2012] NZCC 18 (29 June 2012)</u>	<u>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</u>	This amendment provides regulated suppliers of gas distribution, gas transmission, and electricity distribution services with additional means for valuing assets of the regulated supplier obtained from a related party for the purposes of ID and CPP proposals.
<u>Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 (28 September 2012)</u>	<u>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons Papers (28 September 2012)</u>	Redetermination of the Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010 (Commerce Commission Decision 710, 22 December 2010), as required by the High Court in <i>Vector Limited v Commerce Commission</i> , HC WN CIV-2011-485-536 [26 September 2011], including all amendments made as of the date of this determination.
<u>Electricity and Gas Input Methodologies Determination Amendments (No. 2) 2012 [2012] NZCC 34 (15 November 2012)</u>	<u>Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012: Reasons paper (15 November 2012)</u>	Amendments relating to the assumptions of the timing of cash-flows used to determine CPPs for EDBs and GPBs.

<u>Electricity Lines Services Input Methodologies Determination Amendment 2014 [2014] NZCC 24 (26 September 2014)</u>	<u>Amendment to the WACC determination date for electricity lines services, including Transpower: Reasons paper (29 September 2014)</u>	<p>Amended the date by which we must determine the estimates of WACC for EDBs and Transpower.</p>
<u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for price-quality regulation) 2014 [2014] NZCC 27 (29 October 2014)</u>	<u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u>	<p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p>
<u>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</u>	<u>Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 (11 December 2013)</u>	<p>Amendments by the High Court following merits appeal.</p>
<u>Electricity Distribution Input Methodology Amendments Determination 2014 [2014] NZCC 31 (27 November 2014)</u>	<u>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</u>	<p>Amendments primarily relating to changes to the IMs for DPPs. However, they also include related amendments which affect the IMs for ID and CPPs.</p>
<u>Incremental Rolling Incentive Scheme Input Methodology Amendments Determination 2014 [2014] NZCC 32 (27 November 2014)</u>	<u>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (Reasons paper) (27 November 2014)</u>	<p>Amendments to the IRIS in the IMs for EDBs and Transpower New Zealand. The amendments will affect incentives to control expenditure under DPPs and IPPs.</p>

<p><u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for information disclosure regulation) 2014 [2014] NZCC 38 (11 December 2014)</u></p>	<p><u>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper (12 December 2014)</u></p>	<p>Sets out our decision not to amend the 25th to 75th percentile range for ID for electricity lines services and gas pipeline services. These percentile estimates of WACC will continue to be determined and published annually, along with the mid-point estimate (which is also currently published annually). In addition, we will annually determine and publish 67th percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p>
<p><u>Electricity and Gas (Customised Paths) Input Methodology Amendments Determination 2015 [2015] NZCC 28 (12 November 2015)</u></p>	<p><u>Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)</u></p>	<p>Amendments to the IMs for CPPs applying in respect of EDBs and GPBs to improve the cost-effectiveness of the preparation, assessment and determination of CPP applications.</p>
<p><u>Electricity Distribution Services (Incremental Rolling Incentive Scheme) Input Methodology Amendments Determination 2015 [2015] NZCC 32 (25 November 2015)</u></p>	<p><u>Further amendments to input methodologies for electricity distributors subject to price-quality regulation: Incremental Rolling Incentive Scheme (IRIS) (Reasons paper) (25 November 2015)</u></p>	<p>Amendments to the IMs affecting the incentives EDBs have to control expenditure when their prices are regulated.</p>
<p><u>Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24 (20 December 2016)</u></p>	<p><u>Input methodologies review decisions papers</u></p>	<p>Amendments to the IMs made as part of the 2016 IM review.</p>

Table B3: List of IM determinations and reasons papers published by the Commission in respect of gas distribution businesses

IM determination	Associated reasons paper	Brief description
<u>Commerce Act (Gas Distribution Services Input Methodologies) Determination 2010, decision number 711 (22 December 2010)</u>	<u>Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper (22 December 2010)</u>	Original IMs determination for GDBs.
<u>Electricity and Gas Input Methodologies Determination Amendments (No. 1) 2012 [2012] NZCC 18 (29 June 2012)</u>	<u>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</u>	This amendment provides regulated suppliers of gas distribution, gas transmission, and electricity distribution services with additional means for valuing assets of the regulated supplier obtained from a related party for the purposes of ID and CPP proposals.
<u>Gas Distribution Services Input Methodologies Determination 2012 [2012] NZCC 27 (28 September 2012)</u>	<u>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper (28 September 2012)</u>	Redetermination of the <i>Commerce Act (Gas Distribution Services Input Methodologies) Determination 2010</i> (Commerce Commission Decision 711, 22 December 2010), as required by the High Court in <i>Vector Limited v Commerce Commission</i> , HC WN CIV-2011-485-536 [26 September 2011], including all amendments made as of the date of this determination.
<u>Electricity and Gas Input Methodologies Determination Amendments (No. 2) 2012 [2012] NZCC 34 (15 November 2012)</u>	<u>Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012: Reasons Paper (15 November 2012)</u>	Amendments relating to the assumptions of the timing of cash-flows used to determine CPPs for EDBs and GPBs.

<p><u>Gas Pipeline Services Input Methodologies Determination Amendment (No. 1) 2013 [2013] NZCC 3 (25 February 2013)</u></p>	<p><u>Amendments to input methodologies for gas distribution and transmission services: Reasons paper (26 February 2013)</u></p>	<p>Amendments to the IMs that apply to default price-quality paths for suppliers of GPBs, including error corrections.</p>
<p><u>Gas Distribution Services Input Methodologies Determination Amendment 2013 [2013] NZCC 23 (3 December 2013)</u></p>	<p><u>Implementing the change to Powerco's disclosure year: Technical briefing paper on amendments to gas input methodologies (3 December 2013)</u></p>	<p>Amendments to the IMs for GDBs. Specifically, the amendments are to clause 1.1.4 ('interpretation') which defines 'disclosure year' and those clauses in Part 2 Subpart 2 ('asset valuation') relating to the initial RAB.</p>
<p><u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for price-quality regulation) 2014 [2014] NZCC 27 (29 October 2014)</u></p>	<p><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></p>	<p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p>
<p><u>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</u></p>	<p><u>Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 (11 December 2013)</u></p>	<p>Amendments by the High Court following merits appeal.</p>

<p><u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for information disclosure regulation) 2014 [2014] NZCC 38 (11 December 2014)</u></p>	<p><u>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper (12 December 2014)</u></p>	<p>Sets out our decision not to amend the 25th to 75th percentile range for ID for electricity lines services and gas pipeline services. These percentile estimates of WACC will continue to be determined and published annually, along with the mid-point estimate (which is also currently published annually). In addition, we will annually determine and publish 67th percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p>
<p><u>Electricity and Gas (Customised Paths) Input Methodology Amendments Determination 2015 [2015] NZCC 28 (12 November 2015)</u></p>	<p><u>Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)</u></p>	<p>Amendments to the IMs for customised price-quality paths applying in respect of electricity distribution services and gas pipeline services to improve the cost-effectiveness of the preparation, assessment and determination of CPP applications.</p>
<p><u>Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25 (20 December 2016)</u></p>	<p><u>Input methodologies review decisions papers</u></p>	<p>Amendments to the IMs made as part of the 2016 IM review.</p>

Table B4: List of IM determinations and reasons papers published by the Commission in respect of gas transmission businesses

IM determination	Associated reasons paper	Brief description
<u>Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010, decision number 712 (22 December 2010)</u>	<u>Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper (22 December 2010)</u>	Original IMs determination for GTBs.
<u>Commerce Act (Gas Transmission Services Input Methodologies) Amendment Determination 2011, decision number 744 (19 December 2011)</u>	Explanatory note provided in the determination.	This amendment corrects a typographical error made in the printing of the Commission's determination of the applicable equity beta.
<u>Electricity and Gas Input Methodologies Determination Amendments (No. 1) 2012 [2012] NZCC 18 (29 June 2012)</u>	<u>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</u>	This amendment provides regulated suppliers of gas distribution, gas transmission, and electricity distribution services with additional means for valuing assets of the regulated supplier obtained from a related party for the purposes of ID and CPP proposals.
<u>Gas Transmission Services Input Methodology Determination 2012 [2012] NZCC 28 (28 September 2012)</u>	<u>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper (28 September 2012)</u>	Redetermination of the <i>Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010</i> (Commerce Commission Decision 712, 22 December 2010), as required by the High Court in <i>Vector Limited v Commerce Commission</i> , HC WN CIV-2011-485-536 [26 September 2011], including all amendments made as of the date of this determination.

<u>Electricity and Gas Input Methodologies Determination Amendments (No. 2) 2012 [2012] NZCC 34 (15 November 2012)</u>	<u>Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012: Reasons Paper (15 November 2012)</u>	Amendments relating to the assumptions of the timing of cash-flows used to determine CPPs for EDBs and GPBs.
<u>Gas Pipeline Services Input Methodologies Determination Amendment (No. 1) 2013 [2013] NZCC 3 (25 February 2013)</u>	<u>Amendments to input methodologies for gas distribution and transmission services: Reasons paper (26 February 2013)</u>	Amendments to the IMs that apply to DPPs for GPBs, including error corrections.
<u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for price-quality regulation) 2014 [2014] NZCC 27 (29 October 2014)</u>	<u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u>	This amendment gives effect to the Commission's decision to move from using the 75 th percentile estimate of WACC to the 67 th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.
<u>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</u>	<u>Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 (11 December 2013)</u>	Amendments by the High Court following merits appeal.

<p><u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for information disclosure regulation) 2014 [2014] NZCC 38 (11 December 2014)</u></p>	<p><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></p>	<p>Sets out our decision not to amend the 25th to 75th percentile range for information disclosure for electricity lines services and gas pipeline services. These percentile estimates of WACC will continue to be determined and published annually, along with the mid-point estimate (which is also currently published annually). In addition, we will annually determine and publish 67th percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p>
<p><u>Electricity and Gas (Customised Paths) Input Methodology Amendment Determination 2015 [2015] NZCC 28 (12 November 2015)</u></p>	<p><u>Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)</u></p>	<p>Amendments to the IMs for CPPs applying in respect of EDBs and GPBs to improve the cost-effectiveness of the preparation, assessment and determination of CPP applications.</p>
<p><u>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26 (20 December 2016)</u></p>	<p><u>Input methodologies review decisions papers</u></p>	<p>Amendments to the IMs made as part of the 2016 IM review.</p>

Table B5: List of IM determinations and reasons papers published by the Commission in respect of Transpower

IM determination	Associated reasons paper	Brief description
<u>Commerce Act (Transpower Input Methodologies) Determination 2010, decision number 713, (22 December 2010)</u>	<u>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</u>	Original IMs determination for Transpower
<u>Commerce Act (Transpower Input Methodologies) Amendment Determination (No. 1) 2011, Decision number 736 (1 November 2011)</u>	Explanatory note provided in the determination.	Amendments to clarify certain components of the determination and to reflect the final decisions on the content of the determination, which were explained in the Commission's Input Methodologies (Transpower) Reasons Paper, December 2010.
<u>Commerce Act (Transpower Input Methodologies) Determination 2010 [2012] NZCC 17 (29 June 2012)</u>	<u>Input Methodologies (Transpower) Supplementary Reasons Paper for Leverage in Cost of Capital (29 June 2012)</u>	Redetermination of the original Transpower IM determination following the Court's direction to consult further on the leverage setting used in determining the cost of capital that applies for Transpower.
<u>Transpower Input Methodologies Amendments Determination 2014 [2014] NZCC 22 (28 August 2014)</u>	<u>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</u>	Amendments to address issues relevant to the determination of Transpower's IPP to apply from 1 April 2015.
<u>Electricity Lines Services Input Methodologies Determination Amendment 2014 [2014] NZCC 24 (26 September 2014)</u>	<u>Amendment to the WACC determination date for electricity lines services, including Transpower: Reasons paper (29 September 2014)</u>	Amended the date by which we must determine the estimates of WACC for EDBs and Transpower.

<p><u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for price-quality regulation) 2014 [2014] NZCC 27 (29 October 2014)</u></p>	<p><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></p>	<p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p>
<p><u>Incremental Rolling Incentive Scheme Input Methodology Amendments Determination 2014 [2014] NZCC 32 (27 November 2014)</u></p>	<p><u>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (27 November 2014)</u></p>	<p>Amendments to the IRIS in the IMs for EDBs and Transpower New Zealand. The amendments affect incentives to control expenditure under DPPs and CPPs.</p>
<p><u>Transpower Input Methodologies Amendments Determination 2014 (No. 2) [2014] NZCC 34 (27 November 2014)</u></p>	<p><u>Amendments to input methodologies for Transpower to provide a listed project mechanism: Reasons paper (27 November 2014)</u></p>	<p>Provides a listed project mechanism through amendments to the input methodologies for electricity lines services supplied by Transpower.</p>
<p><u>Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for information disclosure regulation) 2014 [2014] NZCC 38 (11 December 2014)</u></p>	<p><u>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons paper (12 December 2014)</u></p>	<p>Sets out our decision not to amend the 25th to 75th percentile range ID for electricity lines services and gas pipeline services. These percentile estimates of WACC will continue to be determined and published annually, along with the mid-point estimate (which is also currently published annually). In addition, we will annually determine and publish 67th percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p>

<u>Transpower Input Methodologies Amendment Determination 2015 [2015] NZCC 3 (5 February 2015)</u>	<p>Explanatory note provided in the determination.</p>	<p>This amendment corrects two errors identified post-publication in amendments to the Transpower Input Methodologies Amendments Determination 2014 [2014] NZCC 22 and in the Transpower Input Methodologies Amendments Determination 2014 (No.2) [2014] NZCC 34.</p>
<u>Transpower Input Methodologies Amendment Determination 2015 (No.2) [2015] NZCC 27 (21 October 2015)</u>	<p>Explanatory note provided in the determination.</p>	<p>This amendment fills the gap in the Transpower IM Determination by substituting an equivalent reference set for defunct Bloomberg reference set. The amendment enables Transpower to apply the IM requirements relating to the calculation to the calculation of the TCSD.</p>
<u>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27 (20 December 2016)</u>	<u>Input methodologies review decisions papers</u>	<p>Amendments to the IMs made as part of the 2016 IM review.</p>

Table B6: List of IM determinations and reasons papers published by the Commission in respect of Transpower's capex³⁷

IM determination	Associated reasons paper	Brief description
<u>Transpower Capital Expenditure Input Methodology Determination 2012 [2012] NZCC 2 (31 January 2012)</u>	<u>Transpower Capital Expenditure Input Methodology: Reasons Paper (31 January 2012)</u>	Original IMs determination for Transpower's capex.
Error correction: repaired reference links in clause D1(2)(b) (2 February 2012)	n/a	Re-publication of the Transpower Capex IM determination including the repaired reference links in clause D1(2)(b).
<u>Transpower Input Methodologies Amendments Determination 2014 [2014] NZCC 22 (28 August 2014)</u>	<u>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</u>	Amendments to address issues relevant to the determination of Transpower's IPP to apply from 1 April 2015.
<u>Transpower Input Methodologies Amendments Determination 2014 (No. 2) [2014] NZCC 34 (27 November 2014)</u>	<u>Amendments to input methodologies for Transpower to provide a listed project mechanism: Reasons paper (27 November 2014)</u>	Provides a listed project mechanism through amendments to the IMs for electricity lines services supplied by Transpower.

³⁷ The Transpower Capex IMs are not within the scope of the current IM review. However, they are listed here so as to provide a complete record of all IM determinations.

Transpower Input Methodologies Amendment Determination 2015 [2015] NZCC 3 (5 February 2015)	Explanatory note provided in the determination.	This amendment corrects two errors identified post-publication in amendments to the <i>Transpower Input Methodologies Amendments Determination 2014</i> [2014] NZCC 22 and in the <i>Transpower Input Methodologies Amendments Determination 2014 (No.2)</i> [2014] NZCC 34.
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Table B7: List of IM determinations and reasons papers published by the Commission in respect of airports

IM determination	Associated reasons paper	Brief description
Commerce Act (Specified Airport Services Input Methodologies) Determination 2010, decision number 709 (22 December 2010)	Input Methodologies (Airport Services): Reasons Paper (22 December 2010)	Original IMs determination for airports.
Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)	Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 (11 December 2013)	Amendments by the High Court following merits appeal.
Airport Services (Land Valuation) Input Methodologies Amendments Determination 2016 [2016] NZCC 3 (24 February 2016)	Input methodologies review: Amendments to input methodologies for airports land valuation – Final reasons paper for the airports fast track review (24 February 2016)	Amendments to the application of the Market Value Alternative Use (MVAU) land valuation methodology for airports. These amendments were fast tracked as part of the IM review.
Airports (Specified Airport Services) Input Methodologies Amendments Determination 2016 [2016] NZCC 28 (20 December 2016)	Input methodologies review decisions papers	Amendments to the IMs made as part of the 2016 IM review.



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20 December 2016	978-1-869455-43-9	Input methodologies review decisions: Summary paper
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20 December 2016	978-1-869455-46-0	Input methodologies review decisions: Topic paper 2 – CPP requirements
20 December 2016	978-1-869455-47-7	Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector
20 December 2016	978-1-869455-48-4	Input methodologies review decisions: Topic paper 4 – Cost of capital issues
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20 December 2016	978-1-869455-50-7	Input methodologies review decisions: Topic paper 6 – WACC percentile for airports
20 December 2016	978-1-869455-51-4	Input methodologies review decisions: Report on the IM review
20 December 2016	1178-2560	<i>Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24</i>
20 December 2016	1178-2560	<i>Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25</i>
20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26</i>
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27</i>
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28</i>
20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29</i>

Commerce Commission
Wellington, New Zealand

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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to explain the framework we have applied in reaching our decisions on the input methodologies review (**IM review**).

Context for the IM review

- X2. Part 4 of the Commerce Act 1986 (the **Act**) provides for the regulation of the price and quality of goods or services in markets where there is little or no competition and little or no likelihood of a substantial increase in competition.¹
- X3. The central purpose of regulating the price and quality of goods or services in these markets is to promote the long-term benefit of consumers of these services.²
- X4. The following services are currently regulated by Part 4:
- X4.1 electricity lines services;
 - X4.2 gas pipeline services; and
 - X4.3 specified airport services.
- X5. Input methodologies (**IMs**) are the upfront rules, processes and requirements of Part 4 regulation. IMs are then used in setting information disclosure and price-quality regulatory determinations. The purpose of IMs, set out in s 52R of the Act, is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation. IMs apply to all suppliers of electricity lines services, gas pipeline services, specified airport services and Transpower.

¹ All statutory references in this paper are references to the Commerce Act 1986 unless otherwise indicated.

² Section 52A of the Act.

- X6. We determined the original IMs on 22 December 2010.³ In 2012, following judicial review proceedings, we re-determined the IMs to extend our IM decisions on cost allocation, asset valuation and the treatment of taxation to also apply to default price-quality paths.⁴ In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.⁵ Some of these IMs have also been subject to amendment pursuant to s 52X.
- X7. The Act requires us to review all IMs no later than 7 years after their publication.⁶
- X8. We commenced the current review of IMs (except Transpower's Capex IM) on 10 June 2015 by issuing a notice of intention.⁷ We must review all IMs within the scope of the notice of intention. We may decide to amend, replace, decide to amend or replace the IMs at a later point, or make no changes to the IMs we have reviewed.
- X9. This document describes the framework that we have applied in reaching our decisions. This consists of two main components:
- X9.1 decision-making framework – describes our approach to reaching decisions on the IM review, including how we decided whether and how to change the IMs; and
- X9.2 application of key economic principles – we describe three key economic principles that can provide useful guidance as to how we might best promote the Part 4 purpose.

Decision-making framework

- X10. There are two major conceptual elements to the approach we have taken to reaching decisions on the IM review:
- X10.1 **Review element:** Reviewing the IMs and identifying which IMs we should consider changing and why; and
- X10.2 **Change element:** Deciding whether, and if so how, to change an IM following the review element.
- X11. These two elements are conceptual steps, rather than temporal steps: consideration of the two elements is not a purely linear process.

³ The input methodologies for Transpower's capital expenditure proposals were determined on 31 January 2012 under s 54S of the Act and published on 9 February 2012.

⁴ Originally, our IM decisions for these matters were only specified as applicable to customised price-quality path proposals, and to information disclosure regulation. See Commerce Commission "Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper" (28 September 2012), available at: <http://www.comcom.govt.nz/dmsdocument/9506>.

⁵ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289; *Vector Ltd v Commerce Commission* [2012] NZCA 220.

⁶ Section 52Y of the Act.

⁷ Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015).

Review element: Which IMs should we consider changing and why?

- X12. In short, in reviewing each IM, this element of the framework asks: is the IM trying to achieve the right thing in the right way? That is, it is focussed on identifying whether there is a problem with the IM.
- X13. This can be expanded to a series of more specific questions which we have considered where relevant, including:
- X13.1 Is the policy intent behind the IM still relevant and appropriate?
- X13.2 Is the IM achieving that intent?
- X13.3 Could the IM achieve the policy intent better?⁸
- X13.4 Could the IM achieve the policy intent as effectively, but in a way that better promotes s 52R or reduces complexity or compliance costs?
- X13.5 Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?

Change element: Should we change the IMs and, if so, how?

- X14. In addition to guiding us in identifying which IMs to consider changing, our decision-making framework guided us in reaching decisions on whether and how to change the IMs.
- X15. In reaching our decisions, we have only decided to change the IMs where this is likely to:
- X15.1 promote the Part 4 purpose in s 52A more effectively;
- X15.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
- X15.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
- X16. We have also considered, where relevant, whether there are alternative solutions to the identified problems with the IMs that do not involve changing the IMs as part of the review.

⁸ As discussed further below at para 89 and following, the s 52Z(4) 'materially better' standard that applies in IM appeals does not apply in respect of changes to IMs as a result of the current s 52Y review. That threshold is specifically for the IM appeals regime.

Application of key economic principles

- X17. In giving effect to the s 52A purpose statement, or considering whether an IM gives effect to s 52A, we recognise that certain key economic principles can provide useful guidance as to how we might best promote the Part 4 purpose.
- X18. We consider there are three key economic principles which are relevant to the Part 4 regime:
- X18.1 **Real financial capital maintenance (FCM):**⁹ we provide regulated suppliers the expectation *ex-ante* of earning their risk-adjusted cost of capital (ie, a 'normal return'), which provides suppliers with the opportunity to maintain their financial capital in real terms over time frames longer than a single regulatory period. However, price-quality regulation does not *guarantee* a normal return over the lifetimes of a regulated supplier's assets.
- X18.2 **Allocation of risk:** ideally, we allocate particular risks to suppliers or consumers depending on who is best placed to manage the risk, unless doing so would be inconsistent with s 52A.
- X18.3 **Asymmetric consequences of over-/under-investment:** we apply FCM recognising the asymmetric consequences to consumers of regulated energy services, over the long term, of under-investment vs over-investment.
- X19. We do not agree with submitters that these or any other economic principles amount to a regulatory compact. The key economic principles are subordinate to s 52A and we can only apply them in so far as they assist us to give effect to s 52A. The principles are not an outcome we seek to give effect to in and of themselves; rather, the application of the principles is a means to an outcome – that outcome being promotion of the long-term benefit of consumers in accordance with s 52A.

We propose to revisit the wider framework for making IM changes at a later date

- X20. We propose to progress the draft framework for making IM changes beyond the IM review, which was included in our discussion draft paper,¹⁰ at a later date.
- X21. The draft served its immediate purpose in the IM review by assisting us and submitters to contextualise the current IM review within the other avenues that exist for making IM changes beyond the IM review. It may be useful to further consider this framework following the current IM review, particularly in light of the continuing development of emerging technologies in the energy sector.

⁹ In the past, we have often used 'FCM' and 'NPV=0' interchangeably.

¹⁰ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft" (22 July 2015), Attachment B.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to explain:
 - 1.1 the decision-making framework that we applied in reaching our decisions on the input methodologies review (**IM review**);
 - 1.2 the key economic principles we applied in reaching our decisions on the IM review; and
 - 1.3 how we have taken submissions on our draft framework papers into account.¹¹

Structure of this paper

2. The following chapter of this paper, chapter 2, explains the context for the IM review framework. In particular it explains the purpose of Part 4 regulation (s 52A); the purpose and role of input methodologies (**IMs**); and the nature and evolution of the IM review framework.
3. Chapter 3 of this paper presents the decision-making framework that we have applied in reaching our decisions. This framework describes the types of questions we considered in reviewing the IMs and deciding whether and how to change the IMs.
4. The final chapter of this paper, Chapter 4, discusses three key economic principles that have guided us in giving effect to the Part 4 purpose.

¹¹ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft" (22 July 2015); and Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

Chapter 2: Context for the IM review framework

Purpose of this chapter

5. The purpose of this chapter is to set out the context for the IM review framework. In particular, it discusses:
 - 5.1 the operation of the Part 4 regime, with a focus on the s 52A and s 52R purpose statements; and
 - 5.2 how the IM review framework has evolved, and the nature of the framework.

The Part 4 regime

6. Part 4 of the Commerce Act 1986 (the **Act**) provides for the regulation of the price and quality of goods or services in markets where there is little or no competition and little or no likelihood of a substantial increase in competition.¹²
7. The purpose of regulating the price and quality of goods or services in these markets is stated in s 52A of the Act as being:

... to promote the long-term benefit of consumers ... by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or service –

 - (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
 - (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
 - (c) share with consumers the benefits of efficiency gains in the supply of the regulated good or services, including through lower prices; and
 - (d) are limited in their ability to extract excessive profits.

The Part 4 purpose

8. The central purpose of Part 4 of the Act is thus to promote the long-term benefit of consumers in markets where there is little or no competition and little or no likelihood of a substantial increase in competition.¹³

¹² Section 52 of the Act.

¹³ Competition means "workable or effective competition": s 3(1) of the Act. Workable competition was explained by the High Court in *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 18-22.

9. The High Court has confirmed that the relevant consumers whose interests we must promote are the consumers of regulated services; and that it is their interests as consumers of the regulated service, rather than as participants in New Zealand's wider economy, that must be promoted.¹⁴ In our view, consumers may be direct or indirect acquirers of regulated services.¹⁵
10. We promote the interests of consumers of the regulated service by promoting the s 52A(1)(a)-(d) outcomes consistent with what would be produced in workably competitive markets.¹⁶ Our focus is not on replicating all the potential outcomes of workably competitive markets per se, but rather with specifically promoting the s 52(1)(a)-(d) outcomes for the long-term benefit of consumers consistent with the way those outcomes are promoted in workably competitive markets.
11. Our view is that the objectives in paragraphs (a) to (d) are integral to promoting the long-term benefit of consumers, and reflect key areas of supplier performance that characterise workable competition. None of the objectives are paramount and, further, the objectives are not separate and distinct from each other, or from s 52A(1) as a whole.¹⁷ Rather, we must balance the s 52A(1)(a)-(d) outcomes,¹⁸ and must exercise judgement in doing so. When exercising this judgement we are guided by what best promotes the long-term benefit of consumers,¹⁹ and must not treat any of the s 52A(1)(a)-(d) outcomes as paramount.²⁰
12. In giving effect to the s 52A purpose statement, or considering whether an IM gives effect to s 52A, we have recognised that certain key economic principles can be useful analytical tools when determining how we might best promote the Part 4 purpose. These principles are considered further in chapter 4.

¹⁴ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 222.

¹⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.4.9.

¹⁶ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 25-27.

¹⁷ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para A7.

¹⁸ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 684.

¹⁹ See the discussion of our decision to adopt of the 75th percentile for WACC in *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 1391-1492.

²⁰ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 684.

Who is subject to Part 4 regulation?

13. Suppliers of the following services are subject to Part 4 regulation on the basis that they face little or no competition and little or no likelihood of a substantial increase in competition:²¹

13.1 *Electricity lines services:*²² Electricity lines services are defined in s 54C of the Act as meaning the conveyance of electricity by line in New Zealand and as including services performed by Transpower as system operator.²³ Electricity lines services are provided by three groups of suppliers:

13.1.1 Transpower – which is subject to information disclosure (**ID**) regulation and individual price-quality (**IPP**) regulation;

13.1.2 seventeen non-exempt electricity distributors – which are subject to ID regulation and default/customised price-quality regulation (**DPP/ CPP regulation**);²⁴ and

13.1.3 twelve exempt electricity distributors – which are subject to ID regulation only.²⁵

13.2 *Gas pipeline services:*²⁶ Gas pipeline services means the conveyance of natural gas by pipeline and includes the assumption of responsibility for losses of natural gas.²⁷ Small scale conveyance is excluded from the definition (and Part 4 regulation). There are currently four regulated gas distribution businesses and one gas transmission business,²⁸ which provide gas pipeline services as defined in s 55A and are accordingly subject to Part 4 regulation. All are subject to ID and DPP/ CPP regulation.

²¹ These suppliers are also subject to a range of other statutory and regulatory controls pursuant to, for instance, the Gas Act 1992 and the Electricity Industry Act 2010, which may interact with Part 4 regulation. Sections 55I and 54V of the Act specifically deal with these interactions and we work with other agencies where our regulatory responsibilities interact.

²² Section 54E of the Act.

²³ Section 54C of the Act. The definition of electricity lines services is further discussed in the Emerging technology topic paper: See Commerce Commission "Input methodologies decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016).

²⁴ Sections 54F and 54G of the Act.

²⁵ Twelve of the 29 electricity distributors in New Zealand are currently exempt from price-quality regulation on the basis that they meet the Act's definition of 'consumer-owned'. See sections 54D, 54F and 54G of the Act.

²⁶ Section 55B of the Act.

²⁷ Section 55A of the Act.

²⁸ Following First Gas' recent purchase of Maui Development Limited's gas transmission assets.

13.3 *Specified airport services:*²⁹ Specified airport services are defined in s 56A as meaning all the services supplied by Auckland International Airport Ltd, Wellington International Airport Ltd and Christchurch International Airport Ltd in markets relating to airfield, aircraft, freight and specified passenger terminal activities. There are thus currently three airports that provide specified airport services as defined in s 56A and are subject to Part 4 regulation. These airports are subject to ID regulation only.

14. Other suppliers can become subject to Part 4 regulation following a Commission inquiry and a decision by the Government that Part 4 regulation should be imposed.³⁰

How are these suppliers regulated?

15. Part 4 regulatory control involves a two-step process which requires us:

15.1 first, to determine, pursuant to s 52T, IMs that will be of general application to the supply of particular services; and

15.2 secondly, utilising those IMs, to determine pursuant to s 52P the actual regulatory controls to which each regulated supplier will be subject.

The role of IMs in Part 4 regulation

16. IMs are the upfront rules, processes and requirements of Part 4 regulation.³¹ Section 52C defines 'input methodology' as:

a description of any methodology, process, rule or matter that includes any of the matters listed in section 52T and that is published by the Commission under section 52W; and in relation to particular goods and services, means any input methodology, or all input methodologies, that relate to the supply, or to suppliers, of those goods or services.

²⁹ Section 56B of the Act.

³⁰ Sections 52H-52Q of the Act.

³¹ Sections 52R and 52C of the Act.

17. Section 52T specifies the IMs we must determine, and provides us with a discretion to specify other IMs:

52T Matters covered by input methodologies

(1) The input methodologies relating to particular goods or services must include, to the extent applicable to the type of regulation under consideration,—

- (a) methodologies for evaluating or determining the following matters in respect of the supply of the goods or services:
 - (i) cost of capital:
 - (ii) valuation of assets, including depreciation, and treatment of revaluations:
 - (iii) allocation of common costs, including between activities, businesses, consumer classes, and geographic areas:
 - (iv) treatment of taxation; and
- (b) pricing methodologies, except where another industry regulator (such as the Electricity Authority) has the power to set pricing methodologies in relation to particular goods or services; and
- (c) regulatory processes and rules, such as—
 - (i) the specification and definition of prices, including identifying any costs that can be passed through to prices (which may not include the legal costs of any appeals against input methodology determinations under this Part or of any appeals under section 91 or section 97); and
 - (ii) identifying circumstances in which price-quality paths may be reconsidered within a regulatory period; and
- (d) matters relating to proposals by a regulated supplier for a customised price-quality path, including—
 - (i) requirements that must be met by the regulated supplier, including the scope and specificity of information required, the extent of independent verification and audit, and the extent of consultation and agreement with consumers; and
 - (ii) the criteria that the Commission will use to evaluate any proposal.

- (2) Every input methodology must, as far as is reasonably practicable,—
- (a) set out the matters listed in subsection (1) in sufficient detail so that each affected supplier is reasonably able to estimate the material effects of the methodology on the supplier; and
 - (b) set out how the Commission intends to apply the input methodology to particular types of goods or services; and
 - (c) be consistent with the other input methodologies that relate to the same type of goods or services.
- (3) Any methodologies referred to in subsection (1)(a)(iii) must not unduly deter investment by a supplier of regulated goods or services in the provision of other goods or services.

18. We determined the original IMs required by s 52T(1) on 22 December 2010.³² These IMs applied, and IMs continue to apply, to all suppliers of electricity lines services, gas pipeline services, specified airport services and Transpower. In 2012, following judicial review proceedings, we re-determined the IMs to extend our IM decisions on cost allocation, asset valuation and the treatment of taxation to also apply to default price-quality paths (DPPs).³³ In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.³⁴ Some of these IMs have also been subject to amendment pursuant to s 52X. A list of all IM determinations and their accompanying reasons papers can be found in the Introduction and process paper.³⁵
19. The purpose of IMs, set out in s 52R of the Act, is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation. To that end, IMs as far as is reasonably practical, set out relevant matters in sufficient detail so that each affected supplier is reasonably able to estimate the material effects of the methodology on the supplier. In that way, IMs constrain our evaluative judgements in subsequent regulatory decisions and enhance predictability.³⁶

³² We also determined an IRIS IM not required by s 52T for EDBs, GPBs and Transpower. The input methodologies for Transpower's capital expenditure proposals were determined on 31 January 2012 under s 54S of the Act and published on 9 February 2012.

³³ Originally, our IM decisions for these matters were only specified as applicable to customised price-quality path proposals, and to information disclosure regulation. We extended the application of those IM decisions to apply to DPPs by taking the existing IMs as a starting point and simplifying the components where necessary. See Commerce Commission "Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper" (28 September 2012), available at: <http://www.comcom.govt.nz/dmsdocument/9506>.

³⁴ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289; *Vector Ltd v Commerce Commission* [2012] NZCA 220.

³⁵ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016), Attachment B.

³⁶ *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445, para 2, 64.

20. However, some uncertainty remains inevitable.³⁷ As the Court of Appeal observed in *Commerce Commission v Vector Ltd* "certainty is a relative rather than an absolute value",³⁸ and:³⁹

... there is a continuum between complete certainty at one end and complete flexibility at the other. The question is where Parliament has drawn the line. Clearly Parliament did not accord the Commission absolute flexibility, nor did it require absolute certainty in the regulatory regime. The requirement for the publication of input methodologies was intended to promote certainty in relation to the matters dealt with in s 52T(1). Against that framework, however, the Commission still has to make regulatory decisions, including as to price setting under s 53P(3)(b). Parliament must have considered that, as the Commission does so, further certainty will emerge. Moreover, the Commission's extensive consultation obligations under Part 4 are also likely to produce further certainty over time.

21. The s 52R purpose is thus primarily promoted by having the rules, processes and requirements set upfront (prior to being applied by suppliers or ourselves). However, as recognised in s 52Y, these rules, processes and requirements may change. Where the promotion of s 52A requires amendment to an IM, s 52R does not constrain this. This is because s 52A is the central purpose of the Part 4 regime and other purpose statements within Part 4 are conceptually subordinate.⁴⁰ We must only give effect to these subordinate purposes to the extent that doing so does not detract from our overriding obligation to give effect to the s 52A purpose.⁴¹ Giving effect to the s 52A purpose may, however, require recognition of the role that predictability plays in providing suppliers with incentives to invest in accordance with s 52A(1).
22. Similarly, while s 52R concerns certainty of rules rather than certainty of outcomes, we consider that conditional predictability of outcomes is nevertheless good regulatory practice. As noted by Professor Yarrow, regulators:⁴²

should change and adapt in ways that are predictable to market participants conditional on available information about the changes in the economic environment to which the regulator is responding.

³⁷ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 214.

³⁸ *Commerce Commission v Vector Ltd* [2012] NZCA 220, para 34.

³⁹ *Commerce Commission v Vector Ltd* [2012] NZCA 220, para 60.

⁴⁰ *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 165.

⁴¹ *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289.

⁴² George Yarrow in George Yarrow et al "Review of Submissions on Asset Valuation in Workably Competitive Markets a Report to the New Zealand Commerce Commission" (November 2010), Annex 2, para 2.6.

23. This concept of conditional regulatory predictability may be particularly relevant under s 52A(1)(a) when considering the impact of making a change to the IMs on incentives to invest to the extent that this affects the long-term benefit of consumers.⁴³ Accordingly, the effect on incentives to invest, to the extent it impacts on the long-term benefit of consumers, is a factor we weigh, alongside the impact on other s 52A outcomes, when considering the pros and cons of changing an IM.⁴⁴

IMs must be reviewed every seven years

24. Section 52Y(1) of the Act requires us to review all IMs no later than seven years after their date of publication. The maximum period of certainty an IM can provide is thus seven years. However, within that period, IMs can be amended pursuant to s 52X, and we can conduct a s 52Y review earlier within the seven-year period (as long as it is completed for each IM no later than seven years after publication).
25. Once we decide to conduct an IM review, the process in s 52V of the Act, with its requirements for the publication of drafts and engagement with stakeholders, applies to the review.
26. We commenced the current review of IMs (except Transpower's Capex IM) on 10 June 2015 by issuing a notice of intention.⁴⁵ We must review all IMs within the scope of the notice of intention. We may then amend, replace, decide to amend or replace the IMs at a later point, or make no changes to the IMs we have reviewed.

The role of s 52P determinations

27. Part 4 provides for four types of regulation: ID regulation;⁴⁶ negotiate/arbitrate regulation;⁴⁷ DPP/CPP regulation;⁴⁸ and IPP regulation.⁴⁹

⁴³ Transpower submitted that regulatory predictability is not undermined by changes that reflect mainstream regulatory developments that benefit consumers and suppliers. See: Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 2.

⁴⁴ We discuss this further in the next chapter, which sets out our decision-making framework for the IM review.

⁴⁵ Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015).

⁴⁶ Subpart 4 of Part 4 of the Act.

⁴⁷ Subpart 5 of Part 4 of the Act.

⁴⁸ Subpart 6 of Part 4 of the Act.

⁴⁹ Subpart 7 of Part 4 of the Act.

28. How these various types of regulation are to be applied is determined by decisions we make under s 52P. Section 52P(3) provides that a s 52P determination must:
- (a) set out, for each type of regulation to which the goods or services are subject, the requirements that apply to each regulated supplier; and
 - (b) set out any time frames (including the regulatory periods) that must be met or that apply; and
 - (c) specify the input methodologies that apply; and
 - (d) be consistent with this Part.
29. We have made s 52P determinations relating to all suppliers regulated under Part 4:
- 29.1 All suppliers of electricity lines services, gas pipeline services and the specified airports are subject to ID regulation.
 - 29.2 All suppliers of gas pipeline services, Transpower and 17 suppliers of electricity distribution services are subject to price-quality regulation. For all suppliers of gas pipeline services and 16 suppliers of electricity lines services, that regulation is a DPP. Orion is currently subject to a customised price-quality path (**CPP**). Transpower is subject to an IPP.
30. ID regulation requires a supplier of a regulated service to disclose information specified by us relating to prices and quality of the regulated service as well as other areas of performance referred to in the s 52A purpose. The disclosure of information is intended to exert pressure on suppliers to move their prices and quality closer to ones which would promote the outcomes in s 52A(1)(a)-(d) of the Part 4 purpose.
31. DPP/ CPP and IPP regulation require a supplier to comply with a price-quality path we determine which specifies either, or both, the maximum price (or revenue) that a supplier may charge and recover; and the quality standards that must be met.⁵⁰ We use a CPI minus X (**CPI-X**) price-quality path for DPP/ CPP regulation which allows a supplier to increase its average prices over the regulatory period by the CPI minus an X factor that reflects our assessment of anticipated productivity gains over the regulatory period. Suppliers who improve their efficiency at a rate greater than expected make profitability gains. The quality aspect of the price-quality path ensures that efficiency gains do not come at the expense of the service meeting minimum quality standards. By determining the maximum prices suppliers can charge and quality standards suppliers must meet, we promote the s 52A(1)(a)-(d) outcomes.

⁵⁰ Section 53M of the Act.

32. The purpose of DPP/CPP regulation, as set out in s 53K of the Act is "to provide a relatively low-cost way of setting price-quality paths for suppliers of regulated goods or services, while allowing the opportunity for individual regulated suppliers to have alternative price-quality paths that better meet their particular circumstances."⁵¹
33. Given the intention that DPP/CPP regulation be relatively low-cost, much of a DPP uses generic approaches with business-specific inputs. We must apply the IMs and comply with the s 53P requirements for setting starting prices, rates of change and quality standards.⁵² We have set DPPs on the expectation that regulated suppliers on the DPP will earn at least a normal return based on the information used in setting the path.
34. CPP regulation is addressed to a supplier's particular circumstances and is available where a supplier does not expect to earn a normal return on the DPP and its particular circumstances are not able to be dealt with through a DPP 'reopener'.⁵³ In setting a CPP, we must apply relevant IMs,⁵⁴ may set any path we consider appropriate,⁵⁵ and the requirements in s 53P do not apply.
35. IPP regulation is similar to CPP regulation. We may set an IPP using any process, and in any way, we consider fit, but must use the IMs that apply to the supply of those goods or services.⁵⁶
36. The regulatory period of a DPP, CPP or IPP is generally five years. Although, where we consider it would better meet the purposes of Part 4, we can set a DPP or IPP for four to five years and a CPP for three to five years.⁵⁷
37. Utilising our published IMs, we make s 52P determinations setting regulation for these suppliers.

How the IM review framework has evolved

38. Given the obligation to review IMs every seven years, we indicated our intention to begin the current review in our open letter of 27 February 2015.⁵⁸

⁵¹ Section 53K of the Act.

⁵² Sections 53O and 53P of the Act.

⁵³ We use the term 'reopener' to refer to the reconsideration of a price-quality path under s 52T(1)(c)(ii) of the Act.

⁵⁴ Sections 53Q and 53V of the Act. With the agreement of the supplier, we can vary an IM that would otherwise apply: s 53V(2)(c) of the Act.

⁵⁵ Section 53V of the Act.

⁵⁶ Section 53ZC of the Act.

⁵⁷ Sections 53M(4)-(5), 53W and s 53ZC of the Act.

⁵⁸ Commerce Commission "Open letter on our proposed scope, timing and focus for the review of input methodologies" (27 February 2015).

39. A number of submitters on our open letter requested that we develop a decision-making framework for the IM review.⁵⁹ Some submitters suggested that it would be useful to also consider where the IM review fits in within the wider context of different avenues through which we can make changes to the IMs.⁶⁰
40. We saw, and continue to see, merit in establishing a decision-making framework for the IM review, and a wider framework for making IM changes beyond the IM review. Accordingly, we published our initial thinking on these frameworks in a discussion draft paper published 22 July 2015 and sought submissions on that paper.⁶¹ We also presented on the draft frameworks at the IM review forum on 29 July 2015.⁶² We then published a further draft framework paper for consultation with our draft decisions on 16 June 2016.⁶³
41. Submitters on our discussion draft paper identified certain 'core economic principles' which, they submitted, underpinned our IM decisions. It was also submitted that these principles should constrain our decisions as to whether or not to amend an IM in this review.⁶⁴
42. We agree that certain key economic principles have played an important role in our past and current decisions, and we explain in the fourth chapter of this paper how we consider the economic principles can provide a useful guide for our decision-making in so far as they are consistent with s 52A.

Nature of the framework

43. Any framework for the IM review is bound by the statutory criteria in Part 4. When considering whether to make a change to the IMs, we must consider the purpose of Part 4 of the Act (s 52A) and the purpose of IMs (s 52R). We must give effect to these purposes and can only develop a decision-making framework or commit to key economic principles in so far as they assist us in giving effect to these purposes.

⁵⁹ For example, see: ENA "Response to the Commerce Commission's open letter" (31 March 2015), p. 6-7; Unison "Unison response to open letter on scope, timing, focus of review of input methodologies" (31 March 2015), para 8(b); NZ Airports "Proposed scope, timing and focus for the review of input methodologies, and further work on the cost of capital input methodology for airports" (20 March 2015), p. 4-6.

⁶⁰ Transpower "Input methodologies: scoping the statutory review" (31 March 2015), p. 3-4.

⁶¹ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft (22 July 2015).

⁶² The presentation is available at: <http://comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/input-methodologies-review-forum-2/>.

⁶³ Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

⁶⁴ For example, see: ENA "Submission on problem definition" (21 August 2015), p. 3-4, 8-9, 26; NZAA "Submission on problem definition" (21 August 2015), para 39; Russell McVeagh on behalf of ENA and NZAA "Advice on legal questions and decision making framework" (21 August 2015), p. 2-3, 5, 9-11.

44. We must also follow the process and publishing requirements prescribed by the Act.⁶⁵ Changes to the IMs, like the initial IMs, are subject to merits appeals where the Court considers whether there is a materially better alternative than the IM we have determined in light of s 52A, s 52R, or both.⁶⁶
45. Within those bounds, however, we must exercise judgement about how best to create IMs that give effect to s 52A and s 52R; when we should change IMs under s 52X and s 52Y; and how we evaluate whether the change might better promote the s 52A and 52R purposes. It is in these areas where we must exercise judgement that a decision-making framework and key economic principles can assist us in giving effect to s 52A and 52R.
46. To this end, the decision-making framework for the IM review presented in the third chapter of this paper is not mechanistic. Rather, it is a conceptual framework to guide our decision-making. Submitters emphasised the need to balance prescription and flexibility when developing a framework,⁶⁷ and we agree. We consider that a conceptual framework which guides, rather than mechanically determines our decision-making strikes the right balance between prescription and flexibility. As we cannot foresee all situations and potential changes that might arise, we consider that the framework needs to be sufficiently general to provide guidance in as many situations as possible.

⁶⁵ Section 52V of the Act.

⁶⁶ Section 52Z of the Act.

⁶⁷ For example, see Transpower "Input methodologies review; Problem definition and decision-making frameworks" (21 August 2015), para 3.2; Russell McVeagh on behalf of ENA and NZAA "Advice on legal questions and decision making framework" (21 August 2015), para 18; Transpower "Input methodologies: threshold for changing IMs and the creation of new IMs" (25 June 2015), p. 2-3.

Our preliminary view that we cannot create an IM on a matter not covered by existing IMs

47. In our draft framework papers, we explained our preliminary view that we cannot create an IM on a matter not covered by an existing IM under s 52Y or s 52X.⁶⁸ We observed that no problem that would require an IM on a new matter had been identified and that we remained open to reconsidering our preliminary view if, as the review progressed, we considered that resolution of any identified problem would require an IM on a new matter.
48. We have not identified any problem that would require an IM on a new matter. As noted previously,⁶⁹ we remain open to reconsidering our view if the issue arises in the future.

We propose to revisit the wider framework at a later date

49. We propose to progress the draft framework for making IM changes beyond the IM review, which was included in our discussion draft paper, at a later date.⁷⁰
50. That draft framework for making changes beyond the IM review considers, over a longer time horizon (extending beyond the current review):
- 50.1 when we might make different types of changes to the IMs (and in doing so suggests different categories of IM changes); and
 - 50.2 what factors we might take into account in deciding whether to make a change under each of those categories.
51. The draft served its immediate purpose in the IM review by assisting us and submitters to contextualise the current IM review within the other avenues that exist for making IM changes beyond the IM review. It may be useful to further consider this framework following the current IM review, particularly in light of the continuing development of emerging technologies in the energy sector.

⁶⁸ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft (22 July 2015), para 23-27; Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 44-48; Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016), para 51-55.

⁶⁹ Commerce Commission "Input methodologies review: process update paper" (30 October 2015), p. 10-11; Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016), para 55.

⁷⁰ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft" (22 July 2015), Attachment B.

52. Powerco, the Electricity Retailers' Association of New Zealand and Progressive Enterprises have suggested that we engage in a mid-period review to consider the effect of emerging technology.⁷¹ Other submitters have emphasised that we should only make changes outside the IM review where those changes meet a "clear materiality threshold",⁷² or in "exceptional circumstances".⁷³
53. We note these submissions and reiterate that we intend to consider such issues at a later date. Given the still developing state of any response to emerging technology, we consider that significant changes outside the seven-year review cycle may be required at some stage and we are open to re-looking at the IMs if circumstances change.

⁷¹ Powerco "Submission on input methodologies review draft decisions" (4 August 2016), p. 48; ERANZ "Submission on IM review draft decision – emerging technologies" (4 August 2016), p. 42; Progressive Enterprises "IM review draft decisions cross submission" (18 August 2016), p. 2.

⁷² ENA "Input methodologies review – framework for the IM review" (4 August 2016), p. 6; Powerco "Submission on input methodologies review draft decisions" (4 August 2016), p. 12.

⁷³ PwC "Submission to the Commerce Commission on input methodologies review: draft decisions papers" (4 August 2016), p. 5.

Chapter 3: The decision-making framework for the IM review

Purpose of this chapter

54. The purpose of this chapter is to explain the decision-making framework that we have applied in reaching our decisions. In doing so, we:
- 54.1 respond to submissions on our draft framework papers;⁷⁴ and
 - 54.2 confirm that our decision-making framework remains largely unchanged from the framework paper we published with our draft decisions on 16 June 2016.⁷⁵
55. As appropriate, we have sought to apply this framework throughout our review. It has guided our consideration of, and approach to, our IM review decisions, which are explained in our other decisions papers released alongside this paper.

Overview of the decision-making framework

56. There are two major conceptual elements to the approach we have taken to reaching decisions on the IM review:
- 56.1 **Review element:** Reviewing the IMs and identifying which IMs we should consider changing and why. (This broadly equates to the question in box 2 of Figure 1: 'which IMs should we consider changing and why?')
 - 56.2 **Change element:** Deciding whether, and if so how, to change an IM following the review element. (This broadly equates to the question in box 4 of Figure 1: should we change the IMs and, if so, how?)
57. These two elements are conceptual steps, rather than temporal steps: consideration of the two elements is not a purely linear process.

⁷⁴ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft" (22 July 2015), Attachment A; Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

⁷⁵ Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

Figure 1: Conceptual steps in the IM review



We must review the existing IMs

58. Section 52Y specifies that this is a review of the existing published IMs. As such, we consider that the starting point when reviewing the IMs, and considering changes, is the existing IMs.⁷⁶ We consider this is implicit in s 52R given its direction that the purpose of IMs is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation under Part 4 of the Act.⁷⁷

We have only made changes that promote the high-level objectives for the review

59. We have only decided to change the IMs where this is likely to:
- 59.1 promote the Part 4 purpose in s 52A more effectively;
 - 59.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 59.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
60. These high-level objectives drive this framework for the IM review, and are relevant to both the review and change conceptual elements.

⁷⁶ In our 2014 WACC percentile amendment decision, we noted that an exception to the current IMs being the starting point is if the current IM has been substantially undermined (in that case due to a Court judgment) such that it has no evidential basis: Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 2.11.1). In that decision, we noted that ordinarily the starting point would be the current IM (para 2.14).

⁷⁷ Further, the majority of IMs have been reviewed by the Court under merits appeal.

61. Submitters identified a number of other statutory provisions (for example s 54Q and s 53A) which they submitted should ground additional high-level objectives.⁷⁸ We agree that statutory provisions other than s 52A and s 52R may be relevant to particular decisions and have set these provisions out below at paragraph 99. However, we do not consider that these other statutory provisions should be considered high-level factors in the way that s 52A and s 52R are.⁷⁹ This is a review of IMs. Accordingly the purpose of IMs (s 52R) has particular relevance, as does the overriding purpose of Part 4 contained in s 52A. Section 54Q (incentives for energy efficiency for electricity lines services) and s 53A (the purpose of ID regulation) are more limited in scope and do not have the same general applicability to the review as s 52A and s 52R. Nevertheless, we have, for example, considered s 53A when making our decisions on the airports profitability topic⁸⁰ and have considered s 54Q when determining to move from a weighted average price cap to a revenue cap for EDBs.⁸¹
62. Russell McVeagh, for the Electricity Networks Association (**ENA**) and the New Zealand Airports Association (**NZAA**), also submitted that we should replace the phrase "more effectively" in our high-level objectives with the word "better", as:⁸²
- "More effective" is open to a range of possible interpretations and does not necessarily mean the proposed change would be better at meeting the purpose statement.
63. We do not consider that using the phrase "better" in place of "more effectively" would provide additional clarity as both are open to interpretation. Accordingly, as in this context we cannot see any difference in effect, we have continued using the phrase "more effectively".
64. Our high-level objectives thus remain unchanged from those articulated in our draft framework papers.
65. We now move from these high-level objectives towards the types of questions we considered in reviewing the IMs and considering whether to change them.

⁷⁸ For example, Russell McVeagh identified s 54Q and 53A (Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 32) and ETNZ identified s 54Q (ETNZ "Submission on IM decision-making discussion draft" (21 August 2015)).

⁷⁹ NZAA disagrees with the Commission's view that s 53A does not have the same level of applicability as s 52A and 52R but directs this submission to ID regulation: NZAA "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 8.

⁸⁰ Commerce Commission "Input methodologies decisions: Topic paper 5 – Airports profitability assessment" (20 December 2016).

⁸¹ Commerce Commission "Input methodologies decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016).

⁸² Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 32(a).

Review element: Which IMs should we consider changing and why?*The types of questions we considered in reviewing the IMs*

66. In short, in reviewing each IM, this element of the framework asks: is the IM trying to achieve the right thing in the right way? That is, it is focussed on identifying whether there is a problem with the IM.
67. This can be expanded to a series of more specific questions which can be asked of each IM, including:
- 67.1 Is the policy intent behind the IM still relevant and appropriate?
 - 67.2 Is the IM achieving that intent?
 - 67.3 Could the IM, if amended, achieve the policy intent better?
 - 67.4 Could the IM achieve the policy intent as effectively, but in a way that better promotes s 52R or reduces complexity or compliance costs?
 - 67.5 Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?
68. We considered these questions, including the sub-questions which we elaborate on below, where relevant in reviewing the IMs.⁸³ We have not considered them in any particular order; nor have we ascribed any set weighting to each question. The questions provide practical tools, or lenses, that we have used to examine the IMs.
69. Submitters identified that s 52A and s 52R should underpin our consideration of the IMs during the review and change elements.⁸⁴ We agree and consider that this framework reflects this. For instance, our fourth question above focusses on s 52R and the first sub-question below considers whether the policy intent of the IM is still consistent with the s 52A purpose.

Is the policy intent behind the IM still relevant and appropriate?

70. Is the policy intent still consistent with the s 52A purpose?

⁸³ The process we have followed in reviewing the IMs and reaching our decisions is discussed in Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016), chapter 3.

⁸⁴ For example, see: Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 42.

71. In considering this question, examples of the factors we took into account are:
- 71.1 What was the IM attempting to achieve, either on its own or as part of the IMs as a package?⁸⁵
 - 71.2 Is the objective of the IM still valid and consistent with s 52A, in light of the type of regulation where the IM is applied?
 - 71.3 Has the relevance of the policy intent been questioned (either by stakeholders, the Court or us)?
 - 71.4 Have external circumstances changed in a way that disrupts the assumptions underlying the original policy decision and therefore would cause a need for a change to the policy behind the IM? For example:
 - 71.4.1 Has the industry changed?
 - 71.4.2 Has relevant economic theory or practice developed?
 - 71.4.3 Have other external circumstances changed?
 - 71.5 Is the IM still required or could the policy intent be achieved without the IM?
 - 71.6 Is there other evidence that suggests that the original policy is no longer promoting s 52A?
72. The ENA and Russell McVeagh (for the ENA and the NZAA) submitted that we should define the policy intent as the 'core' economic principles underlying the IMs when they were determined, and the reasoning set out in applicable IM reasons papers.⁸⁶

⁸⁵ We consider this question to be consistent with the suggested additional question put forward by Russell McVeagh, 'what is the policy intent for the IM?' (See Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 9-10).

⁸⁶ ENA "Input methodologies review – framework for the IM review" (4 August 2016), p. 3; Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 9-10. Russell McVeagh also submitted we should ask "is the weight of the evidence sufficiently compelling to justify a change"; "What is the impact of change on certainty and confidence in the regime?"; and "Would the change be contrary to parties' expectations at the time the IM were determined?" (Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 42. As this submission is more relevant to the change element, we consider it below.

73. By 'policy intent' we mean 'what was the IM attempting to achieve, either on its own or as part of the IMs as a package?' (see first sub-question above at paragraph 71.1) In some instances, the IM in question may, consistent with s 52A, give effect to a particular economic principle, which would form part of the policy intent on those occasions. The key economic principles (discussed in chapter 4) are not likely to be promoted by any one IM in particular; rather it is the package of IMs, as applied through s 52P determinations, that promote the key economic principles (which we discuss further in chapter 4).
74. Some submitters sought that we clarify the status of our 2010 IM reasons papers and ensure that any decision we make which differs from those reasons is a considered and well-explained departure.⁸⁷ Our identification of the policy intent, and consideration of whether the IM still promotes that policy intent, is designed to ensure that we only depart from our previous reasons where the change is likely to better promote the factors set out at paragraph 59. We have identified in our accompanying decision papers where our reasoning marks a departure from our 2010, or subsequent, reasons papers.

Is the IM achieving that intent?

75. Is the IM, either alone or in combination with other IMs, achieving the policy intent behind the IM?
76. In considering this question, examples of the factors we took into account are:
- 76.1 Have external circumstances changed in a way that means the IM might no longer be achieving the policy intent behind it?
- 76.2 Has anything changed in the matters incorporated in the IMs by reference (such as accounting or valuation standards) that means the IM is no longer achieving its purpose?
- 76.3 Has the effectiveness of the IM in achieving its policy intent been questioned (either by stakeholders, the Court or us)?
- 76.4 Is there other evidence that suggests that the IM is no longer achieving its policy intent or has had unintended consequences?

Could the IM be improved to achieve the policy intent better?

77. Could the IM be changed to more effectively achieve the policy intent behind the IM?

⁸⁷ ENA "Input methodologies review – framework for the IM review" (4 August 2016), p. 6-7; Powerco "Submission on input methodologies review draft decisions" (4 August 2016), p. 12.

78. In considering this question, examples of the factors we took into account are:
- 78.1 Have any potential changes been identified (either by stakeholders, the Court or us) that might:
 - 78.1.1 Improve the effectiveness of the IM in achieving its policy intent? or
 - 78.1.2 Reduce any unintended consequences of the IM?
 - 78.2 Have external circumstances changed in a way that means the IM might no longer be the most effective way of achieving the policy intent behind it?
 - 78.3 Is there other evidence that suggests that a change might improve the effectiveness of the IM in achieving its policy intent?
 - 78.4 As a cross-check, could the policy intent be better achieved without changes to the IM but instead through changes to other aspects of the regulatory regime (including through guidance material)?

Could the IM be improved so that it achieves the policy intent as effectively, but in a way that better promotes s 52R or reduces complexity or compliance costs?

79. Could the IM be changed to more effectively promote the s 52R purpose, or reduce complexity or compliance costs, without reducing the effectiveness of the IM in meeting the policy intent behind it?

80. In considering this question, examples of the factors we took into account are:

- 80.1 Have any potential changes been identified (either by stakeholders, the Court or us) that would better promote s 52R or reduce unnecessary complexity or compliance costs?
- 80.2 Is there other evidence that suggests that the IM can be changed to more effectively promote the s 52R purpose, or reduce complexity or compliance costs, without reducing the effectiveness of the IM in meeting the policy intent behind it?

Do changes to other IMs require any consequential changes to the IM in question?

81. Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?

82. In considering this question, examples of the factors we took into account are:

- 82.1 Where a change is made to a price-quality path IM, should a corresponding change be considered to the equivalent IM for ID to maintain alignment between ID and price-quality regulation?
- 82.2 Where a change is made to an IM for one sector, should a corresponding change be considered to the equivalent IM for other sectors to maintain cross-sector consistency?

82.3 Where a change is made to one IM, does it create a need to consider changing another IM in order to (mechanically or substantively) accommodate the change?

83. Russell McVeagh for the ENA and the NZAA submitted that the sub-questions here should incorporate recognition that consequential changes may be required in order to maintain consistency with 'core' economic principles.⁸⁸ As an example, Russell McVeagh submitted that an approach in the asset valuation IM may have been a reason for setting a lower weighted average cost of capital (**WACC**). Therefore, Russell McVeagh submitted, if the approach in the asset valuation is changed, there may need to be a consequential amendment to the WACC IM in order ensure consistency with the principle that suppliers can expect at least a normal return over the life of an asset.⁸⁹
84. Substantive consistency between IMs is an important consideration and one which our sub-questions address (see paragraph 67.5 above). Again, as noted at paragraph 73 above, it is the package of IMs as a whole, as applied through s 52P determinations, that promote the key economic principles discussed in chapter 4. Therefore, in deciding to change the IMs in our decisions, we have been mindful of the impact of the change on the overall balance of the package of IMs in terms of their consistency with s 52A and the key economic principles that guide our application of s 52A.⁹⁰

Change element: Should we change the IMs and, if so, how?

How we reached decisions on whether and how to change the IMs

85. In addition to guiding us in identifying which IMs to consider changing, our decision-making framework guided us in reaching decisions on whether and how to change the IMs. This involved considering proposed changes to the IMs, as well as considering solutions that might lie outside of the IMs.
86. In considering proposed changes to IMs, we applied the factors set out above at paragraph 59—ie, is the change likely to:
- 86.1 promote the Part 4 purpose in s 52A more effectively;
 - 86.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 86.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).

⁸⁸ Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 44.

⁸⁹ Note that our view on FCM is articulated in chapter 4.

⁹⁰ These are discussed in chapter 4.

87. We expand on how we have applied the above factors in reaching decisions on whether to make a change to an IM below and in chapter 4 of this paper.
88. In reaching our decisions, we have also considered, where relevant, whether there are alternative solutions to identified problems with the IMs that do not involve changing the IMs as part of the review. Alternative solutions may include:
- 88.1 considering whether to change the IMs at a later date under s 52X or at the next s 52Y review;⁹¹ or
 - 88.2 options that do not involve changing the IMs, including:
 - 88.2.1 undertaking a separate process involving our summary and analysis or compliance functions;
 - 88.2.2 changing s 52P determinations;
 - 88.2.3 publishing guidance; and/or
 - 88.2.4 a combination of the above.

No specific statutory threshold – but we have only made changes that promote the high-level objectives for the review

89. In our draft framework papers, we noted our view that there is no specific statutory threshold for changing an IM as a result of the IM review.⁹²

⁹¹ Submitters agreed that we should consider whether it was appropriate to make changes to the IM as part of the IM review or whether alternative solutions or changing the IMs at a later date were more appropriate. See, for example: Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 13.

⁹² As discussed in Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 42 and Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016), para 94-97, no specific threshold or standard of proof is referred to in s 52Y or s 52V. The s 52Z(4) 'materially better' standard that applies in IM appeals does not apply in respect of changes to IMs as a result of the s 52Y review. That threshold is specifically for the IM appeals regime.

90. That view received considerable attention in submissions. Most submitters agreed with our view in the narrow sense that there is no *specific* statutory threshold,⁹³ but a number of submitters suggested in response to this view that:
- 90.1 there is an *implicit* statutory threshold for making changes to the IMs as part of the review;⁹⁴ or
- 90.2 that even if there is no *statutory* threshold, we can and should adopt a threshold for making changes to the IMs as part of the review.⁹⁵
91. We remain of the view that there is no specific statutory threshold for making changes to the IMs as part of the review. We acknowledge that there are various statutory criteria for us to take into account when deciding whether to change an IM,⁹⁶ which could be labelled a threshold; however, we do not consider that these amount to a clear and explicit threshold.
92. Rather, our approach has been to make *only those changes* that are likely to promote the factors set out above at paragraph 59. Deciding whether or not to make a change to the IMs requires us to exercise judgement, in light of both the pros and the cons of making the change. The pros⁹⁷ of making a change must outweigh the cons⁹⁸ of making a change. While this approach, in practice, has some similarities with the thresholds suggested by submitters, we have not adopted a practical threshold for change beyond what we describe below.

⁹³ See, for example: Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 12; ENA "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 49-50; BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 4.

⁹⁴ See, for example: Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 4-5; and ETNZ "Submission on IM decision-making discussion draft" (21 August 2015), p. 1.

⁹⁵ See, for example: NZAA "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 43; Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 2-3; Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 12; First Gas Limited "Submission on input methodologies review draft decisions: cost of capital issues (4 August 2016), p. 2; and First State Investments "Input methodologies review: cost of capital (4 August 2016), p. 9 refer to the "onus".

⁹⁶ These are discussed further later in this chapter, including at paragraph 99.

⁹⁷ ie, more effective promotion of the s 52A or s 52R purposes, or a significant reduction in compliance costs, other regulatory costs or complexity without detrimentally affecting the promotion of the s 52A purpose.

⁹⁸ ie, any negative impact the change has on the promotion of s 52A or s 52R purposes, compliance costs, other regulatory costs or complexity.

Response to submissions on the practical threshold for changing the IMs

93. A number of submitters suggested that we should recognise that stability or certainty in the regime is important and therefore adopt a threshold for making changes to the IMs which recognises the importance of stability.⁹⁹ Some suggested this threshold should differ according to the significance or materiality of the IM change being considered and whether a 'core' economic principle was at issue.¹⁰⁰ For instance, changes likely to have a material impact on revenue or likely to alter a 'core' economic principle should have a high threshold, while changes that are unlikely to impact 'regulatory certainty' or alter a 'core' economic principle should have a lower threshold. Some submitters also suggested that we should have a threshold for the amount or cogency of the evidence required before making a change.¹⁰¹
94. We consider that these ideas are broadly consistent with the framework for deciding whether to change the IMs described in this chapter. When weighing up the pros and cons of making changes to the IMs we:
- 94.1 Considered all relevant evidence before us. In considering a particular change, a number of different types of evidence relevant to the pros and cons of making the change might be available, such as empirical, theoretical, and expert advice. Cogent evidence from submitters that a potential change has particular pros or cons, including positive or negative impacts on incentives to invest, helps inform our weighing up of pros and cons.
- 94.2 Evaluated the relative strength and merit of each piece of evidence before us, and considered whether, on balance, in light of all relevant evidence, the pros of the change outweigh the cons. The nature of the evidence needed to make this assessment differs depending on the nature of the potential change. For instance, where there is evidence that the potential cons of a change are significant, there needed to be commensurate evidence of the pros to justify making a change. The more robust and compelling evidence that stakeholders provide in support of or against a change, therefore, the better.

⁹⁹ See, for example: Aurora "Cross-submission – Input methodologies review: Draft decision and determination papers" (18 August 2016), p. 3-4; Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 12; NZAA "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 43; Transpower "Input methodologies: threshold for changing IMs and the creation of new IMs" (25 June 2015), p. 2-3; NZAA "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), p. 12; Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 3-9.

¹⁰⁰ See, for example: Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 4; and Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015), para 13-14; Transpower "Input methodologies review: Cross-submission on Problem definition and decision-making frameworks" (4 September 2015).

¹⁰¹ Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 13.

95. We do not consider that s 52A or s 52R invariably direct against change.¹⁰² Rather, when weighing the pros and cons of a change any claim that:
- 95.1 a change will impact on predictability of outcomes should be supported by evidence of any positive or negative impact on s 52A (most likely s 52A(1)(a)); or
- 95.2 a change will impact on certainty about what the rules are should be supported by evidence of its positive or negative impact on s 52R or s 52A.¹⁰³

Factors relevant to the weighing up of pros and cons

96. Submitters requested that we elaborate on the factors we consider when determining whether to make a change.¹⁰⁴
97. When we talk about the pros and cons of change, we mean the positive and negative impacts, respectively, that the change is likely to have on promoting the long-term benefit of consumers in accordance with the central purpose of Part 4 (s 52A). As recognised in our high-level factors, evidence that a change will more effectively promote of the s 52A purpose is a pro which weighs in favour of change. Likewise, evidence that a change will detrimentally affect the promotion of s 52A weighs against change.
98. A proposed change might have no likely impact on some of the s 52A(1)(a)-(d) outcomes that we are required to promote for the long-term benefit of consumers, a positive impact on some, and a negative impact on others. In such cases we have weighed the positive and negative impacts to reach a decision on whether, overall, the pros outweigh the cons such that the change has an overall net long-term benefit to consumers.

¹⁰² Submitters submitted that there was inherent certainty value in the status quo and that we should consider the impact of change on certainty. See for instance Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 13; Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 45.

¹⁰³ For instance, evidence that an IM is ambiguous or has been interpreted differently by different parties.

¹⁰⁴ For example, see Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 45; Transpower "Input methodologies review; Problem definition and decision-making frameworks" (21 August 2015), para 3.2-3.4.

99. Other statutory provisions, including s 52R, are also relevant to the weighing of the pros and cons of proposed changes. As recognised in our high-level factors, better promotion of the s 52R purpose is a pro which weighs in favour of change. The extent to which other statutory criteria are relevant depends on the nature of the change being considered. Such provisions include:
- 99.1 other requirements relating to input methodologies (s 52T);
 - 99.2 the purpose of ID (s 53A);
 - 99.3 the purpose of default/customised price-quality regulation (s 53K);
 - 99.4 requirements relating to energy efficiency (s 54Q);
 - 99.5 decisions made under the Electricity Industry Act 2010 (s 54V); and
 - 99.6 decisions under the Gas Act 1992 (s 55I).
100. We also weighed any reductions in compliance costs, other regulatory costs or complexity that do not detrimentally affect the promotion of the s 52A purpose as a pro. As noted in the Report on the review, as a result of our effectiveness review, we have made a number of minor changes that fall into this category.¹⁰⁵
101. As we go on to discuss below, we also consider that:
- 101.1 the weighing up of pros and cons of a change is a qualitative exercise, though some quantitative analysis might be informative in situations where doing so is practicable and meaningful;
 - 101.2 the type of regulation the IM affects is particularly relevant to the weighing up of pros and cons; and
 - 101.3 the pros and cons of a package of small changes might provide a different result than considering the pros and cons of each of the changes in that package individually.
102. As explained further in chapter 4, we also consider that certain key economic principles are relevant to the weighing exercise in some circumstances but are subordinate to s 52A and do not contain or create a threshold for change.

¹⁰⁵ Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

The role of cost-benefit analysis

103. As noted in our draft framework papers, we see the weighing up of the pros and cons of a change as a qualitative exercise, though some quantitative analysis might be informative in situations where doing so is practicable and meaningful.¹⁰⁶ Therefore, while the Act does not require a formal cost-benefit analysis of proposed changes to the IMs, quantitative cost-benefit analysis may usefully support our qualitative assessment of the pros and cons of a proposed change in some situations.
104. A number of submitters suggested that we should incorporate a formal cost-benefit analysis into our framework.¹⁰⁷ We maintain our position of only undertaking a quantitative analysis where this would clearly add real value to our weighing of the pros and cons of a change.

The type of regulation that the IM affects is also relevant

105. In considering whether the pros of making a change to the IMs outweigh the cons, we also took into account the role of the IM in question in light of the type of regulation it affects.
106. As noted in the initial IMs reasons paper, the IMs that we have set for price-quality regulation have a different focus from those that we set for ID regulation:¹⁰⁸
- 106.1 The IMs we have determined for price-quality regulation cover:
- 106.1.1 matters particularly relevant to setting maximum allowable revenues (ie, set under s 52T(1)(a));
- 106.1.2 regulatory processes and rules relating to the specification and definition of prices (ie, the 'form of control'), the reconsideration of price-quality paths (ie, 'reopeners'), the incremental rolling incentive scheme (**IRIS**), and supplier amalgamations (ie, set under s 52T(1)(c)); and
- 106.1.3 matters relating to CPP proposals (ie, set under s 52T(1)(d)).¹⁰⁹

¹⁰⁶ Commerce Commission "Developing decision-making frameworks for the current input methodologies review and for considering changes to the input methodologies more generally – discussion draft (22 July 2015), para 26; Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

¹⁰⁷ See, for example: ENA "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), p. 10; Transpower "Input methodologies review – problem definition and decision-making frameworks" (21 August 2015), para 3.5; Transpower "Input methodologies review: Cross-submission on Problem definition and decision-making frameworks" (4 September 2015).

¹⁰⁸ See for example: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.8.1–2.8.2.

¹⁰⁹ We have also set IMs relating to pricing methodologies for gas pipeline businesses which only potentially apply under a customised price-quality path (under s 52T(1)(b)).

- 106.2 The IMs we have determined for ID regulation cover matters particularly relevant to assessing profitability (ie, set under s 52T(1)(a)), which is a key aspect of ensuring that sufficient information is available to interested persons to assess whether the purpose of Part 4 is being met (s 53A).
107. As such, in reaching a decision on whether to change a given IM, we considered the significance of that IM in the context of the type of regulation to which it applies. For instance:
- 107.1 For an ID IM, we considered: how significant is the role of the IM in assessing the profitability of regulated suppliers?
- 107.2 For a price-quality path IM, we considered: how significant is the role of the IM in setting the revenue of regulated suppliers?
108. The more significant the IM is to the type of regulation in light of those questions, the more even a small change to an IM set under s 52T(1)(a) might have a significant impact on the promotion of either the s 52A or s 52R purposes.¹¹⁰ Therefore, the type of regulation affected by the IM is a key consideration when weighing up the pros and cons of changing an IM.
109. In the case of IMs relating to specific rules and processes, or to CPP proposals, small changes to an IM can have a significant impact on the promotion of the s 52R purpose, or on complexity and compliance costs.
110. Russell McVeagh for the ENA and the NZAA submitted that the form of regulation will also influence whether a change to an IM is necessary to more effectively promote the purpose statements:¹¹¹

For example, an IM for DPP regulation will have a direct impact on incentives, whereas an IM for information disclosure regulation has a more indirect impact, as it only establishes how information must be disclosed. This may mean that greater precision or specificity is required under a DPP (which may require change to an existing IM to be considered), compared to information disclosure where more generality and flexibility could be appropriate (and therefore less reason for change may exist).

¹¹⁰ Table X1 of the initial IM reasons paper presented the Commission's view on the key relevance of the various IMs to the regulatory objectives in s 52A at the time the IMs were first set: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), p. iv.

¹¹¹ Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 32.

111. As noted above at paragraph 108, we agree that the more significant the IM in question (in terms of assessing profitability or setting revenue), the more likely it is that even a small change may have a large impact on the long-term benefit of consumers. However, we do not agree that price-quality path IMs will always require a greater level of precision than ID IMs. The role of a particular IM within the type of regulation it supports, rather than simply whether it is a price-quality path or ID IM, is more likely to be relevant to the level of precision required of that IM.

Considering minor changes as a package

112. When considering some minor changes, the pros of making a particular change in isolation might not outweigh the cons. However, when bundled together with other small changes, the pros of the package of changes might outweigh the cons of the package of changes. This can occur, for example, where a number of minor changes are proposed for one IM. The first change might have a relatively high 'cost' associated with it, but the marginal cost of the additional changes to the same IM might then be lower, while the benefits continue to accumulate.

Chapter 4: Application of key economic principles

Purpose of this chapter

113. The purpose of this chapter is to:

113.1 describe three key economic principles that have provided useful guidance to us in giving effect to s 52A when making decisions in the IM review; and

113.2 respond to submissions on key economic principles and their status.

Introduction to the key economic principles

114. As noted above at paragraph 41, submitters emphasised the importance of "core economic principles" to the Part 4 regime, the IM review, and our decisions about whether we should amend an IM.¹¹² Some submitters suggested that these principles form a "regulatory compact" between us and regulated suppliers and that this compact means there should be a significant threshold before we can alter a core economic principle, or an IM that is based on a core economic principle.

115. Some of the core economic principles put forward by submitters included:¹¹³

115.1 we should err on the side of risking over compensation given the asymmetric social costs of under compensation;

115.2 dynamic efficiency should be favoured over allocative efficiency where there is a trade-off; and

115.3 suppliers should have the opportunity to earn normal returns.

116. We agree that there are certain key economic principles that we have applied in previous decisions to help us to give effect to the purpose of Part 4 (s 52A). Although, we differ somewhat from submitters in our articulation of these key economic principles, and in our view on the status that these principles have.

¹¹² See, for example: Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 4-5, 9-11; Orion "Submission on the IM review" (21 August 2015), para 7.2; Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015), para 13.

¹¹³ See, for example: Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 9.

Overview of the key economic principles

117. As indicated in our draft framework paper, we consider there are three key economic principles that are relevant to the Part 4 regime.¹¹⁴
- 117.1 **Real financial capital maintenance (FCM):** we provide regulated suppliers the expectation *ex-ante* of earning their risk-adjusted cost of capital (ie, a 'normal return'), which provides suppliers with the opportunity to maintain their financial capital in real terms over time frames longer than a single regulatory period.¹¹⁵ However, price-quality regulation does not *guarantee* a normal return over the lifetime of a regulated supplier's assets.¹¹⁶
- 117.2 **Allocation of risk:** ideally, we allocate particular risks to suppliers or consumers depending on who is best placed to manage the risk,¹¹⁷ unless doing so would be inconsistent with s 52A.
- 117.3 **Asymmetric consequences of over-/under-investment:** we apply FCM recognising the asymmetric consequences to consumers of regulated energy services, over the long term, of under-investment vs over-investment.¹¹⁸
118. We elaborate on each of these three key principles and our view of their status below. In reaching our decisions on the IM review, we have considered the effect of our changes on the overall consistency of the regime with these principles. However, as discussed below, we do not consider the status of these principles amounts to a regulatory compact such that a threshold is imposed for changing certain IMs.

¹¹⁴ There are also economic principles that underpin particular IMs, which could be described as part of the policy intent of those particular IMs. In this paper, we are just concerned with those economic principles that have broad application across the Part 4 regime. Also, in our topic paper on the CPP requirements, we describe and apply a 'proportionate scrutiny principle' (see Commerce Commission "Input methodologies review decisions: Topic paper 2: CPP requirements" (20 December 2016)). The proportionate scrutiny principle is derived from good regulatory practice, rather than being an economic principle. As such, it is not discussed here.

¹¹⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28, 2.8.7.

¹¹⁶ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para 2.54.4, A28 and A35; Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28.

¹¹⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.4.

¹¹⁸ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 2.39.

Real financial capital maintenance

119. The FCM principle is that regulated suppliers should have the expectation *ex-ante* of earning their risk-adjusted cost of capital (ie, a 'normal return'), which provides them with the opportunity to maintain their financial capital in real terms over time frames longer than a single regulatory period.¹¹⁹ However, price-quality regulation does not *guarantee* a normal return over the lifetimes of a regulated supplier's assets.¹²⁰
120. Given that a typically efficient firm would expect *ex-ante* to earn at least a normal rate of return over time, application of this principle can assist in promoting the s 52A(1) outcomes and purpose.¹²¹

Application of FCM in price-quality regulation

121. In practice, we apply this principle at the beginning of each regulatory period, based on current expectations of future circumstances at that time, by:
- 121.1 recognising the asymmetric consequences to consumers over the long term of under-investment vs over-investment;¹²²
 - 121.2 providing appropriate compensation to suppliers for the risks they are required to manage either:
 - 121.2.1 through an *ex-ante* allowance to suppliers for bearing the risk (through either the WACC and/or cash-flows), the cost of which ultimately falls on consumers;¹²³ or
 - 121.2.2 by providing for ex-post compensation of actual costs incurred when the risk eventuates – although ex-post regulatory assessments of business performance that affect subsequent prices should be minimised;¹²⁴ or

¹¹⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28, 2.8.7.

¹²⁰ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para 2.5.4.4, A28 and A35; Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28.

¹²¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28.

¹²² Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 2.39.

¹²³ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para A33.

¹²⁴ Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para A34.

- 121.2.3 through a combination of the above, provided there is no double counting, and where it is in the long-term benefit of consumers that we do so;¹²⁵ and
- 121.3 using estimates/forecasts of cost of capital, prudent capex, prudent opex, and demand that are free of systematic bias.¹²⁶
122. As a result of applying the FCM principle to each regulatory period when setting price-quality paths:¹²⁷
- 122.1 suppliers have the opportunity to earn a normal return on their efficient investments, consistent with s 52A(1)(a) and (d);
- 122.2 suppliers are rewarded for superior performance, consistent with s 52A(1)(b); and
- 122.3 efficiency gains are shared with consumers when the price path is reset (or via the IRIS mechanism), consistent with s 52A(1)(c).

Application of FCM in information disclosure regulation

123. We have also applied FCM when setting ID requirements.¹²⁸ The rationale for this application is that disclosures which are consistent with the concept of FCM enable interested persons to assess the extent to which regulated supplier's profitability levels are consistent with outcomes produced in a workably competitive market—meaning 'normal returns'. In the past, FCM has been applied to guide a number of specific decisions documented in the reasons papers for ID.¹²⁹

¹²⁵ Commerce Commission "Input methodologies review: Invitation to contribute to problem definition" (16 June 2015), para 107.

¹²⁶ Commerce Commission "How we propose to implement default price-quality paths for electricity distributors from 1 April 2015" (20 October 2014), para 4.4.1.

¹²⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.8.18.

¹²⁸ For example: Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 3.5; Commerce Commission "Information disclosure for electricity distribution businesses and gas pipeline businesses: Final reasons paper" (1 October 2012), para 3.8.

¹²⁹ For example: Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 3.5; Commerce Commission "Information disclosure for electricity distribution businesses and gas pipeline businesses: Final reasons paper" (1 October 2012), para 3.8.

Allocation of risk

124. Our risk allocation principle is that, ideally, particular risks should be allocated to suppliers or consumers depending on which are best placed to manage them.¹³⁰ Workably competitive markets tend to manage risks efficiently by allocating identified risks to the party considered best placed to manage them.¹³¹ Applying this principle in the context of Part 4 regulation tends to promote the s 52A(1)(a)-(d) outcomes for the long-term benefit of consumers in a manner similar to the way those outcomes are promoted in workably competitive markets.¹³² In particular, if suppliers are not compensated for risks that are outside their control, then this might have detrimental incentives on investment.
125. This principle was not originally identified by submitters but is a key economic principle that we have taken into account in making regulatory decisions.
126. As explained in the problem definition paper,¹³³ managing risks includes:
- 126.1 actions to influence the probability of occurrence where possible;
 - 126.2 actions to mitigate the costs of occurrence; and
 - 126.3 the ability to absorb the impact where it cannot be mitigated.
127. Regulated suppliers have various risk management tools at their disposal, including insurance, investment in network strengthening/resilience, hedging, contracting arrangements and delaying certain decisions, like when to make large investments. Some of these tools may have associated costs to suppliers.

Application of the risk allocation principle to price-quality regulation

128. As noted above, FCM is applied to price-quality regulation on the basis of compensating suppliers for the risks they are required to manage.

¹³⁰ Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 2.6.4, 5.29, 8.20; Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para B22.

¹³¹ As noted in paragraph 10 above, our focus is not on replicating all the potential outcomes of workably competitive markets per se but rather with specifically promoting the s 52(1)(a)-(d) outcomes for the long term benefit of consumers consistent with the way those outcomes are promoted in workably competitive markets.

¹³² Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para B31, B37.

¹³³ Commerce Commission "Input methodologies review: Invitation to contribute to problem definition" (16 June 2015), para 105-106.

129. In order to determine the regulatory settings necessary to give effect to the FCM principle, we need to consider the allocation of risk. We aim to allocate risks to the party best placed to manage them.¹³⁴ Once risks are allocated between suppliers and consumers, we compensate suppliers and consumers¹³⁵ accordingly through the price-quality path we set.¹³⁶
130. As such, the FCM principle has primacy over the risk allocation principle. Under Part 4, consumers ultimately bear most risks over the long term, but there is some scope for ensuring suppliers bear 'within-period' risks that they are better placed to manage where this is consistent with s 52A.

Application of the risk allocation principle to information disclosure regulation

131. We have also applied the principle that risks are allocated to the party best placed to manage them in ID regulation.¹³⁷ In the context of airports, we noted that, when considering how to allocate risks, it may be useful to consider any risk sharing arrangements that have already been agreed between airports and airlines.¹³⁸

Asymmetric consequences of over-/under-investment

132. The FCM principle is applied recognising the asymmetric consequences to consumers of regulated energy services, over the long term, of under-investment vs over-investment.¹³⁹ However, if suppliers are already at or past the optimal level of investment, there is no benefit to consumers in incentivising increased investment.

¹³⁴ We note that submitters expressed mixed views on whether we should expand on how we allocate risks. See, for example: MEUG "First cross-submission on Input methodologies draft review decisions" (18 August 2016), p. 4-5; MEUG "Submission on input methodologies review draft decisions" (4 August 2016), p. 3, 13; IWA (report prepared for MEUG) "Input methodologies review draft decisions – Risk allocation between suppliers and customers" (4 August 2016), para 4.1; Progressive Enterprises "IM review draft decisions cross submission" (18 August 2016), p. 2; Oji Fibre Solutions "IM review draft decisions cross submission" (18 August 2016), p. 2; ENA "Input methodologies review draft decisions – cross submission" (18 August 2016), para 57-60.

¹³⁵ Where consumers bear risks, they are, in effect, compensated through prices that are lower than they would have been had suppliers borne those risks.

¹³⁶ See Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para B20-B97, C5.2; and Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), chapter 3.

¹³⁷ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 2.6.4 and 5.2.11.

¹³⁸ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), footnote 200.

¹³⁹ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 2.39

133. This principle has developed from the following earlier principles (which submitters have suggested should form core economic principles¹⁴⁰):

133.1 when faced with a trade-off, we should err on the side of risking over-compensating suppliers given the asymmetric social costs to consumers of under compensation over the long-term; and

133.2 where there is a trade-off between dynamic efficiency and allocative efficiency we should always favour outcomes that promote dynamic efficiency.

134. We applied the principles described at paragraph 133 in our 2010 IMs reasons papers, observing there, in the context of our decision to adopt the 75th percentile WACC:¹⁴¹

The reason for the Commission adopting a cost of capital estimate that is above the mid-point for default/customised price-quality regulation, is that it considers the social costs associated with underestimation of the cost of capital in a regulatory setting involving constraining price to end users (as opposed to information disclosure applications and situations involving competition among suppliers), are likely to outweigh the short-term costs of overestimation (i.e. if the cost of capital is set too low, the incentives for suppliers to undertake efficient investments will be reduced, which would be inconsistent with the long-term benefit of consumers). That is, the Commission is acknowledging that where there is potentially a trade-off between dynamic efficiency (i.e. incentives to invest) and static allocative efficiency (i.e. higher short-term pricing), the Commission will always favour outcomes that promote dynamic efficiency. The reason is that dynamic efficiency promotes investment over time and ensures the longer term supply of the service, which thereby promotes the long-term benefit of consumers (consistent with outcomes in workably competitive markets).

135. We also observed that the:¹⁴²

most significant benefits of workably competitive markets to consumers over the long-term are often considered to be incentives for dynamic efficiency—the discovery and use of new information that leads to the development of new goods and services, and to new, more efficient techniques of production.

¹⁴⁰ Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), p. 9.

¹⁴¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para H1.31.

¹⁴² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28.

136. In a number of IM-setting contexts we therefore reasoned that greater weight should be given to dynamic efficiency than allocative efficiency.¹⁴³ As we linked placing greater weight on dynamic efficiency as being consistent with s 52A(1)(a)—ie, the promotion of incentives to innovate and invest—that may have suggested we proposed giving greater weight to limb (a) of the s 52A purpose over other limbs.¹⁴⁴
137. These ideas were extensively discussed in the IMs merits review judgment and underpinned the challenge to our use of 75th percentile WACC.¹⁴⁵ The Court's primary concern was not with whether the principles were correct in the abstract, but rather with its doubt at our rationale for adopting the principles (that rationale being that dynamic efficiency promotes investment over time and thus the long-term benefits of consumers)¹⁴⁶ and our application of that approach (favouring any higher level of investment irrespective of its nature).¹⁴⁷ The Court was doubtful that if "dynamic efficiencies are, as the Commission believes, most important" that higher expected returns will stimulate that outcome.¹⁴⁸ In respect of s 52A itself, the Court rejected any ranking of the (a)-(d) outcomes and stated that "the paragraph (a) and (d) outcomes need to be balanced."¹⁴⁹

¹⁴³ For example: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 5.3.13 (tax IM) and para 6.7.12, H1.31 and H11.62 (cost of capital IM).

¹⁴⁴ In particular, in the context of setting the cost of capital IM, we explicitly said that preserving incentives to invest and innovate has been "given greater weight than limiting suppliers' ability to extract excessive profits": Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 6.7.12.

¹⁴⁵ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, part 6.

¹⁴⁶ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para H1.31. Queried by the Court in *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 1462.

¹⁴⁷ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 1462.

¹⁴⁸ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 1474.

¹⁴⁹ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 684.

We developed the 'asymmetric consequences of over-/under-investment' principle in the context of the 2014 WACC percentile decision

138. Following the High Court judgment, we re-consulted on the appropriate WACC percentile for price-quality regulation, and considered evidence in support of using a WACC percentile above the mid-point. In our 2014 WACC percentile decision,¹⁵⁰ we reconfirmed that, in setting the WACC percentile, we should recognise the asymmetric consequences to consumers of regulated energy services over the long-term of under-investment vs over-investment when setting price-quality regulation.¹⁵¹
139. However, rather than suggesting that we would err on the side of over-compensating suppliers as a 'core' principle with general application, in the 2014 WACC percentile decision, we stated that:¹⁵²

... our decision on the appropriate WACC percentile involves the exercise of judgement in light of the s 52A purpose and the evidence available to us. In exercising our judgement, we consider some conservatism in selecting the percentile (ie, erring on the high side) remains appropriate. Doing so recognises there is fundamental uncertainty regarding the appropriate WACC percentile, and that the long-term costs to consumers of under- and over-estimating the WACC are asymmetric. Therefore, erring on the high side is likely to be in consumers' interests. Doing so reflects otherwise unquantified (or unquantifiable) factors that are likely to result in greater benefits to consumers in the long term, in terms of efficient investment and innovation that meets current and future consumers' demand at the quality that they want.

¹⁵⁰ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014).

¹⁵¹ NZAA has submitted that a similar principle should apply in the context of airport ID regulation: NZAA "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), p. 33-34. However, as explained in Topic paper 6: WACC percentile for airports, the fact that airports are only subject to ID, plus a number of other airport-specific factors, suggests the risk of asymmetric consequences is lower for airports than for energy businesses. Airports can explain their reasons for estimating a higher WACC and a different target return at the time they disclose their price setting approaches.

¹⁵² Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 2.39, A50.

140. During consultation on the 2014 WACC percentile decision, our expert peer reviewer, Professor Ingo Vogelsang, had the following observation on the question of dynamic efficiency versus other dimensions of efficiency:¹⁵³

... the often-claimed superiority of dynamic over static efficiency only holds if (a) investment is significantly below the dynamic optimum and (b) the regulator uses total surplus instead of consumer welfare as the relevant criterion. I therefore suggest exploring the market failures that lead to under-investment and the policies in place for dealing with these failures. My conjecture is that these policies are generally better targeted and are likely to yield better outcomes. In contrast, a policy of using the WACC percentile is going to be better if the other policies are not in place, not effective or are viewed as too interventionist. Examples, where the WACC policy might be more effective are w.r.t. innovations.

141. Professor Vogelsang also observed that if suppliers are already at or past the optimal level of investment, there is no benefit to consumers in incentivising increased investment.
142. Consequently, in the 2014 WACC percentile decision, we did not reiterate our previously stated position that dynamic efficiency considerations would always be favoured over allocative efficiency, or solely link the promotion of dynamic efficiency with the promotion of investment.

The status of the key economic principles

143. A number of submitters suggested that the 'core' economic principles they identified formed a regulatory compact between regulated suppliers, us and/or consumers.¹⁵⁴
144. A regulatory compact could be understood as an (implicit) agreement between a regulator and regulated parties. Submissions imply that the agreement (or understanding) is that regulated suppliers will continue to invest in their networks on the understanding that we will hold true to certain economic principles, such as FCM. This, suppliers submitted, will promote certainty and provide investment incentives.¹⁵⁵

¹⁵³ Ingo Vogelsang "Review of Oxera's report, Input methodologies – Review of the '75th percentile' approach" (10 July 2014), para 24.

¹⁵⁴ See, for example: Unison "Submission on input methodologies review draft decisions" (4 August 2016), p. 4, 10-11; NZAA "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 45; Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 6-7, 18; Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015), para 14; Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 24. Powerco has, however, submitted in response to our draft decision framework paper that "the extent that the IMs amount to a regulatory compact is, in our view, a moot point": Powerco "Submission on input methodologies review draft decisions" (4 August 2016), p. 13.

¹⁵⁵ See footnote 154.

145. Submitters suggested that the compact stemmed from our previous decisions, as described in the existing IMs and reasons papers.¹⁵⁶
146. In the context of the IM review, this 'compact' is said to create a threshold for changing IMs to which 'core' economic principles are relevant.

Our view of the status of the key economic principles

147. We do not agree with submitters that the economic principles discussed in this chapter (or any economic principles) amount to a regulatory compact. Rather, the three key economic principles listed at paragraph 117 provide useful guidance to us in giving effect to s 52A when making decisions in the IM review. These economic principles are subordinate to s 52A and we can only apply them in so far as they assist us to give effect to s 52A. That is, the principles are not an outcome we seek to give effect to in and of themselves; rather, they are a means to an outcome—that outcome being promotion of the long-term benefit of consumers in accordance with s 52A.¹⁵⁷
148. When applying these key economic principles in the past, we have done so because we considered the principles to be consistent with the s 52A purpose. FCM, for example, we have used as a way of promoting s 52A(1)(a)-(d) outcomes that would be achieved in competitive markets—ie, in competitive markets suppliers expect to make at least a normal return over the long term. However, we have also recognised that the FCM concept is not absolute—it does not guarantee that regulated suppliers earn a normal return over the life of the assets, as such a guarantee would be inconsistent with s 52A.¹⁵⁸
149. We have also applied FCM recognising the asymmetric consequences of over-investment and under-investment to the long-term benefit of consumers and sought, where practicable, to allocate risks between consumers and suppliers according to the party best placed to manage them, but only where this is consistent with s 52A.

¹⁵⁶ See footnote 154.

¹⁵⁷ This view was supported by MEUG. See MEUG "First cross-submission on Input methodologies draft review decisions" (18 August 2016), para 15.

¹⁵⁸ We note that some submitters have suggested we should express a stronger commitment to FCM. For example, see ENA "Submission on IM review draft decisions – Framework for the IM review" (4 August 2016), p. 5-6; ENA "Submission on IM review draft decisions – Impact of emerging technologies" (4 August 2016), p. 12; Powerco "Submission on input methodologies review draft decisions" (4 August 2016), p. 14.

150. The Court approved of this approach in *Wellington International Airport Ltd v Commerce Commission*, observing that:¹⁵⁹

[256] Central to the Commission's approach to Part 4 regulation and to regulatory control of natural monopolies more generally are the related concepts or principles of NPV (net present value) = 0 (NPV = 0) and financial capital maintenance (FCM). In terms of the Commission's determination of the IMs, these are first mentioned in the executive summary to the June 2009 IMs Discussion Paper. There the Commission, in what we think is a non-controversial way, explains the relationship between the s 52A(1) purpose and outcomes, and economic principles stemming from the three dimensions of economic efficiency – allocative, productive and dynamic – which the s 52A(1) outcomes both reflect and are designed to promote. The Commission comments:

The Commission considers that the application of the 'Net Present Value equals zero' approach ('NPV=0'), and the related concept of real financial capital maintenance (FCM), are consistent with these principles.

151. To the extent the key economic principles continue to assist us to give effect to the s 52A purpose and outcomes we would not depart from them lightly. The Part 4 regime was intended to provide greater certainty over time,¹⁶⁰ and we accept that wholesale rejection of principles we have consistently applied may affect this certainty. However, if the principles cease to be consistent with s 52A, or are not in a particular situation consistent with s 52A, we would be transparent with stakeholders about the fact that we could not continue to apply these principles.
152. Specifically, we acknowledge that there may come a time when, due to the development of emerging technologies or other circumstances, the key economic principles no longer assist us in promoting the s 52A purpose and application of these principles is no longer sustainable. Over the longer term, this could be one possible outcome (although not a probable outcome, under currently available information) of the continued uptake of some emerging technologies that may act as substitutes to the regulated service. The market risk, in that context, is that if enough consumers disconnect from the network, the remaining consumers will not be willing or able to pay the prices that would be required for suppliers to achieve FCM, even if our price path remains consistent with FCM. There may also be a political risk in that if circumstances change to a sufficient extent, the government may intervene and amend or repeal Part 4. If such a 'tipping point' occurs, regardless of any action we might take, suppliers may not be able to achieve FCM.
153. The application of FCM in a context of changing demand for regulated services is discussed further in Topic paper 3: The impact of emerging technologies in the energy sector.¹⁶¹

¹⁵⁹ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 256.

¹⁶⁰ *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 135.

¹⁶¹ Commerce Commission "Input methodologies decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016).



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20 December 2016	978-1-869455-46-0	Input methodologies review decisions: Topic paper 2 – CPP requirements
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20 December 2016	978-1-869455-49-1	Input methodologies review decisions: Topic paper 5 – Airports profitability assessment
20 December 2016	978-1-869455-50-7	Input methodologies review decisions: Topic paper 6 – WACC percentile for airports
20 December 2016	1178-2560	<i>Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24</i>
20 December 2016	1178-2560	<i>Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25</i>
20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26</i>
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27</i>
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28</i>
20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29</i>

Commerce Commission
Wellington, New Zealand

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Chapter 1: Introduction

Purpose of this report

1. The purpose of this report is to:
 - 1.1 present the results of our review of the input methodologies (IMs) for electricity lines services, gas pipeline services and specified airport services in accordance with our decision-making framework;¹ and
 - 1.2 summarise our decisions on whether to change the IMs, and explain our reasons for changing or not changing them. Our decisions reflect both our findings in the key topic areas for the review and the findings of our wider effectiveness review of the IMs.

The role of this report in presenting our decisions on the IM review

2. This report records our decisions on whether to change the pre-review IM decisions as a result of the IM review.² For those pre-review IM decisions we have changed, it explains how and why.³ It also explains our reasons for not changing the pre-review IM decisions we have decided not to change as part of the IM review.
3. The framework we applied in reaching our decisions is set out in a separate paper, published alongside this report.⁴ The framework paper explains that we have only changed the IMs where this is likely to:
 - 3.1 promote the Part 4 purpose in s 52A more effectively;
 - 3.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 3.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
4. This report is framed in terms of the pre-review IM decisions and whether we have decided to change them or change how they are implemented. In many cases, the report does not necessarily go down to the level of explaining the detail of the IM amendments determinations that we have also published today to give effect to the changes to our pre-review IM decisions.

¹ As noted at paragraphs 24-27, the Transpower Capex IM is outside the scope of the review, there are some specific areas within the scope of review where we have not yet reached decisions, and not all areas within the scope of the review are covered by this report.

² Again, with the exceptions noted at paragraphs 24-27.

³ As we discuss further below, we derived the pre-review IM decisions from our previous IM reasons papers. The set of pre-review IM decisions were given effect to through the IM determinations published prior to today.

⁴ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

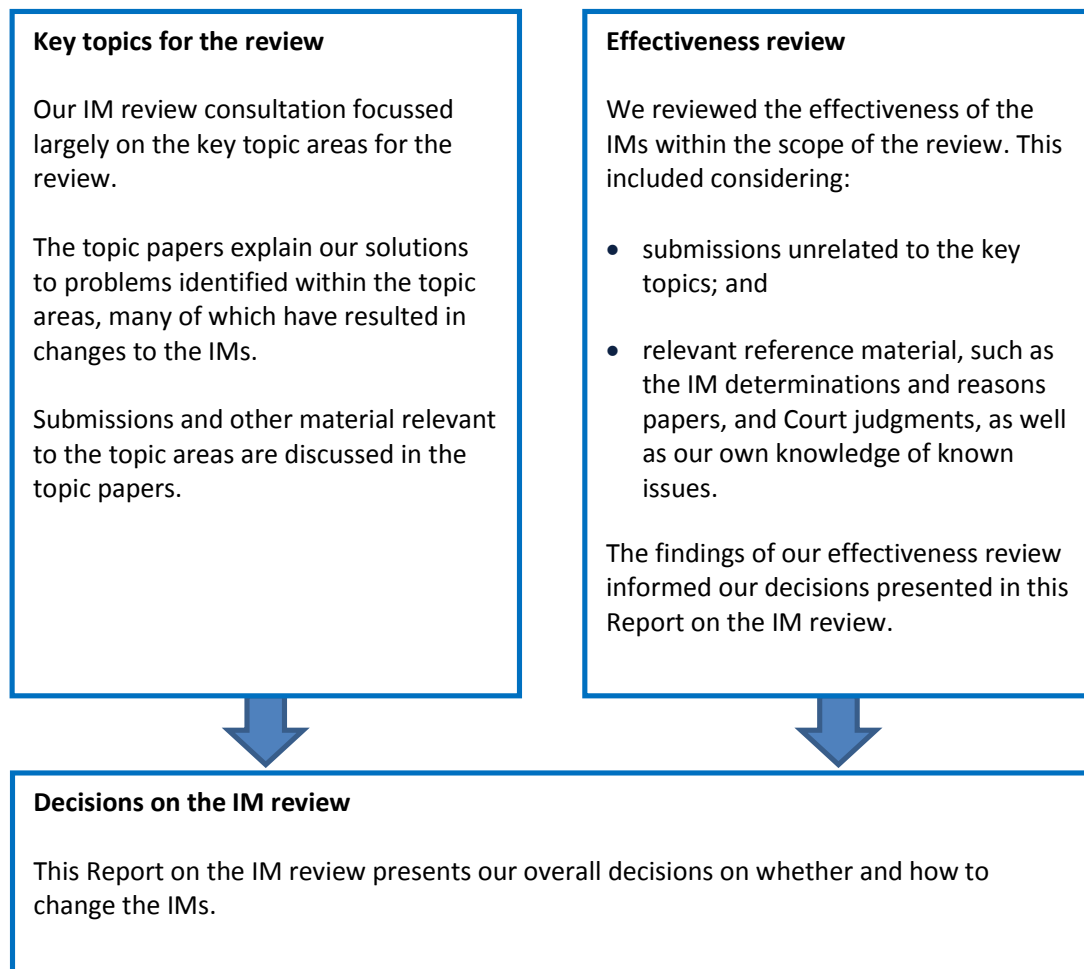
5. The amendments determinations give effect to the IM review by changing the IM determinations to reflect our decisions.
6. The topic papers explain our solutions to the problems identified within each topic area. Most of those solutions involve changes to the IMs, but some involve changes to other aspects of the Part 4 regime.⁵
7. This report records our decisions on how we have changed our pre-review IM decisions to give effect to those solutions. For those decisions (ie, that are driven by a solution to a problem discussed in a topic paper), we generally refer back to the reasoning in the relevant topic paper rather than repeating the reasoning in this report.
8. As illustrated by Figure 1, this report also presents decisions we have reached on additional matters not covered by the topic papers.⁶ These decisions record the results of our effectiveness review of the IMs, which was based on a review of:⁷
 - 8.1 stakeholder submissions on the IM review; and
 - 8.2 relevant reference material, such as the IM determinations and reasons papers, and Court judgments, as well as our own knowledge of known issues.

⁵ For example, Topic paper 5: Airports profitability assessment, explains a number of changes we have made to the information disclosure requirements for airports as part of the solution to problems identified in that topic area.

⁶ Most of the changes in this category are minor; however, we generally provide more explanation for these decisions than those that are also discussed in a topic paper.

⁷ Our effectiveness review process is described in more detail in the Introduction and Process paper. Commerce Commission "Input methodologies review decisions: Introduction and process" (20 December 2016).

Figure 1: The sources of the decisions presented in this report



9. We received a number of submissions on our draft IM determinations and revised draft IM determinations that set out marked-up drafting suggestions to fix errors or improve the drafting style or readability of the IMs.⁸ Although we have not accepted all of these drafting suggestions, we have endeavoured to accept those which promote the high-level objectives for the review, as set out in the framework paper, and would improve the clarity and workability of provisions while not affecting their meaning, or having consequential impacts. As some of these changes are minor in nature, we have not detailed them in this report.

⁸ We particularly acknowledge the Board of Airline Representatives NZ (**BARNZ**), Electricity Networks Association (**ENA**), the New Zealand Airports Association (**NZAA**) and Transpower for their substantial and detailed contributions.

10. As noted above, this report presents a number of changes to the IMs that were driven from our effectiveness review, rather than as solutions to problems identified within the key topics. The bulk of these changes are aimed at clarifying the rules, removing ambiguities, correcting errors, or reducing unnecessary complexity and compliance costs. We consider that, collectively, these should better promote s 52R by increasing certainty about what the rules are, as well as reducing complexity and compliance costs.
11. The framework paper sets out the types of questions we considered in reviewing the IMs, such as:⁹
 - 11.1 Is the policy intent behind the IM still relevant and appropriate?
 - 11.2 Is the current IM achieving that intent?
 - 11.3 Could the current IM achieve the policy intent better?
 - 11.4 Could the current IM achieve the policy intent as effectively, but in a way that better promotes s 52R or reduces complexity or compliance costs?
 - 11.5 Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?
12. It also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.

How this report presents the results of the IM review

13. This paper presents the results of the IM review for each of the pre-review IM decisions. We consider that this is easier to follow, and more useful, than presenting the results of the review on an 'IM determination, clause-by-clause' basis.
14. Using the IM overview tables in the 2010 IMs reasons papers as a starting point, we extracted the descriptions of the pre-review IM policy and implementation decisions.¹⁰ We also included descriptions of amendments made since 2010 in order to ensure that the pre-review decisions listed in this report are a complete and up-to-date description of the pre-review IM decisions.
15. We assigned each of these pre-review IM decisions a code (eg, 'CA01' for cost allocation decision number 1) to aid readers. We also use these codes when referring to pre-review IM decisions in the topic papers.

⁹ We have considered these questions where relevant in reviewing the IMs. We have not considered them in any particular order; nor have we ascribed any set weighting to each question. The questions provide practical tools, or lenses, that we have used to examine the IMs.

¹⁰ For example, for EDB and GPB cost allocation policy and implementation decisions, refer to Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), p. 57-58.

16. For some areas of the IMs, extracting the pre-review IM decisions was straightforward (for instance, for those chapters of the 2010 IM reasons papers that begin with IM overview tables summarising decisions we made in that area). In other areas (such as those decisions that have been amended since 2010 and do not have summary tables), we extracted the pre-review decisions from descriptions in the text of the relevant reasons papers.¹¹
17. In 2012, we extended our IM decisions on cost allocation, asset valuation and the treatment of taxation to also apply to default price-quality paths (**DPPs**).¹² Originally, our IM decisions for these matters were only specified as applicable to customised price-quality path (**CPP**) proposals, and to information disclosure (**ID**) regulation. We extended the application of those IM decisions to apply to DPPs by taking the then-existing IMs as a starting point and simplifying the components where necessary.
18. In this report, we have not referred to the 2012 extensions as amendments to the original 2010 IM decisions because the pre-review IM decisions are generally described at a level above the detail of how the decisions apply in particular regulatory instruments.¹³
19. Presenting the results of the IM review in terms of the pre-review IM decisions allows us to illustrate where this report presents changes to:
 - 19.1 the policy intent of a pre-review IM decision; and/or
 - 19.2 the way a pre-review decision is implemented.
20. This report presents one new decision on an existing IM matter (IM decision AV55).
21. The pre-review IM decisions are presented in the following groups:
 - 21.1 cost allocation (coded 'CA');
 - 21.2 asset valuation (coded 'AV');
 - 21.3 treatment of taxation (coded 'TX');
 - 21.4 cost of capital (coded 'CC');

¹¹ This is also the case for the CPP requirements IMs. How we have dealt with the pre-review IM decisions for CPP requirements IMs is explained at paragraph 27.

¹² Commerce Commission "Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper" (28 September 2012), available at: <http://www.comcom.govt.nz/dmsdocument/9506>.

¹³ Where we have changed a pre-review decision that has particular relevance for a specific regulatory instrument (eg, ID, DPP, CPP or IPP), we have noted this in our explanation of the change.

- 21.5 gas pricing methodologies (coded 'GP');
 - 21.6 specification of price (coded 'SP');
 - 21.7 reconsideration of the price-quality path (coded 'RP');
 - 21.8 amalgamations (coded 'AM');
 - 21.9 incremental rolling incentive scheme (**IRIS**) (coded 'IR'); and
 - 21.10 other regulatory rules and processes (coded 'RR').
22. There is a group of pre-review IM decisions for CPP requirements (which we have coded 'CP'). These are covered by Topic paper 2: CPP requirements, rather than in this report.
23. The location of each of these pre-review decisions is summarised in Attachment A of this report.

Scope of the IM review

24. As set out in the Notice of intention, the IM review included all IMs as amended to date (including as a result of fast track decisions already made as part of the IM review), except the Transpower Capex IM.¹⁴

Scope of our decisions package for the IM review

25. Our decisions package presents decisions on all IMs within the scope of the review except the IMs covering:¹⁵
- 25.1 the CPP information requirements for gas;
 - 25.2 related party transactions provisions; and
 - 25.3 the Transpower IRIS.
26. While these areas are still within the scope of the IM review, we have not yet reached decisions on them. Our timeframes for reaching decisions on these areas are set out in the Introduction and process paper.¹⁶

¹⁴ Commerce Commission "Amended notice of intention: Input methodologies review" (14 September 2016).

¹⁵ As discussed in "Commerce Commission "Input methodologies review decisions: Introduction and process paper (20 December 2016).

¹⁶ Commerce Commission "Input methodologies review decisions: Introduction and Process paper" (20 December 2016).

Scope of this report

27. This report covers all IMs within the December 2016 decision package except for the CPP requirements IMs. Our decisions on the CPP requirements IMs are instead covered in Topic paper 2: CPP requirements, so that all information about our decisions regarding the CPP requirements (within the scope of the review) is in one place.

Structure of this report

28. Following this introductory chapter, this report is split into three parts that are supported by five attachments.

Part 1 – IM decisions that we have changed

29. Part 1 lists those pre-review IM decisions that we have changed (either at a policy level, or in terms of the implementation of the decision) as part of the IM review.
30. For each pre-review IM decision that we have changed, Part 1 of this report:
- 30.1 states the pre-review IM decision;
 - 30.2 explains how we have changed it; and
 - 30.3 explains why we have changed it.

Part 2 – IM decisions that we have not changed

31. Part 2 lists those pre-review IM decisions that:
- 31.1 in light of our framework, submissions on the IM review, and all other relevant information before us, we considered changing; but
 - 31.2 for the reasons presented in Part 2, we have decided not to change.
32. For each pre-review IM decision that we are not changing, Part 2 of this report:
- 32.1 states the pre-review IM decision; and
 - 32.2 explains why we have decided not to change it as part of the IM review.

Part 3 – IM decisions that we are not changing, and found no reason to consider changing

33. Part 3 lists those pre-review IM decisions that:
- 33.1 in light of our framework, submissions on the IM review, and all other relevant information before us, we found no reason to consider changing at this stage;¹⁷ and
 - 33.2 we therefore have decided not to change.

Attachments

34. Attachment A assists readers in navigating this report by:
- 34.1 listing all pre-review IM decisions in order according to their unique code; and
 - 34.2 indicating where each pre-review IM decision is located in this report.
35. Attachment B explains why we have decided not to adopt the ‘next closest alternative’ (**NCA**) provision that we proposed in our draft decision.
36. Attachment C provides our response to the ENA submission that the existing change event reopener for DPPs and CPPs could be used, if it was modified slightly by removing (or amending) the materiality threshold for change events that affect quality standards. We had earlier received a letter from the ENA setting out a number of concerns relating to Part 4 of the Commerce Act regarding the implementation of the Health and Safety at Work Act 2015.¹⁸
37. Attachment D provides an illustrative example of how the price setting and wash-up processes may work under a revenue cap in a DPP or CPP for a GTB or EDB.
38. Attachment E explains the timing and transition provisions we have included in the IM amendments determinations. The timing and transition provisions relate to when and how determination amendments made as a result of the IM review come into effect.

¹⁷ That is not to say there have never been any issues raised in respect of the pre-review IM decisions listed in Part 3 of this report. Minor issues have been raised in the past that are relevant to some of the pre-review IM decisions listed in Part 3; but none that, when we carried out our effectiveness review, we considered were sufficiently material to lead us to consider changing the IMs.

¹⁸ Letter from Graeme Peters (Chief Executive, ENA) to Sue Begg (Deputy Chair, Commerce Commission) regarding the impact of a reduction of live line work on non-exempt EDBs under the default and customised price quality path (October 2016).

Part 1: IM decisions that we have changed

Chapter 2: Introduction to Part 1

39. This Part lists those pre-review IM decisions that we have changed (either at a policy level, or in terms of the implementation of the decision) as part of the IM review.
40. For each pre-review IM decision that we have changed, Part 1:
 - 40.1 states the pre-review IM decision;
 - 40.2 explains how we have changed it; and
 - 40.3 explains why we have changed it.
41. This Part also includes a new decision on an existing IM matter.
42. This Part is structured according to the grouping of pre-review IM decisions described in Chapter 1 of this report.¹⁹

¹⁹ Part 1 does not have chapters on gas pricing methodologies, amalgamations or 'other regulatory rules and processes' because we do not propose any changes to those decisions.

Chapter 3: Cost allocation decisions we have changed

Pre-review cost allocation IM decision CA02

Decision CA02 Allocating not directly attributable cost	<p>Original 2010 decision</p> <p>EDBs and GPBs [ie, GDBs and GTBs] must apply one of three complementary approaches to allocate costs that are 'not directly attributable' between each type of regulated service, and between the regulated and unregulated services (in aggregate) they provide:</p> <ul style="list-style-type: none"> • the ABAA; • the optional variation to the accounting based approach (OVABAA); and • ACAM. <p>See section 3.3, Appendix B, sections B4 to B6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	EDB/GDB/GTB

How we have changed this decision

43. Our decision is to make a change to IM decision CA02. As discussed in Topic paper 3: The future impact of emerging technologies in the energy sector, we have removed the avoidable cost allocation methodology (**ACAM**) as a stand-alone cost allocation option for EDBs and GPBs.

Why we have made this change

44. Our reasons for this change are explained in Topic paper 3: The future impact of emerging technologies in the energy sector.

Issues we have considered where we have not made a change

45. In our problem definition paper we proposed to focus on the various definitions of cost to reduce complexity and compliance costs.²⁰ We received submissions from PwC and the ENA on this point.²¹ They both supported aligning cost definitions within the IMs as closely to the GAAP rules as possible, but no specific changes were suggested, and no other submissions mentioned this matter.
46. In reviewing IM decision CA02, we looked at whether we could reduce complexity and compliance costs by using techniques such as alignment with GAAP, while continuing to achieve the policy intent. In doing so we found cases relating to other IM decisions where we have aligned the IMs closer with GAAP or other commercial rules, such as the auditing standards, to help reduce complexity and compliance costs. For example:
- 46.1 the implementation change to IM decision AV17 to GAAP accounting methods to be used for the depreciation of non-system assets;
 - 46.2 the implementation change to IM decisions AV13, AV14 and AV33 so that the financing cost on works under construction aligns with GAAP; and
 - 46.3 the implementation change to the CPP audit requirements so they better align with the auditing standards.²²

²⁰ Commerce Commission “Input methodologies review invitation to contribute to problem definition” (16 June 2015), para 484-485.

²¹ PwC “Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), para 146; and ENA’s submission on the problem definition paper “Response to the Commerce Commission’s input methodologies review paper” (21 August 2015), para 223-224.

²² Commerce Commission “Input methodologies review draft decisions: Topic paper 2 – CPP requirements” (16 June 2016), Chapter 7.

Pre-review cost allocation IM decision CA03

Decision CA03 Process for deciding allocation approach	Original 2010 decision The IM specifies the process for deciding which of the three approaches suppliers must use to allocate shared costs in different circumstances. See Appendix B, sections B2 and B3, of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

- 47. Our decision is to make a change to IM decision CA03. As discussed in Topic paper 3: The future impact of emerging technologies in the energy sector, we have removed ACAM as a stand-alone cost allocation option for EDBs and GPBs.

Why we have made this change

- 48. Our reasons for this change are explained in Topic paper 3: The future impact of emerging technologies in the energy sector.

We have also made an implementation change for this decision

- 49. We identified an implementation issue with IM decision CA03. Under the pre-review IMs, distributions to consumer owners were not included in the list of items excluded from operating costs.
- 50. We have therefore made an implementation change to this IM decision to strengthen the wording of the relevant IM determinations to ensure that distributions to consumers (eg, payments of cash, distributions of product or issuing of shares) are not treated as operating costs.

Why we have made this implementation change

- 51. The pre-review IMs had a list of items which were excluded from operating costs. However, distributions to consumer owners were not included on this list. This created some uncertainty about how these distributions were being treated for the purposes of the IMs, which affected the comparability of the ID data.

52. Changing the IMs to clarify that EDBs may not treat distributions to consumer owners as operating costs better gives effect to the intention behind the affected cost allocation provisions, and removes a potential source of uncertainty from the IMs.²³

Pre-review cost allocation IM decision CA04

Decision CA04 ABAA causal relationship approach and proxy allocators	<p>Original 2010 decision</p> <p>Under the accounting-based allocation approach (ABAA), where possible, cost and asset allocators used to allocate costs to regulated activities must be based on current 'causal relationships'.</p> <p>Where this is not possible, proxy allocators must be used instead.</p> <p>See section 3.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

53. Our decision is to make an implementation change to IM decision CA04 to improve the way it is implemented. Our decision is to strengthen the wording of the relevant IM determinations to ensure that regulated suppliers that use proxy allocators will explain:
- 53.1 why they have used a proxy rather than a causal allocator; and
 - 53.2 why they have used a particular quantifiable measure as the proxy allocator.²⁴

Why we have made this change

54. Our reasons for this change are explained in Topic paper 3: The future impact of emerging technologies in the energy sector.

²³ ENA and Orion supported this change, see: ENA "Input methodologies review – Report on the IM review – Submission to the Commerce Commission" (4 August 2016), p. 6; and Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 94.3.

²⁴ In submissions on our technical consultation, ENA argued that the term 'selected quantifiable measure' is confusing. The drafting in the EDB, GDB and GTB IM amendments determinations has been updated to better reflect the requirement to explain the rationale for the quantifiable measure used for the proxy allocator. ENA "Input Methodologies review: Technical consultation update: Submission to the Commerce Commission" (3 November 2016), p. 7.

Pre-review cost allocation IM decision CA12

Decision CA12 Causal relationship approach and proxy allocators – Airports	Original 2010 decision Where possible, cost and asset allocators used to allocate costs to regulated activities must be based on current ‘causal relationships’. Where this is not possible, proxy allocators must be used instead. See section 3.3; Appendix B of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

We have made implementation changes for this decision

55. We have made two changes to the Airports IM decision CA12 to improve the way the decision is implemented:
- 55.1 We have strengthened the wording of the Airports IMs to ensure that regulated suppliers that use proxy allocators justify:
- 55.1.1 why they have used a proxy rather than a causal allocator; and
- 55.1.2 why they have used the particular quantifiable measure as the proxy allocator(s).²⁵
- 55.2 We have decided to allow airports to also use proxy allocators when applying ABAA for cost allocation and asset allocation if it is impractical to use a causal relationship, and not just if a causal relationship cannot be established.

*Why we have made these changes*Strengthened justification for using proxy allocators

56. Our reasons for this change are the same as for the changes to IM decision CA04.
57. We note that NZAA did not support this change for airports, and submitted that there is already constructive engagement between airports and airlines on cost allocation, with positive outcomes for consumers. NZAA considered that the Airport Authorities Act (**AAA**) mandates airport consultation with its customers, and that this is robust and comprehensive.²⁶

²⁵ We have updated the drafting in the airports IM amendments determination to better reflect the rationale for the quantifiable measure used for the proxy.

²⁶ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 76-77; and NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 14-15.

58. However, we have decided this change should apply to airports, as this will increase the quality of information we receive under information disclosure and will provide us and other stakeholders with more clarity on why a proxy allocator was used.

Allowing the use of proxy allocators if using a causal relationship is impractical

59. We have made this change because we consider that the ability for airports and airlines to develop commercial solutions to cost allocation should not be limited by a requirement that if a causal relationship exists it must be used. This change was suggested by BARNZ and supported by NZAA.²⁷

²⁷ BARNZ "Submission by BARNZ on the Commerce Commission proposed changes to the Input Methodology and Information Disclosure determinations in relation to the Airport topic" (4 August 2016), p. 13; and NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 74-75.

Chapter 4: Asset valuation decisions we have changed

Pre-review asset valuation IM decision AV05

Decision AV05 Finance leases and intangible assets	<p>Original 2010 decision</p> <p>EDBs and GPBs may include in their regulatory asset base (RAB) values finance leases and intangible assets provided that they are identifiable non-monetary assets that are not goodwill, consistent with the meanings under generally accepted accounting principles (GAAP).</p> <p>EDBs and GPBs must establish the value of permitted intangible assets added to the RAB value after the last day of the disclosure year 2009 using the cost model for recognition under GAAP.</p> <p>See section E3, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

60. Our decision in respect of IM decision AV05 is to make a change to the IMs to improve the way this decision is implemented.
61. We have amended the EDB ‘value of commissioned asset’ to clarify that a finance lease excludes the value of any assets to the extent that annual lease charges are instead included as a recoverable cost.

Why we have made this change

62. Under the pre-review implementation of this IM decision AV05 for EDBs, finance leases could be included as an asset in the RAB, while at the same time the associated lease payments were included in recoverable costs.
63. ENA and PwC raised this issue in a February 2014 submission and noted that it appears to be an unintentional consequence.²⁸ They suggested that the RAB definition of finance leases be adjusted to exclude any value associated with charges included as recoverable costs.

²⁸ ENA and PwC “Review of Input Methodologies” (14 February 2014), para 28.

- 64. We have amended the EDB IM determination to reduce the potential for a supplier to 'double dip' the costs of assets that are financed through finance leases if we had also allowed the lease instalments to be treated under a 'new investment contract' as recoverable costs.²⁹
- 65. There is no comparable form of recoverable cost for GDBs or GTBs or Transpower, so no implementation change was required for them.
- 66. As this issue only arises under price-quality paths, no comparable change to the Airports IMs (ie, IM decision AV44) was required.

Pre-review asset valuation IM decision AV09

Decision AV09 Capital contributions	<p>Original 2010 decision</p> <p>EDBs and GPBs must recognise capital contributions by adding the asset in question to the RAB value at cost (measured in accordance with GAAP), reduced by the amount of the capital contribution received (where the capital contribution does not reduce the cost of the asset under GAAP).</p> <p>See section E7, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes for this decision

- 67. Our decision in respect of IM decision AV09 is to change the IMs to improve the way the existing decision is implemented.
- 68. We have made the following implementation changes for this IM decision:
 - 68.1 Expanded the definition of 'capital contributions' to include money received in respect of asset acquisitions.
 - 68.2 Amended the IMs so that the calculation of the financing cost that can be capitalised in the RAB on a commissioned asset is based on a value of works under construction that is net of capital contributions received at any stage. This includes any situation where a capital contribution is received before money is spent on the works.

²⁹ ENA submitted on our draft decision on how to achieve the policy objective of aligning with the GAAP treatment of finance leases. See ENA "[DRAFT] Electricity Distribution Input Methodologies Determination 2012" (18 August 2016), p. 55 and p. 136.

69. These changes apply to EDBs, GDBs and GTBs. We have similarly amended IM decision AV48 for airports.

Why we have made these changes

70. We consider that the policy intent of pre-review IM decision AV09 remains appropriate. However, we have made implementation changes to achieve the policy intent more effectively.

Expanding the definition of ‘capital contributions’

71. We consider the scope and definition of capital contributions was too narrow in the pre-review IMs. In particular, we consider there was a gap in how the IMs achieved the policy intent in situations where:
- 71.1 capital contributions were made towards an asset that already existed before being commissioned (eg, the asset is acquired, rather than constructed);
 - 71.2 capital contributions for an asset were received in advance of the asset being constructed or commissioned; or
 - 71.3 capital contributions were spread over the commissioning of assets over time.
72. The pre-review definition of capital contributions was intended to capture any type of consideration received for the purposes of asset construction or enhancement. However, we identified from our effectiveness review that it could have been read that capital contributions for an asset acquisition fell outside of this definition, and so could have potentially avoided being deducted from the RAB when the acquired asset was commissioned.
73. Expanding the definition of capital contributions to include acquisitions improves the clarity of the IMs in a way that achieves the policy intent more consistently, regardless of whether an asset is constructed or acquired.
74. In its submission on our IM review draft determinations, ENA stated that the revised definition of ‘capital contributions’ including ‘money received in respect of asset acquisitions’ would not be a workable mechanism or a useable definition of capital contributions.³⁰ However, in the absence of evidence to the contrary, we consider that expanding the definition to include money received in respect of asset acquisitions is workable and useable.

³⁰ ENA “Input Methodologies review – Report on the IM review: Submission to the Commerce Commission” (4 August 2016), p. 7.

Calculation of the capitalised financing cost

75. The pre-review IM decision allows a financing cost on works under construction to be capitalised to the RAB when a constructed asset is commissioned (ie, when it enters the RAB). However, there were no rules in the IMs to deal with the impact of capital contributions on the calculation of those financing costs where GAAP accounting has not otherwise already reduced the value of the constructed asset by the amount of the capital contributions.
76. The pre-review IMs allowed interest to be capitalised under GAAP from the point at which a project meets the definition of 'works under construction' up until the project becomes a commissioned asset. We consider that for the purpose of calculating financing costs on works under construction to be capitalised into the RAB, the value of those works under construction should be reduced by any capital contributions received.
77. We note that the definition of 'works under construction' in the IMs is broad and is intended to encompass almost any situation where a third party makes a capital contribution towards an asset that has not yet been commissioned, including when assets are forecast for construction.
78. We consider that the receipt of a capital contribution in a case where a project has not otherwise met the 'works under construction' test would signal a forecast construction and would therefore start the clock ticking on a 'works under construction' for the purposes of calculating any capitalised interest.

Pre-review asset valuation IM decision AV12

<p>Decision AV12 Assets purchased from regulated supplier (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Where an EDB or GPB purchases an asset from another regulated supplier it must add the asset to its RAB value at the asset’s equivalent value in the RAB of the seller.</p> <p>Where an EDB or GPB purchases an asset from a related party (that does not supply services that are regulated under Part 4), it must add the asset to its RAB at depreciated historic cost where documentation is available to support this.</p> <p>Where sufficient records do not exist to establish depreciated historic cost, it must use the asset’s market value as verified by an independent valuer. For this purpose a related party includes both:</p> <ul style="list-style-type: none"> • business units of the same EDB and GPB that supply services other than electricity transmission services; and • a party that under GAAP is considered a related party (including any party that has conducted business either directly or indirectly with the supplier in the current financial year). <p>See section E8, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2012 amendment to this decision</p> <p>In 2012, we amended the treatment of asset valuations in related party transactions in the ID and CPP IMs applicable to EDBs, GDBs and GTBs by:</p> <ul style="list-style-type: none"> • modifying the treatment of asset acquisitions by EDBs, GDBs and GTBs from related parties. • amending the treatment of related party asset acquisitions to provide additional methods for suppliers to establish that these transactions reflect ‘arm’s-length’ equivalent values. These amendments provided greater flexibility for suppliers to address individual circumstances, while continuing to ensure that the arm’s-length nature of the transactions is supported by objective criteria. <p>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

We have made implementation changes for this decision

79. Our decision in respect of IM decision AV12 is to make changes to the IMs to:
- 79.1 correct a drafting error to change the EDB, GDB and GTB IM determinations to replace all references to 'related company' in the IM determinations with the term 'related party';³¹
 - 79.2 clarify clause 2.2.11(1)(e) to now reference the 'unallocated closing RAB value' of the transfer or for the purpose of setting the value; and
 - 79.3 amend the IMs so the value of an asset is adjusted for depreciation and revaluation applying in the year of transfer.

*Why we have made these changes*Related party reference

80. The use of the term 'related company' instead of 'related party' in some parts of the EDB, GDB and GTB IM Determinations appears to have been an error. References to the term 'related company' were not intended to encompass a narrower term than the defined term 'related party'.
81. This issue was raised by ENA and PwC in a submission to us in February 2014.³²

Removal of circular reference

82. We have clarified clause 2.2.11(1)(e) to avoid a circular reference in the cost value to be used for an asset acquired from a regulated supplier in the EDB, GDB and GTB IM determinations. Clause 2.2.11(1)(e) now references the 'unallocated closing RAB value' of the transferor for the purpose of setting the value. This change enhances clarity. We have also made this change in AV32 for Transpower and AV46 for airports.

Ensuring accurate accounting of depreciation and revaluation for transferred assets

83. The intent of the IMs is that regulated suppliers should not receive more than the total value of an asset in depreciation. However, the pre-review IMs allowed for asset lives to be transferred to the purchaser at their opening RAB value on the vendor's balance sheet. In addition, a transferred asset was treated by the vendor as being a commissioned asset in that year. As such, its value was not depreciated or revalued in the year it was transferred. However, the vendor was still entitled to earn depreciation from this asset (ie, there was no revaluation of the asset).
84. We have addressed this by requiring the asset value for a transferred asset to be the vendor's closing RAB value.

³¹ We have still to reach decisions on other broader aspects of the related party transactions requirements.

³² ENA and PwC "Review of input methodologies" (14 February 2014), para 14.

85. This change was supported by ENA and First Gas.³³

Review of related party transactions provisions ongoing

86. As discussed in the Introduction and process paper, our review of the related party transactions provisions is ongoing.³⁴ In February 2017, we expect to publish for consultation an emerging views paper on the problem definition for our review of the related party transaction provisions. The paper will build on the related party transactions topic paper we published in June 2016.³⁵

87. Following consultation on our emerging views paper, we expect to publish:

87.1 our draft decision in Q2 2017; and

87.2 our final decision in Q4 2017.

³³ ENA "Input methodologies review – Report on the IM review – Submission to the Commerce Commission" (4 August 2016), p. 8; and First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 2.

³⁴ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016)

³⁵ Commerce Commission "Input methodologies review draft decisions: Topic paper 7 – Related party transactions" (16 June 2016)

Pre-review asset valuation IM decision AV13

<p>Decision AV13 Financing costs on works under construction – excludes exempt EDBs (original 2010 decision amended)</p>	<p>Original 2010 decision EDBs and GPBs subject to default/customised price-quality regulation must capitalise financing costs on works under construction in accordance with GAAP, at a rate no greater than the 75th percentile for the regulatory post-tax WACC determined under the cost of capital IM, for the purpose of ID and CPPs.</p> <p>See section E5, Appendix E of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision Our final decision was to use the 67th percentile estimate of post-tax WACC as a limit when determining the value of commissioned assets under particular provisions of the IMs. This change took effect as of the commencement dates specified in the amendment determination; it did not require subsequent changes to the ID requirements before suppliers were required to apply it.</p> <p>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper (12 December 2014)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

How we have changed this decision

- 88. We have amended the IM decision AV13 to require non-exempt EDBs, GDBs and GTBs to use their GAAP cost of financing, capped at its New Zealand dollar weighted average cost of borrowing, when calculating the cost of financing for assets under construction. This is consistent with the change we have made to IM decision AV33 for Transpower.
- 89. Under this approach, the cost of financing will apply for the period from when the asset becomes a works under construction until its commissioning date.

Why we have made this change

- 90. Our reasons for making this change are the same as those for our change to IM decision AV33 for Transpower.

Pre-review asset valuation IM decision AV14

Decision AV14 Financing costs on works under construction – exempt EDBs	<p>Original 2010 decision</p> <p>Exempt EDBs must capitalise financing costs on works under construction in accordance with GAAP, at a rate no greater than their own estimate of their cost of capital.</p> <p>See section E5, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	<p>Exempt EDBs</p>

How we have changed this decision

91. We have changed IM decision AV14 to require exempt EDBs to use their GAAP cost of financing, capped at its New Zealand dollar weighted average cost of borrowing, when calculating the cost of financing for assets under construction. Under this approach, the cost of financing will apply for the period from when the asset becomes a works under construction until its commissioning date.

Why we have made this change

92. We have changed this approach to maintain consistent disclosures for exempt EDBs and non-exempt EDBs (IM decision AV13).

Pre-review asset valuation IM decision AV17

Decision AV17 Standard asset lives apply – with listed exceptions	<p>Original 2010 decision</p> <p>EDBs and GPBs must use the standard asset lives in Schedule A of the IM Determination, with the following exceptions:</p> <ul style="list-style-type: none"> • EDBs and GPBs must depreciate fixed life easements over the expected term of the easement; • For dedicated assets, EDBs and GPBs may assign an asset life equal to the life of the supporting customer contract; • EDBs and GPBs may extend asset lives beyond those provided in the list of standard physical asset lives, and set asset lives for refurbished assets, without an independent engineer's report; • EDBs and GPBs may reduce an asset life, provided the reduced asset life is supported to an independent engineer's report; • EDBs and GDBs must determine when to commence depreciating network spares consistent with GAAP; • Where EDBs and GPBs add a found asset to the RAB, and where an EDB's or GPB's RAB already contains a similar asset, the asset life of the found asset should be the asset life applying to the similar asset.
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	<p>For assets commissioned in the future that are not covered by the list of standard physical asset lives, regulated suppliers must establish physical asset lives as follows:</p> <ul style="list-style-type: none"> • where an asset of the same type is already in the RAB, using the same asset life as assigned to the existing asset; or • otherwise, by setting an asset life for the asset supported by an independent engineer’s report. <p>For assets in the initial RAB value, the physical asset life will be the asset’s existing remaining life as at the balance date for each EDB’s or GPB’s 2009 disclosures.</p> <p>Where an asset comprises a number of components with differing lives (a ‘composite asset’), EDBs and GPBs must calculate the total asset life for the composite asset as a weighted average of the lives of those components.</p> <p>For the purpose of CPP proposals, no system fixed assets should be forecast to be written off during a regulatory period. All such assets in service at the start of a CPP regulatory period are deemed to have a physical asset life equal to the duration of the CPP period.</p> <p>See section E10, Appendix E of 2010 EDP-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

93. Our decision is to make a policy change to IM decision AV17 as it applies to EDBs, but not to GDBs or GTBs.
94. To implement this policy change, an EDB subject to a DPP is, at the time a DPP is reset, able to propose a factor by which to adjust the weighted average remaining asset life for its existing assets. An EDB that proposes a factor must justify why it requires this adjustment and cannot apply for a factor lower than 0.85. We will then review this proposal, giving consideration to its impact on pricing. The change may be applied by us as a one-off adjustment for any EDB that proposes the change.
95. EDBs will be required to adjust their individual asset lives used for ID to ensure that in the first year of the new regulatory period, the implied weighted average asset life for the purposes of ID is consistent with their new weighted average remaining asset life for the purposes of the DPP. Assets commissioned after this date will have asset lives which are in line with similar assets already in the RAB.

Why we have made this change

96. The change allows EDBs the option to adjust asset lives by a moderate amount in certain circumstances. The reasons for this are explained in Topic paper 3: The future impact of emerging technologies in the energy sector. That paper also explains the reasons for our decision not to make the same change to IM decision AV17 as it applies to GPBs.
97. Because asset lives for forecast commissioned assets are already only an approximation (ie, 45 years irrespective of the type of asset), the change for new assets will not affect the way the DPP is reset.³⁶ However, any approved reduction in asset lives will affect the depreciation amounts of both existing and commissioned assets reported under ID during the DPP regulatory period, and will therefore affect the RAB at the beginning of the following DPP period.
98. In subsequent regulatory periods, the weighted average asset life for existing assets will be calculated using the RAB and depreciation from the ID in the relevant base year. No further adjustment factor will be applied.
99. Because of the added complication that would occur if we allowed EDBs to make multiple adjustments, EDBs will only ever be allowed to make one adjustment.

We have also made implementation changes for this decision

100. We have made the following changes to IM decision AV17 to improve the way the existing decision is implemented for EDBs, GDBs and GTBs:
- 100.1 amended the IMs so that the asset life of non-system assets is determined by applying the asset life used under GAAP;
 - 100.2 amended the IMs to make it clear that asset lives are not reset on transfers of assets; and
 - 100.3 in respect of CPP depreciation, amended the IMs to remove a requirement for suppliers to spread depreciation for 'end of life' assets over the regulatory period.
101. For EDBs, we have changed IM decision AV17 to expand the list of assets in Schedule A to include additional asset descriptions and their associated standard physical asset lives.

³⁶ Commerce Commission "Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper" (28 September 2012), para 55.2.

*Why we have made these implementation changes*Allowing the use of GAAP for non-system assets

102. This change reduces complexity and compliance costs, without reducing the effectiveness of the IM in achieving its policy intent.
103. Under the pre-review IMs, if an asset did not have a standard asset life and there were no similar assets already in the RAB, the EDB, GDB and GTB IMs required the asset life to be the physical service life potential as determined by an engineer.
104. ENA and PwC submitted that, although the use of an engineer is appropriate for system assets, an engineer might not be the most appropriate person to assess the physical service life potential of non-system assets (eg, office equipment or motor vehicles).³⁷
105. We agree with this point and consider that there is no alternative to using GAAP for non-system assets that would justify the additional compliance costs.
106. If this amendment has a consequential impact on the depreciation of EDBs' non-system assets, the potential influence on the price path will be minimal, as non-system assets only make up around 3% of total assets in the RAB for EDBs.
107. This change was supported by ENA and First Gas.³⁸

Clarifying that asset lives are not reset upon transfer

108. This change clarifies the application of the existing IM decision. The intent of the IMs is that asset lives should not change as a result of a transfer. However, one possible interpretation of the pre-review IMs suggested that the asset lives were treated as being commissioned at the date of acquisition. This would have meant inappropriately treating aged assets as if they were brand new when they were acquired. Maintaining existing asset lives and allowing the adoption of asset lives of similar assets is consistent with the original policy intent.
109. This change was supported by ENA and First Gas.³⁹

³⁷ ENA and PwC "Review of input methodologies" (14 February 2014), para 35.

³⁸ ENA "Input methodologies review – Report on the IM review – Submission to the Commerce Commission" (4 August 2016), p. 8; and First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 2.

³⁹ ENA "Input methodologies review – Report on the IM review – Submission to the Commerce Commission" (4 August 2016), p. 8; and First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 2.

Removing the requirement to spread CPP depreciation for ‘end of life’ assets over the CPP regulatory period

110. Under the pre-review CPP IMs, for EDBs, GDBs and GTBs, suppliers were required to spread depreciation for ‘end of life’ assets over the CPP regulatory period.⁴⁰
111. The requirement was difficult for suppliers to implement due to the complexity of accounting for a change in the depreciation rate for assets at the end of their lives, and this calculation was performed purely to satisfy this requirement.
112. The rationale for deleting this requirement is for the same reasons articulated in the August 2014 Transpower IPP Reasons Paper.⁴¹ It also means there is consistency across the sectors.
113. This change was supported by ENA and First Gas.⁴²

Expanding the list of assets in Schedule A to include additional asset descriptions

114. ENA and PwC and MDL submitted that the list of assets with standard asset lives (ie, those included in Schedule A of each relevant IM determination) was missing a number of important assets.^{43, 44} They suggested we expand the list of standard asset lives to include additional assets (both network and non-network) that regulated suppliers commonly hold.
115. We have amended Schedule A for EDBs to include additional assets that reflect new technology. We reviewed and agreed with the suggested standard asset lives for those additional assets. They are consistent with other similar assets and manufacturer specifications. The additions to Schedule A mean suppliers no longer require an independent engineer’s report to estimate asset lives for the applicable assets.⁴⁵

⁴⁰ This requirement was removed from Transpower’s IPP in August 2014.

⁴¹ Commerce Commission “Setting Transpower’s individual price-quality path for 2015-2020” (29 August 2014).

⁴² ENA “Input methodologies review – Report on the IM review – Submission to the Commerce Commission” (4 August 2016), p. 8; and First Gas “Submission on Input methodologies review draft decisions (excluding cost of capital)” (4 August 2016), p. 2.

⁴³ ENA and PwC “Review of input methodologies” (14 February 2014), para 34.

⁴⁴ MDL, Untitled submission on problem definition paper (21 August 2015), p. 13-14.

⁴⁵ The additions we have included in Schedule A were suggested by ENA and supported by Vector. See: Letter from Graeme Peters (Chief Executive, ENA) to Keston Ruxton (Manager, Commerce Commission) re ENA submission on DRAFT Electricity Distribution Services Input Methodology Determination (18 August 2016), p. 2; and Vector “Vector submission on the draft amended input methodologies determinations” (3 November 2016), Appendix A, Table 1.

Issues we have considered where we have not made a change

116. We also considered whether we should amend the list of standard asset lives in Schedule A to reflect submissions that the (pre-review) asset lives on that list should be updated.⁴⁶
117. We did not make changes to the pre-review IM asset lives because we considered that some of the changes suggested would be likely to contribute to a material component of the RAB, particularly the change relating to the wood poles' asset lives. We note that suppliers have the ability to change asset lifetimes for material components of the asset base with an engineer's report.
118. We have not made implementation changes for GDBs or GTBs equivalent to the changes to EDB IM determination Schedule A, Table A.2 (Asset lives for CPP commissioned assets). As outlined in paragraph 25 of this report, the CPP information requirements for gas are outside of the scope of our decisions package and will be addressed later.

⁴⁶ These amendments were suggested by ENA and supported by Vector. See: Letter from Graeme Peters (Chief Executive, ENA) to Keston Ruxton (Manager, Commerce Commission) re ENA submission on DRAFT Electricity Distribution Services Input Methodology Determination (18 August 2016), p. 2; and Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), Appendix A, Table 1.

Pre-review asset valuation IM decision AV32

<p>Decision AV32</p> <p>Purchase of assets from regulated supplier or related party – Transpower</p> <p>(original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Where Transpower purchases an asset from another regulated supplier it must add the asset to its RAB value at the asset's equivalent value in the RAB of the seller.</p> <p>Where Transpower purchases an asset from a related party (provided the related party is not itself a regulated supplier), it must add the asset to its RAB value at depreciated historic cost where documentation is available to support this.</p> <p>Where sufficient records do not exist to establish depreciated historic cost, it must use the asset's market value as verified by an independent valuer. For this purpose a related party includes both:</p> <ul style="list-style-type: none"> • business units of Transpower that supply services other than electricity transmission services; and • a party that under GAAP is considered a related party (including any party that has conducted business either directly or indirectly with the supplier in the current financial year). <p>See section 4.4, paragraphs 4.4.81 – 4.4.84 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>Amendment to this decision</p> <p>The amendment affects the IMs relating to ID regulation and individual price-quality regulation for Transpower. It will apply with effect from 1 July 2015 which corresponds to the commencement date of the first disclosure year for RCP2:</p> <p>We have amended the definition of 'related party' to exclude those parties that are related to Transpower solely by virtue of the Crown's ownership of Transpower.</p> <p>The term 'related party' is used in a number of places in the IMs, such as determining the regulatory value of assets acquired by Transpower from a related party under clause 2.2.7(1).</p> <p>The current definition draws on the meaning of 'related' under GAAP which has the effect of including Transpower's shareholder (the Crown), the arms of the Crown (eg, Government departments) and State-Owned Enterprises such as Meridian Energy.</p> <p>Limiting the definition so as to specifically exclude parties related to Transpower via the Crown is expected to reduce Transpower's costs from complying with related party requirements, while still upholding the policy intent of the requirement.</p> <p>Amendments to input methodologies for Transpower 2014: Reasons paper</p>
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	(28 August 2014)
This original decision applies to (sector):	Transpower

We have made an implementation change for this decision

119. We have clarified clause 2.2.7(1)(f) to now reference the ‘unallocated closing RAB value’ of the transfer or for the purpose of setting the value. This change has also been made to AV12 for EDBs, GDBs and GTBs and AV46 for airports.

Why we have made this change

120. We have made this change to avoid a circular reference in the cost value to be used for an asset acquired from a regulated supplier in the Transpower IM Determination. We have made this change to enhance clarity.

Pre-review asset valuation IM decision AV33

<p>Decision AV33 Financing costs on works under construction – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision Transpower must capitalise financing costs on works under construction in accordance with GAAP, at a rate no greater than the 75th percentile for the regulatory post-tax WACC determined under the cost of capital IM.</p> <p>When it commissions works under construction, Transpower must reduce the cost of the asset, established consistent with GAAP, by the amount of any revenue derived in relation to the assets while they were works under construction (where such a reduction is not already made under GAAP, and where the revenue has not already been reported as income under ID).</p> <p>See section 4.4, paragraphs 4.4.31 – 4.4. 48 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision Our final decision was to use the 67th percentile estimate of post-tax WACC as a limit, when determining the value of commissioned assets under particular provisions of the IMs. This change took effect as of the commencement dates specified in the amendment determination and discussed further below; it did not require subsequent changes to the ID requirements before suppliers were required to apply it.</p> <p>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper (12 December 2014)</p>
This original decision applies to (sector):	Transpower

How we have changed this decision

121. We have amended IM decision AV33 to require Transpower to use its GAAP cost of financing, capped at its New Zealand dollar weighted average cost of borrowing, when calculating the cost of financing for assets under construction. We have also removed the WACC rate cap.

Why we have made this change

122. Prior to the review the IMs had allowed Transpower to account for the financing cost of the construction of assets in a manner which is consistent with GAAP, subject to a cap that prevents it from using a cost of financing that is higher than its WACC rate.
123. Transpower has argued that the WACC rate cap is problematic for it.⁴⁷ This is because Transpower uses long term debt and when interest rates decrease rapidly (as it has in the period since the global financial crisis), it faces debt rates for financing its construction that are higher than its WACC. This created a compliance cost for Transpower, as the value of its assets under GAAP is then higher than the value of its assets for regulatory purposes. This meant that it had to either invest disproportionate amounts to maintain two fixed asset registers or apply a complex adjustment process to keep its asset values for GAAP and the IMs aligned.
124. As the cost of borrowing would generally be expected to be lower than the cost of equity (the other component of the WACC), there are few cases where we expect this situation to arise. Indeed, this does not seem to be an issue at the present time. Nonetheless, this situation did arise for a period following the global financial crisis and it is possible that a swift decrease in interest rates might cause it to arise again.
125. For the reasons stated in the 2010 Reasons Paper, we are hesitant to allow the use of GAAP on an unconstrained basis for this purpose.⁴⁸ We consider the better approach in the circumstances, which is consistent with our 2010 decision, is to require Transpower to use its GAAP cost of financing, capped at its average cost of borrowing. This gives Transpower an incentive to seek the most appropriate source of debt. The approach we have adopted is consistent with the approach most companies are likely to take in calculating their cost of financing under GAAP for this purpose, as few have project-specific debt (which would allow for a different treatment under GAAP accounting standards).

⁴⁷ Letter from Jeremy Cain (Transpower) to Dane Gunnell (Senior Analyst, Commerce Commission) regarding amendments to Transpower Input Methodologies for RCP2 (14 June 2013), p. 5. Available at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/amendments-and-clarifications/>.

⁴⁸ Commerce Commission "Input methodologies (Transpower) reasons paper" (December 2010), para 4.4.41a.

126. We note that Transpower has stated that it does use the GAAP approach in setting a capitalisation rate for the purposes of capitalising its cost of financing its capital expenditure (**capex**).⁴⁹ The accounting standard applicable to Transpower under GAAP has the following features:⁵⁰

- 126.1 to the extent that the company borrows funds generally and uses them for the purpose of capex, it determines the cost of financing eligible for capitalisation by applying a capitalisation rate to its capex projects;
- 126.2 the capitalisation rate is the weighted average of the borrowing costs applicable to the company’s borrowings that are outstanding during the year, taking into account the costs or benefits of any hedging of borrowing of any included foreign currency funds; and
- 126.3 the amount of borrowing costs that the company capitalises to assets during a year must not exceed the amount of borrowing costs it incurred during that year.

Pre-review asset valuation IM decision AV35

<p>Decision AV35 Standard physical asset lives to apply with exceptions – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Transpower must use the standard physical asset lives in Schedule A of the IM Determination, with the following exceptions:</p> <ul style="list-style-type: none"> Transpower must depreciate fixed life easements over the expected term of the easement; for dedicated assets, Transpower may assign an asset life equal to the life of the supporting customer contract; Transpower may extend asset lives beyond those provided in the list of standard physical asset lives, and set asset lives for refurbished assets, without an independent engineer’s report; Transpower may reduce an asset life, provided the reduced asset life is supported to an independent engineer’s report; Transpower must determine when to start depreciating network spares consistent with GAAP; where Transpower adds a found asset to the RAB value, and where Transpower’s RAB already contains a similar asset, the asset life of
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⁴⁹ Letter from Jeremy Cain (Transpower) to Dane Gunnell (Senior Analyst, Commerce Commission) regarding amendments to Transpower Input Methodologies for RCP2 (14 June 2013), p. 5. Available at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/amendments-and-clarifications/>.

⁵⁰ See: New Zealand Equivalent to International Accounting Standard 23 (NZ IAS 23), para 14.

the found asset should be the asset life applying to the similar asset;

- for assets commissioned in the future that are not covered by the list of standard physical asset lives:
 - where an asset of the same type is already in the RAB, Transpower must use the same asset life as assigned to the existing asset; or
 - otherwise set asset lives for the assets, provided they are supported by an independent engineer's report.
- where an asset comprises a number of components with differing lives (a 'composite asset'), Transpower must calculate the total asset life for the composite asset as a weighted average of the lives of those components.

Total (unallocated) depreciation over the lifetime of the asset, must not exceed the value at which the asset is first recognised in the RAB under Part 4 (after adjusting for the effects of revaluations).

See section 4.4, paragraphs 4.4.109-4.4.129 of 2010 Transpower IM reasons paper:

[Input Methodologies \(Transpower\) Reasons Paper \(22 December 2010\)](#)

2014 amendment to this decision

The amendment affects the IMs relating to ID regulation and individual price-quality regulation for Transpower. The new depreciation treatment applies to assets commissioned on or after 1 July 2015. The pseudo asset for the 2015–2020 regulatory control period (**RCP2**) is also established on that date. This corresponds to the commencement date of the first disclosure year for RCP2.

We amended the IMs governing asset valuation to allow depreciation to be calculated for assets in the year in which those assets are commissioned. Depreciation calculations under the existing IMs commences for regulatory purposes in the year *following* the year of commissioning of new assets.

The calculation of depreciation is pro-rated for the year to reflect the portion of the year that the assets are commissioned.

If the treatment had applied from 2011 when Transpower's initial RAB was determined then regulatory asset values in 2015 could be expected to be approximately \$50 million less. Transpower requested that its regulatory asset values be adjusted to eliminate this difference from 2015.

To achieve this in an NPV neutral manner the IMs require regulatory asset values to be decreased, and the amount of the decrease to be established as an 'RCP2 pseudo asset' as at the first day of the 2016 disclosure year. The pseudo asset will then be depreciated over a period of 31 years, which

	Transpower has advised is the average remaining asset life of affected assets. Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)
This original decision applies to (sector):	Transpower

We have made implementation changes for this decision

127. We have made the following implementation changes for IM decision AV35:

- 127.1 amended the Transpower IM Determination so that the asset life of non-system assets is determined by applying the asset life used under GAAP;
- 127.2 amended the Transpower IM Determination to make it clear that asset lives are not reset on transfers of assets from other regulated suppliers; and
- 127.3 amended the Transpower IM Determination so the value of an asset is adjusted for depreciation applying in the year of transfer from the other regulated supplier.

Why we have made these changes

128. We have made equivalent implementation changes in the IMs for EDBs, GDBs and GTBs by amending IM decision AV17. Our reasoning for making these changes to IM decision AV35 is the same as for IM decision AV17.

Pre-review asset valuation IM decision AV40

Decision AV40 RAB roll forward with indexation – Airports	Original 2010 decision Airports must roll forward the initial value of their non-land assets using consumer price index (CPI) indexation. For this purpose airports must use the 'All Groups Index SE9A' published by Statistics New Zealand. For each quarter prior to the December 2010 quarter, airports must multiply the CPI value from that index by 1.02, to adjust for the recent change in GST. See section 4.3; Appendix C, section C13 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

How we have changed this decision

129. Our decision is to change IM decision AV40 to:

- 129.1 require airports to disclose forward-looking and backward-looking costs in a way that is most consistent to the approaches used when setting prices;

- 129.2 limit airports in their approaches to revaluing assets to the use of either CPI-indexation or an un-indexed approach (except when revaluing land using Market Value Alternative Use (**MVAU**)); and
- 129.3 allow airports to make their choice of either CPI-indexation or an un-indexed approach for each subset of the asset base separately.

Why we have made these changes

- 130. Our reasons for these changes are explained in Topic paper 5: Airports profitability assessment.

Pre-review asset valuation IM decision AV41

<p>Decision AV41</p> <p>Initial RAB values for land assets and revaluation approach – Airports</p> <p>(original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Airports:</p> <ul style="list-style-type: none"> • must establish initial RAB values for their land assets, as on the last day of the disclosure year 2009, using the market value alternative use (MVAU) approach specified in Schedule A of the IM Determination; • can revalue airport land in their RAB value using an MVAU valuation approach, in accordance with Schedule A, in any disclosure year. For revaluations to be recognised in the RAB value, they must encompass all land held by the Airport in its RAB value. All future development land must be revalued using a MVAU approach as at the same date. In years in which no MVAU revaluation is undertaken, land in the RAB value and future development land must be CPI-indexed. For this purpose airports must use the ‘All Groups Index SE9A’ published by Statistics New Zealand (CPI values prior to December 2010 must be multiplied by 1.02). <p>See section 4.3, Appendix C, sections C2 and C13 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>High Court judgment in <i>Wellington International Airports Ltd and others v Commerce Commission</i> [2013] NZHC 3289 (11 December 2013) and Commerce Commission “Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court” (27 November 2014). See amended clauses 3.2(1)(b) and 3.7(6)(c) of the Airports IM Determination:</p> <ul style="list-style-type: none"> • amend the disclosure year for the ‘unallocated initial RAB value’ for land from ‘disclosure year 2009’ to ‘disclosure year 2010’; and • the ‘unallocated revaluation’ of land and ‘revaluation’ of land in disclosure year 2010 are nil. <p>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</p> <p>Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 [11 December 2013]</p>
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	<p>2016 amendment to this decision (2)</p> <p>We decided to incorporate the latest valuations standards by reference into Schedule A of the Airport IMs.</p> <p>We amended Schedule A of the Airport IMs to provide additional direction on the information required to be included in the valuer’s report in order to support the valuation. The additional information includes:</p> <ul style="list-style-type: none"> • where material to the valuation, economic analysis to support the highest and best alternative use (HBAU) plan; • other expert opinions obtained by the valuer, where the valuer is not suitably experienced or qualified to provide an expert opinion; • information to support the value of rezoning costs included in the MVAU; and • all material assumptions and special assumptions made in undertaking the valuation. <p>“The amendments introduced through [the] fast track process are intended to clarify that the treatment of remediation costs also applies to the costs associated with rezoning airport land. In particular, in determining the MVAU of the land, it is assumed that airport zoning does not apply.</p> <p>Our decision is to remove any inconsistencies in, and repetition between, and within, the Schedule A requirements, explanatory notes and reference statements.</p> <p>Market-based evidence for estimating the eventual gross realisations or estimated value of the land can only be used to the extent that the use is unaffected by the supply of specified airport services.”</p> <p>Input methodologies review – Amendments to input methodologies for airports land valuation – Final reasons paper for the airports fast track review (24 February 2016)</p>
This original decision applies to (sector):	Airports

How we have changed this decision

131. Our decision is to make a change to IM decision AV41 by introducing a pragmatic proxy for the initial RAB value for land as at 2010, by interpolating 2009 and 2011 RAB land values based on existing MVAU valuations.
132. Our decision changes IM decision AV41 by amending the mechanism for determining the unallocated initial RAB value of land in the Airports IM Determination to:

- 132.1 no longer determine the value as on the last day of the disclosure year 2010 in accordance with the Airports Land Valuation Methodology; and
- 132.2 instead, determine the value by using a proxy for the initial RAB value as at 2010 by interpolating 2009 and 2011 RAB land values based on existing MVAU valuations.
133. As a consequence of introducing a formula for using a proxy for the initial RAB value as at 2010 by interpolating 2009 and 2011 RAB values, we have introduced a definition for 'capital expenditure'. As discussed in Topic paper 5: Airports profitability assessment, capital expenditure is needed to determine the average of the 2010 interpolated land value.

Why we have made these changes

134. Our reasons for these changes are explained in Topic paper 5: Airports profitability assessment.
135. Also, in its submission on the draft decision, NZAA noted that the definition for 'capital expenditure' in the IM determination is different to the definition used in the ID determination.⁵¹
136. We have not changed the definition of 'capital expenditure' in either the Airport IMs or ID Determinations. Although the definition for 'capital expenditure' in the Airports ID Determination and our drafting in the Airport IMs Determination is different, we do not consider these definitions to be inconsistent. The definition in the Airport IMs Determination provides a principled view of 'capital expenditure', while the definition in the Airports ID Determination provides a more prescriptive view for the purpose of meeting the specific ID requirements.

⁵¹ NZ Airports technical drafting comments on "[DRAFT] Amendment to the Commerce Act (Specified Airport Services Input Methodologies) Determination 2010" (18 August 2016), p. 6.

Pre-review asset valuation IM decision AV42

<p>Decision AV42 RAB exclusions – Airports (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Airports should exclude from their RAB values:</p> <ul style="list-style-type: none"> • any assets not used to provide specified airport services, as defined in s 56A; • future development land; • any asset that is part of works under construction; • working capital; • goodwill; and • easement land, that is land acquired for the purpose of creating an easement, and with the intention of subsequently disposing of the land. <p>See section 4.3; Appendix C, sections C3, C4, C5, C10 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>High Court judgment in <i>Wellington International Airports Ltd and others v Commerce Commission</i> [2013] NZHC 3289 (11 December 2013) and Commerce Commission “Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court” (27 November 2014). See amended clause 3.12(3) of the Airports IM Determination:</p> <p>For the purpose of land that is works under construction on the last day of disclosure year 2009, Auckland International Airport’s cost of constructing the Northern Runway must not exceed \$22.3 million.</p> <p>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</p>
<p>This original decision applies to (sector):</p>	<p>Airports</p>

How we have changed this decision

137. Our decision is to make a change to IM decision AV42 by amending the definition of net revenue on excluded assets (in particular, in relation to assets held for future use, eg, future development land). This ensures that if an airport included revenues on assets held for future use through a special levy, this would be captured in the definition of net revenue and not included as regulatory income.

138. This IM change is supported by changes to the Airports ID Determination, as discussed in Topic paper 5: Airports profitability assessment.
139. Our decision changes the definition of “net revenue” in clause 3.11(6)(c) of the Airport IMs to make the policy intent clearer (ie, all revenues derived from or associated with assets held for future use would be captured in the definition of net revenue).
140. We have clarified that ‘revenue’ derived in relation to determining the value of commissioned assets is ‘post-tax’.⁵²

Why we have made this change

141. Our reasons for this change are explained in Topic paper 5: Airports profitability assessment.
142. Auckland Airport raised an issue about the treatment of assets held for future use which are considered excluded assets (such as land held for future use) in the IMs.⁵³
143. We use a post-tax WACC to calculate the value of excluded assets whereas net revenue is calculated on a pre-tax basis. This means that under the IMs as they are currently implemented, an asset ultimately gets transferred to a RAB value which is lower than the post-tax cost of commissioning of the asset (after adjusting for net income). This difference is equal to the tax paid on the net revenue derived from the excluded asset.
144. Auckland Airport may choose to include revenues associated with excluded assets relating to its proposed second runway in advance of the runway being commissioned when setting prices at its next price setting event. We consider there is value in using the roll forward of excluded assets as a method of accounting for forecast revenues associated with the second runway on an *ex-ante* basis in ID. However, Auckland Airport has indicated that it will not elect to use this approach if the IM is not appropriately amended to address the tax issue.⁵⁴
145. Since land is not depreciated over time (and is treated independent of additions to the RAB), it is not possible for airports to recover the tax they have incurred on revenue derived from the excluded asset through a depreciation charge. We consider the most practical way to address this issue is to change the definition of ‘net revenue’ for this purpose to reflect it on an after-tax basis.

⁵² NZ Airports Association “[DRAFT] ID and IM determinations” (18 August 2016), p. 24.

⁵³ Auckland Airport “Problem definition for input methodologies review: submission to Commerce Commission” (21 August 2015), para 70.

⁵⁴ Auckland Airport “Problem definition for input methodologies review: submission to Commerce Commission” (21 August 2015), para 70.

146. There are instances where revenues received are required to be applied against the cost of an asset for the purpose of working out the financing cost on an asset that is not yet commissioned. We have clarified that any 'revenue' derived in this respect is to be treated as 'post-tax'. We have clarified this to reflect that the cost of financing of assets that are not yet commissioned should be applied to the net carrying cost of those assets. That carrying cost is the cost of the asset less the net benefit of any associated revenues received before commissioning. The net benefit comprises the associated gross revenues less the amount payable in income tax on those revenues.

Issues we have considered where we have not made a change

147. Auckland Airport has recently raised a concern about whether the IMs unintentionally cause holding costs for works under construction to be treated as excluded costs.⁵⁵ In its submission on the draft decision, Auckland Airport stated that it no longer considered this to be an issue and provided an interpretation on whether holding costs can enter the RAB when the asset held for future use is commissioned.⁵⁶ We agree with Auckland Airport's interpretation and consider that the Airport IMs do not need to be amended to reflect this interpretation.
148. In its submission on the draft decision, BARNZ suggested removing 'other than those included in total regulatory income under an ID determination or preceding regulatory information disclosure requirements' in clause 3.11(6)(c) on the basis that they 'imply that there is a choice for where to record income from assets held for future use' in Schedules 2/4 of the Airports ID Determination. BARNZ suggested that all 'income relating to assets held for future use should be recorded in Schedule 4 and so act (hopefully) to reduce the cost of holding the asset'.⁵⁷
149. We have not amended the Airport IMs Determination. We consider that the current language makes our intention of treating assets held for future use distinct from total regulatory income.

⁵⁵ Email and attachment from Emma Rae (Senior Advisor, Auckland Airport) to Jo Perry (Senior Analyst, Commerce Commission) raising issues with assets held for future use (4 May 2016), Section C. The email and attachment are available on our website at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/airport-profitability-assessment/>.

⁵⁶ Auckland Airport "Review of input methodologies: Submission on Commerce Commission draft decision" (4 August 2016), para 35.

⁵⁷ BARNZ "Technical drafting comments on [DRAFT] Amendment to the Commerce Act (Specified Airport Services Input Methodologies) Determination 2010" (18 August 2016), p. 27.

Pre-review asset valuation IM decision AV46

<p>Decision AV46 Purchase of assets from regulated supplier or related party – Airports</p>	<p>Original 2010 decision</p> <p>If an airport purchases an asset from another supplier of services regulated under Part 4, then it must add the asset to its RAB value at the asset's equivalent value in the RAB of the seller.</p> <p>Where an Airport purchases an asset from a related party (that does not supply services that are regulated under Part 4), it must add the asset to its RAB value at depreciated historic cost where documentation is available to support this.</p> <p>Where sufficient records do not exist to establish depreciated historic cost, the Airport must use the asset's market value as verified by an independent valuer. The market value must be established using the MVAU approach in the case of land, and must not exceed the asset's depreciated replacement cost for non-land assets. For this purpose a related party includes both:</p> <ul style="list-style-type: none"> • business units of the Airport that supply services other than specified airport services; and • a party that under GAAP is considered a related party (including any party that has conducted business either directly or indirectly with the supplier in the current financial year). <p>See section 4.3, Appendix C, section C7 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Airports</p>

We have made an implementation change for this decision

150. We have clarified clause 3.9(1)(d) to now reference the 'unallocated closing RAB value' of the transferor for the purpose of setting the value. This change has also been made to AV12 for EDBs, GDBs and GTBs and AV32 for Transpower.

Why we have made this change

151. We have made this change to avoid a circular reference in the cost value to be used for an asset acquired from a regulated supplier in the airports IM Determination. We have made this change to enhance clarity.

Pre-review asset valuation IM decision AV48

<p>Decision AV48 Capital contributions and vested assets – Airports</p>	<p>Original 2010 decision</p> <p>Airports must recognise capital contributions by adding the asset in question to the RAB value at cost (measured in accordance with GAAP), reduced by the amount of the capital contribution received (where the capital contribution does not reduce the cost of the asset under GAAP).</p> <p>Airports must include vested assets in the RAB value at the cost to the Airport. The cost at which the asset enters the RAB value may not exceed the amount of consideration paid by the Airport in respect of that asset.</p> <p>See Appendix C section C9, of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Airports</p>

We have made implementation changes for this decision

- 152. Consistent with an implementation change made for IM decision AV09, we have made the following implementation changes for this IM decision:
 - 152.1 expanded the definition of ‘capital contributions’ to include money received in respect of asset acquisitions; and
 - 152.2 amended the IMs so that the calculation of the financing cost that can be capitalised in the RAB on a commissioned asset is based on a value of works under construction that is net of capital contributions at any stage. This would include any situation where a capital contribution is received before money is spent on the works.

Why we have made these changes

- 153. Our reasons for making these implementation changes to IM decision AV48 are the same as our reasons for the implementation changes we have made for IM decision AV09.
- 154. The current definition of ‘capital contributions’ is consistent between the EDB, GDB, GTB and Airports IMs. The way in which financing costs are calculated and capitalised to the RAB is also similar in these IMs.

Pre-review asset valuation IM decision AV50

Decision AV50 Straight line depreciation applies with election to use non-standard approach – Airports	Original 2010 decision Airports must depreciate their assets on a straight line basis, unless they elect to use a non-standard depreciation approach (subject to the ID Determination). No depreciation is to be applied to land and easements (other than fixed life easements). See Appendix C, section C11 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

We have made an implementation change for this decision

- 155. Our decision in respect of IM decision AV50 is to make an implementation change to improve the effectiveness of the pre-review decision.
- 156. Specifically, we have supplemented the pre-review non-standard depreciation rules in the IMs with principles to help guide the application of the provisions.
- 157. This IM change is supported by changes to the relevant ID determinations, as discussed in Topic paper 5: Airports profitability assessment.

Why we have made this change

- 158. Our reasons for this change are explained in Topic paper 5: Airports profitability assessment.

Pre-review asset valuation IM decision AV54

<p>Decision AV54 Initial RAB value – Powerco GDB (2013 decision)</p>	<p>Original 2013 decision</p> <p>Our final decision in June 2012 was to effect a change to Powerco’s year-end to 30 September and leave the remaining gas businesses disclosure year-ends unchanged. This ensures that that correct initial RAB value for Powerco is established as of the commencement date of the Part 4 regulatory regime. The initial RAB values for Vector and GasNet remain unchanged.</p> <p>As discussed in our final decision, the amendments include an adjustment to Powerco’s initial RAB values for the 3-month period 30 June to 30 September 2009.</p> <p>The changes will take effect from the date of amendment. Calculations of RAB values and other values (such as roll forward deferred tax balances) will incorporate the effect of the changes so that, for example, the effect of the changes on RAB values will be apparent from 2009 in the upcoming 2013 gas distribution ID for Powerco.</p> <p>Implementing the change to Powerco’s disclosure year: Technical briefing paper on amendments to gas input methodologies (3 December 2013)</p>
<p>This decision applies to (sector):</p>	<p>GDBs (Powerco only)</p>

How we have changed this decision

- 159. Our decision in respect of IM decision AV54 is to remove references to ‘Maui Development Limited’ in the definition of ‘disclosure year’, as well as the references which indicate that MDL’s disclosure year ‘means the preceding calendar year’ in the GTB IM.
- 160. Consistent with the airports, EDB and GDB IM determinations, we have amended the GTB IM definition of ‘disclosure year’ to allow the corresponding definition of ‘disclosure year’ in the ID determination to provide a specific date for applicable regulated suppliers.
- 161. The decision now also applies to GTBs.

Why we have made this change

- 162. We have removed references to ‘Maui Development Limited’ in the definition for ‘disclosure year’ and ‘means the preceding calendar year’, as these references are no longer required due to the First Gas purchase of MDL. Removing these references will allow the GTB ID determination to specify the First Gas disclosure year.

163. Rather than specifying the disclosure year for First Gas’ GTB in the IM determination, we will consider amending the GTB ID determination definition of ‘disclosure year’ as part of our next round of ID amendments. We intend to update the reporting requirements in the GTB ID determinations as part of an overall update of the EDB, GDB, GTB and Transpower ID determinations. We will be updating those ID determinations to account for general amendments to the requirements and to incorporate amendments made to the applicable IM determinations.

New asset valuation IM decision AV55

164. We have made a new asset valuation IM decision AV55:

<p>Decision AV55 Giving effect to IM decisions – applying alternative methodologies with equivalent effect – Airports</p>	<p>New 2016 decision</p> <p>To give effect to other IM decisions, we allow alternative methodologies with equivalent effect (AMWEEs) to be available to airports as an alternative to a number of other methodologies for disclosing information under ID, provided the alternative methodologies produce an effect that is likely to be equivalent to those other methodologies.</p> <p>Alternative methodologies can only be applied in place of the roll forward of the RAB for capex, disposals, depreciation and revaluations specified in the asset valuation IMs.</p> <p>We have specified the criteria that must be met in order for alternative methodologies to be applied, and the information required to be provided by an airport to demonstrate that it meets the specified criteria.</p>
<p>This decision applies to (sector):</p>	<p>Airports</p>

We have made a new IM decision

- 165. We have decided that airports may apply alternative methodologies with equivalent effect when making disclosures under ID.
- 166. We have specified the criteria that must be met in order for alternative methodologies to be applied, and the information required to be provided by an airport to demonstrate that it meets the specified criteria.
- 167. This IM change is supported by changes to the Airports ID Determination, as discussed in Topic paper 5: Airports profitability assessment.

Reasons for the new decision

- 168. Our reasons for this change are explained in Topic paper 5: Airports profitability assessment.

169. We have made this new decision because it may be more appropriate or cost effective for an airport to have the option to establish and roll forward the value of the RAB based on using an aggregated RAB rather than having to establish the RAB on an individual asset basis (as is currently required in the asset valuation IMs in the Airport IMs Determination).

Chapter 5: Treatment of taxation decisions we have changed

Pre-review treatment of taxation IM decision TX01

Decision TX01 Modified deferred tax approach applies – EDBs and GDBs	Original 2010 decision Tax costs must be estimated using a ‘modified deferred tax’ approach. Specification of modified deferred tax approach (eg, how the deferred tax balance is calculated and cost allocation adjustments are treated). See section 5.3 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB

We have made an implementation change for this decision

170. In respect of IM decision TX01, our decision is to make a change to the IMs to improve the way the existing determination is implemented.
171. We have amended the EDB and GDB IM determinations so that the ID and CPP IM calculation for closing deferred tax includes an adjustment for asset disposals.

Why we have made this change

172. ENA and PwC submitted that the EDB IM closing deferred tax provisions should include asset disposals to align with the EDB ID requirements, which include an adjustment for disposals in their closing deferred tax calculation.⁵⁸ In its submission on our draft decisions, Orion also supported this change.⁵⁹
173. The EDB ID and GDB ID determinations define ‘closing deferred tax’ by reference to the definition in the IMs. The IM formulae have no adjustment for the deferred tax in respect of asset disposals. However, ‘closing deferred tax’ in the EDB ID and GDB ID determinations do.
174. As ‘deferred tax balance relating to assets disposed in the disclosure year’ is a subtracted part of the ‘closed deferred tax’ calculation in the ID schedules, and to improve consistency between the determinations, it should also be subtracted in the deferred tax formulae in the EDB and GDB IM determinations. The reference to the IMs in each ID determination definition of ‘closing deferred tax’ would then remain consistent and relevant.

⁵⁸ ENA and PwC “Review of input methodologies” (14 February 2014), para 6. ENA “Input Methodologies review – Report on the IM review” (4 August 2016), para 19.

⁵⁹ Orion “Submission on Input Methodologies review – draft decisions” (4 August 2016), para 110.1.

175. Because the GTB, Airports and Transpower IMs do not include deferred tax in their tax calculations (ie, they all use the 'tax payable' method of calculation of tax), we have not amended those IM determinations for asset disposals.

Issues we have considered where we have not made a change

176. This is a consequential issue we considered that follows on from our asset transfer decisions under IM decision AV12. Our decision in respect of IM decision TX01 is to make no change with respect to the treatment of deferred taxation following the transfer of assets.
177. The treatment of tax is different between the Transpower and EDB IM determinations, which may create issues for determining the regulatory investment value in spur asset transfers from Transpower to an EDB. However, spur asset transfers are not common and we do not wish to create additional complexity by unnecessarily amending the tax IM requirements. We instead provide the following guidance, rather than an amendment to the EDB IM determination.
178. We have not amended the EDB IM Determination for spur asset transfers. As such, the opening deferred tax an EDB uses in its regulatory investment value calculation will be zero.
179. Having no opening deferred tax value means that when an EDB calculates its regulatory investment value, it will use the opening RAB value provided by Transpower for the spur asset and will not need to estimate the opening deferred tax value.
180. Making no amendments to the treatment of deferred taxation for the spur asset also means that we have made no consequential changes to IM decision TX14 for Transpower.

Pre-review treatment of taxation IM decision TX02

<p>Decision TX02</p> <p>Tax legislation and cost allocation to be applied – EDBs</p> <p>(original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>When calculating regulatory taxable income, the cost allocation IM and tax legislation (to the extent practicable) are to be used, subject to other relevant provisions in the IMs. Debt interest should be calculated using a notional leverage that is consistent with the cost of capital IM.</p> <p>See Appendix G of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendments to this decision</p> <p>See para 2.2, 2.3, 3.2, 3.3, 4.2, 4.3 – Electricity Distribution Services Input Methodology Amendments Determination 2014 [2014] NZCC 31 (27 November 2014).</p> <p><i>Definition of notional deductible interest</i></p> <p>This amendment changes the definition of notional deductible interest used in the treatment of taxation IMs to apply a mid-year cash-flow timing assumption to the calculation of notional interest amounts. The current IMs assume year-end payments rather than payments being made during the year.</p> <p>The amendment provides formulas that assume interest payments are to be made continuously through the year at a constant rate, which would be closely equivalent to a single interest payment being made at mid-year. The interest payable amount is discounted using the cost of debt.</p> <p><i>Correction to double deduction of TCSD allowance</i></p> <p>This amendment corrects the double deduction of the TCSD allowance when calculating the regulatory tax allowance for the treatment of taxation IMs for DPPs.</p> <p>The TCSD is included as a deduction in the definitions of both the regulatory profit / (loss) before tax and the regulatory tax adjustments and clause 4.3.1 uses these two terms to derive the regulatory tax allowance. As a result, the TCSD allowance is incorrectly deducted twice when calculating the regulatory tax allowance.</p> <p><i>Correction to amortisation of initial differences</i></p> <p>This amendment corrects the definition of amortisation of initial differences in asset values to take account of the changes in initial difference values that result from the age, sale and acquisition of relevant assets.</p> <p>Clause 4.3.3(3) defines the ‘amortisation of initial differences in asset values’ for each disclosure year as the ‘initial differences in asset values’ divided by the ‘weighted average remaining useful life of relevant assets’.</p>
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	Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)
This decision applies to (sector):	EDBs

We have made implementation changes for this decision

181. In respect of IM decision TX02, our decision is to make a change to the IMs to improve the way the pre-review decision is implemented.
182. We considered ENA and PwC’s submission on the issue of whether the definition for ‘weighted average remaining useful life of relevant assets’ needs to be defined in the IM determinations.⁶⁰
183. We have:
- 183.1 changed references to ‘weighted average remaining useful life of relevant assets’ to ‘opening weighted average remaining useful life of relevant assets’; and
- 183.2 defined ‘opening weighted average remaining useful life of relevant assets’ to provide greater clarity about what the term means.

Why we have made these changes

184. We have made these changes to align with the language in the EDB ID Determination.
185. The same implementation changes have been made for the GDB IM Determination, as implementation changes to IM decision TX08.

⁶⁰ ENA and PwC “Review of input methodologies” (14 February 2014), para 17.

Pre-review treatment of taxation IM decision TX04

Decision TX04 Regulatory tax asset value of asset acquired	<p>Original 2010 decision</p> <p>The regulatory tax asset value of acquired assets should remain unchanged in the event of an acquisition of assets used to supply services that are regulated under Part 4.</p> <p>See Appendix G of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

186. In respect of IM decision TX04, our decision is to make a change to the IMs to improve the way the existing decision is implemented.
187. We have made an implementation change to address the tax effect on capital contributions in the applicable clauses of the EDB, GDB and GTB IM determinations when an asset is bought or sold between suppliers, so that those clauses include the phrase:
- limited to its **value of commissioned asset** or, if relevant **capital contributions** are treated for tax purposes in accordance with section CG 8 of the Income Tax Act 2007 (or subsequent equivalent provisions), limited to the **value of commissioned asset** plus any taxed **capital contributions** applicable to the asset.
188. The same implementation change has been made for the Airports IM Determination, as a change to IM decision TX20.

Why we have made this change

189. The amendment provides a common sense adjustment where EDBs, GPBs and airports are at risk of incorrectly recovering an amount of tax, and is generally consistent with a submission from PwC and ENA.⁶¹ In its submission on our draft decisions, Orion also supported this change.⁶²
190. PwC and ENA suggested amending the relevant clauses of the EDB ID and CPP IMs to now include the wording:⁶³

limited to its value of commissioned asset, unless the EDB treats capital contributions under

⁶¹ ENA and PwC “Review of input methodologies” (14 February 2014), para 7.

⁶² ENA “Input Methodologies review – Report on the IM review” (4 August 2016), para 19 and Orion “Submission on Input Methodologies review – draft decisions” (4 August 2016), para 110.2.

⁶³ ENA and PwC “Review of input methodologies” (14 February 2014), para 7.

section CG 8 of the Income Tax Act 2007, in which case it is limited to its value of commissioned asset plus any capital contributions applicable to the asset which are included in the tax asset value.

191. We generally agree with this position, but have further clarified the suggested drafting. We consider that the value impact on the amount of revenue recoverable from customers adds further clarity on the operation of s CG 8 of the Income Tax Act 2007 when applying the IMs.
192. Because the Transpower IMs do not have rules relating to capital contributions, we have not amended the Transpower IMs.⁶⁴

⁶⁴ *Transpower Input Methodologies Determination 2012* [2012] NZCC 17.

Pre-review treatment of taxation IM decision TX08

<p>Decision TX08 Tax legislation and cost allocation to be applied – GDBs and GTBs (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>When calculating regulatory taxable income, the cost allocation IM and tax legislation (to the extent practicable) are to be used, subject to other relevant provisions in the IMs. Debt interest should be calculated using a notional leverage that is consistent with the cost of capital IM.</p> <p>See Appendix G of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2013 amendments to this decision</p> <p><i>Definition of notional deductible interest</i></p> <p>This amendment changes the definition of notional deductible interest used in the treatment of taxation IMs to apply a mid-year cash-flow timing assumption to the calculation of notional interest amounts. The current IMs assume year-end payments rather than payments being made during the year.</p> <p><i>Correction to double deduction of TCSD allowance</i></p> <p>This amendment corrects the double deduction of the TCSD allowance when calculating the regulatory tax allowance for the treatment of taxation IMs for DPPs.</p> <p>The TCSD is included as a deduction in the definitions of both the regulatory profit/(loss) before tax and the regulatory tax adjustments and clause 4.3.1 uses these two terms to derive the regulatory tax allowance. As a result, the TCSD allowance is incorrectly deducted twice when calculating the regulatory tax allowance.</p> <p>Amendments to input methodologies for gas distribution and transmission services: Reasons paper (26 February 2013)</p>
<p>This original decision applies to (sectors):</p>	<p>GDB/GTB</p>

We have made implementation changes for this decision

- 193. In respect of IM decision TX08, our decision is to make changes to the IMs to improve the way the existing decision is implemented.
- 194. We have aligned the ‘amortisation of initial differences’ provisions in the GDB DPP IM to the language used in the EDB DPP IM ‘regulatory tax adjustments’ provisions.
- 195. We have also changed references to ‘weighted average remaining useful life of relevant assets’ in the GDB IM Determination to ‘opening weighted average remaining useful life of relevant assets’.

Why we have made these changes

196. As part of the 27 November 2014 EDB IM amendments, we corrected the definition of ‘amortisation of initial differences in asset values’ in the EDB DPP tax IM to take account of the changes in initial difference in values that result from the age, sale and acquisition of relevant assets.⁶⁵
197. Currently the “Regulatory tax adjustments” provisions of the GDB DPP tax IM contain the language used in the EDB tax IM as it was before our 27 November 2014 amendments.⁶⁶
198. To improve consistency between the EDB and GDB DPP tax IMs, we have amended the GDB DPP tax IM “amortisation of initial differences” clauses to use the same language as in the updated EDB DPP tax IM.⁶⁷
199. We have made the change to the references in the GDB IMs to align with the language in the GDB ID Determination and our change for EDBs in IM decision TX02.

Issue we considered where we have not made a change

200. MDL submitted that it has problems applying the IM requiring tax information to be disclosed.⁶⁸ MDL is not subject to income tax, so cannot provide the relevant tax information required by the IM. Nevertheless, we do not propose any changes to the IMs for this issue.
201. The issue identified by MDL arises from its pre-existing joint venture structure. However, MDL ceased to supply regulated services under this structure. All current GTB services provided by the Maui joint venture are now provided by a single entity under the new First Gas ownership.
202. While an acceptable substitute for the required tax information will need to be provided by First Gas for the upcoming GTB DPP reset, there no longer appears to be any benefit in changing the IMs in response to this issue.

⁶⁵ Commerce Commission “Input Methodology amendments for electricity distribution services: Default price-quality paths” (27 November 2014), para 4.1-4.9.

⁶⁶ *Gas Distribution Services Input Methodologies Determination 2012* [2012] NZCC 27, Clause 4.3.3.

⁶⁷ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, Clause 4.3.3.

⁶⁸ MDL, Untitled submission on problem definition paper (21 August 2015), p. 14.

Pre-review treatment of taxation IM decision TX16

Decision TX16 Tax payable approach applies – Airports	<p>Original 2010 decision</p> <p>An Airport’s tax obligations should be estimated using a ‘tax payable’ approach.</p> <p>See section 5.3 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

How we have changed this decision

203. Our decision is to change IM decision TX16 to allow airports to apply alternative taxation methodologies with equivalent effect when applying alternative asset valuation methodologies with equivalent effect under IM decision AV55.

Why we have made this change

204. Consistent with IM decision AV55, we consider that airports should appropriately reflect the tax applicable when using alternative asset valuation methodologies with equivalent effect. This may require some variation from the standard ‘tax payable’ approach. This change to IM decision TX16 provides airports with the flexibility to more accurately reflect the tax applicable.

Pre-review treatment of taxation IM decision TX20

Decision TX20 Regulatory tax asset value of asset acquired from another supplier- Airports	<p>Original 2010 decision</p> <p>The regulatory tax asset value of assets acquired from another airport or from a supplier of another type of regulated service should remain unchanged in the event of an acquisition of assets used to supply services under Part 4.</p> <p>See Appendix D, section D2 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

We have made an implementation change for this decision

205. In respect of IM decision TX20, our decision is to make a change to the IMs to improve the way the decision is implemented.

206. Consistent with IM decision TX04, we have made an implementation change to address the tax effect on capital contributions in the applicable clauses of the Airport IMs Determination when an asset is bought or sold between regulated suppliers, so that the clause includes the phrase:

limited to its **value of commissioned asset** or, if relevant **capital contributions** are treated for tax purposes in accordance with section CG 8 of the Income Tax Act 2007 (or subsequent equivalent provisions), limited to the **value of commissioned asset** plus any taxed **capital contributions** applicable to the asset.

207. We have made the same implementation change to address the tax effect on capital contributions in the applicable clauses of the Airports IM Determination when an asset is bought or sold between suppliers as we have made for EDBs, GDBs and GTBs under IM decision TX04.

Why we have made this change

208. Our reasons for this implementation change are the same as those set out for the amendment to IM decision TX04.

Chapter 6: Cost of capital decisions we have changed

Pre-review cost of capital IM decision CC03

<p>Decision CC03</p> <p>Commission to publish annual WACC estimates</p> <p>(original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>The Commission will publish annually for all regulated suppliers:</p> <ul style="list-style-type: none"> • a mid-point estimate of the 5-year post-tax WACC and vanilla WACC to apply under ID regulation; and • an estimate of 5-year vanilla WACC at the 75th percentile to apply in setting DPPs and CPPs under default/customised price-quality regulation. <p>Three- and 4-year equivalent estimates of the vanilla WACC at the 75th percentile will also be published as required for CPPs, and estimated WACC ranges for the 25th to the 75th percentiles for both the post-tax WACC and the vanilla WACC will be published to inform interested persons.</p> <p>See sections 6.7, H14 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services. This amendment does not amend the WACC percentile range used for ID regulation. Our decision was that the specified WACC for EDBs, Transpower and GPBs should be amended, in light of evidence we gathered since the IMs were first determined in December 2010. Our decision was that the 67th percentile of our estimated WACC distribution should be used for price-quality path regulation (the 75th percentile is currently used). Our decision was given effect to by amending the cost of capital IMs applying to those businesses.</p> <p>This amendment to the WACC percentile applies to EDBs on a DPP and to Transpower's IPP when the resets of those price-quality paths take effect in 2015.</p> <p>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</p>
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	<p>2014 amendment to this decision (2)</p> <p>Our decision was not to amend the 25th to 75th percentile range for ID for electricity lines services and gas pipeline services. These percentile estimates of WACC continue to be determined and published annually, along with the mid-point estimate (which is also currently published annually). In addition, we annually determine and publish 67th percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p> <p>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper (12 December 2014)</p>
This decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

209. Our decision is to make the following changes in respect of IM decision CC03:

209.1 We will no longer publish a specific CPP WACC; and

209.2 The WACC used for CPPs will be the prevailing DPP WACC (see also IM decision RP02, which will apply where the DPP WACC changes during the course of the CPP).

210. We have also removed the formula for calculating the standard error of the debt premium. Removing the formula means that a fixed value of the standard error of the debt premium is applied, and therefore a fixed value for the overall standard error of the WACC can be set. We have determined that the standard error of the WACC should be 0.0101 for EDBs and 0.0105 for GPBs.

Why we have made these changes

211. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

We have also made an implementation change for this decision

212. We have made an implementation change in respect of IM decision CC03.

213. We will determine mid-point estimates of post-tax WACC and 67th percentile estimates of post-tax WACC for EDBs, GDBs and GTBs

Why we have made this implementation change

214. The post-tax WACC will be specified in DPPs or CPPs as the WACC rate to be used in revenue wash-ups and for the roll forward of revenue-related balances (eg, for wash-up balances of revenue that will not be recovered until a later year).

215. This implementation change is the same as the change to IM decision CC13 for Transpower.

Pre-review cost of capital IM decision CC05

<p>Decision CC05 Cost of debt in WACC estimates</p>	<p>Original 2010 decision</p> <p>For all regulated suppliers, the cost of debt is estimated as:</p> <p style="text-align: center;"><i>risk free rate + debt premium + debt issuance costs</i></p> <ul style="list-style-type: none"> • the risk free rate is estimated by the Commission as part of publishing annual WACCs for all regulated suppliers. The risk free rate is estimated from the observed market yield to maturity of benchmark vanilla New Zealand Government NZ\$ denominated nominal bonds with a term to maturity that matches the term of the regulatory period (typically 5 years); • the debt premium is also estimated by the Commission as part of publishing annual WACCs for all regulated suppliers as the difference between the risk free rate and the yield on publicly traded corporate bonds for EDBs and GPBs with a Standard and Poor’s (S&P) long-term credit rating of BBB+ and a term to maturity which matches the regulatory period (typically 5 years); and • debt issuance costs are 35 basis points (0.35%) p.a. <p>See sections 6.3; H2, H4, H5, H14 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

How we have changed this decision

216. Our decision in respect of IM decision CC05 is to change:

- 216.1 the risk-free rate – we will continue to use the prevailing risk-free rate, but using three months of data instead of one month;
- 216.2 the debt premium – we will now determine an ‘average debt premium’, which is an average of the debt premiums estimated over the preceding five years. We have also changed our debt premium estimation methodology to:
 - 216.2.1 use 12 months of bond data instead of one month;
 - 216.2.2 modify the government ownership limitation so that only bonds from 100% government owned entities are subject to the limitation; and
 - 216.2.3 reference the ‘Nelson-Siegel-Svensson curve’ (**NSS curve**) as something we will have regard to when estimating the debt premium;

216.3 debt issuance costs – we have changed this from 35 basis points (0.35%) p.a. to 20 basis points (0.20%) p.a.; and

216.4 swap costs – we have removed an allowance for swap costs from the TCSD and instead include it in the above value of debt issuance costs (see also IM decision CC06).

217. We have not changed the credit rating.

Why we have made these changes

218. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC06

Decision CC06 Term credit spread differential allowance may apply	<p>Original 2010 decision</p> <p>A separate TCSD allowance is calculated for qualifying suppliers reflecting the additional costs associated with holding a longer-term debt portfolio. The TCSD is used to adjust cash flows in ID and DPP regulation and is applied to allowable revenue calculations in CPP regulation.</p> <p>Qualifying suppliers are suppliers which have a debt portfolio with a weighted average original tenor exceeding the length of the regulatory period.</p> <p>See sections 6.1, 6.3, H6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

219. Our decision is to make an implementation change in respect of IM decision CC06.

220. The change is to use a fixed linear relationship to determine the additional debt premium associated with debt issued with an original maturity term of more than five years. In doing so, we will no longer include an allowance for swap costs as part of the TCSD (see IM decision CC05 above).

Why we have made this change

221. The reasons for this change are discussed in Topic paper 4: Cost of capital issues.

Issues we considered where we have not made a change

222. ENA and PwC suggested that the IMs for EDBs and GPBs be changed to make it clear that the most recently published financial statements used to define a qualifying supplier are those published most recently prior to disclosure of the TCSD allowance under ID.⁶⁹
223. We do not consider this is an issue that requires changes to the IM determinations. We consider it is already clear from the IM determinations that the most recently published financial statements used to define a qualifying supplier are those published most recently prior to disclosure of the TCSD allowance under ID.

⁶⁹ ENA and PwC “Review of Input Methodologies” (14 February 2014), para 27.

Pre-review cost of capital IM decision CC07

<p>Decision CC07 Cost of equity in WACC estimates</p>	<p>Original 2010 decision</p> <p>Cost of equity is estimated using the simplified Brennan-Lally Capital Asset Pricing Model (CAPM) as:</p> $risk\ free\ rate \times (1 - investor\ tax\ rate) + equity\ beta \times TAMRP$ <ul style="list-style-type: none"> • the risk free rate is the same as for the cost of debt; • the equity beta for EDBs and Transpower is 0.61 and for GPBs is 0.79, derived from: <ul style="list-style-type: none"> ○ an asset beta for EDBs of 0.34 and for GPBs of 0.44; and ○ leverage of 44% for EDBs and GPBs; • the investor tax rate is the maximum prescribed investor tax rate under the Portfolio Investment Entities (PIE) tax regime, which is 30% until 30 September 2010 and 28% thereafter. Changes in the prescribed rate will flow through to future WACC estimates automatically; and • The tax adjusted market risk premium (TAMRP) is 7.5% until 30 June 2011 and 7% thereafter. The TAMRP is expressed as a 5-year composite rate (to match the term of the regulatory period), hence the TAMRP estimated for the 5-year period which commences on 1 July 2010 is 7.1% and for the 5-year period which commences on 1 July 2011 is 7%. <p>See sections 6.3 to 6.6; H2 to H10 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

How we have changed this decision

224. Our decision in respect of IM decision CC07 is to make changes to:

- 224.1 the equity beta estimate for EDBs – we have changed this from 0.61 to 0.60;
- 224.2 the equity beta estimate for GDBs and GTBs – we have changed this from 0.79 to 0.69;
- 224.3 the asset beta estimate for EDBs – we have changed this from 0.34 to 0.35;
- 224.4 the asset beta estimate for GDBs and GTBs – we have changed this from 0.44 to 0.40 (because we have changed the asset beta adjustment for GDBs and GTBs from 0.1 to 0.05);
- 224.5 the leverage estimate for EDBs and GPBs – we have changed this from 44% to 42%; and
- 224.6 our approach for calculating the asset beta – we have updated the comparator sample and then estimated an average asset beta looking at four-weekly (rather than monthly) and weekly estimates over the two most recent five-year periods.

225. The TAMRP remains at 7%.

Why we have made these changes

226. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC10

<p>Decision CC10 Date for determining price-quality path estimates of WACC – EDBs and Transpower (2014 decision)</p>	<p>Original 2014 decision</p> <p>We changed the date by which we must determine the estimates of WACC used for setting the DPP for EDBs and the IPP for Transpower New Zealand Limited from 30 September to 31 October for 2014. We have done this by changing:</p> <ul style="list-style-type: none"> the date by which we estimate the WACC percentile for electricity lines businesses; and the dates by which inputs to the WACC percentile (the risk-free rate, debt premium, and the standard error of the debt premium and mid-point estimates of WACC) are determined or estimated. <p>Amendment to the WACC determination date for electricity lines services, including Transpower: Reasons paper (29 September 2014)</p>
<p>This decision applies to (sectors):</p>	<p>EDBs/Transpower</p>

We have made an implementation change for this decision

227. In respect of IM decision CC10, our decision is to change the date in the IM determinations by which we must determine the estimates of WACC used for setting the DPP for EDBs and the IPP for Transpower from 31 October to 30 September. In 2014, we used 31 October as the date by which we were required to estimate the WACC to apply for the 2015-2020 EDB DPP and 2015-2020 Transpower IPP.

Why we have made this change

228. As we have estimated the WACC to apply for the 2015-2020 EDB DPP and 2015-2020 IPP for Transpower, we have now reverted to our pre-2014 date of 30 September, which will apply for future resets.

Pre-review cost of capital IM decision CC13

<p>Decision CC13 Commission to publish annual WACC estimates – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>The Commission will:</p> <ul style="list-style-type: none"> • publish annually a mid-point estimate of the 5-year vanilla and post-tax WACC, as well as 25th and 75th percentile estimates of vanilla and post-tax WACC, to apply under ID regulation; and • determine, as at 7 months prior to the start of the regulatory period, an estimate of a 5-year vanilla WACC at the 75th percentile to apply in setting the IPP for Transpower. The Commission will publish this WACC no later than one month after estimating it. <p>For the 2010–2015 regulatory control period (RCP1), the Commission will determine the WACC to apply as soon as practicable after the IM comes into force.</p> <p>See sections 6.7, 6.2 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services. This decision does not amend the WACC percentile range used for ID regulation.</p> <p>Our decision is that the specified WACC for EDBs, Transpower and GPBs should be amended, in light of evidence we have gathered since the IMs were first determined in December 2010. Our decision is that the 67th percentile of our estimated WACC distribution should be used for price-quality path regulation (the 75th percentile is currently used). Our decision has been given effect by amending the cost of capital IMs applying to those businesses.</p> <p>This amendment to the WACC percentile will apply to EDBs on a DPP and to Transpower's IPP when the resets of those price-quality paths take effect in 2015.</p> <p>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</p> <p>2014 amendment to this decision (2)</p> <p>Our decision is not to amend the 25th to 75th percentile range for ID for electricity lines services and gas pipeline services. These percentile estimates of WACC will continue to be determined and published annually, along with the mid-point estimate (which is also currently published annually).</p>
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	<p>We will annually determine and publish 67th percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p> <p>Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper (12 December 2014)</p>
This original decision applies to (sector):	Transpower

How we have changed this decision

229. Our decision is to make a change to IM decision CC13. We have removed the formula for calculating the standard error of the debt premium. Removing the formula means that a fixed value of the standard error of the debt premium is applied, and therefore a fixed value for the overall standard error of the WACC can be set. We have determined that the standard error of the WACC should be 0.0101 for Transpower.

Why we have made this change

230. Our reasons for changing this decision are discussed in Topic paper 4: Cost of capital issues.

We have also made an implementation change for this decision

231. We have made an implementation change in respect of IM decision CC13.
232. We will determine mid-point estimates of post-tax WACC and 67th percentile estimates of post-tax WACC for Transpower.

Why we have made this implementation change

233. The post-tax WACC will be specified in IPPs as the WACC rate to be used in revenue wash-ups and for the roll forward of revenue-related balances in the Transpower EV account (eg, for wash-up balances of revenue that will not be recovered until a later year).
234. This implementation change is the same as the change to IM decision CC03 for EDBs, GDBs and GTBs.

Pre-review cost of capital IM decision CC15

Decision CC15 Cost of debt in WACC estimates – Transpower	<p>Original 2010 decision</p> <p>For all regulated suppliers, cost of debt is estimated as:</p> <p style="text-align: center;"><i>risk free rate + debt premium + debt issuance costs</i></p> <ul style="list-style-type: none"> • the risk free rate of return is estimated by the Commission as part of publishing annual WACCs for all regulated suppliers. The risk free rate is estimated from the observed market yield to maturity of vanilla NZ Government NZ\$ denominated nominal bonds with a term to maturity that matches the term of the regulatory period (5 years); • the debt premium is also estimated by the Commission as part of publishing annual WACCs for all regulated suppliers as the difference between the risk free rate and the yield on publicly traded corporates bonds for EDBs and GPBs with a BBB+ S&P long-term credit rating and a term to maturity which matches the regulatory period (5 years); and • debt issuance costs are 35 basis points (0.35%) p.a. <p>See sections 6.3, H2, H4, H5 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

How we have changed this decision

235. Our decision in respect of IM decision CC15 is to make changes to:

235.1 the risk-free rate – we will continue to use the prevailing risk-free rate, but using three months of data instead of one month;

235.2 the debt premium – we will now determine an ‘average debt premium’, which is an average of the debt premiums estimated over the preceding five years. We have also changed our debt premium estimation methodology to:

235.2.1 use 12 months of bond data instead of one month;

235.2.2 modify the government ownership limitation so that only bonds from 100% government owned entities are subject to the limitation; and

235.2.3 reference the ‘Nelson-Siegel-Svensson curve’ (NSS curve) as something we will have regard to when estimating the debt premium;

235.3 debt issuance costs – we have changed this from 35 basis points (0.35%) p.a. to 20 basis points (0.20%) p.a.; and

235.4 swap costs – we have removed an allowance for swap costs from the TCSD. It is now included in the above value of debt issuance costs (see IM decision CC16).

236. We have not changed the credit rating.

Why we have made these changes

237. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC16

<p>Decision CC16 Term credit spread differential allowance may apply – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>A separate TCSD allowance is calculated for qualifying suppliers reflecting additional costs associated with holding a longer-term debt portfolio. The TCSD is used to adjust cash flows in ID and individual price-quality regulation and is applied to allowable revenue calculations in the IPP. Qualifying suppliers have a debt portfolio with a weighted average original tenor exceeding the regulatory period (5 years).</p> <p>See sections 6.1, 6.3, H6 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>The implementation of the 2010 decision for the TCSD allowance uses the Bloomberg New Zealand ‘A’ fair value curve, which is no longer produced by Bloomberg.</p> <p>In 2014 we changed the implementation of this decision to allow use of the New Zealand Dollar Interest Rate Swap Curve as reported by Bloomberg plus the mean of the credit spreads of New Zealand corporate ‘A-band’ rated bonds as reported by Bloomberg.</p> <p>See page 15 of the companion paper that accompanied the amendment to the Transpower IM Determination: Companion Paper to the Update of Transpower’s Maximum Allowable Revenues for the 2016/17 to 2019/20 Pricing Years</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

We have made an implementation change for this decision

238. Our decision is to make an implementation change in respect of IM decision CC16.

239. The change is to use a fixed linear relationship to determine the additional debt premium associated with debt issued with an original maturity term of more than five years. In doing so, we no longer include an allowance for swap costs as part of the TCSD (see IM decision CC15).

Why we have made this change

240. The reasons for this change are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC17

<p>Decision CC17 Cost of equity in WACC estimates – Transpower</p>	<p>Original 2010 decision Cost of equity is estimated using the simplified Brennan-Lally CAPM as:</p> $risk\ free\ rate \times (1 - investor\ tax\ rate) + equity\ beta \times TAMRP$ <ul style="list-style-type: none"> • the risk free rate is the same as for the cost of debt; • the equity beta for Transpower is 0.61, derived from: <ul style="list-style-type: none"> ○ an asset beta for Transpower of 0.34; and ○ leverage of 44% for Transpower; • the investor tax rate is the maximum prescribed investor tax rate under the PIE tax regime, which is 30% up until 30 September 2010 and 28% thereafter. Changes in the prescribed rate will flow through to future WACC estimates automatically; and • the TAMRP is 7.5% until 30 June 2011 and 7% thereafter. The TAMRP is expressed as a 5-year composite rate (to match the term of the regulatory period), hence the TAMRP estimated for the 5-year period which commences on 1 July 2010 is 7.1% and for the 5-year period which commences on 1 July 2011 is 7%. <p>See sections 6.5, 6.6; H3, H7, H8, H10 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

How we have changed this decision

241. Our decision in respect of IM decision CC17 is to make changes to:

- 241.1 the equity beta estimate – we have changed this from 0.61 to 0.60;
- 241.2 the asset beta estimate – we have changed this from 0.34 to 0.35;
- 241.3 the leverage estimate – we have changed this from 44% to 42%; and
- 241.4 our approach for calculating the asset beta – we have updated the comparator sample and then estimated an average asset beta looking at four-weekly (rather than monthly) and weekly estimates over the two most recent five-year periods.

242. The TAMRP remains at 7%.

Why we have made these changes

243. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC19

Decision CC19 Cost of capital defined as estimate of WACC – Airports	<p>Original 2010 decision</p> <p>The cost of capital is an estimate of firms' WACC which reflects the cost of debt and the cost of equity used to fund investment.</p> <p>In the case of airports, for ID, the Commission considers it appropriate to take a range between the 25th to 75th percentiles. In assessing profitability for the airports an appropriate starting point for any assessment is the 50th percentile (mid-point) on the range.</p> <p>See section 6.1, E1, E2 and E11 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

How we have changed this decision

- 244. Our decision is to make a change in respect of IM decision CC19.
- 245. The change is to remove the specific percentile range. Therefore, we will no longer publish the 25th and 75th percentiles, but instead publish the 50th percentile, together with a standard error of the WACC estimate so that any required percentile can be calculated.⁷⁰
- 246. We have also defined two WACC percentile equivalent methodologies: one related to the forecast cost of capital and one related to forecast post-tax internal rate of return, to improve clarity.

⁷⁰ The standard error of the WACC is a fixed value (0.0146 for airports) in the IM determination.

Why we have made this change

247. The reasons for this change are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC20

Decision CC20 Commission to publish annual WACC estimates – Airports	Original 2010 decision The Commission will publish annually for airports: <ul style="list-style-type: none"> a mid-point estimate of the 5-year post-tax WACC and vanilla WACC; and a 25th percentile 75th percentile estimate of the 5-year post-tax WACC and vanilla WACC. See section 6.7, E14 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

How we have changed this decision

248. Our decision is to make a change in respect of IM decision CC20.

249. We will no longer publish a 25th and 75th WACC percentile estimate. The change is to calculate additional mid-point WACC estimates along with standard error, for the quarters that do not align with WACC estimates calculated for ID, and to publish these additional estimates either when requested by an Airport, or after an Airport’s price setting event.⁷¹

Why we have made this change

250. The reasons for this change are discussed in Topic paper 4: Cost of capital issues.

⁷¹ The standard error of the WACC is a fixed value (0.0146 for airports) in the IM determination.

Pre-review cost of capital IM decision CC22

<p>Decision CC22 Cost of debt in WACC estimates – Airports</p>	<p>Original 2010 decision</p> <p>For all regulated suppliers of airport services, the cost of debt is estimated as:</p> <p style="text-align: center;"><i>risk free rate + debt premium + debt issuance costs</i></p> <ul style="list-style-type: none"> • the risk free rate is estimated by the Commission as part of publishing annual WACCs for all regulated suppliers. The risk free rate is estimated from the observed market yield to maturity of benchmark vanilla New Zealand Government NZ\$ denominated nominal bonds with a term to maturity that matches the typical term of airports’ pricing agreements (5 years); • the debt premium is also estimated by the Commission as part of publishing annual WACCs for all regulated suppliers as the difference between the risk free rate and the yield on publicly treated corporate bonds for airports with an S&P long-term credit rating of A- and a term to maturity which matches the pricing period (typically 5 years); and • debt issuance costs are 35 basis points (0.35%) p.a. <p>See sections 6.3, E2, E4, E5, E14 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Airports</p>

How we have changed this decision

251. Our decision in respect of IM decision CC22 is to make changes to:

251.1 the risk-free rate – we will continue to use the prevailing risk-free rate, but will use three months of data instead of one month;

251.2 the debt premium – we will now determine an ‘average debt premium’, which is an average of the debt premiums estimated over the preceding five years. We have also changed our debt premium estimation methodology to:

251.2.1 use 12 months of bond data instead of one month;

251.2.2 modify the government ownership limitation so that only bonds from 100% government owned entities are subject to the limitation; and

251.2.3 reference the ‘Nelson-Siegel-Svensson curve’ (NSS curve) as something we will consider when estimating the debt premium;

251.3 debt issuance costs – we have changed this from 35 basis points (0.35%) p.a. to 20 basis points (0.20%) p.a.; and

251.4 swap costs – we will now include an allowance for swap costs in the above value of debt issuance costs.

252. We have not changed the credit rating.

Why we have made these changes

253. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC23

Decision CC23 Term credit spread differential allowance may apply – Airports	<p>Original 2010 decision</p> <p>The Airports ID Determination allows qualifying suppliers to disclose a separate allowance for the TCSD, which reflects the additional costs associated with holding a longer-term debt portfolio. The TCSD is used to adjust cash flows in ID regulation. Qualifying suppliers are suppliers with a debt portfolio which has a weighted average original tenor debt portfolio which exceeds the pricing period (typically 5 years).</p> <p>See sections 6.1, 6.3, E6 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

How we have changed this decision

254. Our decision in respect of IM decision CC23 is to remove the TCSD allowance.

255. Because the TCSD allowance was given effect through the Airports ID Determination in the defined term ‘allowance for long term credit spread’ (rather than in the Airports IMs), we have given effect to this decision by removing this term from the Airports ID Determination.⁷²

Why we have made this change

256. The reasons for this change are discussed in Topic paper 4: Cost of capital issues.

⁷² As explained in our Topic paper 5: Airports profitability assessment, the changes to the Airports ID Determination, published alongside the IM review decision, are only *ex-ante* amendments. Amendments to *ex-post* disclosures will be considered as part of a separate process.

Pre-review cost of capital IM decision CC24

Decision CC24 Cost of equity in WACC estimates – Airports	<p>Original 2010 decision</p> <p>Cost of equity is estimated using the simplified Brennan-Lally CAPM as:</p> $risk\ free\ rate \times (1 - investor\ tax\ rate) + equity\ beta \times TAMRP$ <ul style="list-style-type: none"> • the risk free rate is the same as for the cost of debt; • the equity beta for airports is 0.72, derived from: <ul style="list-style-type: none"> ○ an asset beta for airports of 0.60; and ○ leverage of 17%; • the investor tax rate is the maximum prescribed investor tax rate under the PIE tax regime, which is 30% until 30 September 2010 and 28% thereafter. Changes in the prescribed rate will flow through to future WACC estimates automatically; and • the TAMRP is 7.5% until 30 June 2011 and 7% thereafter. The TAMRP is expressed as a 5-year composite rate (to match the term of the pricing period), hence the TAMRP estimated for the 5-year period which commences on 1 July 2010 is 7.1% and for the 5-year period which commences on 1 July 2011 is 7%. <p>See sections 6.3 to 6.6, E2 to E10 of 2010 IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

How we have changed this decision

257. Our decision in respect of IM decision CC24 is to make changes to:

257.1 the leverage estimate – we have changed this from 17% to 19%;

257.2 the equity beta estimate – we have changed this from 0.72 to 0.74; and

257.3 our approach for calculating the asset beta – we have updated the comparator sample and then estimated an average asset beta looking at four-weekly (rather than monthly) and weekly estimates over the two most recent five-year periods.

258. The asset beta estimate remains at 0.60.

259. The TAMRP remains at 7%.

Why we have made these changes

260. The reasons for these changes are discussed in Topic paper 4: Cost of capital issues.

Chapter 7: Specification of price decisions we have changed

Pre-review specification of price IM decision SP01

Decision SP01 Weighted average price cap applies – EDBs and GDBs	Original 2010 decision Price for EDBs and GDBs is specified by a weighted average price cap. See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB

How we have changed this decision

261. Our decision in respect of IM decision SP01 is to:

261.1 change the form of control for EDBs to a revenue cap, including a wash-up for over and under-recovery of revenue; and

261.2 maintain the current weighted average price cap for GDBs.⁷³

262. Because we are moving EDBs to a revenue cap, we have decided that pre-review IM decision SP01 will no longer apply to EDBs. We further discuss our changes to the form of control for EDBs under IM decision SP02 below.

Why we have made these changes

263. The reasons for these changes are discussed in Topic paper 1: Form of control and RAB indexation.

⁷³ In our draft decision, we proposed to change the treatment of pass-through and recoverable costs for GDBs from the current ascertainable approach to a pass-through balance approach. We no longer propose this, and the WAPC for GDBs remains unchanged. Our decision is explained in Topic paper 1: Form of control and RAB indexation.

Pre-review specification of price IM decision SP02

Decision SP02 Weighted average price cap or total revenue cap applies – GTBs	Original 2010 decision Price for GTBs will be specified by either a weighted average price cap or a total revenue cap. See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	GTBs

How we have changed this decision

264. Our decision is to change IM decision SP02 to remove the option within the IMs for a weighted average price cap or a lagged revenue cap for GTBs, instead specifying that the form of control for GTBs will be a ‘pure’ revenue cap with a revenue wash-up.
265. We have decided that a ‘pure’ revenue cap will also apply to EDBs.
266. Due to the similarities in the decisions for GTBs and EDBs, and as noted in IM decision SP01 above, we have addressed the form of control for EDBs under this IM decision SP02.

Why we have made these changes

267. The reasons for these changes are discussed in Topic paper 1: Form of control and RAB indexation.

Key implementation features

268. The common key implementation features of our decision to apply a revenue cap to EDBs and GTBs are:
- 268.1 A revenue cap on maximum revenues that may be recovered in each pricing year will be specified in the DPP or CPP determination.
- 268.2 The revenue cap will compare the forecast revenues planned to be used by the GTB or EDB in setting its prices with an allowable revenue amount to be specified by the Commission. The compliance implications, including timings for compliance reports, will be consulted on and specified through a DPP or CPP process.

- 268.3 In addition to the revenue cap noted above, we will also allow for a limit on the average price increase in each year's price setting, if determined in the relevant DPP or CPP determination.^{74, 75, 76} The limit will be specified as an annual maximum percentage increase in forecast allowable revenue as a function of demand for a pricing year. The function of demand will be expressed as a function of one or more units of demand that are determined in a DPP or CPP determination. We note that for GTBs the limit on the average price increase would not apply to prices in year ending 2018 but would apply in all subsequent years.⁷⁷
- 268.4 A revenue wash-up mechanism will apply for each year to wash-up the difference between actual revenue and actual allowable revenue values (ie, any over- or under-recovery of revenue), subject to a cap on the wash-up amount, where the implementation details will be specified in the DPP or CPP determination. Suppliers will be able to recover pass through costs and recoverable costs even if the cap on the wash-up amount binds.⁷⁸
- 268.5 Any wash-up amounts calculated will be carried forward in a wash-up account and will be applied to prices in the next applicable year. Interest at the 67th percentile post-tax DPP/ CPP WACC rate will apply to any balances carried forward in the account.
- 268.6 Any amounts drawn down from the wash-up account in accordance with rules to be set out in the DPP or CPP determination will be determined when setting prices and will be treated as a recoverable cost when calculating the wash-up amount (see IM decisions SP05 for EDBs and SP07 for GTBs).

⁷⁴ We consider that units of demand might change with the replacement of the current Maui Pipeline Operating Code and the Vector Transmission Code with a single operating code. We note that one way of dealing with this might be to use provisions under s 551 (3) if those provisions were to apply.

⁷⁵ Vector opposed the limit on average price increases, suggesting that this feature of the wash-up mechanism may mean that increased costs from the TPM review may never be recovered as a result of a too narrowly specified cap. We note that the EDB DPP will consult on the implementation of this cap and will take into account the ability to recover a wash up amount. Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), para 19.

⁷⁶ ENA suggested that the s52P DPP/ CPP determination should specify the price limit as a direct percentage. If the ENA is suggesting we should put a limit on the increase of individual prices then we note that we do not specify limits on individual prices. There would also be an issue with limiting the percentage increase in an individual price when the type of price did not exist in the previous year. ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), p. 11.

⁷⁷ In response to ENA's submission on the technical consultation update paper. ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016).

⁷⁸ The wash-up amount cap is set at 20% of net allowable revenue as specified in a DPP or CPP determination. This feature is explained further in Topic paper 1 – Form of control and RAB indexation.

269. For EDBs only, we have also decided that a cap will apply to the cumulative amount that an EDB may recover in the revenue wash-up process when the EDB has intentionally and voluntarily undercharged its revenues relative to the amount allowed in the DPP or CPP. The cap will be specified by the Commission in an EDB DPP or CPP determination.
270. A more detailed description and the reasons for these and other features of the revenue cap are set out in Topic paper 1: Form of control and RAB indexation. Attachment D also provides an illustrative example of the price setting, compliance assessment, and wash-up processes under a revenue cap.
271. In February 2017, we will publish our Gas DPP draft decision paper which will discuss further the proposed implementation details of how our decisions on the form of control will take effect at the next gas reset.
272. The practical application of these common IM features can be seen in the 'Specification of price' subpart of Part 3 of the respective EDB and GTB IM amendment determinations that we have published with this report.⁷⁹

We have also made consequential implementation changes

273. We have made the following consequential implementation changes for this IM decision:
- 273.1 Because our decision is to move away from allowing the option of a lagged quantity revenue cap for GTBs, the revenue-setting formula in the GTB CPP IMs has been adjusted to remove references to the ΔQ factor.⁸⁰
- 273.2 There are consequential drafting amendments to the GTB and EDB IM Determinations to implement our decision to specify revenue caps. These include, for example:
- 273.2.1 removal of the specification of the forecast weighted average growth in quantities and how this information must be presented and verified in a CPP proposal;

⁷⁹ ENA suggested some drafting changes which we have considered, some of which we have included in the IM determinations. We also considered ENA's comment suggesting some restructuring of the clauses but we have decided that the current structure of the determinations is appropriate. ENA also suggested that we make the IM clause 3.1.1(4) more specific by changing the word 'includes' to 'sum of' – we note the IM is focused on the principles and the DPP will include the detail so we consider the word 'includes' to be suitable for the IMs. ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016).

⁸⁰ Commerce Commission "Input methodologies review draft decisions: Topic paper 2 – CPP requirements" (16 June 2016), Attachment B, IM decision CP28.

- 273.2.2 in the case of EDBs, the removal of the ‘pass-through balance’ approach (because this approach would effectively be applied in a similar way through the revenue wash-up mechanism); and
- 273.2.3 the removal of ‘posted’ from the definition of ‘prices’ in the EDB IM.⁸¹

Pre-review specification of price IM decision SP03

<p>Decision SP03 Pass-through costs – EDBs and GDBs</p>	<p>Original 2010 decision</p> <p>The IMs include a list of pass-through costs and a process for adding new pass-through costs.</p> <p>Pass-through costs includes local authority rates and regulatory levies.</p> <p>See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision – EDBs only</p> <p>This amendment applies to the IMs that apply for the specification of price for both DPPs and CPPs, and took effect from 1 April 2015, which corresponded with the start of the next DPP regulatory period.</p> <p>This amendment limits the risk of under- or over-recovery of pass-through and recoverable costs arising from uncertainty associated with forecasting.</p> <p>The amendment achieves this by limiting the calculation of allowable notional revenue and notional revenue for the weighted average price cap to ‘distribution prices’, which is defined as excluding pass-through and recoverable costs.</p> <p>The DPP determination includes provisions relating to demonstrating the recovery of pass-through and recoverable costs.</p> <p>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB</p>

⁸¹ Submitters questioned why we proposed to remove the word ‘posted’. We have removed the word ‘posted’ because if posted is taken to mean ‘published’ then we note that prices for non standard contracts are not generally published. See for example: Powerco "Submission on input methodologies review: Technical consultation update paper" (3 November 2016), p. 13.

How we have changed this decision

- 274. Our decision is to change IM decision SP03 to extend the range of pass-through costs.
- 275. We have made two changes:
 - 275.1 to allow criteria based pass-through costs to be specified in a DPP determination or CPP determination at the time the DPP or CPP is set, as well as during the regulatory period; and
 - 275.2 to provide for adding any type of cost, which meets the pass-through cost criteria in the IMs, to potentially be specified as a pass-through cost in a DPP determination, rather than just levies.
- 276. These changes apply to EDBs and GDBs under this IM decision SP03 and to GTBs under IM decision SP04 (see below).

Why we have made these changes

- 277. The reasons for these changes are discussed in Topic paper 2: CPP requirements.

Pre-review specification of price IM decision SP04

<p>Decision SP04 Pass-through costs – GTBs (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>The IMs include a list of pass-through costs and a process for adding new pass-through costs.</p> <p>Pass-through costs includes local authority rates and regulatory levies.</p> <p>See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2013 amendment to this decision</p> <p>We amended the IMs to make changes to provisions that will apply to the DPPs for suppliers of gas pipeline services.</p> <p>The definition of pass-through costs for gas transmission services was revised to allow the pass-through of Electricity and Gas Complaints Commission levies.</p> <p>Amendments to input methodologies for gas distribution and transmission services: Reasons paper (26 February 2013)</p>
<p>This original decision applies to (sector):</p>	<p>GTBs</p>

How we have changed this decision

278. Our decision is to change IM decision SP04 to widen the criteria-based pass-through costs consistent with the change made to IM decision SP03.

Why we have made these changes

279. The reasons for these changes are discussed in Topic paper 2: CPP requirements.

Pre-review specification of price IM decision SP05

<p>Decision SP05</p> <p>Recoverable costs – EDBs</p> <p>(original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Recoverable costs include costs associated with a CPP application; the net incremental carry forward amount under IRIS; claw-back applied by the Commission; transmission charges; system operator charges; new investment contract charges; and avoided transmission charges.</p> <p>See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>The amendment changes the definitions in the general provisions of the IMs, and the IMs that apply to the specification of price for both DPPs and CPPs.</p> <p>It came into effect on 1 April 2015, which corresponded with the start of the next DPP regulatory period:</p> <p>This amendment introduces a recoverable cost relating to the revenue-linked quality incentive scheme for both System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) reliability targets under s 53M(2) of the Act.</p> <p>Individual SAIDI and SAIFI targets, associated caps and collars, and a distributor-specific incentive rate, for each disclosure year are now specified in the DPP determination. EDBs now calculate a financial reward or penalty using the formula set out in the DPP determination, and apply this as a recoverable cost, ie, either a positive or negative amount.</p> <p>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</p> <p>2014 amendment to this decision (2)</p> <p>The amendment changes the definitions in the general provisions of the IMs, and the IMs that apply for the specification of price for both DPPs and CPPs.</p> <p>It took effect from 1 April 2015, which corresponded with the start of the next DPP regulatory period.</p> <p>This amendment introduces a recoverable cost relating to the financial incentives to compensate EDBs for revenue foregone because of energy efficiency and demand side management initiatives that are specified in the DPP determination.</p>
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EDBs can now calculate an amount that they consider demonstrates revenue foregone because of energy efficiency and demand side management initiatives, and apply this as a recoverable cost.

This recoverable cost will require approval by the Commission. The requirement to obtain the Commission's approval for charges payable by an electricity distributor to Transpower New Zealand Limited in respect of a new investment contract has been removed. The approval process will be set out in the DPP or CPP determination for the relevant regulatory period.

[Input methodology amendments for electricity distribution services: Default price-quality paths \(Reasons paper\) \(27 November 2014\)](#)

2014 amendment to this decision (3)

The amendment took effect from 1 April 2015, which corresponded to the start of the next DPP regulatory period.

This amendment introduces a recoverable cost that 'washes up' for the revenue impact of capex forecast for the year (or years) prior to the resetting of prices under a DPP determination.

The amendment changes the definitions in the general provisions of the IMs, and the IMs that apply for the specification of price for both DPPs and CPPs. The objective of the wash-up is to place EDBs in approximately the same position as that in which the value of the RAB was known at the commencement of the regulatory period at the time prices were reset.

The amendment provides that EDBs must calculate a 'capex wash-up adjustment', and apportion this as a recoverable cost evenly over each disclosure year of a DPP regulatory period, other than the first year. The apportioned amounts are adjusted for the cost of debt to reflect the time value of money.

The 'capex wash-up adjustment' is specified as:

[T]he present value of the difference in the series of building block allowable revenues before tax for a default price-quality path regulatory period from adopting actual values of commissioned assets instead of the forecast commissioned assets applied by the Commission in the year (or years) preceding the regulatory period when setting prices.

Distributors must also use the actual value of depreciation for the relevant preceding year (or years) for those newly commissioned assets. Where only one year of forecast commissioned asset values is involved then actual depreciation will be nil because the IMs do not permit depreciation to be calculated for newly commissioned assets in their year of commissioning.

The present value is determined using a discount rate equal to the WACC used by the Commission in setting prices for the current DPP regulatory period.

The building blocks allowable revenue before tax for the regulatory period must be calculated using the same methodology that was applied by the Commission in setting starting prices. This includes using all of the same financial inputs for the forecast years prior to the regulatory period (with the exception of commissioned assets and depreciation).

The actual values of commissioned assets will flow through to affect the calculation of building blocks allowable revenues before tax for the regulatory period other than the return on and of capital, including forecast revaluations and most aspects of the tax regulatory allowance.

The actual values of commissioned assets and depreciation will be available from EDBs' ID values calculated under Part 2 of the IMs.

The Commission made spreadsheets available to EDBs to assist with the necessary wash-up calculations.

In most cases the 'wash-up' would be expected to apply in respect of the disclosure year immediately prior to the regulatory period for which prices are reset (eg, the 2015 disclosure year for the 2016-2020 DPP regulatory period). However, when setting future price-quality paths it is possible that more than one year of forecast capex may be relied on to effectively construct the opening regulatory asset value at the commencement of a regulatory period. The amendment caters for these multi-year situations.

[Input methodology amendments for electricity distribution services: Default price-quality paths \(Reasons paper\) \(27 November 2014\)](#)

2014 amendment to this decision (4)

The amendment took effect from 1 April 2015, which corresponded to the start of the next DPP regulatory period.

This amendment introduces a recoverable cost for the 'wash-up' of transmission asset purchases that are forecast to be completed prior to a price reset, but which are not concluded.

The Commission will identify in the relevant DPP or CPP determination the present value of the amount of revenues resulting from the additional expenditure forecast to be incurred during the regulatory period relating to transmission asset purchases forecast to occur prior to the regulatory period. Affected EDBs will then know in advance the amount of the wash-up adjustment that must be made if the purchase is not completed.

The amendment provides that a 'transmission asset wash-up adjustment' must be calculated by an electricity distributor for each disclosure year of a DPP regulatory period other than the first year. The adjustment is then applied as a recoverable cost. This recoverable cost, which is a negative amount, is effectively spread equally over the regulatory period, adjusted for the cost of debt.

[Input methodology amendments for electricity distribution services: Default price-quality paths \(Reasons paper\) \(27 November 2014\)](#)

2014 amendment to this decision (5)

This amendment took effect from 1 April 2015, which corresponded with the start of the next DPP regulatory period.

The amendment provides that a 'transmission asset wash-up adjustment' must be calculated by an electricity distributor for each disclosure year of a DPP regulatory period other than the first year. The adjustment is then applied as a recoverable cost. This recoverable cost, which is a negative amount, is effectively spread equally over the regulatory period, adjusted for the cost of debt.

This amendment introduces a recoverable cost to provide for the recovery of levies or other charges, revenues, or costs associated with any requirements in the Electricity Industry Participation Code 2010 relating to extended reserves that may be implemented during a regulatory period. EDBs can calculate amounts relating to extended reserves, and apply this as a recoverable cost, which can be a positive or negative amount.

This recoverable cost will require approval by the Commission. The approval process will be specified for each regulatory period in a DPP or CPP determination. The Commission's approval of this recoverable cost will have regard to any stated policy intent by the Electricity Authority on whether:

- compensation payments to be made by a distributor would be expected to be treated as negative recoverable costs; or
- revenues to be received by a distributor would be expected to be treated as unregulated income.

[Input methodology amendments for electricity distribution services: Default price-quality paths \(Reasons paper\) \(27 November 2014\)](#)

2014 amendment to this decision (6)

The amendment took effect from 1 April 2015, which corresponds to the start of the next DPP regulatory period.

This amendment allows for the recovery of prudent expenditure incurred in response to a catastrophic event, prior to any reconsideration of a price-quality path taking effect. The Commission will specify the amount that can be recovered as a recoverable cost by amending the relevant DPP or CPP determination issued in response to a catastrophic event.

The recoverable cost amount covers the additional net costs prudently incurred by a distributor in its response to a catastrophic event (ie, costs that are not provided for in a DPP or CPP):

- It includes unrecovered pass-through or recoverable costs, and costs related to the financial impact of a catastrophic event on a quality incentive scheme; and
- It excludes any foregone revenue due to the impact of a catastrophic event.

This amendment is substantively the same as that included in the variation to the specification of price IM agreed with Orion New Zealand for its CPP in the event of the path being reopened for another catastrophic event.

[Input methodology amendments for electricity distribution services: Default price-quality paths \(Reasons paper\) \(27 November 2014\)](#)

2014 amendment to this decision (7)

This amendment applies to the IMs that apply for the specification of price for both default and CPPs, and took effect from 1 April 2015, which corresponds to the start of the next DPP regulatory period.

This amendment covers the additional net financial impact due to price path reconsideration events, other than a catastrophic event. It allows compensation for EDBs or consumers of any additional net costs associated with the impact of price path reconsideration events, where those costs are incurred prior to any reconsideration of the price-quality path taking effect.

The Commission will specify the amount that can be recovered as a recoverable cost in the relevant DPP or CPP determination issued following a price path reconsideration event. The recoverable cost can be a positive or negative amount.

This recoverable cost amount covers the additional net financial impact prudently incurred by a distributor as a result of a legislative or regulatory change event, or amounts to mitigate the effect of an error or provision of false or misleading information. It covers the period from the date of the event (for a change event) or from the start of the existing regulatory period (for an error or false information).

Amounts related to the financial impact of a price path reconsideration event on a quality incentive scheme are included, as well as any foregone revenue.

[Input methodology amendments for electricity distribution services: Default price-quality paths \(Reasons paper\) \(27 November 2014\)](#)

	<p>2014 amendment to this decision (8)</p> <p>This amendment applies to the IMs that apply for the specification of price for both default and CPPs, and took effect from 1 April 2015, which corresponds to the start of the next DPP regulatory period.</p> <p>This amendment modifies the existing treatment of avoided transmission charges associated with distributed generation to allow any changes implemented in accordance with the Electricity Act 2010 to be accommodated.</p> <p>The addition of a new recoverable costs term means that we can be flexible in the event of any changes to the Electricity Authority’s Electricity Industry Participation Code regarding avoided transmission charges associated with distributed generation.</p> <p>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</p> <p>2014 amendment to this decision (9)</p> <p>This amendment applies to the IMs that apply for the specification of price for both default and CPPs, and took effect from 1 April 2015, which corresponds to the start of the next DPP regulatory period.</p> <p>This amendment limits the risk of under- or over-recovery of pass-through and recoverable costs arising from uncertainty associated with forecasting.</p> <p>The amendment achieves this by limiting the calculation of allowable notional revenue and notional revenue for the weighted average price cap to ‘distribution prices’, which is defined as excluding pass-through and recoverable costs.</p> <p>The DPP determination includes provisions relating to demonstrating the recovery of pass-through and recoverable costs.</p> <p>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</p>
This original decision applies to (sector):	EDBs

How and why we have changed this decision

- 280. Our decision is to change IM decision SP05 to add two new recoverable costs:
 - 280.1 as discussed in the reasons for change in Topic paper 1: Form of control and RAB indexation, we have introduced a recoverable cost for the revenue wash-up draw down amount; and
 - 280.2 as discussed in the reasons for change in Topic paper 2: CPP requirements, we have introduced a new recoverable cost to allow suppliers to recover prudently incurred expenditure in response to an urgent project (‘urgent project allowance’).

Draw down of wash-up account balance

281. A new class of recoverable cost is required for our change to apply a revenue wash-up mechanism to GTBs and EDBs (see IM decision SP02).
282. The key implementation features of the revenue wash-up mechanism and the resulting requirements for recognition of the recoverable cost in revenue are for an EDB to:
- 282.1 carry out the revenue wash-up calculation for each year (as described in IM decision SP02);
 - 282.2 maintain a wash-up account to record wash-up amounts and changes to the balance (positive or negative);
 - 282.3 record draw-down amounts in the wash-up account that will be applied in the calculation of revenue and prices in a later year; and
 - 282.4 record in the wash-up account the time value of money calculated at the 67th percentile post-tax WACC rate on the balance in the wash-up account as set out in a DPP or CPP determination.
283. The common features for EDBs and GTBs calculating the wash-ups and making draw-downs from the wash-up account will be:
- 283.1 The wash-up account will record actual allowable revenue less actual revenue less revenue foregone for the pricing year, whether positive or negative.
 - 283.2 The calculation of the net allowable revenue (ie, essentially a trued up revenue cap at the time of the revenue wash-up) will use the same X factor as used when setting the forecast net allowable revenue at the time prices are set.
 - 283.3 The calculation of both forecast and actual values will include the relevant values for pass-through costs and recoverable costs, so that these will effectively get washed up in the calculations.
 - 283.4 The calculation of actual revenue for the wash-up will use the same prices as used at the time prices are set for the purpose of testing compliance with the revenue cap.
 - 283.5 The total revenues used for the revenue wash-up will be based on actual quantities supplied, and will include the sum of other regulated income which, in the case of GTBs, will include the proceeds of capacity auctions.

- 283.6 Any pass-through balance from the current regulatory period can be recovered in the next DPP period.⁸²
- 283.7 A forecast CPI and an X factor will be used to set the price path for the regulatory period. At the time of the wash-up the actual allowable revenue will be adjusted to reflect a price path based on the actual CPI and the same X factor.
- 283.8 The wash-up amount will be capped to reflect a sharing of risk between suppliers and consumers when the quantities of services provided are significantly lower than the forecast quantities. A cap of 20% of a net allowable revenue amount would in effect apply (this is specified in the IM determinations).⁸³ Other implementation details for this cap will be specified in the DPP or CPP determinations.⁸⁴
- 283.9 The balance in the wash-up account will roll forward from year to year (or between regulatory periods where applicable), taking into account wash-up entries, draw-down amounts, and the time value of money calculated on the balance in the account.
- 283.10 When the wash-up balance is in favour of consumers, it is mandatory that the balance must be drawn down as soon as possible.

⁸² ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), p. 13; Orion submission on IM review technical consultation and on the ENA letter regarding live-line work "Submission on input methodologies review technical consultation" (3 November 2016), p. 2-3; Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), p. 9.

⁸³ Submissions on our technical consultation update paper commented that the cap on the wash up amount should not apply but that if it does it should be based on forecast allowable revenue rather than forecast net allowable revenue. The cap will be based on net allowable revenue as specified in a DPP or CPP determination. We are maintaining an approach based on net allowable revenue rather than the gross amount of allowable revenue, as this is required to ensure that pass through costs and recoverable costs continue to be fully passed through when the cap binds. ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), p. 10-11; First Gas "Submission on Input methodologies review technical consultation update paper" (3 November 2016), p.3; and Orion submission on IM review technical consultation and on the ENA letter regarding live-line work "Submission on input methodologies review technical consultation" (3 November 2016), p. 2-3.

⁸⁴ In our draft decision we proposed including a cap and collar on the drawdown amount mechanism. In response to submissions we removed this feature to reduce complexity of the mechanism. See for example: See for example: Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016) p. 2.

283.11 Some submitters on our technical consultation update paper questioned what will happen to any pass-through balance that is carried forward over from the current DPP regulatory period when the new revenue cap begins. In response to that query, we note that such costs will be recovered during the new regulatory period by an appropriate recognition of such amounts in the balance of the wash-up account for the new regulatory period plus any related time value of money adjustment provided for in a DPP or CPP determination.⁸⁵

284. In addition to the common features for EDBs and GTBs, the following will apply to EDBs only:

284.1 A large credit balance may build up in the over/under balance in the wash-up account from EDBs intentionally undercharging. A limit may apply to the amount that an EDB may recover in the revenue wash-up process when the EDB has intentionally and voluntarily undercharged its revenues relative to the amount allowed in the DPP or CPP. Any applicable limit will be specified by the Commission in an EDB DPP or CPP determination.

284.2 Under this mechanism, undercharging amounts would be rolled forward in the wash-up account if the EDB does not draw them down into revenues, but the ability to recover the excess over the cap will be permanently forgone.

285. Further description, and the reasons for these and other features of the revenue wash-up mechanism, are set out in Topic paper 1: Form of control and RAB indexation. A description of the implementation of our decisions for GTBs (and key aspects which will also apply to EDBs at the later EDB DPP reset or to an EDB CPP after implementation) will be described in the Gas DPP draft decision paper, which we anticipate publishing in February 2017.

286. The practical implementation of these proposed features can also be seen in the 'Specification of price' subpart of Part 3 of the respective EDB and GTB IM amendments determinations that we have published with this report.

Urgent project allowance

287. As discussed in Topic paper 2: CPP requirements, we have introduced a new recoverable cost to allow suppliers to recover prudently incurred expenditure in response to an urgent project. This decision also applies to GDBs (IM decision SP06) and GTBs (IM decision SP07). Our reasons for this change are discussed in Topic paper 2: CPP requirements.

⁸⁵ Because EDBs are subject to the 'pass-through balance' approach, it is possible that an EDB will have unrecovered pass-through costs or recoverable costs relating to the period prior to the revenue cap and wash-up mechanism going into effect. ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), p. 13.

Capex wash-up mechanism for CPPs

288. We have made a change to the recoverable costs provisions to extend the capex wash-up mechanism, which we introduced in 2014 for DPPs, to CPPs.⁸⁶ This is intended to operate and achieve the same outcomes as the DPP capex wash-up mechanism.

Energy efficiency and demand-side management incentive allowance

289. As we have implemented a revenue cap for EDBs, there is no longer a need to provide an energy efficiency and demand-side management incentive allowance, as EDBs will no longer face lower revenues if the volume of energy used by their consumers decreases.

Distributed Generation Pricing Principles

290. In response to our draft decision some submitters suggested that we should consider whether a change to the Distributed Generation Pricing Principles (DGPP) requires an amendment to the IMs.⁸⁷ We note that the EA made its decision on the DGPP on 6 December 2016, and therefore any possible implications of this decision on the IMs have not been able to be properly considered and consulted on as part of this IM review. Separate to the IM review, we will consider the implications of this decision and will make any required changes to the IMs in the future if necessary.

Review of recoverable costs

291. We have removed the words "non-exempt" from clause 3.1.3(1)(b) of the EDB IM Determination. This is to ensure comparability of the measurement of the return on investment for ID purposes between exempt and non-exempt EDBs.

⁸⁶ See the 2014 amendment to this decision (3), above.

⁸⁷ See for example, Network Tasman "Submission on the input methodologies review consultation" (4 August 2016), p.4.

Pre-review specification of price IM decision SP06

<p>Decision SP06 Recoverable costs – GDBs (original 2010 decision amended)</p>	<p>Original 2010 decision Recoverable costs include costs associated with a CPP application; the net incremental carry forward amount under IRIS; and claw-back applied by the Commission.</p> <p>See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2013 amendment to this decision Amended the IMs to make changes to provisions that will apply to the DPPs for suppliers of gas pipeline services.</p> <p>The definition of recoverable costs was amended to refer to the recovery of balancing gas costs or credits from welded parties, as well as shippers, on a supplier’s network. Welded parties are defined as those entities having an interconnection agreement with the GTB.</p> <p>Amendments to input methodologies for gas distribution and transmission services: Reasons paper (26 February 2013)</p>
<p>This original decision applies to (sector):</p>	<p>GDBs</p>

How we have changed this decision

292. Our decision is to change IM decision SP06 to add:

292.1 a 'wash-up' of forecast capex for the year (or years) prior to the setting of a DPP or CPP, consistent with our 2014 decision for EDBs DPPs, and consistent with our changes for GTBs;⁸⁸

292.2 an allowance for the recovery of prudent expenditure incurred in response to a catastrophic event, consistent with our 2014 decision for EDBs and consistent with GTBs;⁸⁹ and

⁸⁸ Commerce Commission “Input methodology amendments for electricity distribution services: Default price-quality paths” (27 November 2014).

⁸⁹ Commerce Commission “Input methodology amendments for electricity distribution services: Default price-quality paths” (27 November 2014).

292.3 as discussed in the reasons for change in Topic paper 2: CPP requirements, a new recoverable cost allowance to allow suppliers to recover prudently incurred expenditure in response to an urgent project ('urgent project allowance').

Why we have made these changes

'Wash-up' of forecast capex

293. We made an amendment to introduce a capex wash-up mechanism for EDBs DPPs in November 2014.⁹⁰ We have amended the IMs so that the mechanism will now apply:

293.1 to GDB DPPs – to align with our pre-review treatment of EDBs;⁹¹ and

293.2 to GDB CPPs.⁹²

294. This recoverable cost is a 'wash-up' for the revenue impact of capex that is forecast for the year (or years) prior to the resetting of prices under a DPP determination. The objective of the wash-up is to place GDBs in approximately the same position as that in which the value of the RAB was known at the commencement of the regulatory period when prices were reset.

295. The capex wash-up adjusts for the difference between:

295.1 DPP or CPP we set, based on a forecast opening RAB for the period; and

295.2 the DPP or CPP we would have set if the actual opening RAB was available.

296. The difference between these two situations is caused by the Commission having to use a forecast value of commissioned assets for the final year (or years) before a DPP or CPP reset.

297. The wash-up amount equals the difference in BBAR before tax in the two situations described above. The difference is calculated in present-value terms for the whole of the regulatory period.

298. The BBAR before tax for the regulatory period is calculated using the same methodology that was applied by the Commission in setting starting prices. This includes using all of the same financial inputs for the forecast years prior to the regulatory period (with the exception of commissioned assets and depreciation).

299. The actual values of commissioned assets and depreciation are available from GDB ID values calculated under Part 2 of the IMs.

⁹⁰ Commerce Commission "Input methodology amendments for electricity distribution services: Default price-quality paths" (27 November 2014), para 7.1-7.15.

⁹¹ We have also made this change for GTB DPPs under IM decision SP07.

⁹² We have also made this change for EDB CPPs under IM decision SP05 and GTB CPPs under IM decision SP07.

300. By setting out the method for calculating the difference between the forecast and actual return on and return of commissioned assets, GDBs are able to calculate the adjustment themselves.

Allowing for the recovery of prudent expenditure incurred in response to a catastrophic event

301. We made this amendment for EDBs in November 2014.⁹³ The amendment now aligns the treatment for GDBs with the treatment for EDBs.
302. Defining the share of risks between GDBs and consumers prior to any future catastrophic event provides greater certainty to all parties.
303. The recoverable cost helps to provide an appropriate level of compensation to GDBs for expenditure incurred after the event following a catastrophic event and prior to any reconsideration by us taking place.
304. We consider that in catastrophic circumstances, providing *ex-post* compensation for additional net costs strengthens the existing incentives that the GDB has to restore supply. Consumers now benefit from expenditure to repair the gas distribution network because it helps to ensure that demand is able to be met.
305. This recoverable cost allows for recovery of prudent expenditure incurred in response to a catastrophic event, prior to any reconsideration of a price-quality path taking effect. We will specify the amount that can be recovered as a recoverable cost by amending the DPP determination or by including the amount in any CPP determination issued in response to the catastrophic event.
306. The recoverable cost amount covers the additional net costs prudently incurred by a GDB in its response to a catastrophic event (ie, costs that are not already provided for in a DPP or CPP). However, no additional compensation (either *ex-ante* or *ex-post*) is provided for lower-than-forecast revenues due to future catastrophic events.

Urgent project allowance

307. As discussed in Topic paper 2: CPP requirements, we have introduced a new recoverable cost allowance to allow suppliers to recover prudently incurred expenditure in response to an urgent project. This decision also applies to GTBs (IM decision SP07) and EDBs (IM decision SP05). Our reasons for this change are discussed in Topic paper 2: CPP requirements.

⁹³ Commerce Commission "Input methodology amendments for electricity distribution services: Default price-quality paths" (27 November 2014), para 11.1-11.30.

Pre-review specification of price IM decision SP07

<p>Decision SP07 Recoverable costs – GTBs</p>	<p>Original 2010 decision</p> <p>Recoverable costs include costs associated with a CPP application; the net incremental carry forward amount under IRIS; claw-back applied by the Commission; and costs or credits associated with the sale or purchase of balancing gas.</p> <p>See section 8.3 and Appendix J, section J2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>GTBs</p>

How we have changed this decision

308. Our decision is to change IM decision SP07 to add:
- 308.1 as discussed in the reasons for change in Topic paper 1: Form of control and RAB indexation, a recoverable cost for the draw-down of the revenue cap wash-up balance;
 - 308.2 a 'wash-up' of forecast capex for the year (or years) prior to the setting of a DPP determination or CPP determination, consistent with our 2014 decision (for DPPs) for EDBs and consistent with GDBs;
 - 308.3 an allowance for the recovery of prudent expenditure incurred in response to a catastrophic event, consistent with our 2014 decision for EDBs and consistent with GDBs;
 - 308.4 a recoverable cost for compressor fuel gas; and
 - 308.5 as discussed in the reasons for change in Topic paper 2: CPP requirements, a new recoverable cost allowance to allow suppliers to recover prudently incurred expenditure in response to an urgent project ('urgent project allowance').
309. We have also made a change that clarifies the treatment of balancing gas as a recoverable cost.
310. Finally, this section discusses MDL’s proposed extension to recoverable costs, which we have not implemented.⁹⁴

⁹⁴ MDL, Untitled submission on problem definition paper (21 August 2015), p. 3-4.

*Why we have made these changes*Draw down of wash-up account balance

311. A new class of recoverable cost has been created for our decision to apply a revenue wash-up mechanism to GTBs (and EDBs). The common key implementation features of the revenue wash-up mechanism and the resulting requirements for recognition of the recoverable cost in revenue are described in detail for EDBs in IM decision SP05 above.
312. Further description and the reasons for this change are described in Topic paper 1: Form of control and RAB indexation. In February 2017, we will publish our Gas DPP draft decision paper which will discuss further the implementation details of how we propose the form of control will take effect at the next reset.
313. The practical application of this decision can also be seen in the 'Specification of price' subpart of Part 3 of the GTB IM amendments determination that we have published alongside this report.

'Wash-up' of forecast capex

314. This change aligns the treatment of GTBs with GDBs and EDBs (see our reasons in more detail under IM decision SP06 above). We made this amendment for EDBs' DPPs in November 2014 and extended it to CPPs as part of this decision as well.

Allowing for the recovery of prudent expenditure incurred in response to a catastrophic event

315. This change aligns the treatment of GTBs with GDBs (see our reasons in more detail under IM decision SP06 above). We made this amendment for EDBs in November 2014.
316. This recoverable cost allows for recovery of prudent net additional expenditure incurred by a GTB in response to a catastrophic event (ie, costs that are not already provided for in a DPP or CPP price path), prior to any reconsideration of a price-quality path taking effect.
317. We will specify the amount of the recoverable cost by amending the DPP determination or include the amount in any CPP determination issued in response to the catastrophic event. Although no additional compensation for lower-than-forecast revenues due to catastrophic events is provided for through this recoverable cost, such compensation is effectively provided for GTBs through the revenue cap and revenue wash-up mechanism, subject to any cap on the wash-up amount specified in the DPP or CPP determination.

Compressor fuel gas a recoverable cost in some instances

318. Compressor fuel used in compressors on the Maui transmission system is now specified as a recoverable cost. Compressor fuel used elsewhere in the transmission system is still classified as ordinary opex.
319. We changed clause 3.1.3 so that First Gas is able to recover all compressor fuel costs related to the Mokau compressor on the Maui Pipeline through a recoverable cost.

320. We have made this change based on the submission from MDL (now a part of First Gas) which identified unequal treatment of the technically equivalent substitution of balancing gas transaction with the running of compressors.⁹⁵ Balancing gas was recoverable, compressor fuel was not.
321. In our draft decision, we proposed a 'least cost' test to determine whether compressor fuel used in lieu of balancing should be recoverable. First Gas submitted that in practise this test would be difficult to apply. To address this, the IMs now make a categorical distinction between compressor fuel used in compressors on the Maui transmission system (which will be recoverable) and compressor fuel used elsewhere.⁹⁶
322. First Gas submitted that it is difficult to determine:
- 322.1 the circumstances in which compressor fuel is a lower cost alternative to balancing; and
 - 322.2 on the non-Maui pipelines in the gas transmission system, whether compressor fuel was used for balancing reasons or for general system operation reasons.⁹⁷
323. First Gas stated that the Mokau compressors for the Maui pipeline are used almost exclusively for balancing. It also stated that it intends to explore ways in which compressors could be managed more efficiently in future.⁹⁸
324. We consider that this change allows flexibility to a GTB to choose the most efficient alternative (between balancing or compressor use), while at the same time providing GTBs with an incentive to make efficient use of compressors on the system as a whole.

Urgent project allowance

325. As discussed in Topic paper 2: CPP requirements, we have introduced a new recoverable cost allowance to allow suppliers to recover prudently incurred expenditure in response to an urgent project. This draft decision also applies to GDBs (IM decision SP06) and EDBs (IM decision SP05). Our reasons for this proposed change are discussed in Topic paper 2: CPP requirements.

⁹⁵ MDL, Untitled submission on problem definition paper (21 August 2015), p. 4-6.

⁹⁶ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 3.

⁹⁷ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 3.

⁹⁸ First Gas "Submission on DPP for gas pipeline services from 1 October 2017" (4 August 2016), p. 4.

Proposed change to clarify treatment of balancing gas as a recoverable cost

326. We have clarified the definition of balancing gas as a recoverable cost. The definition now covers any cost, credit, or charge, including cash-outs. We have also removed the requirement for the Commission to approve these costs in accordance with a process to be set out in a DPP.⁹⁹

327. In May 2015, we provided clarification to the GTBs and industry on the treatment of balancing gas as a recoverable cost. This was via a letter sent to the parties and published on our website.¹⁰⁰ The relevant text is:

We consider that recoverable costs include: cash-outs under the current gas balancing regime; and daily cash-outs arising from the regime pursuant to MDL's change request.

We consider that the relevant input methodology does not limit recoverable costs to those arising in respect of the supplier's own network. As a consequence, recoverable costs will include both cash-out costs and credits for MDL, and cash-out costs and credits for Vector.

328. MDL requested that this advice be codified in the IMs.¹⁰¹

329. We agree that amending the IMs to codify the clarification already provided would improve ongoing certainty.

330. The industry change that has put the different networks under common ownership is not expected to alter the conclusions in the advice provided in the letter and so does not affect the proposed IM changes:

330.1 a cash-out transaction would be recognised as a recoverable cost;

330.2 when that transaction affects another supplier's network, the other supplier may recover balancing costs relating to the other system transaction; and

330.3 for a consolidated supplier this should result in the balancing between systems transactions effectively cancelling out and being an internal transfer.

331. MDL also made a submission which seeks to expand the definition of recoverable costs, beyond 'cash-outs', to include all aspects of any balancing regime the GTBs have in place.¹⁰²

⁹⁹ These costs remain subject to the audit and certification requirements specified in a DPP.

¹⁰⁰ Commerce Commission, Letter to Maui Development Limited and Vector Limited "Recoverable costs in respect of gas balancing" (12 May 2015), available at: <http://www.comcom.govt.nz/dmsdocument/13232>.

¹⁰¹ MDL, Untitled submission on problem definition paper (21 August 2015), p. 3.

¹⁰² MDL, Untitled submission on problem definition paper (21 August 2015), p. 3-4.

332. However, our 2010 EDB GPB Reasons Paper states:¹⁰³

It is not appropriate for all costs associated with balancing activities to be treated as pass-through costs, as many of these functions can reasonably be expected to be performed by a GTB as part of the regulated service.

333. Therefore, while we have clarified the definition of balancing gas costs, we have not expanded the definition of recoverable costs to include all balancing actions.

¹⁰³ Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), J2.32.

Chapter 8: Reconsideration of the price-quality path decisions we have changed

Pre-review reconsideration of the DPP IM decision RP01

<p>Decision RP01 Reconsideration of DPP (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>For all services, a DPP may be reconsidered if a material error is discovered in the determination; or a supplier has provided false or misleading information, which the Commission has relied upon in making its determination.</p> <p>See section 8.4 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>High Court judgment in <i>Wellington International Airports Ltd and others v Commerce Commission</i> [2013] NZHC 3289 (11 December 2013) and Commerce Commission “Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court” (27 November 2014). See amended definitions of ‘catastrophic event’, ‘change event’ and clauses 4.5.1 to 4.5.5 of each of the EDB IM Determination, GDB IM Determination and GTB IM Determination:</p> <p>A DPP may be reconsidered if a catastrophic event or change event has occurred. This aligns the DPP reconsideration provisions with the CPP provisions.</p> <p>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</p> <p>Wellington International Airport Ltd & Ors v Commerce Commission [2013] NZHC 3289 [11 December 2013]</p>
<p>This original decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

How we have changed this decision

- 334. Our decision is to change IM decision RP01.
- 335. We have changed the DPP reconsideration provisions to:

- 335.1 expand the existing DPP 'error' reopener provision for EDBs, GDBs and GTBs;
- 335.2 introduce a DPP reopener that would allow us to reconsider an EDB's quality standards, in place of the current option for EDBs to apply for a quality-only CPP; and
- 335.3 introduce a new reopener provision to allow a price-quality path to change in response to a major transaction for EDBs, GDBs and GTBs.

Why we have made these changes

Expanded error reopener provision

- 336. We have expanded the current error provision to address the situation where a price-quality path was set on the basis of any type of error. This could include cases where incorrect data was used in setting the DPP, or where the data was correct but was applied incorrectly.
- 337. The error provisions were previously limited to dealing with incorrect data and cannot be used in situations where, for example, data was incorrectly or mistakenly applied.
- 338. The change does not incorporate any additional new information (beyond corrections) or include information that, post determination, is subsequently considered better for setting a price-quality path.

Introduction of a quality standard reopener for EDBs

- 339. We have introduced a DPP reopener that would allow us to reconsider an EDB's quality standards, in place of the current option for EDBs to apply for a quality-only CPP. Our reasons for this change are discussed in Topic paper 2: CPP requirements.

Major transactions reopener provision

- 340. We have created a new reconsideration provision to allow us to reopen a price-quality path (or paths), if necessary, to respond to a major transaction.
- 341. In addition to provisions in the IMs that are intended to provide certainty about the treatment of amalgamations in particular (IM decisions AM01 to AM03), there are also compliance provisions in the relevant price-quality path determinations setting out how major transactions will be addressed more generally.¹⁰⁴

¹⁰⁴ For example, *Electricity Distribution Services Default Price-Quality Path Determination 2015* [2014] NZCC 33, Clause 10.

342. In applying these provisions to ensure price-quality paths apply as intended following a major transaction, it is possible that there may need to be a change to one or more regulated suppliers' allowable revenues and/or quality standards. The reconsideration provision would make it clear we may reopen the price-quality path, if necessary, to ensure the price-quality path(s) still apply as intended to the relevant regulated services.
343. This would not cover situations where the Commission or a supplier wanted to change the price-quality path for any reason other than responding to the new circumstances following a major transaction.
344. We consider that this reconsideration provision is necessary because there are many ways that transactions could occur, and it is not feasible to establish compliance provisions that can account for all situations. The major transactions reconsideration provision would allow us to amend the path where necessary to take account of these unforeseen situations.
345. In establishing this provision, we have included a definition of major transactions in the IM determinations based on the existing definition in relevant DPP determinations and on the definition provided in s 129 of the Companies Act 1993.
346. The reconsideration provision has the following features:
- 346.1 It can be triggered by us;
 - 346.2 It only applies to the price-quality path to the extent necessary to respond to the major transaction; and
 - 346.3 It allows us to undertake any consultation we consider appropriate in each circumstance.

Pre-review reconsideration of the CPP IM decision RP02

Decision RP02 Reconsideration of CPP	Original 2010 decision For all services, a CPP may be reconsidered if one of the following events has occurred: <ul style="list-style-type: none"> • a catastrophic event, for which the costs of rectifying the impact of the event is material; or • a material error is discovered in the determination; or • a supplier has provided false or misleading information, which the Commission has relied upon in making its determination; or • a change in legislative or regulatory requirements that has a material impact on costs See section 8.4 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

347. Our decision is to change IM decision RP02.

348. We have changed the CPP reconsideration provisions to:

348.1 provide for reconsideration of a CPP where there is a DPP WACC change. This decision links with our decision to use the prevailing DPP WACC rate throughout a CPP (see IM decision CC03);

348.2 expand the scope of the existing 'error' reopener provision;

348.3 introduce a new reopener provision to allow a CPP to change in response to a major transaction for EDBs, GDBs and GTBs; and

348.4 introduce a contingent and unforeseen project reopener for EDBs and GDBs.

*Why we have made these changes*Re-opening the CPP price path to apply an updated DPP WACC rate

349. Our reasons for making this change are discussed in Topic Paper 4: Cost of capital issues.

Expanded error reopener provision

350. We have made this change to IM decision RP02 for the same reasons as discussed above for IM decision RP01.

Major transactions reopener provision

351. We have made this change to IM decision RP02 for the same reasons as discussed above for IM decision RP01.

Contingent and unforeseen project reopener provision

352. Our decision to introduce contingent and unforeseen project reopeners for EDBs and GDBs is explained in Chapter 3 – Topic Paper 2: CPP requirements – Improvements to the way the DPP and CPP work together.

Pre-review reconsideration of the price-quality path IM decision RP03

Decision RP03 Meaning of ‘material’ for purposes of reconsideration	<p>Original 2010 decision</p> <p>In this context, material means that the impact of the event over the remainder of the regulatory period is at least 1% of the aggregated allowable notional revenue for the years in which the costs associated with the event are incurred.</p> <p>See section 8.4 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

353. We have amended IM decision RP03 in respect of the 1% materiality threshold on allowable revenue for the error reopener such that the threshold only applies to errors in allowable revenue, rather than errors that might affect other aspects of the price-quality path.

354. We have also removed the requirement to meet the 1% materiality threshold for the change event DPP and CPP reopener, in circumstances where the change event causes an IM to become unworkable – that is, incapable of being applied.

Why we have made these changes

355. The reasons for these changes are set out in Attachment B.

Issues we have considered where we have not made a change

356. ENA made a number of suggestions for changes to reopener provisions to address implementation issues relating to the Health and Safety at Work Act 2015. These are discussed in Attachment C.¹⁰⁵

¹⁰⁵ Our explanation of the price path reopener provisions in s 53ZB of the Commerce Act are set out in Attachment C.

Pre-review reconsideration of the price-quality path IM decision RP04

<p>Decision RP04</p> <p>Reconsideration for contingent or unforeseen expenditure under a CPP – GTBs</p>	<p>Original 2010 decision</p> <p>A GTB’s CPP may also be reconsidered if a trigger event occurs for a project on the contingent project list, or an unforeseen project has commenced or is committed to take place during a CPP regulatory period.</p> <p>The Commission has incorporated additional mechanisms for dealing with contingent or unforeseen gas transmission investments by adopting a contingent/unforeseen project approach, whereby:</p> <ul style="list-style-type: none"> • the costs of particular large investments are not provided for in the <i>ex ante</i> revenue allowance where the need, timing, and/or costs of the project are uncertain or the project is unforeseen when a proposal is submitted; • the Commission will only reconsider the price path if the GTB satisfies the Commission that the project will proceed; and • the amendment to the price path will not take effect until the year in which assets associated with the project are forecast to be commissioned. <p>Contingent projects are tied to a specific trigger event and forecast costs must meet a materiality threshold. A trigger event is a condition or event that (among other things) is not within the control of the GTB and would reasonably cause the GTB to undertake the project.</p> <p>The GTB must demonstrate that the assets associated with the project are likely to be commissioned during the CPP regulatory period.</p> <p>The forecast or indicative capex of the project must be at least 10 per cent of the value of the applicant’s most recently disclosed annual revenue. This is equivalent to an increase of approximately one per cent per annum of the annual allowable revenue and is consistent with the materiality threshold that forms part of the cost allocation IM.</p> <p>Proposals must include sufficient information to enable the Commission to identify whether a project satisfies the contingent project criteria. The independent verifier will be required to provide an opinion as to whether the project satisfies the criteria.</p> <p>Projects approved as contingent projects (and the trigger events for each project) will be identified in a CPP determination. The Commission may also decide to classify other projects (than those proposed by the supplier) as contingent projects.</p> <p>The Commission considers that it is appropriate to accommodate ‘unforeseen projects’ under the contingent project mechanism if the project satisfies the following criteria:</p> <ul style="list-style-type: none"> • it was unforeseeable to a prudent operator of gas transmission
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	<p>services at the time it submitted its CPP proposal; and</p> <ul style="list-style-type: none"> • it meets the same materiality threshold as a contingent project. <p>A GTB may apply to the Commission to reconsider the price path where a trigger event has occurred or an unforeseen project has commenced or is committed to proceed during the CPP regulatory period.</p> <p>Reconsideration arising from a contingent project or unforeseen project is not an opportunity to reconsider all aspects of the original proposal. Rather it allows the Commission the opportunity to scrutinise the justification for the proposed incremental increase in forecast capex and operating expenditure (opex), over and above the forecast capex and opex already provided for in the MAR. Any amendment to the price path will not take effect until the year in which assets associated with the project are forecast to be commissioned.</p> <p>See sections 8.4 and 9.5 and Appendix K of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	GTBs

How we have changed this decision

357. Our decision is to extend IM decision RP04 so that it applies to EDBs and GDBs, as well as GTBs.

Why we have made this change

358. The reasons for our decision are described in Topic paper 2: CPP requirements.

359. Extending this reopener allows us to reopen the price path for EDBs and GDBs (in addition to GTBs) to build in incremental expenditure for projects where the time, scope or cost was not known at the time the CPP was set. We consider that this reopener is appropriate under a CPP as we would have already scrutinised the underlying expenditure when we initially determined the CPP, without concerns that the project may be already provided for in the path.¹⁰⁶

¹⁰⁶ Commerce Commission “Input methodologies review draft decisions: Topic paper 2 – CPP requirements” (16 June 2016), para 109-115.

Pre-review reconsideration of the price-quality path IM decision RP05

<p>Decision RP05 Reconsideration of IPP – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Transpower's IPP may be reconsidered if one of the following events has occurred:</p> <ul style="list-style-type: none"> • a catastrophic event, for which the costs of rectifying the impact of the event is material; or • a material error is discovered in the determination; or • Transpower has provided false or misleading information, which the Commission has relied upon in making its determination; or • a change in legislative or regulatory requirements that has a material impact on Transpower's costs. <p>See section 7.4 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>The amendment affects the IMs relating to individual price-quality regulation for Transpower.</p> <p>It will apply with effect from 1 July 2015, which corresponds to the commencement date of the first disclosure year for RCP2.</p> <p>We have amended the provisions relating to reconsideration of Transpower’s IPP by replacing the term ‘quality targets’ with terminology that reflects the quality standards framework applying under the Capex IM.</p> <p>The new terminology is that of ‘revenue-linked grid output measures’, involving ‘grid outputs’, ‘grid output targets’, ‘caps’, ‘collars’ and ‘grid output incentive rates’, whereas the previous terminology reflected the quality targets set in the 2010 IPP.</p> <p>The change allows the revenue-linked grid output measures specified in an IPP determination to be amended following a catastrophic event, error, or change event, as provided for in the price-quality path reconsideration provisions in the IMs.</p> <p>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</p>
<p>This original decision applies to (sector):</p>	<p>Transpower</p>

How we have changed this decision

360. Our decision is to change IM decision RP05 to expand the scope of the existing ‘error’ reopener provision.

361. We have also added ‘revenue-linked grid output measure’ to the error event provisions for reconsideration of the IPP.

Why we have made this change

362. We have made the first change to IM decision RP05 for the same reasons as for IM decision RP01.

363. The second change is to clarify that an error in the data used for a grid output measure in setting the price path is included as a type of error which allows for the reconsideration of the IPP.

Pre-review reconsideration of the price-quality path IM decision RP06

Decision RP06 Meaning of ‘material’ for purposes of reconsideration – Transpower	Original 2010 decision In this context, material means that the total effect of the event on the price path is at least 1% of the aggregated forecast MARs for the years in which the costs associated with the event are incurred. See section 7.4 of 2010 IM Transpower reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

How we have changed this decision

364. We have amended IM decision RP06 in respect of the 1% materiality threshold on allowable revenue for the error reopener so that the threshold only applies to errors in allowable revenue, rather than errors that might affect other aspects of the price-quality path.

365. In the case of error reopeners relating to quality standards or quality incentive measures, no threshold will apply. However, the error must relate to values rather than metrics.

366. We have also removed the requirement to meet the 1% materiality threshold for the change event DPP and CPP reopener, in circumstances where the change event causes an IM to become unworkable – that is, incapable of being applied.

Why we have made these changes

367. The reasons for this change are set out in Attachment B.

Chapter 9: IRIS decisions we have changed

Pre-review IRIS IM decision IR02

<p>Decision IR02</p> <p>Treatment of IRIS balances – EDBs</p> <p>(original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>While both incremental gains and losses will be carried forward to the subsequent 5 years, only positive net balances of such gains and losses in years in the next regulatory period will be treated as recoverable costs. (ie, only net rewards will be recognised).</p> <p>See section 8.5, Appendix J, section J3 for 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>We put in place an incentive to control expenditure that is the same in each year of the regulatory period. Unlike the pre-existing asymmetric IRIS for opex, the revised IRIS would provide incentives that are the same in each year:</p> <ul style="list-style-type: none"> • For opex, the retention period for savings and losses is 5 years following the year of the gain and loss, which is equivalent to a retention factor of around 35% for a supplier. • ... the strength of the incentive applying to capex can be varied relative to the incentive strength applying to opex. The choice of retention factor for capex will be decided at the time of each reset. <p>In the second full year after the price-quality path starts to apply to the supplier, a one-off adjustment is made after the carry forward amounts are added together.</p> <p>The one-off adjustment in the second year is required to correct for the difference between the actual and assumed level of opex in the final year of the preceding price-quality path. This adjustment is required because the incremental change in the final year of a price-quality path is assumed to be nil.</p> <p>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (27 November 2014)</p> <p>2015 amendment to this decision (2)</p> <p>We made further amendments intended to address situations in which a distributor transitions back and forth between default and CPPs.</p> <p>The situation in which a distributor transitions onto a CPP provides different incentives compared to the situations under a DPP and IPP.</p>
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	<p>After considering the options proposed by submitters we determined that retaining an IRIS and implementing the approach proposed by Powerco was most appropriate given the circumstances of a CPP as it provides the most beneficial incentives on suppliers:</p> <ul style="list-style-type: none"> • In its submission, Powerco suggested an approach in which the temporary savings in the penultimate year are assumed to be the difference between forecast and actual opex in that year. • Under the Powerco approach, the correct adjustments are made through the baseline adjustment term for any temporary savings in the penultimate year (eg, year 4). <p>Further amendments to input methodologies for electricity distributors subject to price-quality regulation - Incremental Rolling Incentive Scheme (IRIS) (25 November 2015)</p>
This original decision applies to (sector):	EDBs

We have made an implementation change for this decision

368. We have changed IM decision IR02 to amend the EDB IM ‘opex incentive amount’ calculation to fit the purpose of the ‘adjustment to the opex incentive’ by using a modified version of the ‘capex incentive adjustment’ calculation.

Why we made this change

369. Under the EDB IRIS, as it applied before the change, when an adjustment to the opex incentive was made the entire adjustment fell in the second year of the regulatory period.¹⁰⁷

370. Under this approach there was a risk of fluctuations in allowable revenue (and therefore prices to consumers) resulting from these second-year adjustments.

371. We have decided that we can remedy this issue by relying on the existing ‘capex incentive adjustment’ calculation formula to spread the IRIS adjustment across the remainder of the regulatory period.

372. In submissions on our draft decision, ENA supported our change.¹⁰⁸

¹⁰⁷ Vector raised a concern about this in: Vector “Commission Proposal to Implement Further Amendments to Input Methodologies (IM) for Electricity Distributors Subject to Price Quality Regulation” (20 March 2015), para 18.

¹⁰⁸ ENA “Input Methodologies review – Report on the IM review” (4 August 2016), para 23.

Pre-review IRIS IM decision IR05

Decision IR05 Treatment of IRIS balances – Transpower (original 2010 decision amended)	<p>Original 2010 decision</p> <p>While both incremental gains and losses will be carried forward to the subsequent 5 years, only positive net balances of such gains and losses in years in the next regulatory period will be treated as recoverable costs (ie, only net rewards will be recognised).</p> <p>See section 7.5 of 2010 IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>We put in place an incentive to control expenditure that is the same in each year of the regulatory period. Unlike the pre-existing asymmetric IRIS for opex, the revised IRIS provides incentives that are the same in each year.</p> <p>For opex, the retention period for savings and losses is 5 years following the year of the gain and loss, which is equivalent to a retention factor of around 35% for a supplier.</p> <p>In the second full year after the price-quality path starts to apply to the supplier, a one-off adjustment is made after the carry forward amounts are added together.</p> <p>The one-off adjustment in the second year is required to correct for the difference between the actual and assumed level of opex in the final year of the preceding price-quality path. This adjustment is required because the incremental change in the final year of a price-quality path is assumed to be nil.</p> <p>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (27 November 2014)</p>
This original decision applies to (sector):	Transpower

We have made an implementation change for this decision

373. We have changed IM decision IR05 to amend the Transpower IM ‘opex incentive amount’ calculation to fit the purpose of the ‘adjustment to the opex incentive’ by using a modified version of the ‘capex incentive adjustment’ calculation.¹⁰⁹ This is consistent with the change to IM decision IR02 for EDBs.

¹⁰⁹ We note that there is a specific topic paper being released in Q1 of 2017 in which a draft decision will be made on the Transpower IRIS. Decision IR05 may be revisited, if required, under that process.

Why we have made this change

374. We have changed this approach for the same reasons outlined under IM decision IR02.

Pre-review IRIS IM decision IR08

Decision IR08 IRIS to apply under a CPP – GDBs and GTBs	Original 2010 decision The Commission will implement an IRIS under a CPP. The efficiency gain or loss for a particular year will be calculated as the difference between actual and forecast controllable opex for the current year, minus the difference in the preceding year, the result of which provides the incremental gain/loss for that year. See section 8.5, Appendix J, section J3 for 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	GDB/GTB

How we have changed this decision

375. We have changed IM decision IR08 to remove the pre-review asymmetric opex IRIS applying to CPPs for gas pipeline services.

Why we have made this change

376. Our emerging views on the IRIS for the GDB and GTB DPPs and CPPs, as outlined in our gas process and issues paper, were (in summary):¹¹⁰

376.1 the benefits from implementing a capex and opex IRIS for gas pipeline services would be unlikely to outweigh the costs at this time; and

376.2 if IRIS is not implemented for gas pipeline services in the 2017 Gas DPP resets, the current asymmetric opex IRIS applying to CPPs should be removed for gas pipeline services.

¹¹⁰ Commerce Commission "Default price-quality paths for gas pipeline services from 1 October 2017 – Process and issues paper" (29 February 2016), para 5.1-5.15.

- 377. Submissions in relation to IRIS and the Gas DPP resets were received on 24 March 2016 from GasNet Limited, Methanex New Zealand Limited, First State Investments, Maui Development Limited, and Powerco.¹¹¹
- 378. Overall, submissions commenting on IRIS issues generally supported our emerging views. Powerco and MDL specifically supported our emerging view regarding the existing asymmetric opex IRIS applying in respect of CPPs, and agreed that it should be removed altogether.
- 379. This change also applies to IM decisions IR09 and IR10.

Pre-review IRIS IM decision IR09

<p>Decision IR09 Treatment of IRIS balances – GDBs and GTBs</p>	<p>Original 2010 decision</p> <p>While both incremental gains and losses will be carried forward to the subsequent 5 years, only positive net balances of such gains and losses in years in the next regulatory period will be treated as recoverable costs (ie, only net rewards will be recognised).</p> <p>See section 8.5, Appendix J, section J3 for 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>GDB/GTB</p>

How we have changed this decision

- 380. We have changed IM decision IR09 to remove the pre-review asymmetric opex IRIS applying to CPPs for gas pipeline services.¹¹²

Why we have made this change

- 381. Our reasons for making this change are the same as the reasons set out under IM decision IR08.

¹¹¹ GasNet "Submission on DPP from 2017 for gas pipeline services, process and issues paper – Public version" (24 March 2016), p. 5; Methanex "Gas default price-quality path reset 2017 and other matters" (24 March 2016), p. 2; First State Investments "Gas default price-quality path: Matters related to the input methodologies" (24 March 2016), p. 1-2; MDL, Untitled comments on Gas DPP process and issues paper (24 March 2016), p. 2; and Powerco "Submission on the four emerging view papers (29 February 2016)" (24 March 2016), p. 3 and p. 10.

¹¹² Commerce Commission "Default price-quality paths for gas pipeline services from 1 October 2017 – Process and issues paper" (29 February 2016), para 5.14-5.15.

Pre-review IRIS IM decision IR10

Decision IR10 Five-year retention of efficiency gains	Original 2010 decision The length of time suppliers are allowed to retain the efficiency gain is 5 years. See section 8.5, Appendix J, section J3 for 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	GDB/GTB

How we have changed this decision

382. We have changed IM decision IR10 to remove the pre-review asymmetric opex IRIS applying to CPPs for gas pipeline services.¹¹³

Why we have made this change

383. Our reasons for making this change are the same as the reasons set out under IM decision IR08.

¹¹³ Commerce Commission "Default price-quality paths for gas pipeline services from 1 October 2017 – Process and issues paper" (29 February 2016), para 5.14-5.15.

Part 2: IM decisions that we have not changed

Chapter 10: Introduction to Part 2

384. This Part lists those pre-review IM decisions that:
- 384.1 in light of our framework, submissions on the IM review, and all other relevant information before us, we considered changing; but
 - 384.2 for the reasons presented in this Part, we decided not to change (either at a policy level, or in terms of the implementation of the decision).
385. For each pre-review IM decision, Part 2 of the report:
- 385.1 states the pre-review IM decision; and
 - 385.2 explains why we have decided not to change it as part of the IM review.
386. Like Part 1, Part 2 is structured according to the grouping of pre-review IM decisions described in the introduction to this report.

Chapter 11: Cost allocation decisions we have not changed

Pre-review cost allocation IM decision CA05

Decision CA05 Definition of causal relationships	<p>Original 2010 decision</p> <p>'Causal relationships' are defined in relation to:</p> <ul style="list-style-type: none"> • asset values, as a circumstance in which a factor influences the utilisation of an asset during the 18 month period terminating on the last day of the disclosure year in respect of which the allocation is carried out; and • operating costs, as a circumstance in which a cost driver leads to an operating cost being incurred during the 18 month period terminating on the last day of the disclosure year in respect of which the allocation is carried out. <p>See Appendix B, section B4 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>Airports – see Appendix B of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB/Airports

Why we have not changed this decision

387. Our decision in respect of IM decision CA05 is to make no change.
388. Horizon submitted in 2013 that we should provide clarity about the time period over which a causal relationship (for cost allocation) has to be established when a regulated supplier has acquired a business in the last 18 months.¹¹⁴ The time period for a causal relationship is relevant for determining which causal (or proxy) allocators a business can apply.
389. The intent of the IM is that a causal relationship can be established over any part of the 18-month period. We have not amended the IM determinations, as the allocator is working as intended.

¹¹⁴ Commerce Commission "Issues register for electricity and gas information disclosure" (30 March 2016). See row 79 regarding the clarification sought by Horizon on 28 June 2013.

Pre-review cost allocation IM decision CA11

Decision CA11 Allocating not directly attributable cost – Airports	<p>Original 2010 decision</p> <p>Airports must apply ABAA to allocate costs that are ‘not directly attributable’ between each of the three regulated activities, and between regulated and unregulated activities they undertake.</p> <p>See section 3.3 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Why we have not changed this decision

390. Our decision in respect of IM decision CA11 is to make no change.
391. The Board of Airline Representatives New Zealand (BARNZ) originally submitted that the cost allocation IM relating to assets that are not directly attributable is too broad.¹¹⁵ However, BARNZ subsequently withdrew this submission.¹¹⁶ There is no other evidence of an issue in this area, and we have therefore not made any changes to IM decision CA11.

¹¹⁵ BARNZ “Submission by BARNZ on problem definition paper for the input methodologies review” (21 August 2015), p. 1-2.

¹¹⁶ Letter from Kristina Cooper (Legal and Regulatory Manager, BARNZ) to Hazel Burns (Senior Analyst, Commerce Commission) confirming that BARNZ withdraws its submission on the asset allocator issue, made as part of its submission on the Commission’s Problem definition paper (14 June 2016), available on our website at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/>.

Chapter 12: Asset valuation decisions we have not changed

Pre-review asset valuation IM decision AV03

Decision AV03 RAB roll forward with indexation	Original 2010 decision EDBs and GPBs must roll forward the RAB values of their assets using CPI-indexation. For this purpose EDBs and GPBs must use the 'All Groups Index SE9A' published by Statistics New Zealand. See section 4.3, Appendix E, section E12 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

392. Our decision in respect of IM decision AV03 is to make no change.
393. We discuss issues relating to suppliers' exposure to inflation risk and the time profile of capital recovery in Topic paper 1: Form of control and RAB indexation.
394. Our reasons for deciding not to change this IM decision AV03 in response to those issues are discussed in that topic paper.

Pre-review asset valuation IM decision AV04

Decision AV04 RAB exclusions	<p>Original 2010 decision</p> <p>EDBs and GPBs should exclude from their RAB values:</p> <ul style="list-style-type: none"> • as applicable, any assets not used to provide electricity lines services (as defined by s 54C) and any assets not used to provide gas pipeline services (as defined by s 55A); • any asset that is part of a works under construction; • working capital; • goodwill; and • easement land, that is land acquired for the purpose of creating an easement and with the intention of subsequently disposing of the land. <p>See section 4.3, Appendix E, sections E2, E3, E5, E6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

- 395. Our decision in respect of IM decision AV04 is to make no change.
- 396. We considered Electricity Retailers’ Association of New Zealand’s (**ERANZ**) submissions for effectively excluding certain assets from the RAB (eg, batteries beyond the meter, even if used to supply regulated services).¹¹⁷
- 397. Our reasons for not changing this decision, including our response to ERANZ’s submission, are discussed in Topic paper 3: The future impact of emerging technologies in the energy sector.

¹¹⁷ Electricity Retailers’ Association of New Zealand (ERANZ), “Submission of Emerging Technologies – Workshop and Pre-workshop paper” (4 February 2016), p. 18-20; and ERANZ “Submission to the Commerce Commission on input methodologies for emerging technology” (4 August 2016), p. 14.

Pre-review asset valuation IM decision AV06

Decision AV06 Commissioned assets added to RAB	Original 2010 decision EDBs and GPBs should include capital additions in their RAB values at cost in the year in which the asset is 'commissioned', that is when the asset is first used by the regulated supplier to provide electricity distribution services/gas pipeline services. When a regulated supplier disposes of an asset the closing RAB value of that asset, for the disclosure year in which the disposal occurs, is nil. See section E4, Appendix E of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

398. In submissions on our draft decision, Powerco suggested that we should change the time when an asset enters the RAB from the 'commissioned date' to the 'creation date' in order to allow the RAB to include assets that have been installed, but not yet commissioned. Powerco noted that GAAP does not allow capitalisation once an asset has been installed.¹¹⁸
399. We have concluded that there is no material reason to deviate from GAAP under Clause 2.2.11(1) of the EDB, GDB and GTB IM determinations and, in particular, the GAAP references in NZ IAS 16 – the 'cessation' rule and NZ IAS 23 – the 'suspension' rule, in relation to works under construction.¹¹⁹

¹¹⁸ Powerco "Submission on Input Methodologies Review Draft Decisions" (4 August 2016), p. 65.

¹¹⁹ External Reporting Board "New Zealand Equivalent to International Accounting Standard 16" (November 2004), para 20(a) and External Reporting Board "New Zealand Equivalent to International Accounting Standard 23" (July 2007), para 20.

Pre-review asset valuation IM decision AV08

Decision AV08 Easement rights	<p>Original 2010 decision</p> <p>EDBs and GPBs must include new easement rights in the RAB value at cost in the year in which the rights are acquired, provided that the RAB value of new easement rights does not exceed fair market value, as determined by an independent valuer.</p> <p>See section E6, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

400. In its submission on our draft decision, Powerco suggested that it would be useful if the IMs were updated to reflect the rationale in the 2010 IM reasons paper regarding easement rights in the RAB.¹²⁰
401. We consider that no change is necessary as Clause 2.2.11(1)(b) of the EDB, GDB and GTB IM determinations is consistent with paragraph E6.1 of the 2010 EDB-GPB IM reasons paper.¹²¹

Pre-review asset valuation IM decision AV18

Decision AV18 Assets retained in RAB for ID	<p>Original 2010 decision</p> <p>Where demand for the asset falls away, regulated suppliers may retain the asset in the RAB value for the purpose of ID, and continue to depreciate the asset over its remaining asset life.</p> <p>See section 11 Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

402. Our decision in respect of IM decision AV18 is to make no change.

¹²⁰ Powerco "Submission on Input Methodologies Review Draft Decisions" (4 August 2016), p. 65-66.

¹²¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para E6.1.

403. The issue of asset stranding is discussed in Topic paper 3: The future impact of emerging technologies in the energy sector. Although we have not amended IM decision AV18, we have made an amendment to IM decision AV17 to allow EDBs the option to adjust asset lives by a moderate amount in certain circumstances.

404. Details of the change to IM decision AV17 are set out in Part 1 of this report.

Pre-review asset valuation IM decision AV26

<p>Decision AV26 No indexation of RAB – Transpower</p>	<p>Original 2010 decision</p> <p>No indexation is to be applied in rolling forward Transpower's RAB value.</p> <p>See section 4.3, paragraphs 4.4.68-4.4.80 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

Why we have not changed this decision

405. Our decision in respect of IM decision AV26 is to make no change.

406. We discuss issues relating to Transpower’s exposure to inflation risk and the time profile of capital recovery in Topic paper 1: Form of control and RAB indexation. Our reasons for not changing this decision in response to these issues are discussed in that topic paper.

Pre-review asset valuation IM decision AV27

<p>Decision AV27 Commissioned assets added to RAB – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>Transpower should include capital additions in its RAB value at cost in the year in which the asset is ‘commissioned’, that is when the asset is first ‘used by Transpower to provide electricity transmission services’. In the case of (a) land that is not easement land, and (b) easements, whose acquisition has been approved under Part F of the Electricity Governance Rules (or under the capex IM once it comes into effect), ‘commissioned’ means ‘first acquired by Transpower’.</p> <p>See section 4.3, paragraphs 4.4.68-4.4.80 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>The amendment affects the IMs relating to ID regulation and individual price-quality regulation for Transpower. It will apply to land assets acquired from 1 July 2015, which corresponds to the commencement date of the first disclosure year for RCP2.</p> <p>We have amended the definition of ‘commissioned’ in the IMs to clarify that land which is base capex may enter Transpower’s RAB when acquired, as opposed to when it is first used to supply electricity lines services.</p> <p>Base capex is capex with a forecast cost of less than \$20 million or which relates to specified types of projects or programmes such as asset replacement or asset refurbishment.</p> <p>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</p>
<p>This original decision applies to (sector):</p>	<p>Transpower</p>

Why we have not changed this decision

407. We have not amended the definition for ‘capital expenditure’ for the purpose of AV27.

- 408. In its submission on our technical consultation, Transpower queried why we have a definition for ‘capital expenditure’ in both the Transpower IM and the Transpower Capex IM.¹²² Transpower suggested using one common definition for ‘capital expenditure’.
- 409. We have not amended the definition for ‘capital expenditure’ in the IM determination as the definitions have a different purpose. The definition of ‘capital expenditure’ in the Capex IM is used for the approval of capex and the setting of capex allowances. The definition in the IM determination is used in the value of the RAB. In the Capex IM, ‘non-transmission solutions’ are included within the definition, but may not be capitalised in the RAB for GAAP. Rather than create variations on the same definition, we consider it more appropriate to retain the existing two definitions.

Pre-review asset valuation IM decision AV29

<p>Decision AV29 Asset disposals – Transpower</p>	<p>Original 2010 decision</p> <p>Where Transpower disposes of an asset, the closing RAB value of that asset, for the disclosure year in which the disposal occurs, is nil.</p> <p>See section 4.3, paragraphs 4.4.68-4.4.80 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

Why we have not changed this decision

- 410. Our decision in respect of IM decision AV29 is to make no change.
- 411. We considered whether IM decision AV29 should be changed to accommodate write-offs and dismantling costs for Transpower assets which have been fully depreciated.
- 412. However, as described below, the price path already takes account of an asset’s end of life costs such as dismantling and write-offs:

¹²² Transpower “[REVISED DRAFT] Transpower Input Methodologies Amendments Determination 2016” (3 November 2016)”, p. 7.

- 412.1 Under GAAP, the gain or loss arising from the removal of an item of property, plant and equipment from the balance sheet (ie, ‘derecognition’) is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item. The gain or loss is included in profit or loss when the item is derecognised.¹²³
- 412.2 ‘Net disposal proceeds’ under GAAP is interpreted to include the costs associated with disposing of an asset (eg, dismantling and write-offs) and use of the word ‘net’ confirms this could be negative.
- 412.3 The loss arising due to dismantling costs and write-offs when removing an asset from the balance sheet would meet the definition of “disposal proceeds” for the purpose of Transpower IPP, and therefore will be recoverable by Transpower under the price-quality path.

Pre-review asset valuation IM decision AV43

Decision AV43 Financing costs on works under construction – Airports	<p>Original 2010 decision</p> <p>Airports must capitalise financing costs on works under construction consistent with GAAP, at a rate no greater than the Airport's estimate of its post-tax cost of capital. Airports must cease capitalising financing costs when the asset is commissioned.</p> <p>When works under construction are commissioned, airports must reduce the cost of the asset, established consistent with GAAP, by the amount of any revenue derived in relation to the assets while they were works under construction (where such a reduction is not already made under GAAP, and where the revenue has not already been reported as income under ID).</p> <p>See section 4.3, Appendix C, section C4 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Why we have not changed this decision

413. Our decision in respect of IM decision AV43 is to make no change.

¹²³ See: New Zealand Equivalent to International Accounting Standard 16 (NZ IAS 16), para 67-72.

414. We considered amending IM decision AV43 for consistency between the Airport IMs and the IMs that apply to the other sectors, particularly exempt EDBs. However, we note that the interest during construction cap never applied to airports, and there would not be the same benefit of maintaining consistent disclosures as between exempt EDBs and non-exempt EDBs (IM decision AV14). Therefore, we have not changed this decision.¹²⁴
415. BARNZ submitted that the holding costs of assets held for future use (ie, in respect of 'excluded assets') should be calculated by applying the airport's average cost of borrowings, as per the proposal to use GAAP requirements for works under construction, rather than by each applying its post-tax WACC.¹²⁵
416. We consider that the post-tax WACC remains appropriate for holding costs and for the cost of financing of works under construction for the reasons outlined in our 2010 Airports IM Reasons Paper.¹²⁶

¹²⁴ Note: In our Airports IM June Draft IM Determination we accidentally carried across the change that we made in the EDB June Draft IM Determination to the weighted average cost of borrowings for airports' works under construction. This was an error (as it was at odds with our draft decision on AV43), and was corrected in our Revised Draft Airports IM Determination in October 2016.

¹²⁵ BARNZ "[DRAFT] Commerce Act (Specified Airport Services Input Methodologies) Determination 2010 (18 August 2016), p. 28.

¹²⁶ Commerce Commission "Input Methodologies (Airport Services) Reasons Paper" (22 December 2010), para C4.13-C4.14.

Chapter 13: Treatment of taxation decisions we have not changed

Pre-review treatment of taxation IM decision TX14

Decision TX14 Regulatory tax asset value of asset acquired – Transpower	Original 2010 decision The regulatory tax asset value of assets acquired from a supplier of another type of regulated service should remain unchanged in the event of an acquisition of assets used to supply services under Part 4. See paragraphs 5.4.13- 5.4.17 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

Why we have not changed this decision

417. For the same reasons as specified in IM decision TX01, we have made no change in respect of the treatment of taxation for Transpower following the transfer of assets. Transpower supported our decision to make no change.¹²⁷

¹²⁷ Transpower “IM review: Submission on suite of draft decision papers” (4 August 2016), p. 17.

Chapter 14: Cost of capital decisions we have not changed

Pre-review cost of capital IM decision CC01

Decision CC01 Cost of capital defined as estimate of WACC	<p>Original 2010 decision</p> <p>The cost of capital is an estimate of firms' WACC which reflects the cost of debt and the cost of equity used to fund investment. A different WACC will apply in respect of the supply of regulated services by EDBs and GPBs.</p> <p>See sections 6.1, H1, H2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

418. Our decision is not to change IM decision CC01 or the way it is implemented. Our response to this issue is explained under IM decision CC03 in Part 1 of this report.

Pre-review cost of capital IM decision CC02

Decision CC02 WACC percentile (original 2010 decision amended)	<p>Original 2010 decision</p> <p>To incentivise efficient investment in regulated services (given the possibility of errors in estimating the WACC) the WACC to apply for DPP and CPPs is specified as the 75th percentile estimate of the WACC.</p> <p>See section 6.7, H11 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p> <p>Our decision was that the specified WACC for EDBs, Transpower and GPBs should be amended, in light of evidence gathered since the IMs were first determined in December 2010. Our decision was that the 67th percentile of our estimated WACC distribution should be used for price-quality path regulation (the 75th percentile is currently used). Our decision has been given effect by amending the cost of capital IMs applying to those businesses.</p> <p>This decision does not amend the WACC percentile range used for ID regulation. This amendment to the WACC percentile will apply to EDBs on a DPP and to Transpower's IPP when the resets of those price-quality paths</p>
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	take effect in 2015: Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)
This original decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

419. Our decision is not to change IM decision CC02 or the way it is implemented. Our reasons for not changing this decision are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC08

Decision CC08 Corporate tax rate in WACC estimates	Original 2010 decision The corporate tax rate is 30% up until the end of the 2011 tax year, and 28% thereafter. Changes in the corporate tax rate will flow through to future post-tax WACC estimates automatically. See section 6.5, H10 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

420. Our decision is not to change IM decision CC08 or the way it is implemented. Our reasons for not changing this decision are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC09

Decision CC09 Commercially realistic estimates of WACC	Original 2010 decision We have compared the estimated WACCs under the IM against a range of other financial and economic information in order to check that the application of the cost of capital IM produces commercially realistic estimates of WACC for EDBs and GPBs. See section 6.8, H13 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

Why we have not changed this decision

421. Our decision is not to change IM decision CC09. We have continued to conduct reasonableness checks, which are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC11

<p>Decision CC11 Cost of capital defined as estimate of WACC – Transpower</p>	<p>Original 2010 decision</p> <p>The cost of capital is an estimate of the WACC which reflects the cost of debt and the cost of equity used to fund investment. The WACC will apply in respect of the supply of regulated services by Transpower.</p> <p>The Commission has compared the estimated WACC outputs against a range of other financial and economic information in order to check that commercially realistic estimates of WACC for EDBs and Transpower will be produced by the IM. See section 6.1, 6.8, H1, H2, H13 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>Input Methodologies (Transpower) Supplementary Reasons Paper for Leverage in Cost of Capital (29 June 2012)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

Why we have not changed this decision

422. Our decision is not to change IM decision CC11. The WACC is used in a number of different ways in the determination and we consider that the IMs are currently workable and implement the policy adequately. We do not think any further changes are necessary at this time. We will revisit this matter, if necessary, at the next ID determination update.

423. In its submission on our technical consultation, Transpower suggested that references to post-tax WACC should be rationalised and it provided suggested drafting to support its proposal. The proposed drafting did not involve a general policy change related to WACC. However, the WACC is used in a number of different ways in the determination and we considered that undertaking a complete review on this matter may result in unexpected consequential issues that would need to be reviewed for. Because it is only a drafting refinement, that is not intended to result in a change to a policy decision, we considered that this could be practically carried out after the completion of the review.

Pre-review cost of capital IM decision CC12

<p>Decision CC12 WACC percentile – Transpower (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>To incentivise investment in regulated services (given the possibility of error in estimating the WACC) the 75th percentile estimate of the vanilla WACC will be applied under the IPP.</p> <p>See section 6.7, H11 of 2010 IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>This amendment gives effect to the Commission's decision to move from using the 75th percentile estimate of WACC to the 67th percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services. This decision does not amend the WACC percentile range used for ID regulation.</p> <p>Our decision is that the specified WACC for EDBs, Transpower and GPBs should be amended, in light of evidence we have gathered since the IMs were first determined in December 2010. Our decision is that the 67th percentile of our estimated WACC distribution should be used for price-quality path regulation (the 75th percentile is currently used). Our decision has been given effect by amending the cost of capital IMs applying to those businesses.</p> <p>This amendment to the WACC percentile will apply to EDBs on a DPP and to Transpower’s IPP when the resets of those price-quality paths take effect in 2015.</p> <p>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</p>
<p>This original decision applies to (sector):</p>	<p>Transpower</p>

Why we have not changed this decision

424. Our decision is not to change IM decision CC12 or the way it is implemented. Our reasons for not changing this decision are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC18

<p>Decision CC18 Corporate tax rate in WACC estimates – Transpower</p>	<p>Original 2010 decision</p> <p>The corporate tax rate is 30% up until the end of the 2011 tax year, and 28% thereafter. Changes in the corporate tax rate will flow through to future post-tax WACC estimates automatically.</p> <p>See section 6.5, H10 of 2010 Transpower IM reasons paper:</p>
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	Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

Why we have not changed this decision

425. Our decision is not to change IM decision CC18 or the way it is implemented. Our reasons for not changing this decision are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC25

Decision CC25 Corporate tax rate in WACC estimate – Airports	Original 2010 decision The corporate tax rate is 30% up until the end of the 2011 tax year, and 28% thereafter. Changes in the corporate tax rate will flow through to future post-tax WACC estimates automatically. See sections 6.5, E10 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

Why we have not changed this decision

426. Our decision is not to change IM decision CC25 or the way it is implemented. Our reasons for not changing this decision are discussed in Topic paper 4: Cost of capital issues.

Pre-review cost of capital IM decision CC26

Decision CC26 Commercially realistic estimates of WACC – Airports	Original 2010 decision The Commission has compared the expected WACC outputs under the IM against a range of other financial and economic information in order to check that the application of the cost of capital IM produces commercially realistic estimates of WACC for airports. See sections 6.8, E13 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

Why we have not changed this decision

427. Our decision is not to change IM decision CC26 or the way it is implemented. Our reasons for not changing this decision are discussed in Topic paper 4: Cost of capital issues.

Chapter 15: Gas pricing methodologies decisions we have not changed

428. Our decisions in respect of GP01, GP02, GP03, GP04 and GP05 are discussed together below.

Pre-review gas pricing methodologies IM decision GP01

Decision GP01 Principles-based approach to gas pricing	<p>Original 2010 decision</p> <p>A 'principles-based' approach applies.</p> <p>See section 7.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	GDB/GTB

Pre-review gas pricing methodologies IM decision GP02

Decision GP02 Pricing principles to be consistent with Gas Authorisation	<p>Original 2010 decision</p> <p>The pricing principles are consistent with those adopted for the Gas Authorisation, with some minor modifications.</p> <p>See section 7.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	GDB/GTB

Pre-review gas pricing methodologies IM decision GP03

Decision GP03 Pricing principles in the IM are to be used to measure consistency under ID	<p>Original 2010 decision</p> <p>Under ID, where a GPB must disclose the extent of consistency of the pricing methodology it actually applies with the pricing principles, or the reasons for any inconsistency between its pricing methodology with the pricing principles, the relevant pricing principles are those set out in the pricing methodologies IM.</p> <p>See section 7.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	GDB/GTB

Pre-review gas pricing methodologies IM decision GP04

Decision GP04 No application of gas pricing IM to gas DPPs	<p>Original 2010 decision</p> <p>The IM does not apply to DPPs.</p> <p>See section 7.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	GDB/GTB

Pre-review gas pricing methodologies IM decision GP05

Decision GP05 Gas pricing IM may apply to a CPP	<p>Original 2010 decision</p> <p>The IM applies to CPPs, but only to a particular CPP applicant if (at the time of the supplier making its CPP application) the Commission's most recent summary and analysis (under ID) has identified that the IM will apply to that supplier.</p> <p>See section 7.3, Appendix I of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	GDB/GTB

Why we have not changed these decisions

429. Our decision in respect of IM decisions GP01, GP02, GP03, GP04 and GP05 is to make no change.
430. Both suppliers and consumers have raised concerns over the usefulness and application of the pricing principles to GTBs.¹²⁸ We therefore considered whether these decisions should be changed to:
- 430.1 remove the disclosure requirements which assess a GTB's performance against pricing principles; and
- 430.2 remove the ability to set pricing methodologies in a CPP determination.

¹²⁸ MDL, Untitled submission on the gas pipeline stakeholder meeting (28 January 2016), p. 3; MDL, Untitled submission on the problem definition paper (21 August 2015), p. 13; MGUG "IM review – Gas stakeholder meeting 8 December 2015" (28 January 2016), p. 3; Colonial, Untitled submission on the gas pipeline stakeholder meeting (29 January 2016), p. 4.

431. Having reviewed the IMs in light of the submissions, we have not made those changes because:
- 431.1 we consider that issues of pricing are being addressed by the changes we have made to the form of control and by the Gas Industry Company (**GIC**) code convergence programme;
 - 431.2 we will be working with the GIC and stakeholders to assess the impacts of these changes and any new pricing mechanisms that suppliers introduce;
 - 431.3 there is benefit to stakeholders in maintaining the interim ability to assess performance of a GTB against the pricing principles while the codes are aligned and new pricing mechanisms are implemented; and
 - 431.4 having the current disclosure requirements in place also provides stakeholders with a point of reference to raise their issues and allows us, and the GIC, to address those matters as they arise.

Chapter 16: Specification of price decisions we have not changed

Pre-review specification of price IM decision SP08

Decision SP08 Price specified by revenue cap – Transpower	Original 2010 decision Price for Transpower will be specified by a total revenue cap. See section 7.3 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

Why we have not changed this decision

432. Our decision is not to change IM decision SP08 or the way it is implemented. Our reasons for not changing it are set out in Topic paper 1: Form of control and RAB indexation.

Automating the Transpower MAR update process

433. In reaching this decision, we also considered an implementation issue raised by Transpower regarding whether there are benefits in amending the IMs to allow us to automate the Transpower MAR update process. We committed to considering this when we made our most recent determination of Transpower’s price-quality path in 2014.¹²⁹
434. We have not amended the Transpower IM Determination to automate the MAR update process at this time, as automating this process would remove our ability to scrutinise the underlying data used. We consider that determining the forecast MAR has proven beneficial to consumers in the past.
435. We may revisit this in future if we become more comfortable with Transpower’s forecast MAR updates. If we do this, we would also need to consider the development of additional features into the IMs or in the compliance requirements of the IPP to enable us to reconsider the price-quality path if we later picked up information that suggested we should do so.

Pre-review specification of price IM decision SP10

Decision SP10 Recoverable costs – Transpower (original 2010)	Original 2010 decision Recoverable costs include instantaneous reserves availability charges (with some exclusions), the costs of developing and funding transmission alternatives under some conditions, and the net incremental carry forward
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¹²⁹ Commerce Commission “Setting Transpower’s individual price-quality path for 2015-2020” (29 August 2014), para 3.29.

decision amended)	<p>amount under IRIS.</p> <p>See section 7.3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>The amendment affects the IMs relating to the individual price-quality regulation of Transpower. It will apply immediately, with the practical effect of allowing recoverable costs to be calculated in this way from the first disclosure year for RCP2.</p> <p>We have added a new recoverable cost to the specification of price IM to allow Transpower to recover operating costs that were originally forecast and approved as components of major capex projects.</p> <ul style="list-style-type: none"> • The amendment caters for the situation where the expenditure forecast in respect of approved major capex projects is ultimately required to be accounted for under GAAP as opex (such as project feasibility costs). <p>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</p> <p>2014 amendment to this decision (2)</p> <p>The addition of the new recoverable cost ensures that the overall framework established in respect of catastrophic events is appropriate, whereby Transpower should be:</p> <ul style="list-style-type: none"> • compensated through the future amended IPP for prudent additional net costs that are forecast to be incurred after the price-quality path is reset (ie, existing reconsideration provisions); • cushioned through the future amended IPP against changes in future demand, by factoring in up-to-date forecasts when the price-quality path is reset (ie, existing reconsideration provisions); and • compensated through an amount in future revenues for prudent additional net costs of the catastrophic event incurred before the price-quality path is amended (ie, new recoverable cost). <p>The amendment affects the IMs relating to individual price-quality regulation for Transpower.</p> <p>It will apply immediately, with the practical effect of allowing the recovery of prudent net additional opex following a catastrophic event occurring from the commencement of RCP2.</p>
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	<p>The first pricing year in which the amendment may therefore be applied in the setting of Transpower’s transmission revenue under the transmission pricing methodology (TPM) is the pricing year commencing 1 April 2016.</p> <p>We have amended the specification of price IM to allow Transpower to recover, as a recoverable cost, prudent net additional opex incurred in the period between the date of a catastrophic event and the effective date of any resulting amended IPP arising from a reconsideration of the IPP.</p> <p>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</p>
This original decision applies to (sector):	Transpower

Why we have not changed this decision

- 436. Our decision is not to change IM decision SP10 or the way it is implemented.
- 437. In June 2013 Transpower requested a series of IM changes, including a request for the Commission to:^{130, 131}

Amend the definition of “operating expenditure” in the IPP to exclude black start and over-frequency arming. Amend the definition of “pass-through costs” in the Transpower IM to include: ... Black start and over-frequency arming costs.
- 438. We consider that black start and over-frequency arming costs are currently part of the operating cost allowance set by the Commission for RCP2 (ie, the currently price-quality regulatory period applying to Transpower), and Transpower must therefore manage the risk of forecasting these costs within the overall pool of opex.
- 439. Based on the information provided, we do not see a reason to consider that black start and over-frequency costs are materially different to any other operating cost faced by Transpower. We therefore consider that the policy intent of the IM decision is being achieved.

¹³⁰ Letter from Jeremy Cain (Transpower) to Dane Gunnell (Senior Analyst, Commerce Commission) regarding amendments to Transpower Input Methodologies for RCP2 (14 June 2013), p. 5. Available at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/amendments-and-clarifications/>.

¹³¹ In its submission on our draft decision, Transpower stated, “We consider the reasons set out in our 2013 IM amendment request to be valid”, but did not provide any further information or reasoning: Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), Appendix C.

Chapter 17: IRIS decisions we have not changed

Pre-review IRIS IM decision IR01

<p>Decision IR01 IRIS to apply – EDBs (original 2010 decision amended)</p>	<p>Original 2010 decision</p> <p>The Commission will implement an IRIS under a CPP. The efficiency gain or loss for a particular year will be calculated as the difference between actual and forecast controllable opex for the current year, minus the difference in the preceding year, the result of which provides the incremental gain/loss for that year.</p> <p>See section 8.5, Appendix J, section J3 for 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision (1)</p> <p>The revised IRIS provides a time consistent incentive to control opex and, for DPPs, capex too.</p> <p>For opex, the retention period for savings and losses is 5 years following the year of the gain and loss, which is equivalent to a retention factor of around 35% for a supplier.</p> <p>We have provided a time consistent incentive for capex that is similar to the incentive on base capex for Transpower New Zealand. The IRIS introduced in 2010 for other suppliers did not apply to capex.</p> <p>Unlike the approach for opex, we specify the retention factor directly for capex, rather than specifying a retention period. In addition, the choice of retention factor will be decided at the time of each price-quality path reset.</p> <p>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (27 November 2014)</p> <p>2015 amendment to this decision (2)</p> <p>As a CPP may be a response to unforeseen circumstances that have a significant impact on a supplier, we consider that some flexibility on the application of IRIS under different circumstances is required.</p> <p>We have introduced a clause to the determination that allows use of an alternative allowance of opex or capex for the purposes of calculating IRIS adjustments. We envisage this clause would be used in certain circumstances to ensure consistency across a CPP.</p> <p>The ENA noted that, under s 53X(2), we are able to advise the suppliers of different starting prices that apply following the expiry of a CPP. It is possible that these prices may not have an underlying opex forecast from which to calculate IRIS carry over amounts.</p>
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We have addressed this issue through an update to the determination. Under the new clause, at the expiration of the CPP, the Commission will notify the party of the forecast opex and forecast value of commissioned assets to use for the purpose of calculating the IRIS carry over amounts.

To give effect to the IRIS in all situations we have introduced a number of additional adjustment terms to the IMs that apply under different scenarios.

We have identified six generic scenarios that may occur under default/customised price-quality regulation. Under each of these scenarios suppliers will need to apply one or more of the proposed adjustment terms.

Table 5.2 (of the reasons paper) shows which adjustment terms need to be applied in each of the scenarios described above together with references to the clauses that apply in the accompanying determination:

	Scenario					
	1	2	3	4	5	6
Clause reference	3.3.4 (2) (a)	3.3.4 (2) (b)	3.3.4 (3)	3.3.4 (4)	3.3.4 (5)	3.3.4 (6)
Base year adjustment term	✓	✓	✓	✓	✓	
Baseline adjustment term			✓		✓	✓
Roll-over adjustment term		✓		✓		
One-year adjustment term 1				✓	✓	
One-year adjustment term 2				✓	✓	
One-year adjustment term 3				✓	✓	
One-year adjustment term 4						✓

	One-year adjustment term 5						✓
	One-year adjustment term 6						✓
	One-year adjustment term 7						✓
	One-year adjustment term 8						✓
	One-year adjustment term 9						✓
<p>The baseline adjustment term is now defined separately for different scenarios. This gives effect to the revised (Powerco) approach when EDBs are transitioning onto a CPP:</p> <ul style="list-style-type: none"> • Under Scenarios 3 and 5 it is defined under clause 3.3.7 (1) of the IMs; and • Under Scenario 6 it is defined under clause 3.3.7 (2) of the IMs. <p>Further amendments to input methodologies for electricity distributors subject to price-quality regulation - Incremental Rolling Incentive Scheme (IRIS) (25 November 2015)</p>							
This original decision applies to (sector):	EDBs						

Why we have not changed this decision

440. We have decided not to change IM decision IR01.

441. There are two issues we considered in respect of this IM decision:

441.1 a potential error identified by Dr Martin Lally; and

441.2 an issue with the roll-over adjustment term for single year DPPs.

Potential error identified by Dr Lally

442. In his review of WACC issues, Dr Lally suggested that the IRIS mechanism's treatment of opex includes a 'design error':¹³²

In summary, the Commission's approach to opex is consistent with the NPV = 0 principle but inflation forecasting errors arising from opex raise prices by more than the inflation shock because inflation forecasting errors are compensated for twice. This would appear to be a design error.

443. We agree that from a logical standpoint any disparity between the opex allowance and the actual opex that is due to CPI forecasting error should probably not be covered under IRIS, as it is fully compensated through our provision of a real return.

444. However, to implement Dr Lally's suggested approach:

444.1 we would need to identify the relationship between the forecast CPI and the forecast opex input price forecast (eg, confirm whether a 1% error in CPI forecasts also means a 1% error in opex input price forecasts); and

444.2 if there is a relationship, estimate and eliminate the impact of the CPI forecast error from the out-turn of actual opex prior to making IRIS adjustments.

445. The potential benefit of making this fix does not appear to outweigh the additional complexity it would create, given the opex incentive rate is only an estimate in any case (ie, it is currently 34%, based on a five-year retention of permanent savings, but this changes with the WACC).

Issue with the way that IRIS recoverable costs are calculated for single-year DPPs

446. There is a potential issue with the way that IRIS recoverable costs are calculated when a CPP is followed by a DPP that has only one year of the DPP regulatory period remaining.

447. We have chosen not to make a change in response to this issue at this time. Based on our current understanding about the timing of potential CPP applications, we do not expect this issue to cause a problem for the foreseeable future. However, should we be made aware of a supplier that intends to submit a CPP application with an approval date targeted in 2019, then we will consider our options for making a targeted amendment.

¹³² Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 40.

448. We also note that Orion will have one year of the DPP regulatory period remaining when its current CPP ends. However, as confirmed in our final report on Orion’s transition to the 2015-2020 DPP, the IMs establish that Orion does not need to calculate an opex or capex incentive amount for any year commencing on or prior to 1 April 2020.^{133, 134}

Pre-review IRIS IM decision IR04

Decision IR04 IRIS to apply under an IPP – Transpower	Original 2010 decision The Commission will implement an IRIS under an IPP. The efficiency gain or loss for a particular year will be calculated as the difference between actual and forecast controllable opex for the current year, minus the difference in the preceding year, the result of which provides the incremental gain/loss for that year. See section 7.5 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

Why we have not changed this decision

- 449. We have not yet completed our review of the Transpower IRIS IM and we are not yet in a position to reach a decision on whether to make any changes to it.
- 450. We acknowledge concerns raised by Transpower about the operation of its IRIS mechanism.¹³⁵ We intend doing further analysis to define whether Transpower’s concerns amount to a problem with the current scheme and whether any improvements might involve changes to the IM.
- 451. We aim to have a final determination on the Transpower IRIS in Q2 2017. Prior to then, we plan to consult in early 2017 on a draft decision on whether to make changes to the IM.

¹³³ Commerce Commission, “Orion’s transition to the 2015-2020 default price-quality path – Key considerations and possible approaches” (14 March 2016), para 39.
¹³⁴ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, as amended, clauses 3.3.2(3)(a) and 3.3.10.
¹³⁵ Transpower “Incremental rolling incentive scheme” (20 March 2015), available at: <http://www.comcom.govt.nz/dmsdocument/13059>; Transpower “Input methodologies: Scoping the statutory review” (31 March 2015).

Pre-review IRIS IM decision IR06

<p>Decision IR06 Five-year retention of efficiency gains – Transpower</p>	<p>Original 2010 decision</p> <p>The length of time Transpower is allowed to retain the efficiency gain is 5 years.</p> <p>See section 7.5 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

Why we have not changed this decision

- 452. We have not yet completed our review of the Transpower IRIS IM and we are not yet in a position to reach a decision on whether to make any changes to IM decision IR06. See IM decision IR04 above.
- 453. We aim to have a final determination on the Transpower IRIS in Q2 2017. Prior to then, we plan to consult in early 2017 on a draft decision on whether to make changes to the IM.

Part 3: IM decisions that we have not changed and found no reason to consider changing

Chapter 18: Introduction to Part 3

454. This Part of the paper lists the pre-review IM decisions that:

454.1 in light of our framework, submissions on the IM review, and all other relevant information before us, we found no reason to consider changing;¹³⁶
and

454.2 we decided not to change at a policy level, or in terms of the implementation of the decision.

¹³⁶ That is not to say there have never been any issues raised in respect of the pre-review IM decisions listed in this Part of the report. Minor issues have been raised in the past that are relevant to some of the pre-review IM decisions listed here; but none that, when we carried out our effectiveness review, we considered were sufficiently material to lead us to consider changing the IMs.

Chapter 19: Decisions we have not changed, and found no reason to consider changing

Cost Allocation IM decisions

Decision CA01 Allocating directly attributable cost	Original 2010 decision <p>If a cost is solely and wholly caused by a single type of regulated service the cost is 'directly attributable' and is allocated solely to that type of service.</p> <p>See section 3.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB
Decision CA06 Variation to three allocation approaches	Original 2010 decision <p>Suppliers may also clarify their cost allocation policy more directly (than through the use of the three approaches) through their own operational practices. Where this is the case, the IM allows suppliers to make voluntary deductions for operating costs and asset values that have been recovered in arm's-length transactions.</p> <p>See sections 3.3, Appendix B, section B7 of 2010 IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB
Decision CA07 No cost allocation for common costs – Transpower	Original 2010 decision <p>Transpower is not required to adjust the total costs associated with supplying electricity transmission services to take into account any costs that might be common to regulated and unregulated services.</p> <p>See section 3.3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision CA08 Operating costs must be adjusted for system operator costs – Transpower	<p>Original 2010 decision</p> <p>System operator services are defined under Part 4 as electricity line services.</p> <p>Operating costs or asset values allocated to activities undertaken by Transpower to supply electricity transmission services other than system operator services, must be net of costs or asset values implicitly or explicitly recoverable by Transpower in respect of any agreement between it and the Electricity Authority in respect of the system operator services.</p> <p>In addition, fixed assets used solely for the purposes of supplying system operator services are to be excluded from Transpower’s RAB. Any costs recovered through such an agreement are to be excluded from any opex or capex forecasts used to determine Transpower’s IPP.</p> <p>See section 3.3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision CA09 Costs associated with new investment contracts – Transpower	<p>Original 2010 decision</p> <p>Services provided by New Investment Contracts (NICs) fall under the Part 4 definition of electricity lines services as it involves the conveyance of electricity by line.</p> <p>Fixed assets associated with NICs are to be excluded from Transpower’s RAB. Any capex included in NICs is to be excluded from any capex forecasts used to determine Transpower’s IPP.</p> <p>Transpower should continue to include all operating costs associated with NICs within its total operating costs associated with providing regulated services.</p> <p>See section 3.3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision CA10 Allocating directly attributable cost – Airports	Original 2010 decision If a cost is solely and wholly caused by a single activity the cost is ‘directly attributable’ and is allocated solely to that activity. See section 3.3 of 2010 Airports IM reasons paper: Input Methodologies (Airport Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	Airports

Asset Valuation IM decisions

Decision AV01 Initial RAB values for EDBs and GPBs	Original 2010 decision EDBs and GPBs must establish their initial RAB values from existing regulatory valuations, namely: <ul style="list-style-type: none"> • the regulatory asset values disclosed in 2009 in accordance with applicable ID requirements; or • in the case of assets that are subject to the Gas Authorisation, the RAB values determined under the Gas Authorisation as at 30 June 2005, updated to the financial year ending in 2009 for capex, depreciation and CPI-indexation. See section 4.3 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

<p>Decision AV02 Adjustments to initial RAB values</p>	<p>Original 2010 decision</p> <p>EDBs and GPBs to adjust their initial RAB values to:</p> <ul style="list-style-type: none"> • correct for known errors in asset registers, with respect to the application of valuation approaches under existing ID requirements (with the exception of asset covered by the Gas Authorisation); • make adjustments to ensure that assets included in the initial RAB values align with the definitions of electricity lines services and gas pipeline services provided for in sections 54C and 55A of the Commerce Act; • in the case of EDBs: <ul style="list-style-type: none"> ○ adjust the application of multipliers in their 2004 optimised deprival value (ODV) valuations where better information has become available since 2004 (including revised ranges and application for some multipliers); ○ reapply the optimisation and EV tests set out in the 2004 ODV Handbook, with respect to assets where an optimisation or EV adjustment in 2004 led to either a full or partial write-down; ○ ensure finance during construction (FDC) costs are accounted for in establishing the initial RAB value of assets; and • in the case of Vector’s NGC Distribution and NGC Transmission assets, adjust the value to provide for CPI indexation from the first day of the disclosure year 2006. <p>See section 4.3, Appendix E, section E2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

<p>Decision AV07 Network spares</p>	<p>Original 2010 decision</p> <p>EDBs and GPBs should include network spares in the roll forward as additions to the RAB value where they are:</p> <ul style="list-style-type: none"> • treated as the cost of an asset under GAAP (wholly or in part); and • held in appropriate quantities, considering the historical reliability of the equipment and the number of items installed on the network. <p>See section E4, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

Decision AV10 Vested assets	<p>Original 2010 decision</p> <p>EDBs and GPBs must include vested assets in the RAB value at the cost to the supplier, consistent with GAAP, provided that the RAB value does not exceed the amount of consideration paid by the regulated supplier in respect of the asset.</p> <p>See section E7, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Decision AV11 Lost and found assets	<p>Original 2010 decision</p> <p>EDBs and GPBs must remove assets recognised as lost from the RAB value in the year in which they are identified as lost, and must reduce the RAB value by the asset's opening RAB value in that year. Once the initial RAB value has been established, lost assets that were in the original RAB will be permitted to remain in the RAB value.</p> <p>Once the initial RAB value has been established found assets are limited to assets commissioned after the 2009 disclosure year.</p> <p>Regulated suppliers must add found assets to the RAB in the year in which they are found, and must establish the RAB value of found assets at cost, consistent with GAAP, where sufficient records exist.</p> <p>Where sufficient records do not exist, regulated suppliers may assign the asset the same value as a similar asset in the RAB (where such an asset exists). If no such similar asset exists, regulated suppliers must use the asset's market value as verified by an independent valuer.</p> <p>See section E9, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Decision AV15 Revenues received on works under construction	<p>Original 2010 decision</p> <p>When they commission works under construction EDBs and GPBs must reduce the cost of asset, established consistent with GAAP, by the amount of any revenue derived in relation to the assets while they were works under construction (where such a reduction is not already made under GAAP, and where the revenue has not already been reported as income under ID).</p> <p>See section E5, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Decision AV16 Straight line depreciation applies	<p>Original 2010 decision</p> <p>EDBs and GPBs must depreciate assets in their RAB using straight line depreciation.</p> <p>Regulated suppliers subject to default/customised price-quality regulation may apply to use an alternative depreciation approach under a CPP.</p> <p>Total (unallocated) depreciation over the lifetime of the asset must not exceed the value at which the asset is first recognised in the RAB under Part 4 (after adjusting for the effects of revaluations).</p> <p>Regulated suppliers may not depreciate land and easements (other than fixed life easements).</p> <p>See section E10, Appendix E of 2010 IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

<p>Decision AV19 Cost allocation applies to unallocated RAB</p>	<p>Original 2010 decision Regulated suppliers must record the total (ie, 'unallocated') value of an asset in the asset base and roll it forward (for depreciation, revaluations, additions etc.) on an unallocated basis. The cost allocation IM is applied to this asset value whenever it is necessary to determine a specifically attributable (ie, 'allocated') portion of the asset value for regulated activities (for example to calculate depreciation and revaluations).</p> <p>See section E13, Appendix E of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>
<p>Decision AV20 Initial RAB values – Transpower</p>	<p>Original 2010 decision Transpower must establish initial RAB values for its assets based on the values determined under the settlement agreement as at 30 June 2011.</p> <p>See section 4.3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>
<p>Decision AV21 Pseudo asset in initial RAB – Transpower</p>	<p>Original 2010 decision The initial value of RAB should include the remaining value of the HVAC lines pseudo asset, established by the settlement agreement, as at 30 June 2011.</p> <p>See section 4.3, paragraphs 4.4.25- 4.4.30 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sector):</p>	<p>Transpower</p>

Decision AV22 RAB exclusions – Transpower	<p>Original 2010 decision</p> <p>Transpower should exclude from its RAB value:</p> <ul style="list-style-type: none"> • any assets not used to provide electricity transmission services; • any asset that is part of a works under construction; • working capital; • goodwill; and • easement land, that is land acquired for the purpose of creating an easement, and with the intention of on-selling the land. <p>See section 4.3, paragraphs 4.4.31-4.4.48, 4.4.60-4.4.63, 4.4.58-4.4.59, 4.4.89-4.4.103 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower
Decision AV23 System operator assets excluded from RAB – Transpower	<p>Original 2010 decision</p> <p>Assets associated with delivering an agreement between Transpower and the Electricity Authority in respect of the provision of system operator services are excluded from the RAB value as the result of applying the cost allocation methodology.</p> <p>See section 4.4, paragraphs 4.4.15- 4.4.24 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower
Decision AV24 New investment contract assets valued at zero - Transpower	<p>Original 2010 decision</p> <p>Assets provided under NICs are included in the RAB at zero value.</p> <p>See section 4.4, paragraphs 4.4.4-4.4.14 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision AV25 Finance leases and intangible assets – Transpower	<p>Original 2010 decision</p> <p>Transpower may include in its RAB value finance leases and intangible assets, provided that they are identifiable non-monetary assets that are not goodwill, consistent with the meanings under GAAP. Transpower must establish the value of permitted intangible assets added to the RAB value after 30 June 2011 using the cost model for recognition under GAAP. Transpower may not include operating leases in its RAB value.</p> <p>See section 4.4, paragraphs 4.4.49-4.4.57, 4.4.64-4.4.67 of 2010 IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision AV28 Network spares – Transpower	<p>Original 2010 decision</p> <p>Where the cost of a network spare is treated as the cost of an asset under GAAP (wholly or in part), it may be added to the RAB value at the date on which it is 'commissioned'.</p> <p>See section 4.3, paragraphs 4.4.68-4.4.80 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision AV30 Easements – Transpower	<p>Original 2010 decision</p> <p>Transpower may include easements in its RAB value at cost in the year in which the rights are acquired, provided that:</p> <ul style="list-style-type: none"> • the investments have been approved under the grid investment test in Part F of the Electricity Governance Rules; and • where Transpower acquires land to create a new easement, the cost of the easement is limited to the sum of: <ul style="list-style-type: none"> ○ legal and administrative costs; ○ the detrimental impact on the value of the land, as determined by a valuer; and ○ the cost of holding the land, calculated as the financing cost on the purchase of the land from the date Transpower acquires the land until the date the easement is created. <p>See section 4.4, paragraphs 4.4.89 – 4.4.103 of 2010 Transpower IM reasons paper:</p>
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	Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

Decision AV31 Lost and found assets – Transpower	<p>Original 2010 decision</p> <p>Transpower must remove assets recognised as lost from its RAB value in the disclosure year in which they are identified as lost, and should reduce the RAB value by the opening RAB value of the asset in that year. Once the initial RAB value has been established, lost assets that were in the initial RAB will be permitted to remain in the RAB value.</p> <p>Found assets are limited to assets commissioned after the 2011 disclosure year. Transpower should add found assets to the RAB value in the year in which they are found, and must establish the RAB value of found assets at cost, consistent with GAAP, where sufficient records exist.</p> <p>Where sufficient records do not exist, Transpower may assign the asset the same value as a similar asset in the RAB (where such an asset exists). If no such similar asset exists, Transpower must use the asset’s market value at the time the found asset is added to the RAB value, as verified by an independent valuer.</p> <p>See section 4.4, paragraphs 4.4.85- 4.4.88 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
	This decision applies to (sector):

Decision AV34 Straight line depreciation applies – Transpower	<p>Original 2010 decision</p> <p>Transpower must depreciate assets in its RAB using straight line depreciation. It may not depreciate land and easements (other than fixed life easements).</p> <p>See section 4.4, paragraphs 4.4.104 – 4.4.108 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
	This decision applies to (sector):

Decision AV36 Stranded assets – Transpower	<p>Original 2010 decision</p> <p>In the case of stranded assets, Transpower may apply accelerated depreciation in the year in which the asset becomes stranded, where the Commission approves this in accordance with the IPP Determination.</p> <p>See section 4.4, paragraphs 4.4.130- 4.4.139 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision AV37 Asset lives when asset is coming to end of life – Transpower (original 2010 decision amended)	<p>Original 2010 decision</p> <p>For the purposes of individual price-quality regulation, system fixed assets in service at the start of a period of individual price-quality regulation should be deemed to have a remaining physical asset life equal to the duration of the regulatory period.</p> <p>See section 4.4, paragraphs 4.4.140- 4.4.143 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision</p> <p>The amendment affects the IMs relating to ID regulation and individual price-quality regulation for Transpower. It will apply to depreciation calculated in respect of assets from 1 July 2015, which corresponds to the commencement date of the first disclosure year for RCP2.</p> <p>We have removed the requirement in the asset valuation IM to spread the regulatory depreciation allowance for assets that reach the end of their depreciable life, across the remainder of a regulatory control period.</p> <p>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</p>
This original decision applies to (sector):	Transpower

Decision AV38 Cost allocation applies to unallocated RAB – Transpower	Original 2010 decision <p>Transpower must record the total (ie, ‘unallocated’) value of an asset base and roll it forward (for depreciation, revaluations, additions etc) on an unallocated basis. The cost allocation IM is applied to this asset value whenever it is necessary to determine a specifically attributable (ie, ‘allocated’) portion of the asset value for regulated activities (for example to calculated depreciation and revaluations).</p> <p>See section 4.5, Chapter 3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower
Decision AV39 Initial RAB values for non-land assets – Airports	Original 2010 decision <p>Airports must establish the initial value of their non-land assets using existing regulatory valuations, specifically asset values as on the last day of the disclosure year 2009, and as disclosed in the 2009 disclosure financial statements.</p> <p>See section 4.3 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports
Decision AV44 Finance leases and intangible assets – Airports	Original 2010 decision <p>Airports may include in their RAB values finance leases and intangible assets provided that they are identifiable non-monetary assets that are not goodwill, consistent with the meanings under GAAP. Airports must establish the value of permitted intangible assets added to RAB value after the last day of the disclosure year 2009 using the cost model for recognition under GAAP.</p> <p>See section 4.3, Appendix C, section C5 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision AV45 Commissioned assets added to RAB – Airports	<p>Original 2010 decision</p> <p>Airports should include capital additions in their RAB values at cost in the year in which the asset is ‘commissioned’, that is when the asset is first ‘used by the Airport to provide specified airport services other than excluded services’. When an Airport disposes of an asset the closing RAB value of that asset, for the disclosure year in which the disposal occurs, is nil.</p> <p>See section 4.3, Appendix C, section C6 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision AV47 Lost and found assets – Airports	<p>Original 2010 decision</p> <p>Airports must remove assets recognised as lost from their RAB values in the disclosure year in which they are identified as lost, and must reduce the RAB value by the asset's opening RAB value in that year. From the end of the 2012 disclosure year, lost assets that were in the initial RAB value will be permitted to remain in the RAB value.</p> <p>After the end of the 2012 disclosure year, airports may only add found assets to the RAB value that were commissioned after the 2009 disclosure year. Airports must add found assets to the RAB value in the year in which they are found, and must establish the RAB value of found assets at cost, consistent with GAAP, where sufficient records exist.</p> <p>Where sufficient records do not exist, the Airport may assign the asset the same value as a similar asset in the RAB (where such an asset exists). If no such similar asset exists, the Airport must use the asset’s market value as verified by an independent valuer (in the case of land, the market value must be determined using Schedule A of the IM Determination).</p> <p>See Appendix C, section C8 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision AV49 Easement rights – Airports	<p>Original 2010 decision</p> <p>All airports must include new easement rights in the RAB value at cost in the year in which the rights are acquired, provided that the RAB value of new easement rights does not exceed fair market value, as determined by an independent valuer.</p> <p>See Appendix C, section C10, of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
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This decision applies to (sector):	Airports
Decision AV51 Asset lives and limit on unallocated depreciation – Airports	<p>Original 2010 decision</p> <p>Airports may determine asset lives for airport assets. However, total (unallocated) depreciation over the lifetime of the asset must not exceed the value at which the asset is first recognised in the Airport's RAB value under Part 4 (after adjusting for the effects of revaluations).</p> <p>See Appendix C, section C11 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports
Decision AV52 Stranded assets – Airports	<p>Original 2010 decision</p> <p>Where an asset is stranded or expected to become stranded, airports may adjust the asset life consistent with the requirements in respect of asset lives.</p> <p>See Appendix C, section C12 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports
Decision AV53 Cost allocation applies to unallocated RAB – Airports	<p>Original 2010 decision</p> <p>Airports must record the total (ie, 'unallocated') value of an asset in the asset base and roll it forward (for depreciation, revaluations, additions etc) on an allocated basis. The cost allocation IM is applied to this asset value whenever it is necessary to determine a specifically attributable (ie, 'allocated') portion of the asset value for regulated activities (for example to calculated depreciation and revaluations).</p> <p>See Appendix C, section C14 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Treatment of Taxation IM decisions

Decision TX03 Tax losses ignored	Original 2010 decision Tax losses in the wider tax group must be ignored when estimating tax costs. See Appendix G of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB
Decision TX05 Initial regulatory tax asset value	Original 2010 decision The initial regulatory tax asset value in 2009 (as at 31 March) should be the lesser of that recognised under tax rules for the relevant assets or share of assets used to supply electricity or gas distribution services, or the initial RAB value. See Appendix G of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB
Decision TX06 Initial deferred tax balance is zero – EDBs and GDBs	Original 2010 decision The initial deferred tax balance should be zero. See Appendix G of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB
Decision TX07 Tax effect of discretionary discounts and rebates – EDBs	Original 2010 decision For EDBs only, discretionary discounts and customer rebates should be treated as a tax deductible expense, if allowed under tax legislation, but should not be treated as a cost for the purposes of disclosing or determining regulated revenue. See Appendix G of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)

This decision applies to (sector):	EDBs
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Decision TX09 Tax payable approach applies – GTBs	Original 2010 decision Tax cost must be estimated using a tax payable approach. See section 5.3 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sector):	GTBs

Decision TX10 Tax payable approach applies – Transpower	Original 2010 decision Transpower's tax obligations should be estimated using a tax payable approach. See section 5.3 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

455. In its submission on our draft decision, Transpower supported our decision to make no change to IM decision TX10.¹³⁷

Decision TX11 Tax legislation and cost allocation to be applied – Transpower	Original 2010 decision The cost allocation IM is to be applied, and tax legislation is to be applied (to the extent practicable and subject to other relevant provisions in the IMs) to calculate the regulatory taxable income. See section 5.3 paragraph 5.4.3 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

456. In its submission on our draft decision, Transpower supported our decision to make no change to IM decision TX11.¹³⁸

¹³⁷ Transpower “IM review: Submission on suite of draft decision papers” (4 August 2016), p. 17.

¹³⁸ Transpower “IM review: Submission on suite of draft decision papers” (4 August 2016), p. 17.

Decision TX12 Notional leverage for deductible debt interest – Transpower	Original 2010 decision Tax deductible debt interest should be calculated using a notional leverage that is consistent with the cost of capital IM. See paragraphs 5.4.4- 5.4.7 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

457. In its submission on our draft decisions, Transpower supported our decision to make no change to IM decision TX12.¹³⁹

Decision TX13 Tax losses ignored – Transpower	Original 2010 decision Tax losses in Transpower's wider tax group should be ignored when estimating tax costs, and any tax losses generated in the supply of regulated services should be notionally carried forward to the following disclosure year. See paragraphs 5.4.9- 5.4.12 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

458. In its submission on our draft decisions, Transpower supported our decision to make no change to IM decision TX13.¹⁴⁰

Decision TX15 Initial regulatory tax asset value – Transpower	Original 2010 decision The initial regulatory tax asset value should be the lesser of that recognised by Inland Revenue for the relevant assets or share of assets used by Transpower to supply regulated electricity line services, and the initial RAB value. See paragraphs 5.4.18- 5.4.20 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)
This decision applies to (sector):	Transpower

459. In its submission on our draft decisions, Transpower supported our decision to make no change to IM decision TX15.¹⁴¹

¹³⁹ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 17.

¹⁴⁰ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 17.

¹⁴¹ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 17.

Decision TX17 Tax legislation and cost allocation to be applied – Airports	<p>Original 2010 decision</p> <p>The cost allocation IM is to be applied, and tax legislation is to be applied (to the extent practicable and subject to the other relevant provisions in the IMs), to calculate the regulatory taxable income.</p> <p>See Appendix D, section D2 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision TX18 Notional leverage for deductible debt interest – Airports	<p>Original 2010 decision</p> <p>Tax deductible debt interest should be calculated using a notional leverage that is consistent with the cost of capital IM.</p> <p>See Appendix D, section D2 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision TX19 Tax losses ignored – Airports	<p>Original 2010 decision</p> <p>Tax losses in an Airport’s wider tax group should be ignored when estimating tax costs, and any tax losses generated in the supply of airport services should be notionally carried forward to the following disclosure year.</p> <p>See Appendix D, section D2 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision TX21 Initial regulatory tax asset value – Airports	<p>Original 2010 decision</p> <p>The initial regulatory tax asset value should be the lesser of that recognised by Inland Revenue for the relevant assets or share of assets used to supply airport services, and the initial RAB value.</p> <p>See Appendix D, section D2 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Cost of Capital IM decisions

Decision CC04 Vanilla WACC and post-tax WACC estimation methodology	<p>Original 2010 decision</p> <p>The methodology for estimating a vanilla WACC is:</p> $\text{cost of debt} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$ <p>The methodology for estimating a post-tax WACC is:</p> $\text{cost of debt (after corporate tax)} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$ <p>See sections 6.7, H2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB
Decision CC14 Vanilla WACC and post-tax WACC estimation methodology – Transpower	<p>Original 2010 decision</p> <p>The methodology for estimating a vanilla WACC is:</p> $\text{cost of debt} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$ <p>The methodology for estimating a post-tax WACC is:</p> $\text{cost of debt (after corporate tax)} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$ <p>See sections 6.7, H2 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

Decision CC21 Vanilla WACC and post-tax WACC estimation methodology – Airports	<p>Original 2010 decision</p> <p>The methodology for estimating a vanilla WACC is:</p> $\text{cost of debt} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$ <p>The methodology for estimating a post-tax WACC is:</p> $\text{cost of debt (after corporate tax)} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$ <p>See section 6.7, E2 of 2010 Airports IM reasons paper:</p> <p>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Airports

Decision CC27 Term credit spread differential allowance may not be less than zero for a DPP (2012 decision)	<p>Original 2012 decision</p> <p>The TCSD should be set to a nil value if it would otherwise be negative.</p> <p>In 2012 we amended the TCSD allowance component of the cost of capital IM that applies to DPPs. This amendment sets out how we forecast a TCSD allowance during the regulatory period.</p> <p>See p. 25 and Attachment B of the 2012 reasons paper:</p> <p>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper (28 September 2012)</p>
This decision applies to (sectors):	EDB/GDB/GTB

Gas Pricing Methodologies IM decisions

Decision GP06 Commission may amend a CPP gas pricing methodology annually	Original 2010 decision <p>The Commission may amend a pricing methodology a maximum of once per year during the regulatory period. It may only do so where a GPB is proposing to make a material change to the pricing methodology specified in the CPP determination.</p> <p>See section 7.3, Appendix I of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	GDB/GTB

Specification of Price IM decisions

Decision SP09 Pass-through costs – Transpower	Original 2010 decision <p>The IM includes a list of pass-through costs and a process for adding new pass-through costs.</p> <p>The list of path-through costs includes local authority rates and regulatory levies.</p> <p>See section 7.3 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This original decision applies to (sector):	Transpower

Decision SP11 Recoverable cost for additional revenue – Alpine/Top Energy/Centralines (2014 decision)	Original 2014 decision <p>This amendment introduces a recoverable cost to allow for a one-off recovery of additional revenue for three EDBs (Alpine Energy, Top Energy and Centralines).</p> <p>This amendment addresses the impact of the limit to price increases for Alpine Energy, Top Energy and Centralines in the last 2 years of the current regulatory period (1 April 2013 – 31 March 2015).</p> <p>The amendment changes the definitions in the general provisions of the IMs, and the IMs that apply for the specification of price for both DPPs and CPPs.</p> <p>It will apply from 1 April 2015, which corresponds to the start of the next DPP regulatory period:</p> <p>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</p>
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This decision applies to (sector):	EDBs (Alpine Energy, Top Energy and Centralines only)
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Reconsideration of the price-quality path IM decisions

<p>Decision RP07 Annual reconsideration for effect of major capex and listed projects – Transpower (original decision amended)</p>	<p>Original 2010 decision Transpower's IPP will be reconsidered annually to take account of the revenue impact of major capex approved by the Commission; and an economic value (EV) adjustment.</p> <p>See section 7.4 of 2010 Transpower IM reasons paper: Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p> <p>2014 amendment to this decision The amendment provides a mechanism for Transpower to apply for, and the Commission to approve, additional base capex for inclusion within Transpower’s price path during a regulatory period in respect of large scale replacement and refurbishment projects, which are referred to as ‘listed projects’.</p> <p>The amendments took effect when they were published by notice in the <i>Gazette</i>, on 27 November 2014:</p> <p>Amended the price path reconsideration provision in the Transpower IM to accommodate the revenue impact of approved base capex in respect of listed project assets that are forecast to be commissioned in a regulatory period.</p> <p>Amendments to input methodologies for Transpower to provide a listed project mechanism: Reasons paper (27 November 2014)</p>
This decision applies to (sector):	Transpower

Amalgamation IM decisions

<p>Decision AM01 No price reset following amalgamation</p>	<p>Original 2010 decision</p> <p>The primary purpose of the IM covering amalgamations during a regulatory period is to provide certainty to suppliers that the Commission will not reset their prices until the end of the DPP or CPP regulatory period in which the transaction occurs. It is also intended to provide certainty as to when two (or more) price-quality paths should be amalgamated following a transaction.</p> <p>See section 8.6, paragraph 8.6.1 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

<p>Decision AM02 Suppliers to aggregate price-quality paths on amalgamation</p>	<p>Original 2010 decision</p> <p>If a supplier amalgamates with another supplier of the same type of regulated service, the Commission will not reconsider the existing price-quality path but will require the suppliers involved in the amalgamation to aggregate price-quality paths for compliance purposes from the start of the disclosure year following the amalgamation (if both regulated suppliers are subject to a DPP) or at the expiry of a CPP (if one or more of the regulated suppliers are subject to a CPP).</p> <p>See section 8.6, 8.6.2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

<p>Decision AM03 Amalgamation rule for existing CPPs</p>	<p>Original 2010 decision</p> <p>Where one or more parties to the amalgamation are already subject to a CPP at the time of the amalgamation, a joint CPP may not apply to the amalgamated supplier until the supplier(s) on a CPP have each completed at least 3 years of their CPP regulatory period (where applicable) by the time the new CPP is to take effect. In this circumstance, the regulatory period of any existing CPP would be shortened from 4 or 5 years to 3 or 4 years (terminating on the day before the new CPP will apply).</p> <p>The change would be given effect through an amendment to the existing regulatory period(s) specified in the relevant s 52P determinations. A supplier must complete at least 3 years of its CPP because of the requirement in s 53W(2) that:</p> <p style="text-align: center;">the Commission may set a shorter period than 5 years if it</p>
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	<p>considers this would better meet the purpose of this Part, but in any event may not set a term less than 3 years.</p> <p>See section 8.6, 8.6.3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

IRIS IM decisions

<p>Decision IR03 Five-year retention of efficiency gains</p>	<p>Original 2010 decision</p> <p>The length of time suppliers are allowed to retain the efficiency gain is 5 years.</p> <p>See section 8.5, Appendix J, section J3 for 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	EDBs

<p>Decision IR07 RCP1 IRIS transition – Transpower</p>	<p>Original 2010 decision</p> <p>In the first year of RCP1 no IRIS will be implemented.</p> <p>See section 7.5 of 2010 Transpower IM reasons paper:</p> <p>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</p>
This decision applies to (sector):	Transpower

460. IM decision IR07 has been deleted, as it was only applicable in the first year of Transpower’s first regulatory period, RCP1.

Other regulatory rules and processes IM decisions

Decision RR01 Treatment of periods that are not 12-month periods – DPP	<p>Original 2012 decision</p> <p>Where the start or end date of any disclosure year is not aligned with the start or end date of a DPP regulatory period, the Commission may apply the input methodologies modified to the extent necessary to account for the change in length of the disclosure year.</p> <p>See p. 25 of the 2012 reasons paper:</p> <p>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths - Reasons Paper (28 September 2012)</p>
This decision applies to (sectors):	EDB/GDB/GTB

461. In its submission on our draft decision, First Gas supported our proposal to keep this decision unchanged.¹⁴²

Decision RR02 Availability of Information – DPP	<p>Original 2012 decision</p> <p>Where information necessary to calculate any base year or disclosure year amounts has not been disclosed by the supplier, in setting a DPP the Commission may rely either on information disclosed under an ID Determination, prior ID requirements, or information obtained under a s 53ZD request.</p> <p>See para 72.2 of the 2012 reasons paper:</p> <p>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths - Reasons Paper (28 September 2012)</p>
This decision applies to (sectors):	EDB/GDB/GTB

462. In its submission on our draft decision, First Gas supported our proposal to keep this decision unchanged.¹⁴³

¹⁴² First Gas “Submission on Input Methodologies review draft decisions (excluding cost of capital)” (4 August 2016), p. 6.

¹⁴³ First Gas “Submission on Input Methodologies review draft decisions (excluding cost of capital)” (4 August 2016), p. 6.

Attachment A: Index of pre-review IM decisions

Purpose of this attachment

463. The purpose of this attachment is to assist readers in navigating this report by:

463.1 listing all pre-review IM decisions in sequence according to their unique code; and

463.2 indicating where each pre-review IM decision is located in this report.

Table A1: Cost allocation

Decision	Short title	Applies to (sectors)	Where located in this Report
CA01	Allocating directly attributable cost	EDB/GDB/GTB	Part 3
CA02	Allocating not directly attributable cost	EDB/GDB/GTB	Part 1
CA03	Process for deciding allocation approach	EDB/GDB/GTB	Part 1
CA04	ABAA causal relationship approach and proxy allocators	EDB/GDB/GTB	Part 1
CA05	Definition of causal relationships	EDB/GDB/GTB	Part 2
CA06	Variation to three allocation approaches	EDB/GDB/GTB	Part 3
CA07	No cost allocation for common costs – Transpower	Transpower	Part 3
CA08	Operating costs must be adjusted for system operator costs – Transpower	Transpower	Part 3
CA09	Costs associated with new investment contracts – Transpower	Transpower	Part 3
CA10	Allocating directly attributable cost – Airports	Airports	Part 3
CA11	Allocating not directly attributable cost – Airports	Airports	Part 2

CA12	Causal relationship approach and proxy allocators – Airports	Airports	Part 1
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Table A2: Asset valuation

Decision	Short title	Applies to (sectors)	Where located in this Report
AV01	Initial RAB values for EDBs and GPBs	EDB/GDB/GTB	Part 3
AV02	Adjustments to initial RAB values	EDB/GDB/GTB	Part 3
AV03	RAB roll forward with indexation	EDB/GDB/GTB	Part 2
AV04	RAB exclusions	EDB/GDB/GTB	Part 2
AV05	Finance leases and intangible assets	EDB/GDB/GTB	Part 1
AV06	Commissioned assets added to RAB	EDB/GDB/GTB	Part 2
AV07	Network spares	EDB/GDB/GTB	Part 3
AV08	Easement rights	EDB/GDB/GTB	Part 2
AV09	Capital contributions	EDB/GDB/GTB	Part 1
AV10	Vested assets	EDB/GDB/GTB	Part 3
AV11	Lost and found assets	EDB/GDB/GTB	Part 3
AV12	Assets purchased from regulated supplier	EDB/GDB/GTB	Part 1
AV13	Financing costs on works under construction – excludes exempt EDBs	EDB/GDB/GTB	Part 1
AV14	Financing costs on works under construction – exempt EDBs	Exempt EDBs	Part 1
AV15	Revenues received on works under construction	EDB/GDB/GTB	Part 3
AV16	Straight line depreciation applies	EDB/GDB/GTB	Part 3

AV17	Standard asset lives apply – with listed exceptions	EDB/GDB/GTB	Part 1
AV18	Assets retained in RAB for ID	EDB/GDB/GTB	Part 2
AV19	Cost allocation applies to unallocated RAB	EDB/GDB/GTB	Part 3
AV20	Initial RAB values – Transpower	Transpower	Part 3
AV21	Pseudo asset in initial RAB – Transpower	Transpower	Part 3
AV22	RAB exclusions – Transpower	Transpower	Part 3
AV23	System operator assets excluded from RAB – Transpower	Transpower	Part 3
AV24	New investment contract assets valued at zero – Transpower	Transpower	Part 3
AV25	Finance leases and intangible assets – Transpower	Transpower	Part 3
AV26	No indexation of RAB – Transpower	Transpower	Part 2
AV27	Commissioned assets added to RAB – Transpower	Transpower	Part 2
AV28	Network spares – Transpower	Transpower	Part 3
AV29	Asset disposals – Transpower	Transpower	Part 2
AV30	Easements – Transpower	Transpower	Part 3
AV31	Lost and found assets – Transpower	Transpower	Part 3
AV32	Purchase of assets from regulated supplier or related party – Transpower	Transpower	Part 1
AV33	Financing costs on works under construction – Transpower	Transpower	Part 1

AV34	Straight line depreciation applies – Transpower	Transpower	Part 3
AV35	Standard physical asset lives to apply with exceptions – Transpower	Transpower	Part 1
AV36	Stranded assets – Transpower	Transpower	Part 3
AV37	Asset lives when asset is coming to end of life – Transpower	Transpower	Part 3
AV38	Cost allocation applies to unallocated RAB – Transpower	Transpower	Part 3
AV39	Initial RAB values for non-land assets – Airports	Airports	Part 3
AV40	RAB roll forward with indexation – Airports	Airports	Part 1
AV41	Initial RAB values for land assets and revaluation approach – Airports	Airports	Part 1
AV42	RAB exclusions – Airports	Airports	Part 1
AV43	Financing costs on works under construction – Airports	Airports	Part 2
AV44	Finance leases and intangible assets – Airports	Airports	Part 3
AV45	Commissioned assets added to RAB – Airports	Airports	Part 3
AV46	Purchase of assets from regulated supplier or related party – Airports	Airports	Part 1
AV47	Lost and found assets – Airports	Airports	Part 3
AV48	Capital contributions and vested assets – Airports	Airports	Part 1
AV49	Easement rights – Airports	Airports	Part 3

AV50	Straight line depreciation applies with election to use non-standard approach – Airports	Airports	Part 1
AV51	Asset lives and limit on unallocated depreciation – Airports	Airports	Part 3
AV52	Stranded assets – Airports	Airports	Part 3
AV53	Cost allocation applies to unallocated RAB – Airports	Airports	Part 3
AV54	Initial RAB value – Powerco GDB	GDBs (Powerco only)	Part 1
AV55 (new)	Giving effect to IM decisions – applying alternative methodologies with equivalent effect – Airports	Airports	Part 1

Table A3: Treatment of taxation

Decision	Short title	Applies to (sectors)	Where located in this Report
TX01	Modified deferred tax approach applies – EDBs and GDBs	EDB/GDB	Part 1
TX02	Tax legislation and cost allocation to be applied – EDBs	EDBs	Part 1
TX03	Tax losses ignored	EDB/GDB/GTB	Part 3
TX04	Regulatory tax asset value of asset acquired	EDB/GDB/GTB	Part 1
TX05	Initial regulatory tax asset value	EDB/GDB/GTB	Part 3
TX06	Initial deferred tax balance is zero – EDBs and GDBs	EDB/GDB	Part 3
TX07	Tax effect of discretionary discounts and rebates – EDBs	EDBs	Part 3
TX08	Tax legislation and cost allocation to be applied – GDBs and GTBs	GDB/GTB	Part 1

TX09	Tax payable approach applies – GTBs	GTBs	Part 3
TX10	Tax payable approach applies – Transpower	Transpower	Part 3
TX11	Tax legislation and cost allocation to be applied – Transpower	Transpower	Part 3
TX12	Notional leverage for deductible debt interest – Transpower	Transpower	Part 3
TX13	Tax losses ignored – Transpower	Transpower	Part 3
TX14	Regulatory tax asset value of asset acquired – Transpower	Transpower	Part 2
TX15	Initial regulatory tax asset value – Transpower	Transpower	Part 3
TX16	Tax payable approach applies – Airports	Airports	Part 1
TX17	Tax legislation and cost allocation to be applied – Airports	Airports	Part 3
TX18	Notional leverage for deductible debt interest – Airports	Airports	Part 3
TX19	Tax losses ignored – Airports	Airports	Part 3
TX20	Regulatory tax asset value of asset acquired from another supplier- Airports	Airports	Part 1
TX21	Initial regulatory tax asset value – Airports	Airports	Part 3

Table A4: Cost of capital

Decision	Short title	Applies to (sectors)	Where located in this Report
CC01	Cost of capital defined as estimate of WACC	EDB/GDB/GTB	Part 2
CC02	WACC percentile	EDB/GDB/GTB	Part 2

CC03	Commission to publish annual WACC estimates	EDB/GDB/GTB	Part 1
CC04	Vanilla WACC and post-tax WACC estimation methodology	EDB/GDB/GTB	Part 3
CC05	Cost of debt in WACC estimates	EDB/GDB/GTB	Part 1
CC06	Term credit spread differential allowance may apply	EDB/GDB/GTB	Part 1
CC07	Cost of equity in WACC estimates	EDB/GDB/GTB	Part 1
CC08	Corporate tax rate in WACC estimates	EDB/GDB/GTB	Part 2
CC09	Commercially realistic estimates of WACC	EDB/GDB/GTB	Part 2
CC10	Date for determining price-quality path estimates of WACC – EDBs and Transpower	EDBs/Transpower	Part 1
CC11	Cost of capital defined as estimate of WACC – Transpower	Transpower	Part 2
CC12	WACC percentile – Transpower	Transpower	Part 2
CC13	Commission to publish annual WACC estimates – Transpower	Transpower	Part 1
CC14	Vanilla WACC and post-tax WACC estimation methodology – Transpower	Transpower	Part 3
CC15	Cost of debt in WACC estimates – Transpower	Transpower	Part 1
CC16	Term credit spread differential allowance may apply – Transpower	Transpower	Part 1
CC17	Cost of equity in WACC	Transpower	Part 1

	estimates – Transpower		
CC18	Corporate tax rate in WACC estimates – Transpower	Transpower	Part 2
CC19	Cost of capital defined as estimate of WACC – Airports	Airports	Part 1
CC20	Commission to publish annual WACC estimates – Airports	Airports	Part 1
CC21	Vanilla WACC and post-tax WACC estimation methodology – Airports	Airports	Part 3
CC22	Cost of debt in WACC estimates – Airports	Airports	Part 1
CC23	Term credit spread differential allowance may apply – Airports	Airports	Part 1
CC24	Cost of equity in WACC estimates – Airports	Airports	Part 1
CC25	Corporate tax rate in WACC estimate – Airports	Airports	Part 2
CC26	Commercially realistic estimates of WACC – Airports	Airports	Part 2
CC27	Term credit spread differential allowance may not be less than zero for a DPP	Airports	Part 3

Table A5: Gas pricing methodologies

Decision	Short title	Applies to (sectors)	Where located in this Report
GP01	Principles-based approach to gas pricing	GDB/GTB	Part 2
GP02	Pricing principles to be consistent with Gas Authorisation	GDB/GTB	Part 2
GP03	Pricing principles in the IM are to be used to measure consistency under ID	GDB/GTB	Part 2
GP04	No application of gas pricing IM to gas DPPs	GDB/GTB	Part 2
GP05	Gas pricing IM may apply to a CPP	GDB/GTB	Part 2
GP06	Commission may amend a CPP gas pricing methodology annually	GDB/GTB	Part 3

Table A6: Specification of price

Decision	Short title	Applies to (sectors)	Where located in this Report
SP01	Weighted average price cap applies – EDBs and GDBs	EDB/GDB	Part 1
SP02	Weighted average price cap or total revenue cap applies – GTBs	GTBs	Part 1
SP03	Pass-through costs – EDBs and GDBs	EDB/GDB	Part 1
SP04	Pass-through costs – GTBs	GTBs	Part 1
SP05	Recoverable costs – EDBs	EDBs	Part 1
SP06	Recoverable costs – GDBs	GDBs	Part 1
SP07	Recoverable costs – GTBs	GTBs	Part 1
SP08	Price specified by revenue cap – Transpower	Transpower	Part 2

SP09	Pass-through costs – Transpower	Transpower	Part 3
SP10	Recoverable costs – Transpower	Transpower	Part 2
SP11	Recoverable cost for additional revenue – Alpine/Top Energy/Centralines	EDBs (Alpine Energy, Top Energy and Centralines only)	Part 3

Table A7: Reconsideration of the price-quality path

Decision	Short title	Applies to (sectors)	Where located in this Report
RP01	Reconsideration of DPP	EDB/GDB/GTB	Part 1
RP02	Reconsideration of CPP	EDB/GDB/GTB	Part 1
RP03	Meaning of ‘material’ for purposes of reconsideration	EDB/GDB/GTB	Part 1
RP04	Reconsideration for contingent or unforeseen expenditure under a CPP – GTBs	GTBs	Part 1
RP05	Reconsideration of IPP – Transpower	Transpower	Part 1
RP06	Meaning of ‘material’ for purposes of reconsideration – Transpower	Transpower	Part 1
RP07	Annual reconsideration for effect of major capex and listed projects – Transpower	Transpower	Part 3

Table A8: Amalgamations

Decision	Short title	Applies to (sectors)	Where located in this Report
AM01	No price reset following amalgamation	EDB/GDB/GTB	Part 3
AM02	Suppliers to aggregate price-quality paths on amalgamation	EDB/GDB/GTB	Part 3
AM03	Amalgamation rule for existing CPPs	EDB/GDB/GTB	Part 3

Table A9: IRIS

Decision	Short title	Applies to (sectors)	Where located in this Report
IR01	IRIS to apply – EDBs	EDBs	Part 2
IR02	Treatment of IRIS balances – EDBs	EDBs	Part 1
IR03	Five-year retention of efficiency gains	EDBs	Part 3
IR04	IRIS to apply under an IPP – Transpower	Transpower	Part 2
IR05	Treatment of IRIS balances – Transpower	Transpower	Part 1
IR06	Five-year retention of efficiency gains – Transpower	Transpower	Part 2
IR07 (deleted) ¹⁴⁴	RCP1 IRIS transition – Transpower	Transpower	Part 3
IR08	IRIS to apply under a CPP – GDBs and GTBs	GDB/GTB	Part 1
IR09	Treatment of IRIS balances – GDBs and GTBs	GDB/GTB	Part 1

¹⁴⁴ IR07 has been deleted, as it was only applicable in the first year of Transpower's first regulatory period.

IR10	Five-year retention of efficiency gains	GDB/GTB	Part 1
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Table A10: Other regulatory rules and processes IM decisions

Decision	Short title	Applies to (sectors)	Where located in this Report
RR01	Treatment of periods that are not 12-month periods – DPP	EDB/GDB/GTB	Part 3
RR02	Availability of Information – DPP	EDB/GDB/GTB	Part 3

Table A11: CPP (all of these decisions are discussed in Topic paper 2: CPP requirements)

Decision	Short title
CP01	Price path information
CP02	Expenditure information – qualitative
CP03	Expenditure information – quantitative
CP04	Period of information required
CP05	Detail on material projects and programmes
CP06	Information relevant to prices
CP07	Verification report
CP08	Audit and assurance report
CP09	Consumer consultation evidence
CP10	Certification
CP11	Modification or exemption of CPP application requirements
CP12	Information regarding quality
CP13	Cost allocation information
CP14	Asset valuation information
CP15	Tax information
CP16	Information relevant to alternative methodologies
CP17	Cost of capital information

CP18	Gas pricing methodology to be submitted with CPP proposal – GDBs and GTBs
CP19	General matters
CP20	Quality-only CPP
CP21	Verification requirements
CP22	Audit and assurance requirements
CP23	Consumer consultation requirements
CP24	Certification requirements
CP25	Reconsideration of a CPP (not an IM decision - included for reference purposes only – refer to IM decision RP02)
CP26	Modification or exemption of CPP application requirements
CP27	Evaluation criteria
CP28	Determination of annual allowable revenues
CP29	Cost allocation and asset valuation
CP30	Treatment of taxation
CP31	Cost of capital
CP32	Alternative methodologies with equivalent effect

Attachment B: Next closest alternative provision

Purpose of this attachment

464. The purpose of this attachment is to explain why we have decided not to adopt the next closest alternative (NCA) provision that we proposed in our draft decision.¹⁴⁵

We proposed an NCA provision as part of our draft decisions

465. In our draft decision, we proposed making a new IM decision to allow for an alternative approach to be applied in respect of matters covered by an existing IM when that IM becomes unworkable. That proposal is explained in Chapter 3 in our draft report on the IM review.¹⁴⁶

We decided not to adopt the NCA provision as part of our final decision

466. We have removed the proposed next closest alternative provisions and associated reopeners that we proposed in our draft decision. We proposed and consulted on this change from our draft decision in our technical consultation update paper.¹⁴⁷ We consider that the issues the provisions were introduced to solve can, in most cases, be appropriately addressed through the IM amendments process. On balance, we do not consider that the benefits of the added flexibility outweigh the potential uncertainty that it may introduce.¹⁴⁸

467. We did identify one particular situation where a reconsideration provision is required to address an unworkable IM. This is where an IM is rendered unworkable due to a regulatory or legislative change, and the change does not result in costs that meet the materiality threshold for the change event reopener.

468. To address this situation, we have introduced an exception to the materiality threshold for the change event reopener where the change event results in an IM being incapable of being applied. We consulted on this change in our technical consultation update paper.¹⁴⁹ This change is described in our decisions on IM decisions RP03 and RP06.

¹⁴⁵ See proposed new decision GE01 in Commerce Commission "Input methodologies draft decisions: Report on the IM review (22 June 2016).

¹⁴⁶ See proposed new decision GE01 in Commerce Commission "Input methodologies draft decisions: Report on the IM review (22 June 2016).

¹⁴⁷ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016), p. 7.

¹⁴⁸ A number of submissions on our draft decision suggested that the introduction of these provisions was likely to increase regulatory uncertainty. See, for example: Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), p. 31.

¹⁴⁹ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016).

Attachment C: Reopener provision for live-line work

Purpose of this attachment

469. This attachment responds to a letter received from the ENA and to submissions on our technical consultation update paper that requested changes to the reopener provisions for default and customised paths to take account of proposed changes to the circumstances in which suppliers undertake live-line work.

Request for changes to take account of proposed guidelines for live-line work

470. On 13 October 2016 we received a letter from the ENA setting out a number of concerns relating to Part 4 of the Commerce Act regarding the implementation of the Health and Safety at Work Act 2015 ("the Health and Safety Act").¹⁵⁰ As a consequence of the Health and Safety Act, the electricity supply industry is preparing guidelines that will set safe working practices regarding work on high voltage equipment. The ENA suggested that certain changes being proposed as part of the IM review provided an opportunity to deal with the issues raised by the change in legislation and the subsequent draft guidelines, which the ENA had provided to Worksafe for review.

471. We published the letter and requested stakeholders to provide comments on it as part of their submissions on our technical consultation update paper.

472. In its letter, the ENA stated that the draft guidelines start off with the presumption that all work should be undertaken de-energised, which will limit the circumstances when live work could be done. In ENA's view, this would impact the SAIDI and SAIFI indices, and could alter non-exempt EDBs' ability to achieve their quality standards, thereby increasing the likelihood of incurring penalties under the DPP quality incentive scheme. In the case of Orion, there would be an increased likelihood of breaching its CPP.¹⁵¹

¹⁵⁰ Letter from Graeme Peters (Chief Executive, ENA) to Sue Begg (Deputy Chair, Commerce Commission) regarding the impact of a reduction of live line work on non-exempt EDBs under the default and customised price quality path (October 2016), Commerce Commission "Notification email – Letter received from ENA on the impact of a reduction of live line work on non-exempt EDBs under the default and customised price quality path" (20 October 2016).

¹⁵¹ Letter from Graeme Peters (Chief Executive, ENA) to Sue Begg (Deputy Chair, Commerce Commission) regarding the impact of a reduction of live line work on non-exempt EDBs under the default and customised price quality path (October 2016).

473. The ENA also set out its view that the new quality standard reopener for the DPP, as proposed in our draft IM review decisions, would be useful to address the change in circumstances brought about by the Health and Safety Act, if that reopener was available within the current regulatory period.¹⁵² Subsequently, however, in its submission on the update paper, ENA did not dispute our view that the new quality standard reopener could not apply before 1 April 2020, due to the requirements of s 53ZB.
474. Therefore, as an alternative, the ENA submitted that the existing change event reopener for DPPs and CPPs could be used if it was modified slightly by removing (or amending) the materiality threshold for change events that affect quality standards. They suggested a quality-specific threshold, such as an event that changes SAIDI or SAIFI by 3% per annum for the remainder of the regulatory period. In the ENA's view, that change to the reopener provisions could and should be made to apply in the current regulatory period.¹⁵³
475. ENA also suggested that a more straightforward option could be for us to amend the DPP quality standards under s 52Q, given that the method for setting quality standards is not specified in the IMs.
476. Vector supported the ENA's recommendations for more flexibility for the reopeners, and also suggested that we could use our powers under s 52Q to amend the DPP determination to ensure quality standards for non-exempt EDBs reflect the new live-line limitations under the Health and Safety Act. In Vector's view, CPP applications would not be an appropriate alternative option.¹⁵⁴
477. By contrast, MEUG submitted that tabling the ENA letter so late in the process was not conducive to effective feedback from resource constrained consumers. MEUG recommended that a prudent course of action would be to park ENA's proposals for consideration until the current IM review has concluded. In addition, MEUG did not support amending the IM to have a quality standard reopener to apply to the DPP and CPP, as in MEUG's view the design philosophy for DPPs and CPPs are *ex-ante* "set and forget" incentive regimes. Reopeners should be kept to a minimum by having a materiality test to avoid intra-RCP 'gaming' or 'cherry-picking'.

¹⁵² Letter from Graeme Peters (Chief Executive, ENA) to Sue Begg (Deputy Chair, Commerce Commission) regarding the impact of a reduction of live line work on non-exempt EDBs under the default and customised price quality path (October 2016), para 10.

¹⁵³ Letter from Graeme Peters (Chief Executive, ENA) to Sue Begg (Deputy Chair, Commerce Commission) regarding the impact of a reduction of live line work on non-exempt EDBs under the default and customised price quality path (October 2016), para 10.

¹⁵⁴ Vector "Vector submission on electricity networks association letter on live line work impact for non-exempt electricity distribution businesses" (3 November 2016), para 10-14.

We decided not to make changes as part of our final decision and will work with relevant parties going forward

478. We agree, as ENA and Vector submit, that it is important to consider the implications of the Health and Safety Act for the regulatory regime under Part 4. However, we do not consider that s 52Q or the IM review process are the right tools to effect any further changes relating to this issue for several reasons.
479. First, we do not agree with ENA or Vector that we are able to use s 52Q to simply amend the DPP without one of the reopener provisions in the IMs, or in the Act, applying.¹⁵⁵ It is our view that given s 53ZB and 52T(3)(c)(ii) of the Act, that we are only able to exercise the powers under s 52Q, if one of the reopener provisions set out in the IMs or provided for under the Act is triggered.
480. Secondly, we consider that s 53ZB prevents us from applying the changes, made to the IM reopener provisions as part of the IM review, during the current regulatory period. The ENA's proposal is for the reopener provision to be amended within the IMs to allow for quality standards to be changed straight away and this, in our view, would run contrary to s 53ZB of the Act.
481. The ENA argues that s 53ZB would not be contravened because the reopening would not be due to the IM amendments but rather due to the proper application of the IM as amended. However, it is our view that this would defeat the purpose of s 53ZB, as it would mean that we could change core elements of a DPP/ CPP during a regulatory control period by simply amending the reopener provisions in the IMs to specify the change we wished to achieve and then apply the new IM to achieve that change. That would be the case whether the change is to introduce a new reopener, or to amend an existing one.
482. We consider that our interpretation of these provisions is consistent both with comments made in the High Court and with the objectives of Part 4.¹⁵⁶ In particular s 52R of the Act, which set outs the purpose statement for IMs, which is to promote certainty for suppliers and consumers in relation to the rules, and requirements and processes applying to the regulation of goods and services. To be able to make changes during a regulatory period, with no reopener provision having being triggered or through the change to a reopener provision, runs contrary to this purpose.

¹⁵⁵ The Act provides for two specific situations where the Commission, upon request from either the Electricity Authority or the Gas Industry Company, can reconsider a section 52P determination, and amend it if the Commission considers it necessary or desirable. Refer to section 54V(5) and section 55I(3) of the Act.

¹⁵⁶ Wellington International Airport Ltd v Commerce Commission [2013] NZHC 3289 at [219] 3

483. We consider that the change proposed by the ENA to include a 3% materiality threshold for quality change events could deal with circumstances where a percentage change in revenue is not a useful or meaningful materiality threshold for a proposed change to a quality standard. However, ENA provided no information in support of the 3% value for the threshold, and other interested parties have not had the opportunity to comment on it. We also acknowledge MEUG's more general concern that ENA's views were provided very late in our IM review process, and therefore we should 'park' ENA's proposals until after the IM review.
484. Furthermore, given this amendment cannot apply for reopeners in the current regulatory period, they are unlikely to address ENA's concerns associated with live-line work. Consequently, at this stage, we have decided not to introduce a quality change event materiality threshold.
485. We acknowledge that more work on this area, including on the guidelines and by individual EDBs, is ongoing. We will work with the ENA, its members and Worksafe going forward and use the existing regulatory tools (including the legislation) as and when these are appropriate.

Attachment D: Further explanation of the price setting and wash-up processes under a revenue cap

Purpose of this attachment

486. The purpose of this attachment is to provide an illustrative example of how the price-setting and wash-up processes may work under a revenue cap in a DPP or CPP for a GTB or EDB.

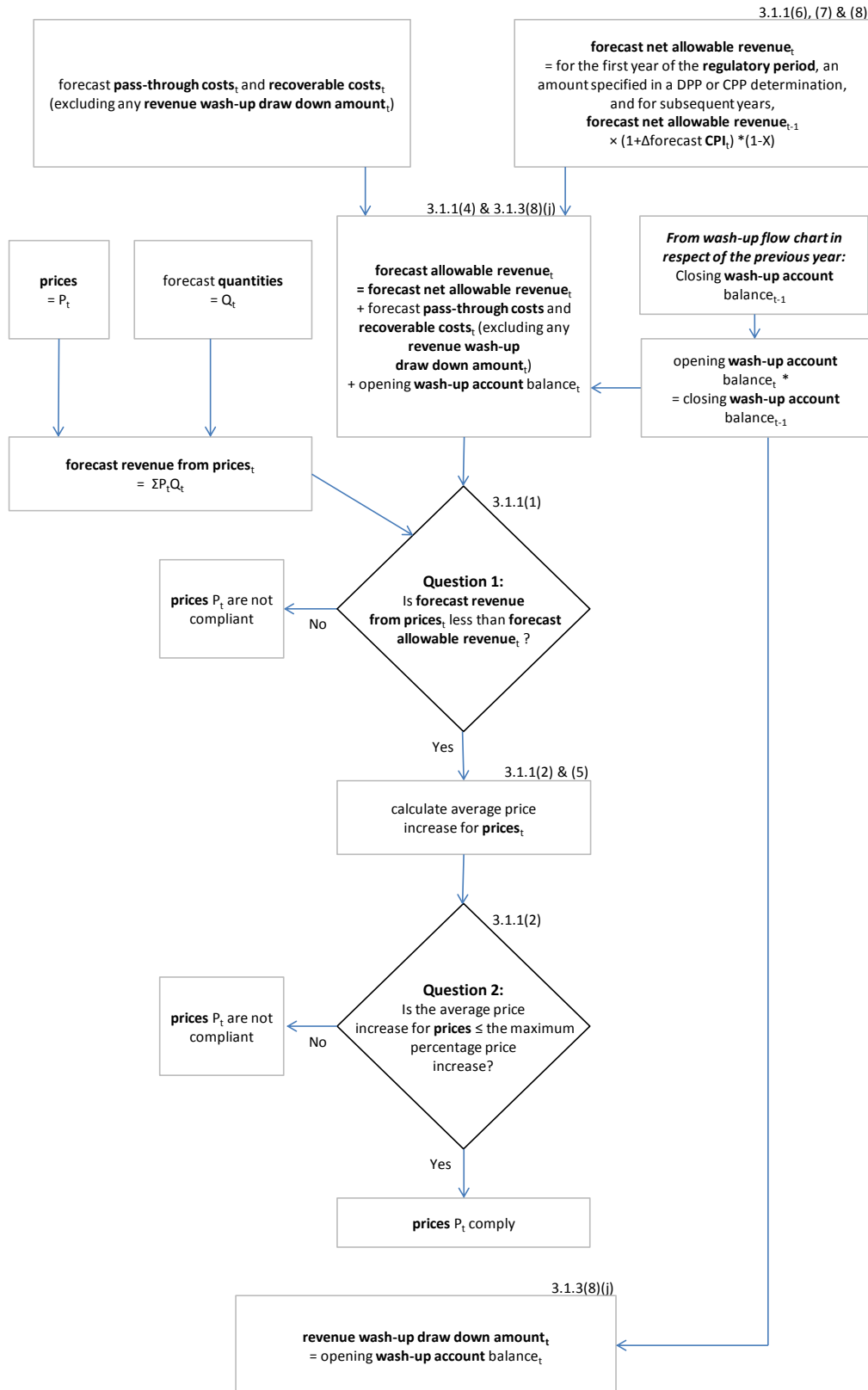
Background

487. The flow charts in this attachment show, for illustrative purposes, a possible implementation of the specification of price input methodologies in a DPP or CPP determination for a GTB or EDB. The wash-up mechanism in particular reflects a possible implementation of the IMs, rather than a necessary approach. The flow charts have been updated from our technical consultation update paper of October 2016.¹⁵⁷
488. The flow charts include the mechanism of a limit on average price increases. The IM determinations set this mechanism as an optional feature, with the DPP or CPP determination to specify whether and how it will be implemented.
489. We will consult on the compliance requirements for the GTB DPP in our February 2017 draft DPP decision. We expect to have a similar consultation for the 2020 EDB DPP reset or for any earlier EDB CPP.
490. The revenue cap mechanisms for EDBs would be similar to the GTB mechanisms, with an additional mechanism relating to voluntary undercharging, as discussed in Topic paper 1: Form of control and RAB indexation.
491. Bolded terms in the flow charts are defined in the relevant GTB and EDB determinations.

¹⁵⁷ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016).

Figure D1

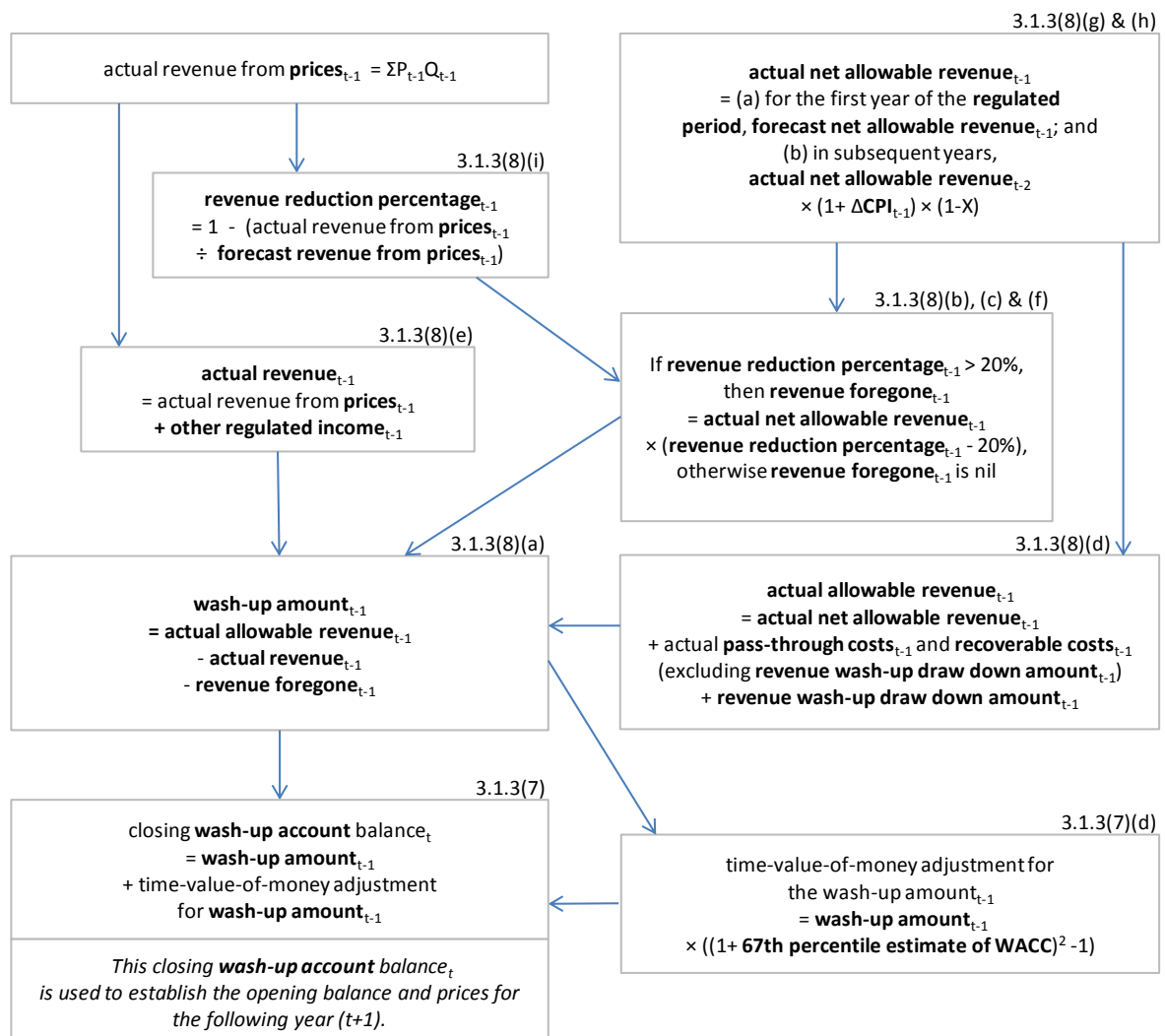
Setting prices and assessing compliance for Year t for a GTB



* The opening **wash-up account** balance for Year t is the total amount in the **wash-up account** available to be drawn down in setting prices for the pricing year t.

Figure D2

Determining the wash-up amount and the closing balance of the wash-up account for Year t for a GTB



A positive wash-up amount indicates that the actual revenue received (plus any amount of revenue foregone) has been less than the actual allowable revenue. That positive balance would lead to a positive balance in the wash-up account, which would be in favour of the supplier.

To keep this flow chart simpler, we have assumed that the supplier fully draws down the opening balance of the wash-up account. Therefore the calculation for the closing wash-up account balance does not include the terms reflecting the opening wash-up account balance being fully drawn down by the revenue wash-up draw down amount.

This wash-up flow chart is the same for GTBs and EDBs, except that the wash-up amount for EDBs will account for any cap on the cumulative amount of voluntary under charging.

Cross-references to the EDB IM 52P determination may have different clause numbers.

Attachment E: Timing and transition provisions in the IM amendments determinations

Purpose of this attachment

492. The purpose of this attachment is to explain the timing and transition provisions we have included in the amendments determinations. These timing and transition provisions relate to when and how determination amendments made as a result of this IM review come into effect.
493. Our approach to the timing and transition provisions is to address the potential for complexity in making changes in different parts of the IM determinations and in having those changes apply at different times. Recognising that some complexity is unavoidable, the general intent of our drafting of these provisions is to make the key updated provisions of the IMs as accessible as possible.

Structure of this attachment

494. In this attachment we explain:
- 494.1 our approach to timing and transition provisions; and
 - 494.2 what we have tried to achieve with our timing and transition provisions.
495. We then set out the specific timing and transition provisions we have included for each of the amendments determinations.

Explanation of our approach

496. As a result of the IM review, we have published five IM amendments determinations, where we have marked our amendments to the determinations as tracked changes so that users of the determinations can identify all amendments in the context of the principal IM determinations.
497. We have also published a consolidated IM determination now for airports as it has fewer transition provisions.¹⁵⁸
498. We intend to publish consolidated IM determinations for EDBs, GDBs, GTBs and Transpower in the first quarter of 2017. These consolidated determinations will consolidate the changes in the amendments determinations with the principal IM determinations, and will include transition information where applicable.¹⁵⁹

¹⁵⁸ We have published an airports ID amendments determination under s 52Q of the Act, and a consolidated airports ID determination. The amendments to the airports ID determination enter into force on publication.

¹⁵⁹ The consolidated IM determinations are provided for convenience and usability purposes.

499. Amendments to the IMs take effect on the day after notice is given in the New Zealand Gazette, which will be the 'commencement date'. This is 23 December 2016.
500. However, s 53ZB of the Act does not allow price-quality paths to be reopened during a regulatory period on the grounds of an IM amendment. Therefore, although the amendments will come into effect immediately, we consider that, under the Act, not all amendments can be applied immediately to suppliers.
501. There are also amendments that, from a practical perspective, are not able to be applied immediately to suppliers. For example, we may need to amend a s 52P determination before the IM amendments can apply to suppliers.¹⁶⁰ Therefore, there are some identified variations to the general rule about when the amendments are first to be applied.

Application of changes to instruments and sectors

502. We describe below how our IM amendments in relation to our ID regulation, DPP regulation, IPP regulation and CPP regulation will apply.
503. We also describe below how our consolidated determinations will operate for each sector in light of the timing provisions in the amendments determinations.

Amendments to the airports IM determination in relation to ID regulation

504. Our amendments to the Airport IMs determination for ID regulation apply from the date on which the amendments determination takes effect - 23 December 2016.
505. IM amendments will apply for airports from the commencement date in the airports IM determination, as the IM amendments apply to certain disclosure requirements in the airports ID determination, to which we have also made amendments which enter into force at the same time as the IM amendments. As such, there is no period for which the IM amendments would be in force but not yet applicable.¹⁶¹

¹⁶⁰ See discussion on amendments in relation to ID requirements in para 514-517 and quality-only CPPs in para 510-513.

¹⁶¹ Most of the amendments to the Airports ID determination are to the forward looking disclosure requirements, which will be applied at the next price setting event. This is in 2017 for Christchurch and Auckland Airports. There are some minor amendments to the backward looking disclosures which will be applied for the 2017 disclosure year for all airports.

Amendments in relation to CPP proposals

506. Amendments to the EDB, GDB and GTB IMs in relation to new CPP proposals will apply from the date on which the EDB, GDB and GTB IM amendments determinations take effect – 23 December 2016. We will consider dealing with any transition issues for individual CPP applicants through the use of the modification and exemption provisions on a case-by-case basis.
507. IM amendments in relation to CPP proposals generally apply from the date the amendment determinations take effect.¹⁶² However, EDBs, GDBs and GTBs may want to propose a CPP at any time after the IM amendments come into effect. This means that any CPP application submitted to us after the commencement date must apply the updated CPP requirements in our amended IM determinations.
508. An applicant can apply for a modification or exemption under the IM rules for CPP proposals. In submissions on our technical consultation, ENA supported our proposal to allow amendments in relation to CPP proposals to apply from the date the amendments determinations take effect.¹⁶³
509. We have decided that the CPP amendments will apply immediately. This should assist potential CPP applicants.
510. Notwithstanding that general rule, our amendments to remove the ability to apply for a quality-only CPP for EDBs will not apply until the start of the next EDB regulatory period, beginning on 1 April 2020.
511. This is because, as described below, we do not consider that amendments to reconsideration provisions in relation to DPP regulation are able to apply until 1 April 2020. This means that our amendment to include a quality-only DPP reopener for EDBs will not be available until 1 April 2020.
512. To avoid a gap in the ability of an EDB that is subject to a DPP to apply for a quality-only variation to their price-quality path, we have therefore allowed those EDBs to retain the opportunity to apply for a quality-only CPP until the new quality reopener provision comes into effect at the next DPP reset. We have retained a quality-only CPP in the EDB IM determination until 31 March 2020.

¹⁶² Although the CPP provisions come into effect immediately, this does not breach s 53ZB as it will not lead to a price path being reopened. Rather, a CPP sets a new path.

¹⁶³ ENA "Input methodologies review: Technical consultation update paper: Submission to the Commerce Commission" (3 November 2016), para 15-17.

513. This allows suppliers to apply for a quality-only CPP up until 12 months prior to the next EDB DPP reset. If an EDB subject to a DPP applies for a quality-only CPP, we will work with the applicant to ensure cost and complexity are minimised, consistent with our intention to move to a lower cost approach for assessing quality variations. The modification and exemption provisions will be available if needed to achieve this.

Amendments in relation to ID regulation

514. Amendments to the EDB, GDB, GTB and Transpower IM determinations cannot be applied under their respective ID determinations until each ID determination is amended to incorporate our changes to the IM determinations.¹⁶⁴ The IM amendments in relation to ID regulation apply from the first disclosure year after the applicable ID determination is amended.¹⁶⁵
515. We consider that having the IM changes in relation to the ID determinations apply immediately could cause compliance issues for suppliers. As some of our requirements, defined terms, and formulas in the ID determinations are drafted with reference to the pre-review IMs, there would be inconsistencies with the IM amendments determinations until such time as each of the ID determinations is updated.
516. We will be aiming within our overall work programme to update the reporting requirements in each of the EDB, GDB, GTB and Transpower ID determinations by the end of 2017 to incorporate amendments made to the applicable IM determinations. Our working assumption is that if that timetable can be achieved, the IM amendments for ID determinations would apply for the 2018-2019 disclosure year in each case.

¹⁶⁴ The EDB, GDB and GTB ID determinations define 'IM determination' for this purpose as the determination in force when the ID determination comes into force. This provides regulatory certainty for suppliers on the IMs that will apply for disclosures, which allows, for example, the design of reporting systems on a timely basis to meet the ID requirements.

¹⁶⁵ In submissions on our technical consultation, ENA and Powerco indicated that there was an inconsistency between our revised draft IM determinations and our description of the proposed change in our technical consultation update paper for when amendments in relation to ID regulation (except cost allocation) would apply. Transpower also suggested drafting changes to the equivalent clause in the Transpower IM determination: ENA "Input methodologies review: Technical consultation update paper: Submission to the Commerce Commission" (3 November 2016), para 15-17; Powerco "Submission on Input methodologies review: Technical consultation update paper" (3 November 2016), p. 12; and Transpower "[REVISED DRAFT] Transpower Input Methodologies Amendments Determination 2016" (3 November 2016", clause 1.1.2(3)(a).

517. For example, if the EDB, GDB and GTB ID determinations are updated before 1 April 2018, the EDB, GDB and GTB IM amendments in respect of cost allocation would apply when completing asset management plans (**AMP**) or AMP updates for the disclosure year 2019 and later disclosure years. This would mean that an EDB which is required to complete an AMP for the 2019 disclosure year before 1 April 2018 would need to do so using the amended cost allocation IM.
518. In submissions on our technical consultation, Wellington Electricity submitted that our amendments in respect of cost allocation should apply from disclosure year 2020.¹⁶⁶ It suggested that having the ACAM removal apply from the beginning of disclosure year 2019 'is not sufficient to implement the anticipated system and process change requirements'.¹⁶⁷
519. We consider that having the amendments to the cost allocation provisions apply from the beginning of disclosure year 2019 will ensure that the cost allocation method used for the first year of the next EDB DPP period is consistent with the price-quality path and ID. We consider that it is useful for analysis purposes to have at least one base year of data under the existing EDB DPP regulatory period (2015-2020) for the setting of the price-quality path for the next EDB DPP regulatory period (2020-2025). Having the amendments to the cost allocation provisions apply from the beginning of disclosure year 2019 (eg, 1 April 2018 for EDBs) provide suppliers with more than a year to change their systems if necessary.
520. We considered the alternative of applying these amendments in relation to ID regulation from the start of the next EDB DPP regulatory period (or in the case of Transpower, the next IPP regulatory period) to keep the IMs used under the current price-quality determinations aligned on a year-by-year basis with ID. This would eliminate a situation of us receiving data for the evaluation of the performance of EDBs or Transpower under new IM requirements while the entities are still subject to the old IM rules for the purposes of prices and revenues up to the next resets in 2020.
521. However, based on our IM amendment decisions, we do not consider that the differences are likely to be material for the purpose of performance measurement. We therefore consider that it is more workable for the next EDB and Transpower price-quality path resets to have the ID and IM amendments apply when the next ID determination amendments are made.

Amendments in relation to DPP regulation and IPP regulation

522. Amendments in relation to DPP regulation and IPP regulation apply:

¹⁶⁶ Wellington Electricity "Input Methodologies Review: Response to technical consultation update paper" (3 November 2016), para 5.

¹⁶⁷ Wellington Electricity "Input Methodologies Review: Response to technical consultation update paper" (3 November 2016), para 5.

- 522.1 for EDBs, for the setting and monitoring of DPPs having an EDB regulatory period commencing from 1 April 2020 (ie, the start of the next EDB regulatory period);
- 522.2 for GDBs, for the setting and monitoring of DPPs having a GDB regulatory period commencing from 1 October 2017 (ie, the start of the next GDB regulatory period);
- 522.3 for GTBs, for the setting and monitoring of DPPs having a GTB regulatory period commencing from 1 October 2017 (ie, the start of the next GTB regulatory period); and
- 522.4 for Transpower, for the setting and monitoring of the IPP for the IPP regulatory period commencing from 1 April 2020 (ie, the start of Transpower's next regulatory period, RCP3).
523. Amendments to DPP and IPP regulation apply for use in future price-quality resets, as this provides certainty for suppliers that are subject to price-quality paths currently in force.
524. For the avoidance of doubt, any amendments to the reopener provisions, pass-through cost provisions, and recoverable cost provisions in relation to DPP and IPP regulation will not apply until the start of the next applicable regulatory period unless (in the case of EDBs, GDBs and GTBs), a CPP proposal is made in the meantime.¹⁶⁸
525. In its submission on our technical consultation, Transpower proposed including a clause in the Transpower IM determination that would allow references to legislation or determinations to automatically update after amendments occur to the specified legislation or determinations that are referenced in the Transpower IM determination.¹⁶⁹ We do not consider that Transpower's proposal is workable, particularly for the updating of references that apply to the price-quality path in force at the time any reference changes.¹⁷⁰
526. As the amendments in relation to DPP and IPP regulation will be used for future price-quality path resets, we have specifically allowed for the amendments to apply before the commencement of each regulatory period for the purpose of calculating forecast values that would apply in the regulatory period, and to allow us to use those forecast values in determining the DPPs or the IPP.

¹⁶⁸ This is consistent with limitations that apply to the reopening of price-quality paths under s 53ZB of the Act as a result of an IM amendment. See earlier discussion in para 480-482.

¹⁶⁹ Transpower "[REVISED DRAFT] Transpower Input Methodologies Amendments Determination 2016" (3 November 2016", Clause 1.1.4(1)(c).

¹⁷⁰ Our understanding of s 53ZB is that updating any references in respect of the price-quality path in the IM determination will not apply until the next price-quality path, unless the price-quality path is reconsidered under one of the reopening provision in the IMs.

527. In its submission on our technical consultation, Transpower proposed removing redundant clauses no longer in effect in relation to IPP regulation.¹⁷¹ We have removed these clauses.

Consolidated IM determinations

528. We have published an updated consolidated IM determination for airports which incorporates the changes in our airports IM amendments determination into the principal airports IM determination. We intend to publish updated consolidated IM determinations for EDBs, GDBs, GTBs and Transpower in the first quarter of 2017, which will incorporate the changes our IM amendments determinations into the principal IM determinations.
529. Because our amendments in relation to ID regulation for EDBs, GDBs, GTBs and Transpower will apply after the applicable ID determinations are amended, we will provide an appendix in the consolidated IM determinations, which will set out any superceded ID-related provisions in the IMs which may continue to apply for a period after the applicable ID determinations are amended.
530. That appendix to the consolidated determinations will allow users of the IM determinations to identify which provisions currently apply and when they will be required to apply amendments resulting from the IM review. All IM amendments in relation to ID regulation that will apply in the future will be incorporated in the body of the consolidated IM determinations.
531. Our consolidated EDB IM determination will include in its appendix the 'quality-only' CPP provisions which continue to apply until 31 March 2020.¹⁷²
532. As our amendments in relation to ID regulation for airports apply immediately, our consolidated airports IM determination does not include a transition appendix.
533. Tables E1-E5 below briefly explain the timing and transition provisions we have included in the amendments determinations and indicate where in the amendments determinations they are located.

¹⁷¹ Transpower "[REVISED DRAFT] Transpower Input Methodologies Amendments Determination 2016" (3 November 2016", p. 5-6, 12, 16, 51-53.

¹⁷² See paras 51010-513 .

Table E1: Timing and transition in IM amendments determination for EDBs

Explanation of timing and transition provisions	Clause reference in amendments determination
IM amendments in relation to cost allocation for ID regulation will apply from the commencement of disclosure year 2019.	1.1.2(4)(a)
IM amendments in relation to ID regulation for asset valuation, the treatment of taxation, and the cost of capital will apply in respect of the first disclosure year after the next amendment to the ID determination made after the commencement date of the IM amendments.	1.1.2(4)(b)
IM amendments in relation to DPP regulation will apply for DPPs in force from 1 April 2020. Compliance with the current DPP will apply the pre-review IMs (even after 1 April 2020, in respect of compliance requirements in the current DPP).	1.1.2(4)(c)(i), 1.1.2(4)(d)
IM amendments in relation to CPP regulation will apply for CPP proposals submitted to us after the commencement date of the IM amendments determination. ¹⁷³	1.1.2(4)(c)(ii), 1.1.2(4)(e)
Quality-only CPP provisions and any other necessary associated provisions will apply until 31 March 2020.	1.1.2(4)(f)
IM amendments relating to forecast values or to matters required to be carried out by a supplier or the Commission for a DPP that will be in force from 1 April 2020 will apply from the commencement date of the IM amendments determination.	1.1.2(5)
IM amendments for cost allocation in relation to forecast values or matters required to be carried out by a supplier or the Commission in respect of a DPP to be determined after the commencement date will apply from the commencement date of the IM amendments determination.	1.1.2(6)

¹⁷³ To give practical effect as soon as possible to the IM amendments on the TCSD mechanism, the EDB CPP IMs allow the TCSD changes to apply for CPP proposals submitted to us after the commencement date of the EDB IM amendments determination.

Table E2: Timing and transition in IM amendments determination for GDBs

Explanation of timing and transitional provisions	Clause reference in amendments determination
IM amendments in relation to cost allocation for ID regulation will apply from the commencement of disclosure year 2019.	1.1.2(4)(a)
IM amendments in relation to ID regulation for asset valuation, the treatment of taxation, the cost of capital, and pricing methodologies will apply in respect of the first disclosure year after the next amendment to the ID determination made after the commencement date of the IM amendments.	1.1.2(4)(b)
IM amendments in relation to matters other than cost allocation for DPP regulation will apply for DPPs in force from 1 October 2017. ¹⁷⁴ Compliance with the current DPP will apply the pre-review IMs (even after 1 October 2017, in respect of compliance requirements in the current DPP).	1.1.2(4)(c)(i), 1.1.2(4)(e)
IM amendments in relation to cost allocation for DPP regulation will apply for DPPs in force from 1 October 2022.	1.1.2(4)(d)
IM amendments in relation to CPP regulation will apply for CPP proposals submitted to us after the commencement date of the IM amendments determination.	1.1.2(4)(c)(ii), 1.1.2(4)(f)
IM amendments relating to forecast values or to matters required to be carried out by a supplier or the Commission for a DPP that will be in force from 1 October 2017 will apply from the commencement date of the IM amendments determination.	1.1.2(5)
IM amendments for cost allocation in relation to forecast values or matters required to be carried out by a supplier or the Commission in respect of a DPP to be determined after the commencement date will apply from the commencement date of the IM amendments determination.	1.1.2(6)

¹⁷⁴ To give practical effect as soon as possible to the IM amendments on the TCSD mechanism, the GDB DPP IMs allow the TCSD changes to apply for DPPs in force from 1 October 2017.

Table E3: Timing and transition in IM amendments determination for GTBs

Explanation of timing and transitional provisions	Clause reference in amendments determination
IM amendments in relation to cost allocation for ID regulation will apply from the commencement of disclosure year 2019.	1.1.2(4)(a)
IM amendments in relation to ID regulation for asset valuation, the treatment of taxation, the cost of capital, and pricing methodologies will apply in respect of the first disclosure year after the next amendment to the ID determination made after the commencement date of the IM amendments.	1.1.2(4)(b)
IM amendments in relation to matters other than cost allocation for DPP regulation apply for DPPs in force from 1 October 2017. ¹⁷⁵ Compliance with the current DPP will apply the pre-review IMs (even after 1 October 2017, in respect of compliance requirements in the current DPP).	1.1.2(4)(c)(i), 1.1.2(4)(e)
IM amendments in relation to cost allocation for DPP regulation will apply for DPPs in force from 1 October 2022.	1.1.2(4)(d)
IM amendments in relation to CPP regulation will apply for CPP proposals submitted to us after the commencement date of the IM amendments determination.	1.1.2(4)(c)(ii), 1.1.2(4)(f)
IM amendments relating to forecast values or to matters required to be carried out by a supplier or the Commission for a DPP that will be in force from 1 October 2017 will apply from the commencement date of the IM amendments determination.	1.1.2(5)
IM amendments for cost allocation in relation to forecast values or matters required to be carried out by a supplier or the Commission in respect of a DPP to be determined after the commencement date will apply from the commencement date of the IM amendments determination.	1.1.2(6)

¹⁷⁵ To give practical effect as soon as possible to the IM amendments on the TCSD mechanism, the GTB DPP IMs allow the TCSD changes to apply for DPPs in force from 1 October 2017.

Table E4: Timing and transition in IM amendments determination for Transpower

Explanation of timing and transitional provisions	Clause reference in amendments determination
IM amendments will first apply in relation to ID regulation in respect of the first disclosure year after the next amendment to the ID determination made after the commencement date of the IM amendments.	1.1.2(3)(a)
IM amendments in relation to IPP regulation will apply for the IPP in force from 1 April 2020. Compliance with the current IPP will apply the pre-review IMs (even after 1 April 2020 in respect of compliance requirements in the current IPP).	1.1.2(3)(b)
IM amendments relating to forecast values or matters required to be carried out by Transpower or the Commission for the IPP in force from 1 April 2020 will apply from the commencement date of the IM amendments determination.	1.1.2(4)

Table E5: Timing and transition in IM amendments determination for airports

Explanation of timing and transitional provisions	Clause reference in amendments determination
Amendments in relation to ID regulation will apply from the date the IM and ID amendments determinations come into force (ie, take effect for the Commission and airports).	1.2(2)



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20 December 2016	1178-2560	<i>Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24</i>
20 December 2016	1178-2560	<i>Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25</i>
20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26</i>
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27</i>
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28</i>
20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29</i>

Commerce Commission
Wellington, New Zealand

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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to explain, in relation to the form of control and the indexation of the regulatory asset base (**RAB**) topics:
- X1.1 the problems we have identified within these topic areas;
 - X1.2 our solutions to these problems;
 - X1.3 the reasons for our solutions; and
 - X1.4 how we have taken stakeholders' submissions into account in considering the above.
- X2. This paper is relevant to electricity distribution businesses (**EDBs**), gas pipeline businesses (**GPBs**) and Transpower.

Overview of the form of control and RAB indexation

- X3. We have decided that non-exempt electricity distribution businesses will be regulated under a revenue cap rather than a weighted average price cap (**WAPC**). This will remove the quantity forecasting risk, and therefore any potentially detrimental effect of that risk on EDBs' incentives to spend efficiently. The change to a revenue cap will also remove potential disincentives on EDBs to restructure prices to price more efficiently, and remove the potential disincentives to pursue energy efficiency and demand-side management initiatives.
- X4. Both we and the Electricity Authority (**EA**) consider that there are significant long-term benefits to consumers as a result of reforming the pricing of the services that EDBs deliver. The IMs do not contain specific requirements relating to pricing; however our decision to change the form of control for EDBs from a price cap to a revenue cap is, in part, because we consider this may remove a potential compliance barrier to EDBs restructuring pricing approaches. We recognise that this may also change other incentives on EDBs to restructure prices. The EA, whose responsibility includes distribution pricing, prepared a letter in which it elaborated on some of these other incentive effects and other evolving factors that may affect EDBs' incentives to reform prices. We published this letter as part of our draft decisions package of papers.
- X5. We have decided to maintain a revenue cap for gas transmission businesses (**GTBs**) but to change the design to move to a pure revenue cap allowing for wash-up of over and under-recovery of revenue. We consider that changing from the pre-review revenue cap design, which uses lagged quantities, to a pure revenue cap will avoid any windfall gains and losses of revenue and therefore avoid any potentially inappropriate incentives for GTBs to under-spend on the network. Removing the use of lagged quantities should also remove any existing compliance barriers for GTBs to offer more innovative tariffs, and in particular should allow for capacity

auction-based pricing to be more readily introduced which is intended to ensure more efficient utilisation of pipeline capacity.

- X6. We have decided to maintain a WAPC using lagged quantities for gas distribution businesses (**GDBs**). We consider that the incentive for connections are important for gas distribution businesses because gas is a somewhat more discretionary fuel and without the additional incentive provided by a WAPC, new gas connections may be less likely to happen. That could prevent consumers using gas if they considered it to be a more efficient option for them.
- X7. In our draft decision, we considered changing the approach to forecasts of pass-through and recoverable costs to align with the pass-through balance approach used by EDBs. However, we have decided to maintain the existing 'ascertainable' approach for GDBs to minimise complexity and compliance costs.
- X8. There have been no significant issues raised with having a revenue cap for Transpower, and we are not changing the form of control for Transpower.
- X9. We have not identified any significant problems in relation to our approach to RAB indexation for EDBs and GPBs. Therefore, in our judgement, no change is needed to our existing approach. We have not seen evidence to suggest that we should change our policy intent from targeting *ex-ante* real financial capital maintenance (**FCM**) to targeting nominal returns. We continue to consider that providing an expectation of, and delivering (all else equal), real FCM promotes incentives to invest.
- X10. We consider that continuing to not index the value of Transpower's RAB for inflation, which differs from the approach for EDBs and GPBs, remains appropriate. We previously considered the introduction of a mechanism to protect both Transpower and consumers from inflation risk through an 'annual capital charge adjustment'.¹ However we have not identified any significant problems in relation to our current approach and we are not aware of a compelling enough reason that warrants a change to the status quo.
- X11. Table X1 summarises the areas in the form of control and RAB indexation topics where our analysis has led us to change the IMs. The issues that we have considered in relation to these topics that have not resulted in changes, are discussed as part of the following chapters in this paper.

¹ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), para 234.

Table X1: Summary of changes in relation to this topic

Change	Outcomes of the change	Chapter
We have decided to change the form of control for EDBs from a lagged WAPC to a 'pure' revenue cap which includes a wash-up of over- and under-recoveries.	<p>The outcomes of this change will be:</p> <ul style="list-style-type: none"> • it will remove the quantity forecasting risk, and therefore any potentially detrimental effect of that risk on EDBs' incentives to spend efficiently; • it will remove potential compliance barriers for suppliers to restructure their tariffs to be more efficient (we consider that there are a mix of factors encouraging pricing efficiency,² which taken together, are likely to dominate over any potential diminished incentives to price efficiently under a revenue cap); and • it will remove a potential disincentive on suppliers to pursue energy efficiency and demand side management (DSM) initiatives. <p>The change to a revenue cap may make prices more volatile within the regulatory control period.</p>	Chapter 2
We have decided to amend the form of control for GTBs, by moving to a 'pure' revenue cap which includes a wash-up of over- and under-recoveries.	<p>The outcomes of this change will be that:</p> <ul style="list-style-type: none"> • it will avoid any windfall gains and losses due to the lagging mechanism, and avoid any potentially inappropriate incentives for GTBs to under-spend on the network; and • it will remove any existing compliance barriers for GTBs to offer more innovative tariffs, and in particular should allow for capacity auction-based pricing to be more readily introduced which is intended to ensure more efficient utilisation of pipeline capacity. 	Chapter 3

² We note that some factors will positively encourage pricing efficiency but others may simply mean that any potential diminished incentives to price efficiently under a revenue cap do not hold in practice.

X12. This topic paper forms part of our package of decision papers on the input methodologies review (**IM review**). As part of the package of papers, we have also published:

X12.1 a summary paper of our decisions;

X12.2 an introduction and process paper which provides an explanation of how the papers in our decisions package fit together;

X12.3 a framework paper, which explains the framework we have applied in reaching our decisions on the IM review;

X12.4 a report on the IM review, which records our decisions on whether and how to change the IMs as a result of the IM review overall; and

X12.5 amendment determinations, which give effect to our decisions.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to explain, in relation to the topics of form of control and indexation of the regulatory asset base (**RAB**):
 - 1.1 the problems we identified within these topic areas;
 - 1.2 our assessment of potential solutions to these problems;
 - 1.3 the reasons for our chosen solutions; and
 - 1.4 how we have taken stakeholders' submissions into account in considering the above.

Where this paper fits in to our package of decisions papers

2. This topic paper forms part of our package of decision papers on the input methodologies review (**IM review**). For an overview of the package of papers and an explanation of how they fit together, see the Introduction and process paper published as part of our decisions package.³
3. This paper explains our solutions to problems identified within the topics of form of control and RAB indexation.
4. To the extent our solutions involve changes to the input methodologies (**IMs**), this paper explains how we have changed our pre-review IM decisions within these topic areas.⁴ The Report on the IM review then collates our changes to those IMs and presents them as decisions to change the IMs.⁵
5. The drafting changes to the IMs, including those resulting from these topic areas, are shown in the amended determinations.⁶

³ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

⁴ We have also identified in this paper where our solutions lie, outside (or partially outside) of the IMs, (for example, we intend consulting on strengthening the information disclosure requirements on connections for EDBs as a result of moving to a revenue cap).

⁵ Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016).

⁶ Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24; Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25; and Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26.

6. The framework we applied in reaching our decisions on the IM review is set out in a separate paper, also published alongside this paper.⁷ The Framework paper explains that we have only changed the IMs where this is likely to:
 - 6.1 promote the Part 4 purpose in s 52A more effectively;
 - 6.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 6.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
7. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.
8. Another consideration that is particularly relevant to our decision on the form of control for electricity distribution business (**EDBs**) is s 54Q of the Commerce Act 1986 (**Act**), which requires that, among other things, we must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand-side management (**DSM**).

Structure of this paper

9. The chapters of this paper are either addressing a defined problem within the form of control and RAB indexation topics or explaining issues that were identified but which we did not consider amounted to a specific problem. Each of the chapters broadly follows this structure:
 - 9.1 description of the issue or problem; and
 - 9.2 explanation of our solution and our reasons for that solution.
10. In describing the problems and assessing potential solutions, we explain how we have taken stakeholders' submissions into account and how they have helped to shape our views.

Introduction to this topic

11. In our problem definition paper, the form of control and the indexation of the RAB were both introduced under the risk allocation mechanisms topic, within the wider theme of improving the IMs that underpin risk allocation and incentives for

⁷ Commerce Commission "Input methodologies review decisions: Framework paper" (20 December 2016).

price-quality regulation.⁸ This topic paper picks up on this, covering the form of control and RAB indexation.⁹

12. After reviewing submissions on our problem definition paper, we conducted analysis on the options for the form of control for EDBs, gas distribution businesses (**GDBs**), and gas transmission businesses (**GTBs**). There were no significant issues raised with having a revenue cap for Transpower and therefore we are not changing the form of control for Transpower. In February 2016 we published our emerging views on form of control to seek comments from stakeholders ahead of publishing our draft decisions. In June 2016 we published our draft decisions and welcomed submissions from stakeholders on our proposals. In September we published the technical consultation update paper; submissions on that paper mainly focussed on technical aspects of the wash-up mechanism and determination drafting and so these submissions are largely dealt with in the report on the review.
13. The pre-review IMs specify a weighted average price cap (**WAPC**) approach for EDBs and GDBs,¹⁰ the option of a WAPC or revenue cap for GTBs,¹¹ and a revenue cap for Transpower.¹² The revenue caps we have set for Transpower and GTBs operate in a different manner. A key difference is that the revenue cap applied to Transpower includes a mechanism to transfer certain positive or negative revenue adjustment balances from one year to the next.¹³ We therefore see a clear distinction between a revenue cap which effectively ensures allowable revenue is recovered and a revenue cap which uses lagged quantities and therefore does not. In this paper, we refer to a revenue cap which effectively ensures allowable revenue is recovered (because it does not use lagged quantities) as a 'pure' revenue cap.
14. As part of our draft decision package we published a letter from the Electricity Authority (**EA**) explaining its concerns regarding pricing efficiency under a revenue cap. As part of its Distribution Pricing Review project, the EA is considering how distributors' incentives would be affected by a change in the form of control for EDBs from a WAPC to a revenue cap. We have considered the EA's views in reaching our decisions.

⁸ Commerce Commission "Invitation to contribute to problem definition paper" (16 June 2015), para 59, 114-116 and 122-125. That theme also covered improving the IMs that underpin CPP applications, which is discussed in Topic paper 2: CPP requirements.

⁹ Issues relating to RAB indexation for airports are discussed in Topic paper 5: Airports Profitability Assessment.

¹⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 8.3.7-8.3.13.

¹¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010) para 8.3.14-8.3.21.

¹² Commerce Commission "Input methodologies (Transpower) reasons paper" (December 2010), para 7.3.7-7.3.10.

¹³ Commerce Commission "Setting Transpower's individual price-quality path for 2015—2020" (29 August 2014), para C45—C49.

15. This paper also covers our approach to RAB indexation and how it impacts EDBs, gas pipeline businesses (**GPBs**) and Transpower's exposure to inflation risk and returns. We received submissions both before and during the IM review regarding our approach for EDBs and GPBs. These chapters explain and clarify our decisions on RAB indexation and what the impact is on returns and exposure to inflation risk.

Links between this topic paper and the 2017 gas DPP reset

16. This paper, in particular as it relates to the form of control for GDBs and GTBs, is closely linked with work on the 2017 gas default price-quality path (**DPP**) reset.
17. We published a paper as part of the gas pipeline DPP reset process on 28 June 2016 (**gas DPP implementation paper**). That paper included implementation details on how our proposed draft decision IM changes relating to the form of control for GDBs and GTBs would, if confirmed, take effect at the DPP reset.
18. We will publish our draft decisions on the gas DPP reset in February 2017, which will include the implementation details for the updated revenue cap for GTBs including compliance provisions.

Links between this topic paper and WACC

19. Although there is a link between our decisions on form of control and the impact on the weighted average cost of capital (**WACC**) asset beta, our decisions on the appropriate forms of control have been made based on their own merits. The WACC asset beta is dealt with separately in Topic paper 4: Cost of capital issues.
20. We are not making an adjustment to asset beta for EDBs or GPBs for regulatory differences. We consider that, although theoretically regulatory differences may have an effect on asset beta, we do not consider that there is sufficient empirical evidence to suggest that we should make an adjustment, or what that adjustment should be, at this point.

Who does this paper apply to?

21. This paper applies to EDBs, GDBs, GTBs, and Transpower.¹⁴

¹⁴ For Transpower, we only discuss RAB indexation, not the form of control.

Chapter 2: Form of control for EDBs

Purpose of this chapter

22. The purpose of this chapter is to explain the problems relating to the form of control for EDBs and our solution to these problems.

Structure of this chapter

23. This chapter explains:
- 23.1 the three problems that we identified with the form of control for EDBs;
 - 23.2 our solution, to move EDBs from a WAPC to a 'pure' revenue cap;
 - 23.3 the reasons for our solution; and
 - 23.4 our design of the 'pure' revenue cap, including a wash-up mechanism for over- or under-recovery of revenue.

Problem definition

24. This section explains the problem definition, including how it evolved through submissions.
25. A key component of the specification of price IM is the 'form of control' that is used to cap revenues or average prices under default/customised price-quality regulation. Part 4 provides us with a broad discretion to shape the form by which revenues or prices are constrained under price-quality regulation. The choice and design of the form of control mechanism can affect:
- 25.1 incentives for regulated suppliers to invest efficiently (s 52A(1)(a) and (b));
 - 25.2 incentives for regulated suppliers to price efficiently (s 52A(1)(b));
 - 25.3 incentives for regulated suppliers to invest in energy efficiency and demand-side management (s 54Q); and
 - 25.4 the allocation of demand risk between suppliers and consumers during each regulatory period.¹⁵
26. For services subject to price-quality regulation under Part 4, we have primarily considered whether to apply a revenue cap or a WAPC. The pre-review IMs specify a WAPC for EDBs. A WAPC provides within-period average price stability for consumers but suppliers are exposed to the risk of over- or under-recovery of revenue. In contrast, a revenue cap provides suppliers with guaranteed revenue but it may lead to more price volatility for consumers within the price control period. As demand

¹⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 2.7.3, 8.3.4, and 8.3.1.

increases above forecast, average prices would fall which would benefit consumers in the short term. Conversely, when demand decreases average prices would rise.

27. There are three key problems which we identified in relation to the WAPC for EDBs.¹⁶ These are that:
- 27.1 suppliers are exposed to the quantity forecasting risk which can be unmanageable and may provide disincentives for efficient expenditure;
 - 27.2 there may be a disincentive under the WAPC to pursue energy efficiency and DSM initiatives; and
 - 27.3 the current price cap and compliance requirements may create disincentives to restructure tariffs to move from one pricing approach to another.

Quantity forecasting risk

28. We consider that under a WAPC the quantity forecasting risk is a problem because it can impact the expenditure incentives on suppliers by causing either a significant revenue loss or a revenue gain. When actual demand is higher than our forecast there will be a revenue gain for suppliers. If the opposite occurs and actual demand is lower than our forecast then there would be a revenue loss for suppliers.
29. The potential for the forecast to erroneously set revenue too low for suppliers over a control period could potentially lead to inappropriate cut backs or deferral in expenditure and investment. This would not be consistent with s 52A(1)(a). On the other hand, where revenue is set too high, this would imply prices are higher than they need to be.
30. Under a WAPC, if suppliers moved from volumetric-based pricing to other price structures, the risk of over- or under-recovery of revenue would probably reduce. However, revenue recovery is at risk under a WAPC regardless of pricing structures, because a forecast is still needed. To determine a WAPC from an overall revenue allowance, a forecast of the quantum consumed of whichever 'service' the price applies to is needed. This may be volumes in kWh (for volume-based price components); maximum capacity in kVA (for capacity-based price components); maximum demand in kW (for demand-based price components); or number of connections (for fixed price components). An incorrect forecast of, for example the evolution of maximum demand or connections growth, can lead to revenue over- or under-recovery. PwC agreed with this point, explaining that even if pricing structures

¹⁶ These problems have been raised in stakeholder submissions, including ENA's submission on the Problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015); Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015); Wellington Electricity's submission "Input methodologies review – Problem definition" (21 August 2015).

change, capacity or peak demand will still need to be forecast over time and so the risk of error would remain under a WAPC.¹⁷

31. A change from a WAPC to a revenue cap would shift some demand risk (ie, price volatility) to consumers within each regulatory period. The shift in risk to consumers would only occur within each regulatory period, rather than between regulatory periods, because under a WAPC if a fall in demand was expected within the regulatory period, we would incorporate that fall in demand into the price-path and prices would be higher to reflect that.
32. In response to our Problem definition paper, Wellington Electricity Lines Limited (**Wellington Electricity**) highlighted that forecasting demand growth as part of the WAPC leads to windfall gains and losses to EDBs and consumers, and neither situation promotes the long-term interests of consumers.¹⁸ Wellington Electricity suggested a move to a revenue cap because the risks to EDBs and consumers of windfall gains or losses are removed.
33. In its submission on our emerging views paper, Wellington Electricity explained that if EDBs recover materially less revenue than required to efficiently operate and invest in the network, then optimal network investment will be disincentivised and consumers would be worse off in the long term. Also, Wellington Electricity explored this issue in its "initial high-level view" on the 2015 price-quality path reset, provided as a preface to its 2015 asset management plan. In this preface, which pre-dated the IM review, it said "The fundamental uncertainty of what revenue will actually be earned to fund investment, necessarily requires an inefficient year by year approach to network maintenance and renewal decisions."¹⁹
34. However, if EDBs recover more revenue than required to efficiently operate and invest in the network then they are not being limited in their ability to extract excessive profits.
35. Electricity Networks Association (**ENA**) stated that "from our perspective the Commission's forecasts have not been particularly accurate to date".²⁰ It also noted that accurate quantity forecasting is also likely to become more difficult over time due to uncertainty regarding the uptake of emerging technologies and how these will impact on energy volumes.²¹
36. We conducted analysis to examine the materiality of the quantity forecasting risk for EDBs over the 2010-2015 price-path. Our analysis of the overall demand risk showed

¹⁷ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016) para 83.

¹⁸ Wellington Electricity's submission "Input methodologies review – Problem definition" (21 August 2015).

¹⁹ Wellington Electricity "10 year asset management plan: 1 April 2015 – 31 March 2025" (31 March 2015).

²⁰ ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 84.

²¹ ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 85.

that although the quantity forecasting is fairly accurate on average across all EDBs, there are significant variations between EDBs. This analysis suggested that the impact on revenue from CPRG forecast errors for EDBs over the past five-year period would have ranged between -4.5% and +7.3% of revenue. This analysis is presented in our reasons section below (paras 67 – 79).

37. In response to our draft decision, New Zealand Institute of Economic Research (**NZIER**) on behalf of Major Electricity Users' Group (**MEUG**) suggested that we consider the correlation between pricing structures and revenue variation. Meridian also suggested that businesses have the ability to reduce exposure to the quantity forecasting risk by moving to more efficient pricing.²² In response to these concerns we conducted analysis on the impact of changing pricing structures on the quantity forecast risk. That analysis suggested that a move to peak-based pricing may make a supplier's revenue more volatile. This analysis is presented in our reasons section below (para 83-86).
38. In response to our emerging views on form of control paper, Alpine Energy said that it was not convinced that the WAPC in itself is the cause of the quantity forecasting problem. It suggested that the basis on which the DPP is set, including forecasts, should be the Commission's focus.²³
39. Also, in a submission on our emerging views, MEUG suggested that moving from a WAPC to a revenue cap seems to lower the revenue risks to EDBs but does not eliminate forecasting risk,²⁴ because it simply replaces our forecast with an EDB volume forecast and then introduces a wash-up mechanism to allow faster response to forecasting errors.²⁵
40. Based on these submissions and our own analysis, we consider that the quantity forecasting risk under a WAPC is the most significant problem raised in respect of a WAPC, as it may create incentives for suppliers to under-spend inefficiently.

Potential disincentive for energy efficiency and demand-side management

41. EDBs claim that, under a WAPC they are not incentivised to undertake energy efficiency and DSM initiatives,²⁶ which is inconsistent with s 54Q. This is because volumes are predominantly linked to revenue under a WAPC at present; if an EDB

²² Meridian "Submission on input methodologies (IM) draft decisions papers (including the Report on the IM review)" (4 August 2016), p. 5.

²³ Alpine Energy "Submission to the Commerce Commission on input methodologies review – Emerging views on form of control" (24 March 2016), para 5.

²⁴ We note that moving to a revenue cap would remove the CPRG forecasting risk but we would still forecast opex and capex as part of setting the price paths for suppliers.

²⁵ MEUG "Submission on emerging views on form of control – Appendix 1 NZIER report" (24 March 2016).

²⁶ ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 79; Vector "Input methodologies review – emerging view on form of control" (24 March 2016), para 12.

undertakes energy efficiency or DSM initiatives, the volume of energy used by its customers will decrease resulting in lower revenues for the EDB.

42. In our problem definition paper we suggested that the disincentive to invest in energy efficiency and DSM created by the WAPC was mitigated to some extent by the energy efficiency allowance mechanism.²⁷ In response to our problem definition paper, the ENA suggested that this is a limited mitigation because the energy efficiency allowance does not extend to tariff-based measures (and tariff-based measures are likely to become more important in providing cost-effective price signals to consumers).²⁸
43. We consider the potential disincentive created under a WAPC for suppliers to invest in energy efficiency and DSM is a problem.

Potential disincentive to pursue tariff restructuring

44. Through our compliance work and previous engagement with EDBs we have identified that the existing WAPC is creating a potential disincentive to pursue tariff restructuring. For suppliers this disincentive creates a barrier to moving to more efficient pricing. We consider that a pure revenue cap which does not require the use of lagged quantities would remove this potential barrier to restructuring tariffs.
45. We have considered whether any amendments to the WAPC could alleviate this problem and we are unconvinced an appropriate solution exists, nor has anyone presented a solution.
46. In response to our problem definition paper and our emerging views paper, ENA, Vector and Unison explained that the WAPC in combination with tariff structure rules creates a barrier to restructuring, which is also not likely to be in consumers' long-term interests.²⁹ The barriers to tariff restructuring are created because, under a WAPC, pricing restructures create volume risk where suppliers may under-recover their revenues.
47. Unison suggested that potential solutions to this problem are to either develop a mechanism within the DPP to allow EDBs to take into account behavioural responses in restructuring tariffs, or to change the form of control to a pure revenue cap (removing the use of lagged quantities). This would eliminate EDBs' concerns about

²⁷ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).

²⁸ ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 79.

²⁹ ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 87-88; Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015), para 6a; and Vector "Input methodologies review – emerging view on form of control" (24 March 2016), para 11.

undertaking tariff restructuring.³⁰ The ENA stated within its submission that "EDBs are prohibited from taking into account behavioural responses to new price structures"³¹.

48. EDBs are not currently prohibited from accounting for behavioural responses, and our compliance requirements paper lays out how potential behavioural responses to new price structures may be taken into account.³² However, we acknowledge that there are practical difficulties for both suppliers and us in appropriately accounting for any potential behavioural responses.
49. Establishing a reasonable estimate of a historic lagged-quantity that corresponds to a restructured price can be a complex task. An EDB may not have historically recorded the quantity information which corresponds to the restructured price, as a new pricing structure may use different information than that which has been historically required. Where this information is available, (ie, the EDB has system capability to record and analyse quantity measures other than that which is billed, or the pricing structure is able to be constructed from existing datasets), concerns arise on the representativeness of using these quantities because the consumer would not have been responding to the price signal created by the new price.
50. Other complexities also make estimating a reasonable lagged-quantity difficult. These complexities include accounting for changes in business rules between periods which determine how quantity is calculated (eg, peak load timing), and different consumption profiles between periods due to external factors eg, weather.
51. In addition, a WAPC may work to discourage an EDB offering multiple different tariff offerings to consumers, particularly where it is likely that consumers' behavioural response will change over a number of years.
52. Alpine Energy suggested that we need to consider the compliance test and not necessarily change the form of control to address this problem.³³
53. The EA and MEUG asked whether alternative means are available for compliance under a WAPC.³⁴ The ENA said that it is not aware of any practicable option.³⁵

³⁰ Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015), para 25-26.

³¹ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 13.

³² Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Compliance requirements" (28 November 2014).

³³ Alpine Energy "Submission to the Commerce Commission on input methodologies review – Emerging views on form of control" (24 March 2016), para 11.

³⁴ Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses (30 May 2016); and NZIER (report prepared for MEUG) "Form of control for EDB – draft decision – Advice on submission to the Commerce Commission (4 August 2016).

54. While more prescriptive requirements on expectations for establishing reasonable lagged quantities may reduce a perceived risk of non-compliance, this may itself prove restrictive to otherwise beneficial price restructures. It may also create a risk that suppliers restructure prices in a way which most easily fits within the Commission's compliance requirements, rather than for the purpose of pricing efficiently.
55. Concerns have also been raised by submitters that a revenue cap removes incentives to restructure tariffs efficiently in response to changing circumstances/technologies.
56. MEUG said that a move to a revenue cap seems to encourage EDBs to persist with volume-based charging – a pricing mechanism it claims does not support efficient recovery of network costs and shifts the risk of over-investment to consumers.³⁶ We note that the EA also considers that a WAPC provides stronger incentives for EDBs to adopt efficient prices from a number of aspects. This is discussed in our reasons section below (paras 91-98) and in Attachment A.
57. We acknowledge the trade-off that concerns the EA and MEUG. A revenue cap may reduce the incentives on businesses in the short term to adopt efficient prices. In the longer term, we consider that suppliers will need to adopt more efficient pricing structures if they wish to ensure that some consumers do not inefficiently disconnect from the distribution network, irrespective of the form of control.

Solution: Adopt a 'pure' revenue cap for EDBs

58. This section describes our solution in respect of the form of control for EDBs.
59. In response to all three problems, our solution on the form of control for EDBs is to change from using a lagged WAPC to a 'pure' revenue cap.³⁷ Our key reasons for proposing this change are that it will remove:
- 59.1 the quantity forecasting risk, and therefore any potentially detrimental effect of that risk on EDBs' incentives to incur expenditure efficiently (consistent with s 52A(1)(a) and (b));
- 59.2 potential compliance barriers for suppliers to restructure their tariffs to be more efficient (consistent with s 52A(1)(b)), although this might be offset to some extent by a reduction in the short term in incentives for efficient pricing provided by a revenue cap; and

³⁵ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), p. 7.

³⁶ MEUG "Submission on emerging views on form of control – Appendix 1 NZIER report" (24 March 2016).

³⁷ The 'pure' revenue cap effectively ensures allowable revenues are recovered; however we have implemented a cap on the wash-up amount which does expose suppliers to some foregone revenue risk. This revenue exposure would be the result of significant demand reductions and is aimed at providing incentives for suppliers to manage demand risk.

- 59.3 a potential disincentive on suppliers to pursue energy efficiency and DSM initiatives (consistent with s 54Q).
60. We have also decided that the revenue cap will include an annual unders and overs wash-up mechanism with implementation features intended to:
- 60.1 be consistent with applying the *ex-ante* financial capital maintenance (**FCM**) principle,³⁸ while providing incentives for the supplier to mitigate the potential price and quality impact on consumers of catastrophic events, or other events involving a major demand shock; and
- 60.2 reduce the risk that consumers are exposed to price shocks within the regulatory period.
61. To give effect to this solution, we have amended the current specification of price IM to reflect the change of form of control, the use of current rather than lagged quantities and to provide for the wash-up mechanism (as described below).³⁹

Reasons for our solution

62. This section explains our assessment of the form of control for EDBs and our reasons for our solution. Consistent with the framework for the review, having considered the pros and cons of this and other solutions, we consider that this solution best promotes the long-term benefit of consumers because suppliers would be less likely to be inefficiently incentivised to under-spend without the risk of quantity forecasting error.
63. We have also considered the potentially important impact on pricing incentives the EA and submitters have raised.⁴⁰ While we recognise the theoretical pricing efficiency benefits of a WAPC under specific conditions, we consider that the demand and cost characteristics of EDBs limit these theoretical concerns in practice. Further, the design of the WAPC itself acts as a barrier to tariff restructuring (and therefore moving to more efficient pricing) due to compliance requirements, and removing this barrier will allow tariff restructuring. We consider these effects outweigh the negative effects of shifting demand risk to consumers within the period and any potential reduction in incentives for tariff efficiency in the short term with a revenue cap.

³⁸ The FCM principle is explained in the framework paper for our draft decisions. See: Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

³⁹ The Report on the review will capture the pre-review policy decisions that will change as a result of our solutions.

⁴⁰ See for example: Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses (30 May 2016); MEUG "Submission on Input methodologies draft review decisions" (4 August 2016); and NZIER (report prepared on behalf of MEUG) cross submission on IM review draft decisions papers "Form of control for EDB – cross submission advice" (18 August 2016).

64. Supplier submissions on our draft decisions were supportive of our proposal to move to a revenue cap.⁴¹ Contact Energy explained that it was supportive of a revenue cap if it was implemented with cost reflective pricing.⁴² However, MEUG did not support the revenue cap proposal, on the basis that alone it would not incentivise efficient pricing.⁴³
65. We considered the pros and cons of moving EDBs from a WAPC to a revenue cap from the following aspects:⁴⁴
- 65.1 incentives for efficient expenditure, consistent with s52A(1)(a) and (b);
 - 65.2 incentives for energy efficiency and DSM, consistent with s54Q;
 - 65.3 incentives for pricing efficiency and tariff restructuring, consistent with s52A(1)(b);
 - 65.4 connection incentives, consistent with s52A(1)(a); and
 - 65.5 price stability, which is a factor that consumers tend to value.
66. We have also considered the concerns that the EA raised in its letter in reaching our decisions.

Incentives for efficient expenditure

67. We consider that incentives for efficient expenditure is the most important aspect when considering the differences between revenue caps and price caps. Revenue caps and price caps have different implications for suppliers' incentives for efficient investment, because they expose suppliers to demand risk differently.
68. When we originally set the IMs, we noted that suppliers were better placed to manage demand risk than consumers, but we did not differentiate between the different elements of demand risk.⁴⁵ Under the WAPC approach suppliers are exposed to the demand risk once the price-path is set for each regulatory period, but consumers are also exposed to it in the long term (as they bear the risk that demand

⁴¹ See for example: Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016); ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016); and PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016).

⁴² Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016) p. 1 and p. 6.

⁴³ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016); and NZIER (report prepared for MEUG) "Form of control for EDB – draft decision – Advice on submission to the Commerce Commission (4 August 2016).

⁴⁴ These aspects were chosen because they align with the purpose statement set out in s 52A and the function of s 54Q.

⁴⁵ As is discussed in our Framework paper, one of our key economic principles is that risks should be allocated to those best placed to manage them (as long as doing so is consistent with s 52A).

decreases and costs are spread across the remaining consumers when the price-quality paths are reset).

69. We consider that it is helpful to distinguish between the two elements of overall demand risk.
- 69.1 'demand uncertainty risk' – the inherent uncertainty in future demand over the time period of the price-quality path.
- 69.2 'quantity forecasting risk' – the extent to which our forecast diverges from the supplier's own expectations.
70. Depending on whether forecast billing quantities and therefore forecast revenue are significantly lower or higher than suppliers believe is achievable, the quantity forecasting risk may incentivise suppliers to spend less than efficient levels of capital (and operating) expenditure within the regulatory period.
71. Moving to a pure revenue cap would remove the quantity forecasting risk for both suppliers and consumers because quantity forecasting for setting the price-path would no longer be necessary. However, the change to a revenue cap would shift some within-period demand risk to consumers. The demand risk may be better mitigated by suppliers than consumers because suppliers can set prices to encourage demand, engage in marketing, facilitate new connections, etc. Given the potential magnitude of forecasting error, we consider that the benefits of removing the quantity forecasting risk outweigh the fact that the demand uncertainty risk will shift further to consumers.
72. An additional benefit of moving to a revenue cap is avoiding any asymmetric information problems relating to suppliers' submissions to us about setting constant price revenue growth (**CPRG**) forecasts.
73. As part of our recent report analysing EDB profitability,⁴⁶ we examined the materiality of the overall demand uncertainty risk that EDBs were exposed to under a WAPC. That report identified the consequences for profitability of differences between the forecast and actual impact of changes in demand on revenue growth. The profitability report analysis centred on a three-year period consistent with the time period we focussed on when DPPs were reset mid-period.⁴⁷
74. As part of the modelling that accompanied the report, we also considered the impact on revenue over a five-year period. Modelling the analysis over five years was possible because, in November 2012, we developed CPRG forecasts for a full five-

⁴⁶ Commerce Commission "Profitability of Electricity Distributors Following First Adjustments to Revenue Limits" (8 June 2016).

⁴⁷ Our key findings for the three year period were that our forecasts generally performed well on average; and alongside operating expenditure, the revenue growth assumption showed the largest variation in terms of the impact on the returns of individual distributors.

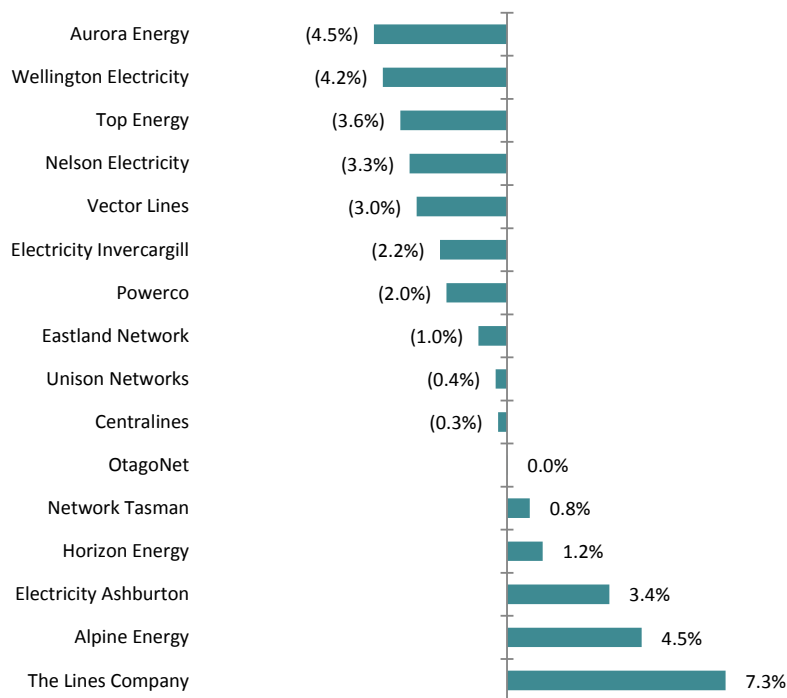
year period. It is worth noting that the forecasts used in estimating the CPRG were developed midway through the five-year period and applied for three years (rather than five), and as a result may have been less prone to errors which can be compounded over time.

75. Figure 1 presents our analysis of the modelled impact of CPRG assumption on present value (PV) revenue over a five-year period.⁴⁸
76. Modelling the impact on PV revenue over five years is important because variation in revenue growth has a more significant effect over a longer time period. For example, if revenue growth is lower than expected in year one of the regulatory period then, all other things being equal, the revenue expected in each subsequent year will also be lower than expected. By contrast, a variation in revenue growth in the final year affects that year alone.
77. Our five-year analysis indicated that although the variation is relatively limited on average across all EDBs, there are significant variations between individual EDBs. The analysis suggested that the impact on revenue for EDBs over the past five-year period would have ranged between -4.5% and +7.3% of revenue (shown in Figure 1). This is the impact for the years ending 2011 through to 2015.⁴⁹
78. The modelled impact suggests that the PV of revenue for some EDBs would have been significantly lower than forecast, for example the impact on Aurora Energy would have been -4.5% and the impact on Wellington Electricity would have been -4.2%. However, for other EDBs their revenue would have been higher than forecast, such as The Lines Company (7.3%) and Alpine Energy (4.5%).
79. Amongst other things, the levels of variation shown in Figure 1 are based on differences between the actual pricing structures adopted by distributors and those assumed when the DPP was set. Therefore the impacts reflect any action taken by distributors to restructure tariffs in response to any pricing incentives inherent in a WAPC.

⁴⁸ The numbers in Figure 1 are not directly comparable to the figures quoted in the profitability report, because Figure 1 measures the impact on the PV of revenue rather than the impact on returns which the profitability report presented.

⁴⁹ To give an idea of the materiality of this, if opex were 38% of distribution revenue and bore all the reductions as a result of a CPRG forecasting error of -4.5% impact on distribution revenue, then it would mean that opex spend would be reduced by 11.8%.

Figure 1: Modelled impact of CPRG assumption on PV distribution revenue (2011-2015)



80. In response to our draft decision, Contact said that it has seen no evidence of EDBs underinvesting under the current framework.⁵⁰ However, we note that in Wellington Electricity’s 2015 Asset Management Plan it explains that the uncertainty around its revenue recovery as a result of our forecasting affected investment and expenditure decisions.
81. Wellington Electricity claimed that this revenue uncertainty means that it will need to determine its ability to fund capital and operating expenditure on a year by year basis, making it very difficult to deliver efficient investment that is optimal for the long-term benefit of consumers.⁵¹
82. We consider that if as a consequence of our CPRG forecasting an EDB does not have enough revenue to spend on maintenance etc, then there could be lower levels of reliability until they spend more on the network later, or there will be more deterioration in the network which will be more expensive to rectify later. We consider that suppliers will need to make up this under-spend in later years at higher overall cost to consumers, meaning that customers will be paying more in the longer term.

⁵⁰ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 4.

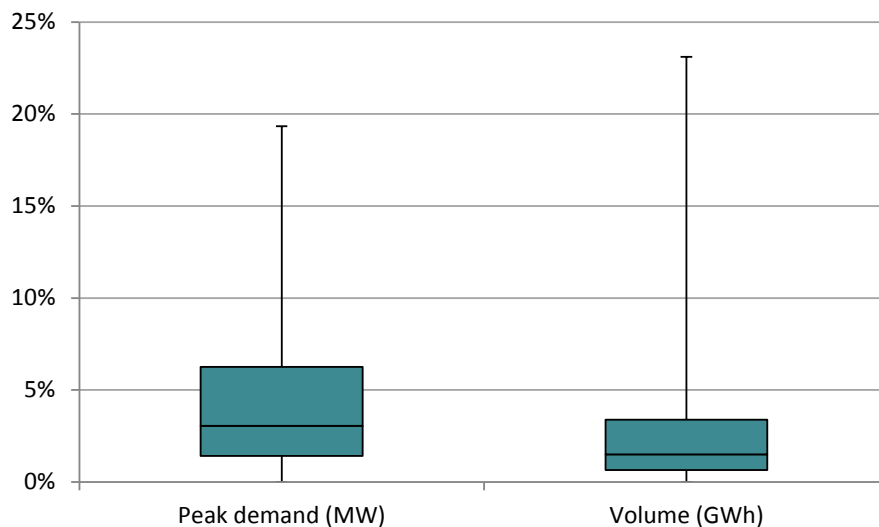
⁵¹ Wellington Electricity "10 year asset management plan: 1 April 2015 – 31 March 2025" (31 March 2015) p. 8.

83. In its June 2016 letter the EA suggested that although revenues are currently heavily dependent on volumes this is a business choice because the solution is within the suppliers' control; for example introducing more capacity charges.⁵² It suggests that EDBs are best placed to weigh up the volume risks against the costs of changing price structures.
84. Also, Meridian suggested that EDBs should be able to reduce their exposure to the quantity forecasting risk by moving to more efficient pricing.⁵³ MEUG argued in its submission that a move by EDBs to less volumetric-based pricing and more fixed daily charges would reduce quantity forecasting risk because the number of connections is less variable than the annual volume of electricity served.⁵⁴ We agree that this is likely to be correct if EDBs shift volumetric-based pricing to fixed daily pricing.
85. However, we consider that some measure of peak demand may also be an increasingly common element of more efficient price structures – particularly if the EDB is attempting to signal network constraints. An increased use of a measure of peak demand as an element of price structures is likely to increase the quantity forecasting risk, because annual peak demand is more variable than annual volume. Figure 2 below shows that the absolute annual variation in peak demand is generally greater than that of annual volumetric demand. Therefore, quantity forecasting risk could even increase if EDBs move towards more efficient and service-based pricing structures.

⁵² Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses (30 May 2016), p. 8-9.

⁵³ Meridian "Submission on input methodologies (IM) draft decisions papers (including the Report on the IM review)" (4 August 2016).

⁵⁴ NZIER (report prepared for MEUG) "Form of control for EDB – draft decision – Advice on submission to the Commerce Commission (4 August 2016).

Figure 2: Average annual variation of peak and volumetric EDB demand (2011-2015)⁵⁵

86. It is currently unclear what proportion of revenue from EDBs will come from fixed, volumetric, or peak demand-based pricing in the future. We are unsure on the timing and scale of future pricing structure changes and what those changes will be. As described, different pricing structures will have different effects on the quantity forecasting risk. Therefore, we consider that a move to more efficient pricing structures by EDBs will not necessarily reduce the demand certainty risk and may worsen it.⁵⁶
87. Overall, given the significant exposure of EDBs to quantity forecasting risk under a WAPC, we consider that moving EDBs from a WAPC to a revenue cap will promote efficient expenditure, consistent with s 52A(1)(a) and (b).

Incentives for energy efficiency and demand-side management

88. We consider that moving EDBs from a WAPC to a revenue cap will help to better promote s 54Q.
89. Under a revenue cap, EDBs would have better incentives to support demand-side management, energy efficiency and emerging technologies that defer or minimise traditional network investment. Revenue is set and therefore investing in these activities, which may reduce demand, will not change the supplier's revenue.

⁵⁵ The box and whisker chart in Figure 2 is for all EDBs except for Orion, which was excluded due to unique outcomes resulting from the Canterbury earthquakes.

⁵⁶ We note The Lines Company is the EDB that has most substantially restructured its pricing over the past 10 years with the intention of being more efficient and service-based. As can be seen in Figure 1, the difference between the forecast and actual level of demand growth had a greater impact on profitability for The Lines Company than all other non-exempt EDBs over 2011-15.

90. Submissions on our draft decisions suggested that if we move to a revenue cap the energy efficiency and demand-side management scheme should be removed.⁵⁷ We agreed that this scheme is no longer required under a revenue cap and it has been removed.⁵⁸

Incentives for pricing efficiency and tariff restructuring

91. Our view is that pricing efficiency and tariff restructuring are important to consider. The chosen form of control may not only affect the flexibility EDBs have to adjust their pricing levels and structures, but also their incentives to price efficiently.
92. Attachment A discusses some theoretical and practical considerations about efficient pricing under both forms of control – WAPC and revenue cap.
93. The EA has raised a concern⁵⁹ (also supported in the economic literature⁶⁰) that EDBs might have an incentive to price inefficiently under a revenue cap. The issue raised is that under a revenue cap there is a risk of inefficient pricing as suppliers may over-price,⁶¹ especially to price-sensitive customers to reduce costs. Suppliers might cause price-sensitive customers to reduce demand to defer investment inefficiently, therefore reducing costs for the supplier and maximising profit (as revenue is already agreed).
94. A number of suppliers considered many of these concerns to be theoretical and overlook EDBs' actual business practices.⁶²
95. As we explain in Attachment A, we have concluded that these concerns over efficient pricing that revenue caps give rise to may not apply as strongly in practice for structurally separated electricity distributors.
96. We consider that there are a mix of factors encouraging pricing efficiency,⁶³ which taken together, are likely to dominate over any potential diminished incentives to price efficiently under a revenue cap. These factors include EDB's longer term

⁵⁷ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016) p. 1; ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016) p. 10; and Orion "Submission on input methodologies review – draft decisions" (4 August 2016) p. 14.

⁵⁸ The consequential removal of the scheme was proposed in the draft decision Report on the Review. Commerce Commission "Input methodologies review draft decisions: Report on the IM review" (22 June 2016), para 282 and 300.

⁵⁹ Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016), p. 3.

⁶⁰ Crew, M.A., Kleindorfer, P.R. "Incentive regulation in the United Kingdom and the United States: some lessons." (1996), 211-225; and Steven Stoft, "Revenue Caps vs. Price Caps: Implications for DSM", (1995).

⁶¹ Prices that may exceed what an unregulated monopolist would charge.

⁶² For a selection of views, see for example: Aurora "Cross-submission, Input Methodologies Review: Draft Decision and Determination Papers" (18 August 2016), p. 7.

⁶³ We note that some factors will positively encourage pricing efficiency but others may simply mean that any potential diminished incentives to price efficiently under a revenue cap do not hold in practice.

incentives to recover the cost of their investments; the nature of the sector's cost structure (ie where fixed costs make up a significant proportion of the total); the dynamics of reaching the high price (which diminish the likelihood of a successful material price increase); relatively low price elasticities of demand; EDBs' limited ability to identify price-sensitive consumers; the constraints placed by the design of the revenue cap; the EA's ongoing work on distribution pricing; emerging technology developments; and non-economic constraints on pricing such as public perceptions.

97. Additionally we note that there is a potential tension between promoting incentives to invest in energy efficiency (s 54Q) and some aspects of pricing efficiency. For example, under Ramsey pricing, the firm seeks to minimise losses in demand, which could be in conflict with improving energy efficiency.
98. On balance, we consider that moving EDBs from a WAPC to a pure revenue cap would remove potential compliance barriers for suppliers to restructure their tariffs to be more efficient (consistent with s 52A(1)(b)).

Connection incentives

99. We also considered the relative merits of a revenue cap by considering the incentives created for new connections. The form of control could affect suppliers' motivation to establish new connections for consumers, which is another aspect of incentives for efficient investment.
100. A WAPC provides EDBs with an additional incentive to grow their business and pursue new connections because this will lead to higher revenues. Under a revenue cap suppliers may be less incentivised to pursue new connections because a supplier's revenue will already be agreed and any new connections will not increase those allowed revenues through line charges, but may involve additional costs for the supplier (although they will be able to recover at least some costs through capital contributions).
101. We considered including a connections incentive mechanism for the EDBs as part of moving to a revenue cap to encourage EDBs to continue to connect new customers. However, we consider that an incentive mechanism to encourage EDBs to drive new connections would not be required because connections to the electricity distribution network are very likely to still occur without a specific incentive on the EDBs. Any capital expenditure on new connections will go into the RAB and will be taken into account in allowable revenue at the following reset. From an EDB point of view, we do not consider there would be much capital expenditure involved net of capital contributions.
102. We intend consulting on increasing the information disclosure requirements on EDBs in the future to publically report on connections (eg, number of connection requests, timeliness of connections, etc). The purpose of the increased information disclosure requirements would be to encourage EDBs to ensure they provide a good

connections service to customers and to help highlight if any issues arise with the connections process. Vector suggested that we would be introducing disproportionate compliance requirements to address an unsubstantiated concern.⁶⁴ We do not consider this is an unsubstantiated concern; we consider that increasing the information disclosure requirements will be necessary to better understand performance in this area and that the additional ID requirements can be straightforward and need not be disproportionate for suppliers.

103. In response to our emerging views paper and in submissions on our draft decisions, some submitters said that under the revenue cap extra revenues should be permitted in the circumstance that large and unforeseen new connections occur and significantly increase costs on the network, potentially through a recoverable cost.⁶⁵ In its submission ENA said that if EDBs can only recover the connection costs from the next price reset, they will be accepting a loss up until that point and will not expect to achieve real FCM on those investments. ENA also suggested that EDBs could be allowed to set additional prices for new large connections outside of the revenue cap for the remainder of the regulatory period, where such new connections had not been specifically allowed for in the setting of the DPP.⁶⁶
104. However, we do not consider that a connections incentive should be a recoverable cost as suppliers could relatively quickly recover the costs of new connections through their capital contributions policies, even those which were unforeseen at the time the price-quality path was set. We note that any capital contributions received from new connections would not be constrained under a revenue cap, although the amounts must be netted off the RAB. PwC submitted that 100% up-front payments may not be affordable for all connecting parties, and Unison said that setting high capital contributions is not likely to be preferred by consumers compared to longer term recovery through line charges.⁶⁷ While we acknowledge those points, we note that capital contributions could be spread over a number of years.
105. Powerco said it agrees with us that in practice a pure revenue cap will not alter an EDB's incentives to connect new customers and maintain connection growth.⁶⁸ We

⁶⁴ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016) para 166- 168.

⁶⁵ See for example; ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016), p. 4 and p. 10; and Orion "Submission on input methodologies review – draft decisions" (4 August 2016), p. 10; Powerco "Submission on the four emerging views papers" (29 February 2016), para 16.2; and PwC "Submission to the Commerce Commission on input methodologies review: Emerging views papers – Made on behalf of 16 Electricity Distribution Businesses" (24 March 2016), p. 12-13.

⁶⁶ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016) para 33-34.

⁶⁷ PwC "Submission to the Commerce Commission on input methodologies review: Emerging views papers – Made on behalf of 16 Electricity Distribution Businesses" (24 March 2016), p. 13; and Unison "Submission on the input methodology review" (4 August 2016), para 10.

⁶⁸ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 44.

consider that there remains an incentive for EDBs to connect new customers in order to retain the value of the network over the long term.

106. Wellington Electricity also noted that to the extent that a partial disincentive for connections is created through the revenue cap, this could be addressed through ensuring the DPP allowances are set taking into account forecast connections growth on the network; and the EDBs setting individual contracts within their capital contributions policy, particularly for large scale commercial or industrial connections. We agree with Wellington Electricity that EDBs have options to manage the potential connections disincentive that may be created by moving to a revenue cap.

Price stability

107. We also considered the benefits of a revenue cap by considering the impact on price stability. This is because we think this is an important factor for some consumers, to the extent the predictability of future prices affects their own investment decisions, and the form of control could affect the volatility of prices either within or between price periods.
108. A revenue cap provides suppliers with guaranteed revenue but it may lead to more price volatility within the price control period than a WAPC. This point was raised by MEUG in its submission on our draft decision, noting that greater revenue certainty for suppliers is at the expense of greater price volatility for consumers.⁶⁹ However, we note that the potential for greater price volatility under a revenue cap would be kept within a period, and that there may be a lower likelihood of volatility between periods under a revenue cap compared to a WAPC.
109. In our draft decision we proposed providing for annual limits on pass-through of over- and under-recovery to help manage within-period price volatility under the proposed revenue cap. The majority of submitters were not supportive of the complexity of the wash-up mechanism design and questioned whether a "cap and collar" on the annual draw down amount is needed to reduce price volatility, given we were also proposing a limit on the average price increase in each year.⁷⁰ Some submitters also suggested that the cap and collar on the draw down is not required because suppliers have existing incentives (through commercial and reputational reasons) to minimise price shocks to consumers.⁷¹
110. As is discussed further below, we have decided not to include the cap and collar on the draw down amount in the wash-up mechanism.

⁶⁹ NZIER (report prepared for MEUG) "Form of control for EDB – draft decision – Advice on submission to the Commerce Commission (4 August 2016), p. 6.

⁷⁰ See for example PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016) p. 17.

⁷¹ See for example; Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016) p. 2.

Overall view of our reasons

111. In weighing up the five aspects from which we addressed the form of control for EDBs, we considered the quantity forecasting risk to be the most important aspect. Given the potential magnitude of possible forecasting error, and its potential effect on incentives for efficient expenditure, we consider that the long-term benefits to consumers of removing the quantity forecasting risk outweigh the fact that the demand uncertainty risk will shift further to consumers within the period.
112. We also considered that the revenue cap would allow suppliers more flexibility to restructure tariffs to be more efficient (consistent with s 52A(1)(b)), and it would better promote incentives for energy efficiency and DSM (consistent with s 54Q).

Design of the revenue cap for EDBs

113. This section explains the principles behind how the 'pure' revenue cap with a wash-up mechanism will work for EDBs.
114. The purpose of the wash-up mechanism is to return to, or recover from, a supplier's consumers any under or over-recoveries of revenue resulting from differences between actual and forecast values. In this context the values we are referring to are quantities and the consumer price index (**CPI**), as well as pass-through costs and recoverable costs. The 'pure' revenue cap will require revenue from prices to be no more than an allowable revenue amount. This will be different from the current lagged revenue cap for GTBs which requires notional revenue to be no greater than allowable notional revenue.⁷²

Determining the allowable revenue for each year when prices are set

115. The allowable revenue at the beginning of each year of a regulatory period will be based on the following three components:
- 115.1 the "forecast net allowable revenue", which will provide for the recovery over the regulatory period of building blocks costs set under a DPP or customised price-quality path (**CPP**) determination. This component will grow by forecast CPI-X from each year to the next;
- 115.2 forecast pass-through and recoverable costs; and
- 115.3 the balance of the wash-up account.

⁷² The difference between revenue and notional revenue is that revenue reflects the quantities supplied in the year to which prices apply, while notional revenues are based on quantities supplied two years prior. Quantities with a two-year lag have been used in all DPP resets to date, which has meant that the quantity information to be used has been available to suppliers each year when setting prices for the forthcoming year.

116. The forecast net allowable revenue for the first year of a regulatory period will be the maximum allowable revenue in that year as calculated in the financial model for the DPP or CPP.⁷³
117. As long as suppliers base their prices on forecast allowable revenues they should be compliant.
118. When a supplier is setting its prices based on forecast revenues, it will not be able to accurately price up to the actual allowable revenue because it will not know the quantities of services it will supply in the forthcoming year. Suppliers will forecast quantities associated with each of their prices for the forthcoming year when setting prices. We refer to this as the 'year-ahead forecast'.
119. Each supplier will be required to set prices such that its estimate of revenue will be no more than the forecast allowable revenue. The supplier's estimate of revenue will equal the total of each of its prices multiplied by its year-ahead forecast quantity for that price. Its year-ahead forecasts must be demonstrably reasonable (ie, supported by appropriate reasoning and evidence).
120. Overall, except where the cap on the revenue wash-up amount applies (discussed further below), the wash-up mechanism will restore each supplier to the position it would have been in had the year-ahead quantity forecast, pass through and recoverable cost forecast, and the CPI forecast been made with perfect foresight, taking account of the time value of money. This process should remove any significant incentive for a supplier to bias its year-ahead forecast, as the wash-up should substantially restore the supplier to the equivalent of the perfect foresight position.

Wash-up mechanism

121. We will implement an annual wash-up of the difference between the revenue received and the allowable revenue adjusted for CPI, pass-through costs and recoverable costs, subject to a cap on the amount that can be added to the wash-up account balance. The cap on the allowed wash-up amount would apply following a large demand reduction, such as a catastrophic event.
122. The purpose of the wash-up mechanism is to return to, or recover from, a supplier's consumers any under or over-recoveries of revenue resulting from differences between actual and forecast values. The amount of this difference will be available to be drawn down two years after the relevant revenue year.

⁷³ As set out in the Report on the IM review, we decided that a capex wash-up adjustment will be implemented as a recoverable cost, as was done at the last EDB DPP reset. The purpose of this adjustment is to reverse any forecasting error for capex on the opening RAB at the start of the regulatory period. The mechanism for the adjustment and its rationale would be the same as for the EDB decision. Commerce Commission "Compliance requirements paper – Final decision – EDB DPP 2015-2020" (28 November 2014), Chapter 3.

123. The two-year delay arises from the time taken for information on actual revenues to become available in the subsequent pricing year, so the amount available to be drawn down can be calculated and taken into account in setting prices for the year after that.
124. PwC suggested that there should be a partial wash-up in the year after the year in which the balance is created.⁷⁴ We considered this suggestion but decided that the additional complexity is unwarranted given the adjustment for the time value of money.
125. The wash-up mechanism will also deal with differences between forecast and actual CPI. The CPI-X adjustment to forecast net allowable revenue from one year to the next would ideally recognise the CPI change to the year in which the revenues will be earned. The prices must however be set prior to that year and therefore cannot take account of CPI data that is not yet available.
126. The CPI adjustment made for the purposes of price setting will be based on the Reserve Bank's forecasts of CPI and the actual CPI change that is subsequently published by Statistics New Zealand will be factored into the wash-up.
127. The reason for the CPI wash-up is to ensure that it is ultimately the actual change in CPI to which suppliers and consumers are exposed, rather than to forecast values.
128. The ENA suggested that we could use the rate of change (X-factor) to smooth price impacts over time.⁷⁵ We can adjust the X-factor to mitigate a price shock between regulatory periods, but this cannot deal with the intra-period price shocks once the price path has been set.
129. As part of the wash-up mechanism, pass-through and recoverable costs will always be fully washed up. This will be true even in the case of the cap on the wash-up amount being applied (the cap on the wash-up amount is discussed below). Vector commented that under a revenue cap EDBs will be exposed to even greater forecasting risk because, as well as forecasting risk from pass-through and recoverable costs, EDBs must also forecast quantities (eg, kWh) and forecast the likely impact of any tariff restructuring.⁷⁶ We note that forecasting error will be washed up as part of the wash-up mechanism, subject to this cap on the wash-up amount.
130. Figure 3 shows the conceptual process and the key features of the revenue cap wash-up mechanism. The key features that we have implemented are:

⁷⁴ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 103.

⁷⁵ ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016), para 20.

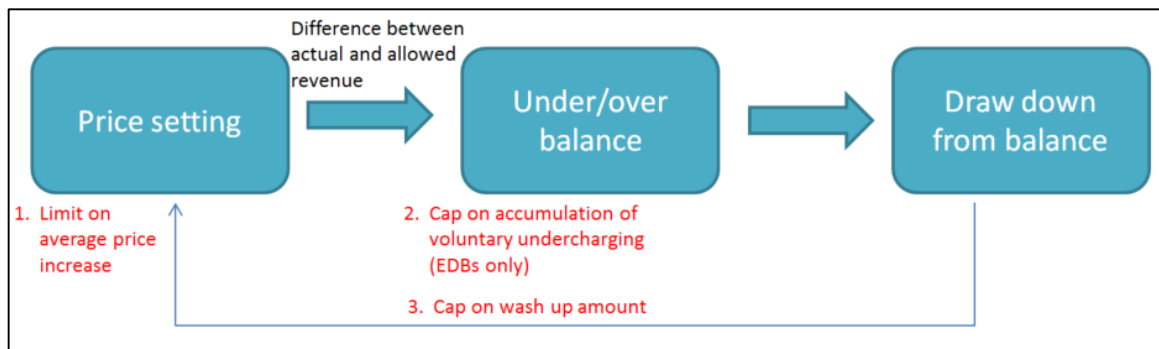
⁷⁶ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 17 and 19.

130.1 a limit on average price increase;

130.2 a cap on the accumulation of voluntary undercharging (EDBs only); and

130.3 a cap on the wash-up amount.

Figure 3: Conceptual diagram of wash-up mechanism process and key features



Features of the wash-up mechanism

131. Several submissions on our draft decisions suggested that the wash-up mechanism was too complex, primarily because it contained too many features and there was not enough certainty within the IMs on which features would apply.⁷⁷ To address these concerns we have not included a cap and collar on the draw down amount and we have provided more certainty in the IMs on which features will apply. Our decisions on each of the features of the wash-up mechanism are explained below.
132. Information on the compliance process for GPBs will be included in the gas DPP draft decision paper. We envisage that similar processes could be adopted for the revenue cap for EDBs at the next reset.
133. We have provided more detail to illustrate how the features might operate as part of the combined revenue cap wash-up mechanism in the flow charts attached to the Report on the review.⁷⁸
134. Also, as part of our consultation on the gas DPP draft decision in February 2017 we will include a simple model showing how the wash-up mechanism might work in practice for GTBs.

⁷⁷ See for example: ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016); Orion "Submission on input methodologies review – draft decisions" (4 August 2016); Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016).

⁷⁸ Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016), Attachment D.

Limit on average price increase

135. The purpose of this feature is to address the concern that there is the potential for large downward demand shocks that result in large price increases to consumers. The constraint will take effect when prices are set at the beginning of each year of the regulatory period. We will set a limit to the percentage increase in average price from one year to the next (eg, the average price cannot increase by more than x%). This feature was designed with gas transmission primarily in mind. However, we have included the provision for this constraint in the EDB IMs to allow this feature to also be implemented for EDBs if we decide that it is required.
136. This is a forward-looking constraint, so if a supplier forecasts that there is going to be a significant demand drop (that would cause average prices to exceed the limit) the constraint would take effect when setting prices.
137. In response to our draft decision, some submitters were not supportive of this feature for EDBs because they suggested that the lines businesses are best placed to manage price shocks and that they already take actions to do so. ENA said that "when undertaking price restructures ENA members routinely seek to transition to new structures over time to reduce the scale of any price shocks", and PwC said that they are not convinced that regulatory tools to address price shocks are necessary as distributors already take steps to manage price shocks on their networks.⁷⁹
138. We consider that a price smoothing mechanism is required to manage the 'within-period' volatility that may occur under a revenue cap. ENA recommended that if a price smoothing mechanism is applied then there should be no more than one of them.⁸⁰ We consider that, where implemented, the limit on average price increase would be more effective than the cap and collar on the draw down amount (that was proposed in our draft decision); and therefore we have decided to provide for just a limit on average price increase and not include a cap and collar on the draw down amount (as explained more in the cap and collar section below).
139. In response to our draft decision, Alpine Energy commented that we were putting into place allowances now for a mechanism that we may or may not introduce in the future which introduces uncertainty unnecessarily.⁸¹ To address this concern, we considered which of the features of the wash-up could be mandatory in the IMs to improve the certainty that they would be applied in practice. We decided that the limit on the average price increase will be an optional provision in the IMs, because it

⁷⁹ ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016) para 20; and PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016) para 20.

⁸⁰ ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016) p. 3.

⁸¹ Alpine Energy "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016) para 16.

is NPV-neutral and it is therefore not as important to have certainty over whether it will apply.⁸²

140. The percentage value of the limit on the average price increase would be specified in the DPP or CPP determination. This limit is intended to apply to average line charges and not to revenues. It will apply to line charges in gross terms (ie, including provision for the recovery of pass-through costs and recoverable costs), rather than net terms.
141. The provision for the limit in the IM determinations is sufficiently flexible that calculating the average price increase could be based, for example, on a single unit of demand, a (weighted) combination of different units of demand, or the choice of demand unit for which there is the greatest change. This is intended to improve the workability of this feature.⁸³

Cap on accumulation of voluntary undercharging – EDBs only

142. The purpose of this constraint is to address the possibility that a large credit amount may build up in the over/under balance in the wash-up account from EDBs intentionally undercharging. A supplier might not fully charge its consumers up to the limit of its allowable revenue.
143. Such voluntary price reductions could result in a large positive balance building up in the wash-up account, potentially over many years, which could raise concerns about the potential for subsequent price increases to draw down that balance. This feature will limit the extent to which undercharging may be carried forward to be recovered by higher prices in future years, and would only apply to EDBs, and potentially only those EDBs that met certain ownership criteria.
144. The mechanism for applying this limit would recognise that the constraints on price and revenue changes that are discussed earlier may force a balance to be left in the account to be carried over to the subsequent year. The identification of the amount that is intentionally and voluntarily left in the wash-up account would be the difference between the allowable revenue and the forecast of revenue, both being the amounts known to suppliers when setting prices. The constraint would be a cap on the cumulative amount of this difference that could be washed up. Any excess over this cap will be foregone permanently. The value of this cap will be specified as part of the EDB DPP or CPP determination.
145. This cap will not prevent an EDB from fully pricing up to its forecast allowable revenue and the EDB will not forfeit any of its allowable revenue as a result of errors in its forecasts of pass-through costs or recoverable costs.

⁸² This was included in the technical consultation paper.

⁸³ See, for example: First Gas "Submission on DPP for gas pipeline services from 1 October 2017" (4 August 2016), p. 1.

146. Any repeated under-recovery of allowable revenue will accumulate from year to year and be reflected in the wash-up balance. The wash-up balance will form part of the forecast allowable revenue. Any positive wash-up balance will therefore be available, subject to other constraints on pricing, to a supplier so that it could increase its prices to recover previous under-recoveries.
147. When a supplier uses its positive wash-up balance in this way to increase its prices above what would be otherwise available, the wash-up balance will be drawn down, and the draw down amount will be a recoverable cost.
148. In our draft determinations we allowed for the provision of this feature in the IMs and said that the DPP or CPP would have the discretion over whether to apply this feature or not. As submissions requested greater certainty on these features in the IMs,⁸⁴ we have decided to make this a standard feature as part of a DPP or CPP for EDBs. This means that in the EDB DPP or CPP determination provisions will be required as to how the cap will be implemented. The amount of the cap may differ (or not apply) for different EDBs.
149. PwC submitted that a supplier might under-charge in one year with the intention of recovering that under-charge in the following year, and that our draft approach would not allow that.⁸⁵ We note that our approach does allow for the wash-up, but a year later than PwC submit a supplier might intend.

Cap on wash-up amount

150. The purpose of this cap is to ensure that suppliers bear some of the risk if a major demand event occurs (for example, a catastrophic event). We consider that a principle established in the Orion CPP decision should be applied; consumers and suppliers should share the risk of catastrophic events.
151. The cap will limit the amount of revenue that may be recovered through the wash-up mechanism, if there is a significant reduction in revenue (ie, more than 20%). In most cases this will be due to a significant reduction in demand (ie, billed quantities). The wash-up amount will be the allowable revenue less actual revenue less 'revenue foregone', where revenue foregone would be expressed in terms of the revenue reduction percentage, less 20% (ie the cap), applied to net allowable revenue. The actual formula would be specified in a DPP or CPP determination.
152. In our draft determinations we also allowed for the provision of this feature in the IMs but said that, in setting the DPP or CPP, we would have the discretion over whether to apply this feature or not. As submissions requested greater certainty on these features in the IMs, we have decided to make this feature mandatory as part

⁸⁴ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 139-140.

⁸⁵ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016) p. 17.

of a DPP or CPP for EDBs and for GTBs, and to specify the cap percentage (20% of net allowable revenue as specified in a DPP or CPP determination) in the IMs.

153. In response to our emerging views paper, some submitters commented that an incentive to plan for catastrophic events would be unnecessary for EDBs and were concerned about the impression it would create.⁸⁶ Orion questioned whether the 'pure' revenue cap would mean that any revenue shocks, such as those caused by catastrophic events, would be washed up in subsequent years. We will maintain the principle established in the Orion CPP decision; that consumers and suppliers should share the risk of catastrophic events. Therefore we would include the cap on the wash-up amount so that suppliers would be exposed to some of the demand risk and therefore have a greater incentive to prepare for large demand shocks.
154. In the Orion CPP decision,⁸⁷ we explained that in our view it would be inconsistent with the Part 4 purpose for consumers to bear *all* the costs and risks of catastrophic events. Imposing the entire financial impact of catastrophic events on consumers is not consistent with the Part 4 purpose because:
- 154.1 it is unusual for consumers to bear *all* the costs and risks of catastrophic events in a workably competitive market. Workably competitive markets tend to manage risks efficiently, by allocating identified risks to the party best placed to manage them;
 - 154.2 regulated suppliers (and their investors) are generally better placed to manage the risks of catastrophic events than consumers; and
 - 154.3 allocating all the costs and risks of catastrophic events to consumers would reduce the incentives for suppliers to manage these risks efficiently (ie, create a moral hazard).
155. In response to our draft decision, suppliers were largely not supportive of this cap.⁸⁸ Alpine Energy commented that we did not quantify what would be considered as a large demand shock and therefore there is a risk associated with commenting on a mechanism now without knowing the detail until later.⁸⁹ Some submitters commented that the cap on the wash-up amount is inconsistent with ex-ante

⁸⁶ See for example: Orion "Submission on emerging views on form of control and cost of capital" (23 March 2016); Powerco "Submission on the four emerging view papers (29 February 2016)" (24 March 2016); PwC "Submission to the Commerce Commission on input methodologies review: Emerging views papers – Made on behalf of 16 Electricity Distribution Businesses" (24 March 2016).

⁸⁷ Commerce Commission "Final decision for setting the customised price quality path of Orion New Zealand Ltd" (29 November 2013) para C14.

⁸⁸ See for example: ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016); First Gas "Cross-submission on input methodologies review draft decisions (excluding cost of capital)" (18 August 2016); Orion "Submission on input methodologies review – draft decisions" (4 August 2016); and Unison "Submission on the input methodology review" (4 August 2016).

⁸⁹ Alpine Energy "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), p. 4.

expectation of achieving real FCM and that it creates an asymmetric loss of revenue which is inconsistent with the principle of risk sharing.⁹⁰ To address stakeholders' concerns, we have specified the cap to be 20% of net allowable revenue with the aim of providing certainty on the likely impact of the cap on revenues. We consider that the cap provides an appropriate balance between being high enough to ensure that *ex-ante* compensation is not required, but low enough to still provide an incentive for suppliers to prepare for large demand shocks.

156. The cap does not apply to the recovery of pass-through costs or recoverable costs from regulated revenue. In the event of a large demand shock, suppliers will be able to wash-up (and therefore consumers will pay for) up to 20% of net allowable revenue (which is an amount net of pass-through costs and recoverable costs) of the regulatory period. In addition, this will be unaffected by any draw down of the wash-up balance or the impact of the limit on the calculated average price increase.
157. We consider that the same value is appropriate for both EDBs and GTBs, and that no additional compensation for bearing part of the demand risk is required. Our reasons for not providing additional compensation have not changed (the same reasons as our Orion CPP decision),⁹¹ and are:
- 157.1 suppliers would only bear the demand risk until the next reset;
- 157.2 the materiality of demand risk is likely to be relatively minor; and
- 157.3 although the IMs did not "make any adjustments to the cost of capital for asymmetric risk", some allowance for the risks of catastrophic events is inherent in the IM-based WACC.
158. In our final decision for setting the customised price-quality path of Orion we explained that:⁹²

Catastrophic events are expected to have a relatively minor impact when compared to the observed cost of capital. In the draft decision we stated:

Available evidence is that the cost of natural disasters should have a relatively small impact on the observed cost of capital (ie, likely to be less than 0.1% of WACC). For example, the Global Assessment Report on Disaster Risk Reduction estimate the total expected global loss from earthquakes and cyclone wind damage is around US\$180 billion per annum. Relative to the market value of capital provided to listed companies, this implies a cost of 0.30% per

⁹⁰ Alpine Energy "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), p. 3-4; ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016) p. 9; Unison "Submission on the input methodology review" (4 August 2016) para 10; and Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), p. 29-31.

⁹¹ Commerce Commission "Final decision for setting the customised price quality path of Orion New Zealand Ltd" (29 November 2013), para C23.

⁹² Commerce Commission "Final decision for setting the customised price quality path of Orion New Zealand Ltd" (29 November 2013), para C31-C33.

dollar of capital per annum. However, as some of the cost of loss would be insured, and since the annual global loss from earthquakes and cyclone wind damage would be shared among government, households, and private businesses as well as listed businesses, the impact on the cost of capital from earthquakes and wind damage would be substantially less than 0.30% per annum (and almost certainly much less than 0.1% per annum). By contrast, the 75th percentile estimate of WACC increases the cost of capital by greater than 0.7% per annum.

Although the total expected global loss of US\$180 billion per annum referred to in the quote above relates to earthquakes and cyclone wind damage only, this still provides a useful indication of the possible impact of natural disasters on the cost of capital.

On balance we consider that no additional compensation (either ex ante or ex post) is required for demand risk associated with catastrophic events during the CPP period. We are satisfied that Orion will continue to have incentives to invest in the absence of any additional compensation, consistent with limb (a) of the Part 4 purpose statement.

159. We also reiterated this decision in our reasons paper for the amendment to the WACC percentile for price-quality regulation.⁹³

Cap and collar on draw down amount – not implemented

160. In our draft decision we proposed having a cap and collar on the draw down amount from the wash-up account.⁹⁴ The purpose of the cap and collar on the draw down amount was to address the concern that a revenue cap may lead to price volatility within the period resulting from the wash-up process. The aim of the cap and collar was to smooth the wash-up amounts that can be recovered across the period, to avoid large wash-up amounts affecting prices annually.
161. In submissions on our draft decision, suppliers had concerns about the caps and collars and did not think that we needed to include all of the proposed features (particularly both the cap and collar on the draw down amount and the limit on average price increase, because suppliers considered that they both aim to serve a similar purpose).⁹⁵ Aurora questioned whether the cap and collar on the draw down amount is needed to reduce price volatility given we are also proposing a limit on average price increases.⁹⁶ Vector suggested that "the cumulative effect of both the constraint on average price increases and the cap and collar on the wash-up draw down amount would limit the ability to restructure prices, introduce additional uncertainty and over complicate the price setting process".⁹⁷ Wellington Electricity

⁹³ Commerce Commission "Amendment to the WACC percentile for price quality regulation" (30 October 2014), para 4.37.

⁹⁴ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), para 117 -119.

⁹⁵ For example; Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 7.

⁹⁶ Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 7.

⁹⁷ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 23.

also considered that the inclusion of a cap and collar on the draw down amount introduces unnecessary complexity.⁹⁸ However, Vector said that it had considered the workability of the mechanisms and its view was that the only mechanism that will address potential price volatility is the cap and collar on the draw down amount.⁹⁹

162. After considering submissions, we have decided not to implement this feature to avoid the wash-up mechanism becoming overly complex. We consider that the main concern from consumers will be price shocks and we think that the limit on average price increase can mitigate this concern because it can be used to limit annual price increases for consumers.

Accounting for wash-up amounts

163. Each supplier must maintain a wash-up account to account for the following.
- 163.1 The wash-up balance.
 - 163.2 Any difference between a supplier's actual allowable revenue and actual revenue.
 - 163.3 Amounts drawn down from the wash-up account. These amounts would be recoverable costs, and could be positive or negative.
 - 163.4 Time value of money adjustments. A balance left in the wash-up account at the end of one year would be adjusted by the post-tax WACC applying to the price-quality path for the regulatory period to reflect the opportunity cost of holding that balance for another year.
 - 163.5 Any amount of revenue foregone.
 - 163.6 Any voluntary undercharging amount.
164. This approach allows the wash-up mechanism to readily span regulatory periods. For example, a wash-up of the forecast error of the quantities of the fourth and fifth years of a regulatory period could be washed up in the first and second years of the subsequent regulatory period.
165. The revenue wash-up will produce a cumulative balance of revenue under or over-recoveries over time. As that balance will result in the shifting of revenue over years, a time value of money rate will need to be applied.
166. We have specified in the IM determinations that if there is a balance in favour of consumers in the wash-up account, then the balance must be drawn down. We have

⁹⁸ Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016) p. 2.

⁹⁹ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 22.

made this change to ensure that a balance in favour of consumers does not build up in the wash-up account and that the revenue is returned to consumers as soon as possible.

167. We will apply a time value of money rate equal to the post-tax WACC at the 67th percentile for the DPP or CPP regulatory period. This approach would ensure that wash-up amounts are discounted at our estimate of the suppliers' opportunity cost of funds (WACC).
168. This approach is similar to the approach we have used for Transpower's comparable Economic Value account. We will use the post-tax WACC for the relevant DPP or CPP period, as that is effectively the prevailing discount rate used in setting the price-path for the regulatory period.¹⁰⁰
169. We note also the rate differs from the cost of debt discount rate used in respect of the pass-through balance in the current EDB DPP. However, the move to a revenue cap for EDBs will mean that this pass-through balance is superseded by the revenue cap wash-up mechanism in the next EDB DPP.
170. The compliance requirements with regard to maintaining and annually disclosing the balance in the wash-up account and any associated calculations and account entries would be specified in the relevant DPP or CPP determination. Further details on compliance requirements, which would be covered in the relevant price-path determination (consistent with s 52P) rather than in the IMs, will be included in the gas DPP draft decision due to be released in February 2017. Although the gas DPP draft decision paper will focus on the design of the revenue cap for GTBs, we envisage that similar processes could be adopted for the revenue cap for EDBs at the next reset. Any compliance related matters that are not covered by IM rules (including issues raised in submissions on the IM review), will be discussed through the gas DPP process.

¹⁰⁰ In practice, the DPP is set using a vanilla WACC, because the DPP is set with the interest tax shield being explicitly modelled.

Chapter 3: Form of control for GTBs

Purpose of this chapter

171. The purpose of this chapter is to explain the problem we have identified in relation to the form of control for GTBs and our solution to this problem.

Structure of this chapter

172. This chapter explains:
- 172.1 the problem we have identified with the form of control for GTBs;
 - 172.2 our solution to move from a lagged revenue cap to a 'pure' revenue cap;
 - 172.3 our reasons for our solution; and
 - 172.4 our design of the 'pure' revenue cap, including a wash-up mechanism for over- or under-recovery of revenue.

Problem definition

173. This section explains the problem definition, including how it evolved through comments from submissions.
174. The pre-review IMs allow for us to elect between a WAPC and a lagged revenue cap for GTBs when setting price-quality paths, taking into account certain criteria set out in the IMs. Vector and Maui Development Limited (**MDL**) were subject to a revenue cap that uses lagged quantities. For the next regulatory period, we will implement the amended revenue cap for First Gas Limited which is the single GTB that now owns and operates the former Vector and MDL transmission networks.
175. The main issues raised by stakeholders in respect of the current revenue cap for GTBs are:
- 175.1 The notional revenue approach which uses a two-year lagged-quantity creates a barrier to GTBs offering more innovative tariffs or implementing auction-based pricing. This occurs because the lagged revenue cap requires GTBs to maintain compliance with an allowable notional revenue by setting prices based on quantities from two years previously.
 - 175.2 In addition, the lagged revenue cap means that GTBs will face either a windfall gain or loss depending on whether quantities are higher or lower than two years ago. This occurs because wash-ups for over- or under-recovery do not currently apply. However, MDL also commented that the Commission's view in its previous decision, that GTBs had limited ability to control demand, remained sound.¹⁰¹

¹⁰¹ Commerce Commission "Input methodologies review – gas pipeline default price-quality path reset 2017-

175.3 The Major Gas Users Group (**MGUG**) claimed that the lagged-quantity revenue cap exposes customers to the majority of risks that GTBs face,¹⁰² and that as a result gas customers are being exposed to increasing prices as volumes decline. We consider that gas transmission demand is volatile and difficult to forecast,¹⁰³ and is often impacted by factors that are out of supplier's control (such as commodity prices) and therefore suppliers are not well placed to manage the demand risk (ie, either the demand uncertainty risk or the quantity forecasting risk). We also note that customers would be exposed to the demand risk in the long term under a WAPC too, because they would face the price changes between regulatory periods, reflecting updated demand forecasts at that time. These reasons are explained more fully in the solution section below.

176. Although we consider that the use of a revenue cap is still appropriate, given it is difficult for GTBs to manage demand risk, we agree that the use of two-year lagged quantities in the current revenue cap design has created problems. These problems are that the use of lagged quantities creates a barrier to offering innovative tariffs, and the use of lagged quantities without a wash-up means that GTBs will face either a windfall gain or loss in revenue which is not in the long term interests of consumers. We have considered how best to address these problems.

Solution: Adopt a 'pure' revenue cap for GTBs

177. This section describes our solution in respect of the form of control for GTBs.

Our solution

178. Our solution is to maintain a revenue cap for GTBs but to move to a pure revenue cap allowing for wash-up of over- and under-recovery. Our key reasons for this change are:

178.1 we consider that gas transmission demand is difficult to forecast and that transmission businesses have little ability to influence demand, and so keeping a revenue cap is in the long-term interests of consumers by ensuring suppliers are more likely to be incentivised to invest efficiently compared to alternatives (consistent with s 52A(1)(a) and (b));

178.2 changing from a lagged revenue cap to a pure revenue cap will avoid any windfall gains and losses due to the lagging mechanism, and avoid any

Gas stakeholder meeting – 8 December 2015 – Summary of views" (22 December 2015), para 41.

¹⁰² MGUG's submission on the problem definition paper "Re: Input methodologies review" (21 August 2015), para 15; and MGUG submission "Input methodologies – Draft decision" (4 August 2016).

¹⁰³ The volatility of demand on the transmission network is clear in Figure 2 in Concept report 'Long term gas supply and demand scenarios'; showing significant volatility in the power generation and petrochemical sectors which are located on the transmission pipelines.

potentially inappropriate incentives for GTBs to under-spend on the network (consistent with s 52A(1)(a) and (b)); and

- 178.3 removing the lag should also remove any existing compliance barriers for GTBs to offer more innovative tariffs, and in particular should allow for capacity auction-based pricing to be more readily introduced which is intended to ensure more efficient utilisation of pipeline capacity (consistent with s 2A(1)(b)).
179. We have also decided that the revenue cap will include an annual unders and overs wash-up mechanism with implementation features intended to:
- 179.1 be consistent with applying the *ex-ante* FCM principle, while providing incentives for the supplier to mitigate the potential price and quality impact on consumers of catastrophic events (or other events involving a major demand shock); and
- 179.2 reduce the risk that consumers are exposed to price shocks.
180. Our original reason for using the lagged quantities in the design of the revenue cap was so that the price-path compliance quantities could be calculated at the time the supplier sets its prices. We consider that this is still a relevant objective but we consider that the compliance certainty we are trying to provide at the time of price setting can be addressed through other means (eg, the wash-up mechanism).
181. Some stakeholders raised the concern that, because of the differences in pricing approaches between the two gas transmission pipelines, the two GTBs should be subject to different forms of control. We consider that some of the price change differences experienced by users of the different pipelines have been partly as a result of the different interpretations by GTBs of how to demonstrate compliance given the lag in the current revenue cap, and have partly reflected the different constraints on pricing under the operating codes for the two pipelines.
182. We consider that this should no longer be a concern because First Gas Limited now owns and operates the former Vector and MDL transmission networks and is working to align the operating codes for the two gas transmission pipelines. We also consider that removing the choice of form of control for GTBs from the IMs would provide more certainty for stakeholders.¹⁰⁴
183. We have amended the current specification of price IMs to reflect the changes to the form of control, the use of current rather than lagged quantities and to provide for

¹⁰⁴ Although it was not raised by gas stakeholders specifically, in response to our problem definition paper electricity stakeholders said that the form of control should be specified within the IMs as it provides certainty for suppliers and consumers. ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 67.

the wash-up mechanism.¹⁰⁵ The amendments have been drafted to reflect the changes:

183.1 moving to a pure revenue cap as the form of control; and

183.2 providing for the wash-up process as described below.

Reasons for our solution

184. This section explains our assessment of the form of control for GTBs and our key reasons for our solution.

185. We considered the pros and cons of changing the form of control for GTBs from the following aspects:¹⁰⁶

185.1 incentives for efficient expenditure;

185.2 price stability; and

185.3 incentives for pricing efficiency and tariff restructuring.

186. These are the same aspects that we considered the form of control for EDBs against, except that two of the aspects that were relevant to EDBs are not relevant here. The reasons why we consider these aspects are important are noted in the previous chapter and so are not repeated here.

Incentives for efficient expenditure

187. We consider that gas transmission demand is difficult to forecast and is significantly influenced by factors outside of the supplier's control, such as global commodity prices and the relative cost of generating electricity from different sources. Therefore we do not consider it is efficient for GTBs to manage the uncertainty surrounding changes in demand as it is too difficult for the GTB to take meaningful actions to mitigate. We consider that without being exposed to the demand risk suppliers will be better able to efficiently invest in the network (consistent with s 52A(1)(a) and (b)).

¹⁰⁵ The Report on the IM review captures the changes we will make to pre-review decisions as a result of our solutions.

¹⁰⁶ These aspects were chosen because they align with the purpose statement set out in s 52A.

188. We chose to apply a revenue cap for GTBs in 2013 for the same reasons. We explained that specifying a maximum revenue for transmission is more appropriate than specifying a maximum price because of the difficulties forecasting changes in revenue. In our 2013 gas DPP reset reasons paper we focussed on the reasons for a revenue cap for Vector Transmission as there was no disagreement that a revenue cap was appropriate for MDL. We explained:

To set a maximum average price, we require a forecast of revenue growth, which is difficult to forecast for Vector Transmission. This is because about half of its revenue relates to the quantity of gas transported, and the other half to reserved capacity. Neither of these can be forecast with a reasonable degree of accuracy. This is because:

the billed quantities of gas transported on the Vector Transmission pipeline are too variable to be predicted with a reasonable degree of accuracy;

it is not clear what the change in reserved capacity will be over the regulatory period.

Because we are not able to forecast these values reasonably accurately, allowed revenues may be significantly higher or lower under a weighted average price cap than required by the business. By contrast, the application of a revenue cap means that each supplier's revenues will reflect costs that are relatively straightforward to predict.¹⁰⁷

189. In response to our emerging views paper, MGUG suggested that GTBs do have an ability to forecast demand and manage the demand risk (for example through their pricing methodologies) and therefore a WAPC is a more appropriate form of control for GTBs.¹⁰⁸ MDL and First State Investment responded in cross submissions to our gas DPP process and issues paper, stating that they disagreed with MGUG.¹⁰⁹ First State Investments said that they have limited ability to manage the demand risk; for example pricing is limited as an effective demand management tool for GTBs because demand responds to total price and transmission fees make up only a fraction of the cost of delivered gas.¹¹⁰ For the bulk of transmission demand the driver is the ratio between the price of gas and the price of methanol, or electricity, or urea; the transmission fee is only a fraction of this, and so any change in transmission pricing would have a small impact in comparison to changes to the wholesale price of gas.¹¹¹
190. In response to our draft decisions, MGUG said that it did not think our reasoning was based on evidence and that our view that gas transmission is difficult to forecast was

¹⁰⁷ Commerce Commission "Setting Default Price-Quality Paths for Suppliers of Gas Pipeline Services" (28 February 2013) Attachment F.

¹⁰⁸ MGUG "Submission on emerging views on form of control paper: 29 February 2016" (24 March 2016).

¹⁰⁹ First State Investments "Gas Default Price-Quality Path: General Matters Cross-submission" (13 April 2016) p. 3; MDL "Untitled cross-submission on gas DPP process and issues paper" (13 April 2016).

¹¹⁰ First State Investments "Gas Default Price-Quality Path: General Matters Cross-submission" (13 April 2016) p. 3.

¹¹¹ MDL "Untitled cross-submission on gas DPP process and issues paper" (13 April 2016), p. 2.

unsubstantiated.¹¹² To address this concern we have elaborated below on the thinking that we presented in the draft decision paper. We consider gas transmission to be difficult to forecast for two main reasons; the type of consumers of gas transmission services and the links with commodity prices.

191. GTBs have a small number of large consumers, mainly petrochemical plants, power stations, and other industrial scale consumers (compared to GDBs that generally have a large number of smaller consumers). This customer profile makes forecasting of demand difficult because the actions of one consumer will have a significant impact on the business and those actions are not easy to predict. MGUG has previously suggested that GTBs could rely on consumer forecasts,¹¹³ however industrial consumers themselves may not foresee demand trends in advance either and they can be incentivised to forecast high to reduce their input costs.¹¹⁴
192. In addition, we consider that gas transmission demand is very closely linked with commodity prices and the cost of generating electricity from other sources, both of which are out of the control of a GTB and cannot be forecast with a sufficient degree of reliability.¹¹⁵ This makes it difficult for a supplier to manage the demand risk when it is influenced by factors outside its control.
193. MGUG suggested that a GTB should also be incentivised to grow demand on its network (similar to gas distribution) and therefore a WAPC is more suitable because it provides that incentive. We consider that under a revenue cap there is still a natural incentive for GTBs to attract new customers because it would help mitigate the risk for them that a big customer leaves the network and costs are spread among fewer remaining consumers that are not able to make up the shortfall in costs. It would also help GTBs keep costs lower for all customers which may help prevent some customers from leaving the network.¹¹⁶
194. As gas transmission demand is subject to significant variability¹¹⁷ and the supplier has limited influence over the gas volumes transported through its pipelines, a WAPC may lead to insufficient revenues being recovered to cover costs (inconsistent with s 52A(1)(a) and (b)).

¹¹² In response to our draft decision paper, MGUG also commented on the CPRG workshop that was run as part of the gas DPP process; any comments on the workshop will be addressed through the gas DPP CPRG process.

¹¹³ MGUG submission "Input methodologies – Draft decision" (4 August 2016).

¹¹⁴ MDL "Untitled cross-submission on gas DPP process and issues paper" (13 April 2016), p. 2.

¹¹⁵ Concept Consulting "Long term gas supply and demand scenarios – 2016 update" (5 October 2016).

¹¹⁶ This issue is linked to discussions presented in the Cost of capital issues paper. Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

¹¹⁷ Concept Consulting's report on Long term gas supply and demand scenarios shows significant volatility in the power generation and petrochemical sectors which are located on the transmission pipelines. Concept Consulting "Long term gas supply and demand scenarios – 2016 update" (5 October 2016) Figure 2.

195. Furthermore, changing from a lagged revenue cap to a pure revenue cap will avoid any windfall gains and losses due to the lagging mechanism, and avoid any potentially inappropriate incentives for GTBs to under-spend on the network (consistent with s 52A(1)(a) and (b)). Therefore we consider that a pure revenue cap is a more appropriate form of control for GTBs.

Price stability

196. As explained for EDBs, a pure revenue cap could mean more price volatility within a price control period compared to a WAPC. In response to our draft decisions Oji Fibre Solutions gave the example of consumers bearing the volume risk and gas transmission charges increasing in a year by approximately \$1m pa.¹¹⁸ However, under the current revenue cap or a WAPC, consumers would still face those price changes if demand was expected to fall when prices were set. If the drop in demand is unexpected, customers would face the price increases at the price-path reset.
197. We consider that the pure revenue cap will create less price shocks than the current revenue cap by introducing the wash-up mechanism to target this concern. We are also including a constraint on average price changes to address stakeholders' concerns about large positive price shocks for consumers when demand significantly changes (the cap will only bind on large price increases, and will not prevent large reductions in prices which we do not consider as a concern for consumers).¹¹⁹

Incentives for pricing efficiency and tariff restructuring

198. The current revenue cap design using lagged quantities creates a barrier to suppliers offering more innovative tariffs or implementing auction-based pricing. This barrier is created because establishing a reasonable estimate of a historic lagged-quantity that corresponds to a restructured price can be a complex task, for example potential issues exist where a GTB has not been recording the quantity information which corresponds to the restructured price.
199. MGUG commented that there is currently no demand for a capacity product on the Maui system, nor is one anticipated in the medium term.¹²⁰ However, capacity products are being considered as part of the Transmission Pipeline Access work by the GIC and First Gas,¹²¹ and we consider that capacity products will be more of a possibility (and there could be more demand for such products) following alignment of the pipeline operating codes.

¹¹⁸ Oji Fibre Solutions cross submission on IM review draft decisions papers "IM review cross submission non-capital items" (18 August 2016), p. 2.

¹¹⁹ We note that gas consumers have also raised price volatility as a problem with the current form of control compliance arrangements. Major Gas Users Group "Submission on the gas pipeline stakeholder meeting" (28 January 2016); Oji Fibre Solutions "Submission on the gas pipeline stakeholder meeting" (28 January 2016); Greymouth Gas "Submission on the gas pipeline stakeholder meeting" (28 January 2016); and Oji Fibre Solutions cross submission on IM review draft decisions papers "IM review cross submission non-capital items" (18 August 2016).

¹²⁰ MGUG submission "Input methodologies – Draft decision" (4 August 2016).

¹²¹ First Gas "Gas Transmission Access: Single Code Options Paper" (28 November 2016).

200. An amended revenue cap using current quantities would remove this barrier and allow suppliers to restructure tariffs, and in particular should allow for capacity auction-based pricing to be more readily introduced (consistent with s 52A(1)(b)).

Overall view of our reasons

201. We consider that the demand risk is still an important consideration when thinking about the form of control for GTBs because of the difficulty of forecasting demand for gas transmission. Therefore this criterion was given the greatest weighting in our assessment.
202. Price stability is also an important aspect given the small number of large consumers for whom better predictability on prices affects their investment decisions. Although the revenue cap may lead to more price volatility within the period, we have added features to the wash-up mechanism to help manage price shocks (ie, a limit on average price increases).

Design of the amended revenue cap for GTBs

203. This section explains how the amended revenue cap and wash-up mechanism would work for GTBs.
204. The purpose of the wash-up mechanism is to return to, or recover from, a supplier's customers any under- or over-recoveries of revenue resulting from differences between actual and forecast values. In this context by values we are referring to quantities, CPI, and pass-through and recoverable costs.
205. The features of the wash-up mechanism are the same as the features described earlier for EDBs (Chapter 2). For GTBs we consider that the limit on average price increase feature is particularly important because gas transmission consumers are concerned about large demand/price shocks and the effect they can have on the small number of customers. This limit on average price increase will limit the short-term impact of a demand shock on consumers, although ultimately consumers will have to make up the full amount in the long term. For GTBs we will not provide for the "cap on accumulation of voluntary undercharging" feature which has been included in the EDB IM. This feature is designed only to mitigate the risk of EDBs deliberately under-pricing and building up a large credit balance.

Capacity auctions

206. In designing the revenue cap for GTBs we also did not want to implement anything that may prevent capacity auctions from being introduced. We do not consider that the pure revenue cap would prevent short-term capacity auctions as it has been implemented in other countries.¹²²

¹²² For example in the UK, National Grid Gas, which is subject to a revenue cap, operates a number of entry capacity auctions for users to secure access to the National Transmission System.

207. We do not envisage that any auction price would be treated as a "price" as defined by our compliance regime. Rather any revenues that a supplier receives from auction proceeds would form part of the actual revenue used to determine wash-up amounts, which would then flow to the wash-up balance. From there it would flow to the wash-up draw down and a corresponding reduction in prices at a later date. Through this mechanism a pure revenue cap should be able to accommodate such auction proceeds reasonably readily.

Chapter 4: Form of control for GDBs

Purpose of this chapter

208. The purpose of this chapter is to explain our decision relating to the form of control for GDBs.

Structure of this chapter

209. This chapter explains:

209.1 why we considered changing the form of control for GDBs but have decided to maintain the WAPC for GDBs; and

209.2 why we suggested amending the specification of price IM for GDBs to allow the wash-up of pass-through and recoverable costs and why we have decided not to implement this proposed change.

We considered the benefits of moving GDBs to a revenue cap

210. This section explains why we considered changing the form of control for GDBs.

211. The framework for the IM review was to focus on identified problems with the IMs. Unlike for EDBs and GTBs, there were no specific problems raised with the existing form of control for GDBs, which is a WAPC. However, we considered whether the benefits that we identified of moving EDBs to a revenue cap may also be reasons to consider a revenue cap for the GDBs. For example, one of the key benefits we identified for EDBs of moving to a revenue cap was the removal of the quantity forecasting risk which potentially affects suppliers' incentives for efficient expenditure. We considered whether this benefit would be a significant enough reason for also moving GDBs to a revenue cap.

212. Stakeholders highlighted that we needed to consider the differences between the electricity and gas (distribution) sectors. The key difference is that gas is a somewhat more discretionary fuel for the majority of consumers which gives suppliers an incentive to drive volumes to increase their revenues. This incentive is best accommodated under a WAPC.

213. Although quantity forecasting was raised as a significant issue for EDBs, it has not been highlighted as a specific problem to date under the WAPC by GDBs. MGUG noted in its submission on our draft decision that just because it has not been raised does not mean that it is not an issue.¹²³

214. Powerco notes that an accurate forecast of CPRG is an important input to the WAPC setting processes and suggested that a working group be established to assess factors impacting on future gas demand and how the current CPRG mechanism can

¹²³ MGUG submission "Input methodologies – Draft decision" (4 August 2016).

be refined.¹²⁴ We have engaged with stakeholders regarding CPRG forecasting as part of the gas DPP process, including a CPRG workshop which we held with stakeholders in May. Our gas DPP draft decisions will be published in February 2017.

215. Also, stakeholders did not express concern with tariff restructuring under the current form of control for gas distribution. The requirement under s 54Q to incentivise energy efficiency and DSM for EDBs does not apply to GDBs.

We will maintain a WAPC for GDBs

216. We will maintain a WAPC for the form of control for GDBs and continue to use lagged quantities. Our reasons for this decision are:

216.1 unlike for EDBs, we do not have any significant concerns about continuing to use CPRG forecasting for GDBs;

216.2 unlike for EDBs, we do not think the WAPC creates concerns about tariff restructuring or efficient pricing for GDBs; and

216.3 the WAPC provides incentives for GDBs to pursue new gas connections (consistent with s 52A(1)(a) and (b)), and we consider this to be a more important factor for GDBs than EDBs.

217. As we explain further below, we considered altering the operation of the existing WAPC for GDBs by amending the current specification of price IMs to adopt the pass-through balance approach (which is currently in place for EDBs) for forecasts of pass-through and recoverable costs. However, after reflecting on submissions on this topic, we consider that this approach would add unnecessary costs and complexity for GDBs without much added benefit.

Reasons for not changing the WAPC for GDBs

218. This section explains our assessment of the form of control for GDBs and our reasons for maintaining a WAPC.

219. We considered the pros and cons of changing the form of control for GDBs from the following aspects:¹²⁵

219.1 connection incentives;

219.2 incentives for efficient expenditure;

219.3 incentives for pricing efficiency and tariff restructuring; and

219.4 price stability.

¹²⁴ Powerco "Submission on the four emerging view papers (29 February 2016)" (24 March 2016), para 20.

¹²⁵ These aspects were chosen because they align with the purpose statement set out in s 52A.

220. These are the same aspects that we considered the form of control for EDBs against, except that one of the aspects that was relevant to EDBs is not relevant here. The reasons why we consider these aspects are important are noted in the EDB chapter and so are not repeated here.

Connection incentives

221. Our main reason for maintaining the WAPC is the incentive it provides for GDBs to pursue new gas connections and grow throughput. Compared to electricity, which is generally considered to be an essential service particularly for residential customers, gas demand consumers have more choice because they can choose whether to use gas and electricity or only electricity for their energy supply.
222. We consider that GDBs have the ability to influence the uptake and use of gas. For example GDBs could promote new connections through liaising with subdivision developers or by promoting gas to customers that may have a gas pipeline in their street but might not yet be connected. We consider that ensuring new connections are incentivised will be in the long-term interests of consumers by making sure they have the option to use gas, particularly if it may be a more cost-effective option for them. Growing the gas distribution customer base will also spread the costs over a larger number of consumers.
223. Concept Consulting's report on the relative long-term demand risks between electricity and gas networks indicated that the more discretionary nature of gas versus the essential nature of electricity has been reflected in rates of customer connection/disconnection to the respective networks.¹²⁶ It found that there appears to be a much tighter correlation between electricity customer numbers and population growth than gas customer numbers and population growth. This suggests that electricity will continue to be supplied and used regardless of whether or not there is any incentive to promote it and market it, but the same does not apply for gas distribution as gas is a somewhat more discretionary fuel.
224. Stakeholders are also supportive of maintaining the WAPC because it incentivises GDBs to promote gas consumption and new connections between resets.¹²⁷ Powerco suggested that gas is often a more cost-effective energy source than electricity, particularly for space and water heating, and so it would be in the best interests of consumers for GDBs to promote its use.¹²⁸ MGUG explained that generally distribution demand is growing which makes a WAPC a logical choice for GDBs

¹²⁶ Concept Consulting's (on behalf of Powerco) submission on the gas pipeline stakeholder meeting "Relative long-term demand risk between electricity and gas networks" (27 January 2016).

¹²⁷ Powerco "Gas pipeline default price-quality path reset 2017" (28 January 2016); Powerco "Submission on the four emerging view papers (29 February 2016)" (24 March 2016); MGUG "Submission on emerging views on form of control paper: 29 February 2016" (24 March 2016); First State Investments "Input Methodologies Review: Form of Control" (24 March 2016).

¹²⁸ Powerco "Gas pipeline default price-quality path reset 2017" (28 January 2016), para 29.

because they can aim to outperform the price-path.¹²⁹ GasNet is also supportive of the WAPC because it is already in place and understood by GDBs, and is straightforward to audit and operate.¹³⁰

Incentives for efficient expenditure

225. Under the WAPC approach suppliers are exposed to the demand risk once the price-path is set for each regulatory period, but consumers are also exposed to it in the long term (as they bear the risk that demand decreases and costs are spread across the remaining consumers when the price-quality paths are reset). A revenue cap would remove the quantity forecasting risk from both suppliers and consumers, but the risk of unexpected changes in demand would be borne by consumers within the regulatory period.
226. Vector noted that, although the Commission's CPRG forecasts for GDBs to date have not provided cause for concern, there are "significant challenges for forecasting CPRG for GDBs". We acknowledge that forecasting demand is challenging, however we believe our approach to forecasting CPRG remains fit for purpose and we do not have any significant concerns about continuing to use CPRG forecasting for gas distribution. As a result we do not believe there is a significant concern that the WAPC is creating incentives for under-investment for GDBs.
227. Powerco explained that under the WAPC method, the volume risk is borne by distributors rather than consumers. In its view, this is appropriate, as distributors are better able to manage day-to-day volume risk under normal operating circumstances by promoting gas.¹³¹ Also, First State Investments stated that GDBs may differ from GTBs in that they have more influence over demand and more comfort with the risk associated with forecasting demand in a DPP reset process.¹³²
228. MGUG commented that "we see no distinction between GDB and GTB customers with regard to demand risk".¹³³ It claimed that "arguing that GDBs have the ability to influence the uptake of gas because they can promote gas to people not connected to an existing network but somehow GTBs can't do the same, ignores the similarities and interdependencies of GTB and GDBs".¹³⁴
229. We consider that GDBs do have more influence over demand than GTBs. GTBs have a small number of large customers and the demand for gas through transmission services is subject to factors that are outside the suppliers control, including commodity prices and the cost of generating electricity from other sources. Whereas

¹²⁹ MGUG "Submission on emerging views on form of control paper: 29 February 2016" (24 March 2016), para 27.

¹³⁰ GasNet "Submission on DPP from 2017 for gas pipeline services, process and issues paper – Public version" (24 March 2016), para 8.

¹³¹ Powerco "Gas pipeline default price-quality path reset 2017" (28 January 2016), para 31.

¹³² First State Investments "Input Methodologies Review: Form of Control" (24 March 2016).

¹³³ MGUG submission "Input methodologies – Draft decision" (4 August 2016) para 23.

¹³⁴ MGUG submission "Input methodologies – Draft decision" (4 August 2016) para 23.

we consider that GDBs can influence gas demand through working with retailers and liaising with subdivision builders to influence new gas connections. For example, GasNet is currently growing its network and installing gas pipes in housing developments in the Bay of Plenty.¹³⁵

230. We consider that gas distribution suppliers are best placed to manage the within-period demand risk because they can promote gas and influence demand (including through prices they set). Suppliers also want to be exposed to the demand risk because they see the opportunity to try to outperform the price-path. This would be a benefit for consumers by creating an incentive for GDBs to offer gas connections to new customers that may have not previously considered gas as an option.

Incentives for pricing efficiency and tariff restructuring

231. Tariff restructuring has not been raised as an issue for GDBs. The same compliance issues (eg, use of lagged quantities) would exist for GDBs if they wanted to restructure tariffs under the current WAPC design. However, we consider that it is unlikely that GDBs might restructure tariffs to the same extent that EDBs may want to. As First State Investment explained, they do not see a WAPC being a barrier to efficient pricing in the same way as was argued for EDBs. It said that the ability to store gas through the line pack of distribution networks means that introducing peak charging signals is less valuable in gas than electricity.¹³⁶
232. In its Consumer Energy Options report,¹³⁷ Concept suggested that different forms of control may alter gas network companies' incentives for how they structure prices and has the potential to result in more efficient outcomes – in terms of utilisation of the existing gas network – over the longer term. However, Concept also reported that there are currently different charging approaches by the different network companies for residential supply of gas. It suggested that the incentives on gas network companies from the current Part 4 price control regime may have had some influence on why the companies have adopted the pricing approaches they have. It suggested that throughput-based pricing significantly increases year-on-year revenue volatility for network companies under the WAPC for both the transmission and distribution companies, and that some companies may move to greater use of fixed prices to mitigate this volatility. It suggests that fixed charges may not promote efficient usage decisions because gas is a somewhat discretionary fuel for most customers.¹³⁸
233. However, Concept Consulting also presented a graph showing that under the current WAPC Powerco has adopted a hybrid pricing structure. It explains that "the most efficient tariff for residential customers could be some form of hybrid structure

¹³⁵ GasNet www.gasnet.co.nz (Viewed on 7 December 2016).

¹³⁶ First State Investments "Input Methodologies Review: Form of Control" (24 March 2016).

¹³⁷ Concept Consulting "Consumer Energy Options in New Zealand – 2016 Update" (7 March 2016).

¹³⁸ We consider that the use of fixed charges is not necessarily inefficient but it is the level of the fixed charges that may cause a problem and could lead to customers disconnecting.

whereby the proportion of costs recovered from fixed charges varies with the amount of gas consumed", and gives Powerco's approach as an example of this.¹³⁹ Therefore, we do not consider that the current implementation of the WAPC for GDBs disincentivises GDBs from introducing efficient price structures.

Price stability

234. The WAPC will mean greater price stability within the period for consumers than a revenue cap. However, customers will still face the risk of price volatility at the resets between periods. Conversely, under a revenue cap, price volatility may be greater within the period, but less volatile between periods.

Overall view of our reasons

235. In weighing up the above aspects from which we considered the form of control for GDBs, we consider that the incentives on connections is important for gas distribution. This is because gas is a somewhat more discretionary fuel and without the additional incentive provided by a WAPC new gas connections may be less likely to happen, which could prevent consumers choosing to use gas if they consider it to be a more efficient option for them. We also consider that the demand risk is better placed with GDBs because they have the ability to influence demand for gas distribution and therefore a WAPC is more appropriate. We have no evidence that current compliance arrangements are impeding tariff reforms.

Design of the WAPC for GDBs

236. We will maintain the same WAPC design as is currently in place for GDBs and continue to use lagged quantities.
237. As part of our draft decision we proposed amending the treatment of forecast of pass-through and recoverable costs to adopt the pass-through balance approach that is currently in place for EDBs under a WAPC. The 2015 EDB DPP reset allows an EDB to use a "demonstrably reasonable forecast" of pass-through and recoverable costs in its price setting. Forecast error is washed out in subsequent years through a running account of the balance of costs and their recoveries. The current GDB DPP does not allow a forecast of pass-through and recoverable costs to be taken into account. A cost must be "ascertainable" which effectively means that there must be an audit trail to an invoice, a local authority rates notice or similar source document for the cost to be taken into account when pricing.
238. We suggested that an advantage of this proposed change would be that pass-through and recoverable costs would be more accurately reflected in prices earlier than they are in the current regime.
239. In response to our draft decisions Powerco and Vector submitted that, because the quantities of pass-through and recoverable costs involved for GDBs are much lower

¹³⁹ Concept Consulting "Consumer Energy Options in New Zealand – 2016 Update" (7 March 2016), p. 52.

than for EDBs, the additional complexity and compliance costs of this approach are not warranted for GDBs.¹⁴⁰ On the other hand, GasNet supported the pass-through balance approach.¹⁴¹ In its cross submission First Gas explained that it did not have a firm preference on which approach should be applied, but noted that it appreciates the views from Vector and Powerco as they both own EDBs and therefore have experience applying the proposed approach.¹⁴²

240. After considering submissions we agree that the proposed draft decision to adopt a pass-through balance approach for GDBs is likely to add unnecessary complexity for GDBs without much added benefit, and therefore we have decided to maintain the existing ascertainable approach to pass-through and recoverable costs.

¹⁴⁰ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016); Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016).

¹⁴¹ GasNet "Submission on input methodologies review draft decisions papers" (1 August 2016).

¹⁴² First Gas "Cross-submission on input methodologies review draft decisions (excluding cost of capital)" (18 August 2016).

Chapter 5: RAB indexation and inflation risk – EDBs and GPBs

Purpose of this chapter

241. This chapter addresses issues raised by EDBs and GPBs about their exposure to inflation risk in relation to our approach of indexing the RAB, and how our approach protects the regulatory value of suppliers' investment in real terms.

Structure of this chapter

242. This chapter begins by summarising the issues raised by submitters relating to RAB indexation and inflation risk for EDBs and GPBs. It then explains why we do not consider these issues amount to a significant problem, and so we do not propose to make any changes in this area.

Issues raised by suppliers

243. Topic paper 1 of the draft decision explains and clarifies how RAB indexation to inflation works, and what the impact is on returns and exposure to inflation risk.¹⁴³ Effectively, our approach results in a revenue/price-path that includes a real return on capital with the revaluation of the RAB providing the compensation for inflation over the period.
244. Submissions to the draft decision outlined three inter-related concerns with our current approach:
- 244.1 The possibility that our inflation forecast (which is based on the Reserve Bank's forecast¹⁴⁴) differs from the market's expectation of inflation at the time of the WACC reset. If our forecast over-estimates inflation relative to the market estimate implicit in the WACC, then the real return we allow the businesses will be too low, violating the NPV = 0 objective. Submitters proposed that this concern be addressed by adopting a different forecast approach, or by targeting a nominal return.
- 244.2 Even if our forecast of inflation is consistent with market expectations at the time we set WACC, out-turn inflation may differ from forecast. In these circumstances, our approach ensures that real FCM (*ex-ante* and *ex-post*) applies collectively to the providers of capital (debt plus equity). However, equity providers are exposed to inflation risk to the extent that debt is issued in nominal terms. Submitters proposed that this concern be addressed by

¹⁴³ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), Attachment A.

¹⁴⁴ For example: *Electricity Distribution Services Input Methodologies Amendments Determination 2016* [2016] NZCC 24, clause 4.2.3.

targeting nominal FCM.¹⁴⁵ We also note that the risk could also potentially be addressed by businesses issuing inflation-linked debt/swaps.

244.3 A suggestion that our inflation forecasts are upwardly biased, which means the risks outlined above do not wash out over a number of regulatory periods.

245. As we explain in this chapter, we do not consider the issues raised to be significant problems, and therefore are not making any IM changes in response.

How stakeholders have articulated the issues

246. A number of stakeholders submitted on these issues. Below we include a number of quotes from submitters to illustrate the issues as they see them.

247. There appear to be a range of views on whether we should be targeting a real or nominal return. For example Vector, has consistently suggested that a nominal return is most appropriate and that suppliers should not be exposed to inflation forecasting risk. For example, Vector's February 2016 submission on the WACC update paper says:¹⁴⁶

Vector does not support the Commission's position that the WACC is a "natural hedge" to the forecast indexation of the RAB as this only supposedly delivers a real return. The IMs must have as their purpose and deliver in their application a nominal return to businesses, free of inflation forecasting errors... Vector supports "option 2" in Table 1 of CEG's expert report [no indexation nor revaluations treated as income] as being the most effective and least costly method of ensuring regulated businesses achieve a nominal return free of inflation forecasting errors.

248. A number of other suppliers submitted in response to the draft decision that they had concerns about the provision of a real return, given that their debt payments are generally fixed in nominal terms.¹⁴⁷ For example, the ENA provided a view that:¹⁴⁸

The ENA considers that the Form of control paper under-states the problems with nominal debt being funded through real returns. The objective should be to reflect the efficient and achievable debt management practices of a prudent and efficient EDB. This is compromised by the provision of real revenues to fund nominal interest costs. While the bankruptcy risk is low, bankruptcy is of course an extreme outcome. More likely there will be a mis-match between the real returns and the nominal debt

¹⁴⁵ Vector "Input methodologies review – Update paper on the cost of capital topic" (9 February 2016), para 5.

¹⁴⁶ Vector "Input methodologies review – Update paper on the cost of capital topic" (9 February 2016), para 5. See also: Vector "Vector "Submission to Commerce Commission on the default price-quality paths from 1 April 2015: Process and issues paper" (30 April 2014), para 6-7.

¹⁴⁷ Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 92; PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 22.

¹⁴⁸ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 71.

costs as the nominal compensation will only match the EDB's nominal interest costs if the inflation forecast equals actual inflation. As explained by CEG, delivering a nominal return but maintaining an indexing approach would require us to use forecast CPI when rolling forward the RAB between regulatory periods:

That is, the IMs could be amended to target a nominal return on capital simply by rolling forward the RAB between regulatory periods using the same CPI forecast values used in the Commission's financial model at the beginning of the regulatory period.

249. Powerco submitted an alternative view to other suppliers and noted that in general terms they supported our existing approach.¹⁴⁹
250. A secondary aspect of submissions to the draft concerned our approach to inflation forecasting in the event that we maintained our existing approach to providing a real return. A number of suppliers suggested that inflation forecasts have a significant impact on the real returns earned by suppliers to the extent that they are biased upwards.
251. In particular, there was concern that the CPI forecast used to estimate revaluation gains (ie, based on the RBNZ forecast/target) can be inconsistent with the inflation that is inherent in the nominal WACC estimate (which is unobservable). For example, Vector note that:¹⁵⁰

Vector is concerned about the presumption of symmetry between the inflation presumed in the market forecast embedded in the nominal WACC estimate and reversed out in the RAB revaluation income. Where the RBNZ's forecast for inflation is greater than the inflation inherent in the *ex-ante* WACC estimate, suppliers are effectively over-penalised for the double counting of inflation.

252. They also consider that the risk of forecasting error does not wash out over a number of regulatory periods if those forecasts are consistently biased in one direction. For example the ENA noted that:¹⁵¹

In its Bulletin of June 2016, the Reserve Bank provides details on a review of its forecasting performance since the start of this decade. The paper shows that although the RBNZ compares favourably to other forecasters, there is a persistent bias towards over-forecasting CPI. This bias has proved and continues to prove significantly detrimental to equity investors, because all CPI forecast error is concentrated on equity investors because debt is issued in nominal terms.

¹⁴⁹ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 91.

¹⁵⁰ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 43.

¹⁵¹ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 73.

253. A solution suggested by Vector was to take into account 'market-based' inflation forecasts rather than relying on the RBNZ-based forecasts.¹⁵²

At a minimum, the Commission must improve its approach to inflation forecasting by taking into account market expectations of inflation. The Commission's forecast should include market based instruments for inflation such as index-linked government bonds. We see significant risk with the Commission relying on the RBNZ's inflation forecast given the history of over-forecasting inflation since the global financial crisis and decoupling with market expectations for inflation.

We do not consider these issues amount to a significant problem requiring IM changes

254. In relation to RAB indexation and inflation risk, we consider that there was a lack of understanding of:

254.1 our policy intent;

254.2 our approach to implementation; and

254.3 the outcomes that our approach produces.

255. We have considered submissions put forward by suppliers and consider that no change is needed. We provide our reasons for this position in this chapter.

256. Although we have not made any changes to our approach, we agree that there is a small risk to suppliers in the event that our forecast of inflation is biased or inconsistent with the inflation inherent in the WACC. However, we consider that:

256.1 there is limited evidence that our inflation forecast, based on the RBNZ forecast and target level, is systematically biased. Alternative (market-based) approaches suggested in submissions have their own problems which mean that they are unlikely to provide a more accurate forecast of inflation; and

256.2 no alternative approach to RAB indexation has been suggested that fully maintains the inflation protection provided by the current approach and also removes the potential for forecasting error.

257. Our approach also exposes equity holders to some risk that they will not achieve a real return when inflation outcomes are different to forecast and the supplier has issued debt in fixed nominal terms. This is true even if our inflation forecast and the forecast inherent in the WACC are aligned. However, we consider that:

257.1 over the long-term this risk is small and will wash out over time if the forecast of inflation is unbiased; and

¹⁵² Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 50.

257.2 the risk does not expose affect equity and debt holders collectively (ie, the total return to all capital is an *ex-post* real return) and suppliers can potentially manage any inflation risk to some extent through their debt-financing practices.

258. We do not consider that any of these risks are sufficiently large to justify a change in approach, given the likelihood that any forecasting errors will wash out over a number of regulatory periods.

Provision of a real return

259. The draft decision paper explained our policy intent to deliver real FCM and that the existing IMs achieved that policy outcome.¹⁵³ This was clarified in Attachment A of that paper and is consistent with our overall framework for the IM review.¹⁵⁴

260. Our policy intent is to provide suppliers with the expectation of real FCM. Where our forecasts (including of the CPI) are unbiased, we are clear that real FCM is expected on an *ex-ante* basis.

261. For EDB/GPBs, our approach to RAB indexation offers an *ex-ante* expectation of a real return (or real FCM), and delivers an *ex-post* real return (or real FCM). This results in an outcome where both consumers and suppliers are protected from inflation risk.

262. However, to the extent that suppliers issue nominal debt, equity holders may be exposed to a small risk when out-turn inflation is lower than forecast. This is because total nominal returns are lower, and interest payments to debt holders tend to be fixed in nominal terms when nominal debt is issued.¹⁵⁵

263. We have not yet heard a compelling reason why we should change our policy intent from targeting *ex-ante* real FCM to targeting nominal returns. As noted above, there is a trade-off between targeting real returns and the exposure of suppliers to forecast risk. On balance we still consider that the benefits of targeting prices that are flat in real terms outweigh costs associated with a supplier's exposure to forecast risk.

¹⁵³ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016).

¹⁵⁴ Commerce Commission "Input methodologies review decisions: Framework paper" (20 December 2016).

¹⁵⁵ In this case, while the firm receives an *ex-post* real return, equity holders receive less than a real return while debt holders receive more than a real return.

264. We continue to consider that providing an expectation of, and delivering (all else equal), real FCM promotes incentives to invest (consistent with section 52A(1)(a)). This approach protects the regulatory value of suppliers' investment in real terms.¹⁵⁶ We also consider that aggregate pricing that is flat in real terms over time is consistent with allocative efficiency in workably competitive markets.¹⁵⁷
265. We agree that inflation is outside suppliers' control. However, our approach to RAB indexation for EDBs and GPBs protects them (and their consumers) from inflation risk by *delivering* real returns all other things being equal. Therefore, real FCM is maintained.
266. We have sought advice from Dr Lally, who agrees that our approach and the outcome it delivers is consistent with our policy intent (ie, to deliver a real return). This ensures that the way we set and reset price-quality paths is consistent with our real FCM principle (which is sometimes referred to as 'NPV = 0'). As is explained in our Framework paper, this principle is that regulated suppliers should have the opportunity to maintain their financial capital in real terms over timeframes longer than a single regulatory period.¹⁵⁸
267. Overall, Dr Lally concludes that:^{159, 160}

RAB indexation in conjunction with the Commission's price-path adjustment does not violate the NPV = 0 principle. In addition the collective effect of these two adjustments is to preserve both the real output price paid by consumers and that received by the businesses over all periods, and therefore insulate them from inflation risks. The only downside is to expose the businesses to some additional bankruptcy risk, but this would be slight.

268. A potential problem with the current arrangements is the bankruptcy risk due to a mis-match between a supplier's debt payments fixed in nominal terms and the real returns provided for in the regulatory allowance. We consider this risk is probably small given both the low inflation environment (which means it is unlikely for inflation to drop much lower), and suppliers' ability to bear or mitigate it (eg, by

¹⁵⁶ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), Attachment A.

¹⁵⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 5.2.6.

¹⁵⁸ Commerce Commission "Input methodologies review decisions: Framework paper" (20 December 2016)

¹⁵⁹ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), section 3. Dr Lally's advice also covers our approach whereby we index the actual price path to a lagged measure of out-turn inflation.

¹⁶⁰ We note that although Dr Lally agrees that that our approach is consistent with our policy intent, he recommends an alternative approach which does not deliver *ex-post* real returns to the supplier. We discuss this additional advice from Dr Lally in para 281-286.

issuing inflation-indexed debt). Therefore, we consider that it does not warrant an IM change. In this respect, Dr Lally concludes that:¹⁶¹

this methodology exposes businesses to some bankruptcy risk when inflation is lower than forecast, because the interest payments to debt holders are fixed in nominal terms. Nevertheless, the Commission's inflation forecast errors are likely to be uncorrelated over time and therefore will tend to offset over time. Furthermore, inflation in New Zealand has low variability. So, the bankruptcy risk to businesses is slight.

269. Furthermore, we consider that the residual bankruptcy risk associated with the issuance of nominal debt is small. Also because actual inflation can be above or below forecast the risk to supplier's is broadly symmetric.¹⁶² It is likely that suppliers can either bear this risk, or potentially manage it to some degree (eg, by issuing inflation-indexed debt).
270. We consider that supplier's claims that they may over- or under-recover when inflation out-turn and forecast differ suggest that they do not agree that real FCM should be our underlying principle.¹⁶³ We consider that our approach ensures that capital holders collectively are made whole in real terms, which is more consistent with expectations in a workably competitive market.¹⁶⁴
271. Here is how we see the impact of inflation on revenues and RAB revaluations, which ensure that suppliers are made whole in real terms:
- 271.1 revenues: when out-turn inflation is lower (higher) than forecast, their nominal revenues are unchanged, while their real revenues are higher (lower); and
- 271.2 RAB revaluations: when out-turn inflation is lower (higher) than forecast, RAB revaluations are lower (higher) by an equal amount but in opposite direction to the change in real revenues.

¹⁶¹ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), section 3.

¹⁶² Bankruptcy is not a symmetric matter.

¹⁶³ We note that Powerco appears to agree with us when it notes: "Applying the DPP WACC together with the associated forecasts of inflation would leave intact the natural hedge for inflation that the Commission has observed is present in the current arrangements... Powerco submits that that the IMs could be amended to set out the objective to be achieved (ie, the use of an inflation assumption in revenue and the RAB that is consistent with the DPP WACC, so that the implicit inflation hedge is preserved...". Source: Powerco "Re: Scope and process for fast track amendments to the CPP input methodology requirements" (23 June 2015), para 34.

¹⁶⁴ For example: "**No commercial competitor would come into an industry if they did not expect to be able to recover the decline in real values of their assets, as well as earn a normal profit (the opportunity cost of capital).** They would measure their return in investment after recovery of funds sufficient to maintain the real value of the **financial capital** they had invested" HM Treasury Advisory Group, Accounting for Economic Costs and Changing Prices: a report to HM Treasury by Advisory Group, Vol. 1, HMSO, London, 1986, para 19 (emphasis in original).

272. Because the expected revaluation gains are deducted from allowed income in setting the price-quality path, the result is that the revenue/price-quality path effectively includes a real return on capital with the revaluation of the RAB providing the compensation for inflation over the period. CEG explained our approach as follows:

The IMs deliver a return on capital that is equal to the real cost of capital estimated at the beginning of a DPP/PPP – with actual nominal compensation arrived at by adding actual out-turn inflation over the DPP/PPP period to the estimated real cost of capital at the beginning of the DPP/PPP period.¹⁶⁵

273. We agree that our approach does expose a suppliers' nominal cash-flows to the risk that inflation differs from forecast. However, this is consistent with the policy intent as described in paragraphs 259-265. Protecting those nominal cash-flows would require a change to the overall policy. Submissions from suppliers do not seem to have any consensus on whether this is appropriate with the ENA, suggesting:¹⁶⁶

The ENA does not have a strong view on whether a real or nominal return is most appropriate for EDBs.

274. There is some confusion on this issue because some of suggested changes outlined by the ENA (see para 278) would result in the provision of nominal compensation but they are not explicitly linked to a recommendation to change the policy intent.

Exposure to inflation

275. A number of submissions considered that the current approach exposes suppliers to inflation risk. There appear to be three main concerns, as outlined in para 246-253:

275.1 First, that the risk that equity holders do not achieve a real return ex-post is too significant for a supplier to bear and means that equity holders will not achieve a real return;¹⁶⁷

275.2 The CPI forecast we use to forecast revaluation gains is not consistent with the 'market-based' inflation forecast inherent in the WACC;¹⁶⁸ and

275.3 The CPI forecast we use is upwardly biased which means the exposure to inflation risk does not wash out over a number of regulatory periods.¹⁶⁹

¹⁶⁵ CEG, "Inflation: revaluations and revenue indexation" (February 2016), para 9.

¹⁶⁶ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 66.

¹⁶⁷ For example, ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 80; Unison "Submission on the input methodology review" (4 August 2016), para 52.

¹⁶⁸ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 43.

¹⁶⁹ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 76; Unison "Submission on the input methodology review" (4 August 2016), para 53.

276. The 'equity holder risk' risk occurs because suppliers tend to issue debt that is fixed in nominal terms, whereas we provide an allowance for a real return, taking into account out-turn inflation. We have recognised this risk, but we do not consider it can be eliminated unless we provide a nominal return to debt-funded capital.¹⁷⁰
277. The ENA have characterised this risk as the danger that equity holders will not expect or achieve a real return.¹⁷¹

The more important consideration is the effect on the risks imposed on equity holders, given debt is issued by EDBs in nominal terms, but cash-flows provide for recovery of a real WACC in the short-term. This means that equity-holders are forced into earning less than the real required return on equity in the short-term, with a hope that CPI inflation will at least match the RBNZ's forecast so that the NPV \geq 0 criterion is met in the longer term.

278. They suggest four options to reduce the risk to equity holders:¹⁷²

While the ENA does not have a preferred solution to this issue, we note the following options are available:

- Progress methods to improve the Commission's forecasts; potentially including using inflation forecasts from multiple sources, not just RBNZ.¹⁷
- Apply a wash-up for the difference between forecast and actual inflation within the price-quality path.
- Apply revaluations at the rate of forecast, rather than actual, inflation (at least for non-exempt EDBs).
- Move to use of a nominal WACC without RAB indexation or intermediate approaches where the RAB is indexed only for the proportion that is equity funded.

279. We disagree with the ENA's suggestion that equity holders are 'forced' into earning less than the real required return.¹⁷³ The equity holder will always have an *ex-ante* 'expectation' of a normal return, given an unbiased forecast. However if it is assumed that a supplier's debt arrangements are fixed in nominal terms then the '*ex-post*' return achieved by equity holders may be higher or lower than a real return.
280. This outcome is consistent with our general approach of providing an *ex-ante* expectation of a normal return but not guaranteeing an *ex-post* delivery of a normal return. Consistent with this approach we note that:

¹⁷⁰ For example, by using forecast inflation to index the RAB or washing up for the difference between actual and forecast inflation.

¹⁷¹ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 68.

¹⁷² ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 78.

¹⁷³ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 68.

280.1 assuming an unbiased inflation forecast, the risk to equity holders (driven by their choice to issue nominal debt) means potential for under- or over-compensation will reduce over a number of regulatory periods; and

280.2 firms have at least some degree of control of the debt-financing arrangements that could be used to reduce the exposure of equity holders to this risk.¹⁷⁴

281. Following submissions on our draft decision we commissioned Dr Martin Lally to provide an updated report to consider those submissions. Although he rejected the majority of suggestions, he favoured Vector's and ENA's proposal to index the RAB using the expected (or forecast) inflation rate. This change would result in the provision of a nominal return to suppliers as described above.

282. Dr Lally makes this recommendation because he considers the advantages of using expected inflation to index the RAB outweigh the disadvantages, ie:¹⁷⁵

This has three advantages: it removes the bankruptcy risk to businesses arising from actual inflation being less than forecast inflation, it eliminates any violations of the NPV = 0 principle due to regulators' errors in estimating expected inflation, and it reduces the effort that needs to be devoted to correctly estimating the expected inflation rate because errors in doing so no longer induce violations of the NPV = 0 principle. The only drawback is that the RAB will evolve over time in accordance with expected inflation rather than actual inflation. Thus the real expenditures by consumers will be affected by inflation shocks.

283. Although we agree with the advantages and disadvantages described by Dr Lally, we have decided to maintain our existing approach because we place greater weight on protecting the real expenditures by consumers, and real FCM for suppliers, from inflation shocks.¹⁷⁶

284. Dr Lally considers that the advantages and disadvantages of choosing either approach are small – given the tendency of errors to net out over a succession of regulatory cycles. The fact that a change in approach would only ever provide a small advantage gives greater weight to our decision to maintain the existing approach.¹⁷⁷

285. Overall, although we recognise that there is some risk to equity holders, we have maintained our view from the draft decision that we do not think that this risk is sufficiently significant to convince us to change our overall approach which provides a real return. Furthermore, suppliers may be able to manage this risk through their

¹⁷⁴ We have previously noted how firm may have the potential to issue inflation-indexed or floating rate debt. See: Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), para 216.

¹⁷⁵ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 22.

¹⁷⁶ Although the impact of inflation shocks has been relatively benign in recent years, this may change in the future.

¹⁷⁷ Commerce Commission "Input methodologies review decisions: Framework paper" (20 December 2016).

debt issuance practices. We therefore consider that suppliers, not consumers, are better placed to bear that risk.

286. We also consider the allowance of real returns is a more stable position in the long-term, as we consider that under alternative inflation environments, suppliers may be more favourable to our policy of providing a real return.

Forecasts of CPI

287. Although we consider the best approach is to consistently provide a real return, we have some sympathy with suppliers on their concerns over the forecast of inflation (CPI) used to forecast revaluation gains. If the forecast is wrong it can magnify the short-term exposure of equity holders (but still results in an *ex-post* real return to the supplier as a whole), and if it is inconsistent with the inflation forecast inherent in the WACC it can result in a permanent increase or decrease in the return provided to suppliers.¹⁷⁸
288. To minimise these risks we want to use the best possible forecast of inflation and for it to be consistent with the inflation forecast inherent in the WACC. Our current approach is to use the RBNZ CPI forecast produced at the time closest to determination window used to estimate the risk-free rate and then trend to the mid-point of the RBNZ inflation target.
289. Some suppliers suggested that if we maintained our approach to providing a real return we should look to improve our forecasts of inflation to include 'market-based forecasts'. This is because they suggested that the RBNZ forecasts are biased and have a history of over-forecasting.¹⁷⁹ For example, Vector suggested that:¹⁸⁰

At a minimum, the Commission must improve its approach to inflation forecasting by taking into account market expectations of inflation. The Commission's forecast should include market based instruments for inflation such as index-linked government bonds. We see significant risk with the Commission relying on the RBNZ's inflation forecast given the history of over-forecasting inflation since the global financial crisis and decoupling with market expectations for inflation.

¹⁷⁸ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 41-43.

¹⁷⁹ ENA "Input methodologies review – Form of control and RAB indexation – Submission to the Commerce Commission" (4 August 2016), para 73; Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 48.

¹⁸⁰ Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 50.

290. Although, it is clear that out-turn inflation has been below the RBNZ forecasts in recent years, we do not think this necessarily means the forecasts are biased. As noted by Dr Lally, if a longer timeframe is used (ie, since 2002) then average out-turn inflation is only marginally different to the RBNZ target.¹⁸¹

...the forecast used by the Commission is a mix of the Reserve Bank's forecasts and the midpoint of the Reserve Bank's inflation target (2%), and the average inflation rate since this inflation target was adopted in September 2002 has been 2.1%. Thus, the inflation target appears to have the essential feature, and modifications to that forecast from use of the Reserve Bank's forecasts could be expected to improve it rather than undercut it.

291. As with any forecast there will be forecasting error, and although we do not consider a comparison of forecasts against outcomes is definitive, we have not seen any resounding evidence that the RBNZ inflation forecasts 'have had systematic errors over an extended period of time', as claimed by Vector.¹⁸²

292. If there is an 'error' in the inflation forecast, this still results in a real return to the supplier as long as the same 'error' is included in the inflation forecast inherent in the WACC.¹⁸³ This reduces the impact of any potential over-forecasting of inflation by the RBNZ, as long as it is consistent with investor expectations of forecast of inflation inherent in the nominal WACC.

293. The ENA cite a paper in their submission which states that the RBNZ forecasts have performed well compared to other forecasts.¹⁸⁴ This suggests that there would be limited value in using alternative CPI forecasts, which are likely to be similar, or less robust than, the RBNZ forecasts. This limits the likelihood that market expectations are likely to significantly differ from than the RBNZ forecasts.

¹⁸¹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p.23.

¹⁸² Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), p.8.

¹⁸³ This is because any error in the forecast asset revaluation (which is netted off from the supplier revenue allowance and based on our forecast of CPI) would be offset by the same error in the return on capital allowance, which determined from the nominal WACC.

¹⁸⁴ Reserve Bank of New Zealand, "Bulletin Vol. 79, No. 10" (10 June 2016). Available at: <http://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2016/2016jun79-10.pdf>

294. Vector suggested that a better approach than using the RBNZ forecast would be to use forecasts of inflation that are implied from the yields of inflation-indexed bonds, which they suggest imply a 'market' forecast of less than 1%. Although this method is an alternative approach to forecasting inflation, we note there are a number of issues which mean that this does not necessarily provide a more appropriate estimate of inflation than the RBNZ forecasts. For example:
- 294.1 The shortest dated NZ government inflation-linked bond matures in 2025.¹⁸⁵ Therefore any implied inflation would be an average over the period until the bond matures and would not necessarily correspond to the five-year regulatory period;
- 294.2 Yields on nominal government bonds can include a premium for bearing inflation risk which can distort the implied inflation forecast; and
- 294.3 Yields on CPI-indexed government bonds can include a liquidity premium, given the relative scarcity of this type of bonds. This can distort the implied inflation forecast.
295. In a low inflation environment, the difficulty in inferring inflation from the yields on different bonds becomes more difficult because the impact of the various premiums can significantly outweigh the actual level of inflation. We also note that the AER has previously moved away from 'market-based' inflation estimates to a central bank target, due to the unreliability of the forecasts and bond liquidity issues.¹⁸⁶ Further, we understand that the RBNZ takes into account 'market' forecasts/expectations in their inflation forecast.
296. Transpower also noted the difficulty in determining a forecast of inflation from bond rates:¹⁸⁷
- In New Zealand, it is not possible to estimate reliably expected (implied) inflation embedded within the nominal WACC by, for instance, comparing the yields on nominal and inflation-protected government bonds. This is because inflation-protected bonds are very thinly-traded in New Zealand so the yields on those bonds will reflect, in part, an illiquidity premium and will not provide a 'pure' measure of the real risk-free rate
297. Given the issues associated with alternative inflation forecasting methods, we have decided not to move to an alternative approach in the IMs and will maintain the existing methodology. We are open to future improvements to our inflation forecasts. However, we do not consider that there are obvious enhancements that can be made to our current approach at this time.

¹⁸⁵ There are 3 CPI-indexed bonds currently on issue by the New Zealand Government. These mature in 2025, 2030, and 2035.

¹⁸⁶ See AER "SP AusNet transmission determination 2008-09 to 2013-14: Final decision" (January 2008), p.88-89. Available at: <https://www.aer.gov.au/system/files/AER%20Final%20decision.pdf>

¹⁸⁷ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), footnote 24.

Weighted average approach

298. An alternative potential option put forward by CEG (on behalf of the ENA) would be to apply a 'weighted average approach' in which the compensation for the cost of equity would be based on a real return and compensation for the cost of debt would be based on a nominal return.¹⁸⁸
299. This approach has some attraction in that it reduces the potential for equity holders not to achieve a real return. However, we have not been convinced to introduce the weighted average approach because we consider:
- 299.1 It adds complexity to the overall approach both conceptually and in practice which is not justified by the existence of significant problems with the existing methodology.
- 299.2 We consider that pricing that remains constant in real terms over time is consistent with allocative efficiency in workably competitive markets. A change in our approach which provides compensation for debt fixed in nominal terms would transfer inflation risk from suppliers to consumers. However, because debt-financing practice is in the control of suppliers we consider that it is most appropriate for suppliers to bear this risk, and be incentivised to undertake efficient financing arrangements.

We are not making any changes in this area

300. Submissions have outlined some of the short-term risks that arise from the interaction of inflation forecasts with our approach to RAB indexation. However, we have not yet heard a compelling reason why we should change our policy intent from targeting *ex-ante* real FCM to targeting nominal returns.
301. We continue to consider that providing an expectation of, and delivering (all else equal), real FCM promotes incentives to invest (consistent with s 52A(1)(a)). This approach protects the regulatory value of suppliers' investment in real terms. Further, our current approach to RAB indexation, as provided for in the IMs, is consistent with our policy intent. It delivers real FCM for capital holders collectively, protecting consumers and suppliers from inflation risk .
302. The only potential problems relate to the potential for equity holders to get less/more than a real return and the accuracy of inflation forecasting. We consider these risks to be relatively small, and they cannot be easily mitigated without a change in our policy intent. We have therefore decided not to make an IM change on our approach to RAB indexation for EDBs/GPBs.

¹⁸⁸ CEG, "Inflation: Revaluations and revenue indexation" (report prepared for ENA, February 2016), para 30-31.

Chapter 6: RAB indexation and inflation risk – Transpower

Purpose of this chapter

303. This chapter explains the issues we identified in relation to Transpower's exposure to inflation risk and the time profile of capital recovery.
304. It also discusses the possibility raised in the draft decision of applying an 'annual capital charge adjustment' for Transpower to reduce inflation risk and why we do not consider an IM change is warranted at this time.

Structure of this chapter

305. This chapter begins by summarising the issue we identified relating to RAB indexation and inflation risk for Transpower and its customers, and why we are not proposing to make any changes to Transpower's indexation approach.

We considered whether we should index Transpower's RAB to inflation

306. Stakeholders did not raise problems with the approach to RAB indexation and inflation risk that applied under the pre-review IMs for Transpower. However, we identified and considered the following issues, as part of our review of RAB indexation.¹⁸⁹

Time profile of capital recovery

307. Our lack of indexation of Transpower's RAB means that capital recovery is front-loaded relative to an indexed approach (as applied to the EDBs). We considered this was appropriate in 2010 given their relatively large investment programme, since an un-indexed approach would likely lead to higher revenues in the near-term that better matched their investment needs. We signalled that we would re-consider the arrangement in the future once their major investment tranche came to an end. This has now happened.¹⁹⁰

Inflation risk

308. Our existing (un-indexed) approach for Transpower delivers *ex-post* nominal returns, which exposes both consumers and Transpower to the risk that out-turn inflation differs from the inflation expectation inherent in the nominal WACC used. We noted the possibility of eliminating this risk by creating an annual capital charge adjustment through the maximum allowable revenue (**MAR**) wash-up.¹⁹¹

¹⁸⁹ When setting the IMs in 2010, we noted that we would review the approach to RAB indexation for Transpower, when their investment requirement had reduced. See: Commerce Commission "Input methodologies (Transpower) reasons paper" (December 2010), para 4.3.12-4.3.15.

¹⁹⁰ Commerce Commission "Input methodologies (Transpower) reasons paper" (December 2010), para 4.3.12-4.3.15.

¹⁹¹ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), para 234-235.

We are not proposing to change the IMs to index Transpower's RAB to inflation

309. On balance, we have decided to maintain the existing approach, whereby we do not index Transpower RAB to inflation. We have not identified any problems in relation to our approach and we are not aware of a compelling enough reason that warrants a change to the status quo.
310. If we were to change our approach there would be complexity and compliance costs of an unknown magnitude, given Transpower's regulatory approach relies heavily on consistency with GAAP to the extent practicable, and indexing the RAB would not be able to be achieved in a GAAP consistent manner. We also considered the possible revenue shock RAB indexation could cause.¹⁹²
311. The uncertainty around capital recovery resulting from emerging technologies means that indexing Transpower's RAB is not consistent with our approach to shortening asset lives for EDBs. To be consistent we would have to allow an equivalent treatment for Transpower, but this would add complexity for a similar outcome to that achieved under no RAB indexation.
312. We consider that these reasons justify maintaining a different approach than for EDBs.
313. Submissions from Transpower on this point were consistent with our decision.¹⁹³

We support the Commission's draft decision not to index Transpower's RAB. We consider this to be consistent with the Commission's position on emerging technology, and the draft decision to allow EDBs accelerated depreciation. We support the Commission's reasons against RAB indexation for Transpower.

314. In addition, support for our decision was provided by MEUG, though it was dependent on the development of the Transmission Pricing Methodologies (TPM).¹⁹⁴

MEUG agrees with the Commerce Commission's draft decision to retain the approach of not indexing Transpower's RAB to inflation. Our view might change depending on any future revision to the TPM.

¹⁹² For an assumed inflation forecast range of 1-3% and given Transpower's RAB of around \$4.5bn, our indicative estimate is that revenue could decline by around \$45m to \$135m annually compared to the current approach. The RAB would be revalued by this same amount (where outturn inflation equals forecast).

¹⁹³ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p.8.

¹⁹⁴ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016). para 14.

315. On the other hand, PwC submitted they did not understand why we apply a different approach for Transpower.¹⁹⁵

We appreciate the logic put forward in support of the current approach to RAB indexation. However, this is undermined by the application of a different approach to Transpower. We cannot see any principled justification for the regulatory regime to provide Transpower with a nominal return while it provides distributors with a real return.

316. Submissions have not persuaded us that we should change our approach to not indexing Transpower's RAB. We agree that this is a different approach to EDBs but consider that the increased compliance and complexity that would be required to change the approach for Transpower do not justify the benefits in terms of protection from inflation risk. EDBs benefit from the ability to shorten asset lives, which can lead to the recovery of cash-flows earlier. This is broadly analogous to the use of an un-indexed RAB.

We are not proposing to introduce an annual capital charge adjustment

317. Although we have maintained our previous approach for Transpower – which is not indexing its RAB to inflation, as part of the draft decision we considered a possible change we could make to this approach which would deliver real FCM *ex-post* by way of an 'annual capital charge adjustment'.
318. Without this adjustment, our approach delivers *ex-post* nominal returns, which exposes both consumers and Transpower to the risk that out-turn inflation differs from the inflation expectation inherent in the nominal WACC used.
319. Following submissions we decided not to introduce the annual capital charge adjustment. This is because we consider it would be an additional complication that is unlikely to result in significant benefits to suppliers or consumers in the current low inflation environment.

Potential to deliver real FCM ex-post

320. The possible change was to protect both consumers and Transpower from inflation risk by delivering real FCM *ex-post* all else equal, consistent with our approach to EDBs and GPBs. We proposed to create an annual capital charge adjustment through the MAR wash-up.
321. The adjustment would be equal to the difference between the actual and forecast inflation rate, multiplied by the opening RAB. Since the forecast inflation is a proxy for the inflation expectation inherent in the nominal WACC, the forecast to use should be the one produced at the same time as when the nominal WACC is calculated.

¹⁹⁵ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 109.

322. Transpower did not agree with the introduction of the proposed annual capital charge adjustment.¹⁹⁶

Although we appreciate what the Commission is seeking to achieve, we do not support the proposal "to create an annual capital charge adjustment through the MAR wash-up" in order to address inflation risk.

We have not considered this issue in great detail and have discussed the matter only briefly with the Commission team. However, we agree with the Commission's suggestion that "the net benefits of the proposed change may be relatively small, since inflation forecast errors are likely to be uncorrelated and inflation has low variability in New Zealand" , particularly given the regulatory complexity that this would add.

323. MEUG also considered that the cost of implementing the proposal may not outweigh any benefits.¹⁹⁷

in the future a re-alignment of a changed TPM and RAB IM is required (see discussion paragraph 10 v) above) it would likely make the proposed annual capital charge adjustment through the Maximum Allowable Revenue (MAR) wash-up obsolete. Given there will be a cost of implementing the proposal and no assessment in the draft decision of possible benefits (other than an open question for views on what those might be) plus uncertainty on if and how future integration of the RAB IM and TPM might evolve, MEUG has no basis to know if the proposal is beneficial or not.

324. After weighing up the trade-off between the cost of implementing the proposal and its known benefits, we have decided not to proceed with the annual capital charge adjustment for Transpower. Despite this we feel that there remains a valid argument for ensuring the delivery of real FCM for Transpower, consistent with our approach for EDBs, and do not rule out making a change in this area in future.

¹⁹⁶ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p.8.

¹⁹⁷ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 14.

Attachment A: Incentives for pricing efficiency and tariff restructuring

Purpose of this attachment

325. This attachment discusses some theoretical and practical considerations about efficient pricing under both forms of control – WAPC and revenue cap.

Practical considerations diminish theoretical concerns of revenue caps

326. Stakeholders have raised concerns associated with the incentives that a revenue cap would place on suppliers to price efficiently.
327. As part of our draft decision package we published a letter from the EA which explained its views on pricing efficiency under a revenue cap for EDBs.¹⁹⁸ As part of the EA's broader interest in EDBs' incentives to price efficiently, the letter set out some substantive questions regarding the impact of the form of control on pricing efficiency.¹⁹⁹
328. The EA has raised a concern (also supported in the economic literature)²⁰⁰ that EDBs might have an incentive to price inefficiently under a revenue cap. The issue raised is that under a revenue cap there is a risk of inefficient pricing as suppliers may over-price,²⁰¹ especially to price-sensitive customers to reduce costs. Suppliers might cause price-sensitive customers to reduce demand to defer investment inefficiently, therefore reducing costs for the supplier and maximising profit (as revenue is already agreed).
329. Our understanding of these concerns and underlying assumptions is as follows.
330. A key concern is that EDBs may set price(s) above the unregulated monopoly price under a revenue cap.²⁰² This would happen because the EDB can achieve the allowed revenue at two different price levels (solutions) – a low and a high price. The concern is that the EDB will choose the high price as this minimises costs, and thus maximises profits. Such an outcome relies on three assumptions that do not appear to be fully met in the context of regulating EDBs in NZ; therefore making this critique less concerning.

¹⁹⁸ Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016).

¹⁹⁹ We note that if the EA makes any decision in relation to the pricing methodologies that apply to EDBs, the process under s 54V applies. This process requires the EA to consult with the Commerce Commission before amending the Code, and for the Commerce Commission to take account of any provisions relating to pricing methodologies before exercising its powers.

²⁰⁰ Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016), page 3; and Steven Stoft, "Revenue Caps vs. Price Caps: Implications for DSM", (1995).

²⁰¹ Prices that may exceed what an unregulated monopolist would charge.

²⁰² This is often known as the Crew & Kleindorfer (C&K) critique of revenue caps. Our understanding is that it relates to average prices. Michael A. Crew, Paul R. Kleindorfer, "Price caps and revenue caps: Incentives and Disincentives for Efficiency", (1996).

331. First, it assumes that the dynamics of reaching the 'high price equilibrium' do not matter. In reality, we consider that they do matter. To reach that equilibrium, the EDB would likely require a large (potentially dramatic) and sudden price increase. This price increase is needed because the 'status quo' price under a WAPC will almost certainly be below the unconstrained monopoly level, while the 'high price solution' is above it.
332. If the EDB were to raise prices in such a way under a revenue cap, given lags in consumer response, revenue would likely significantly exceed the revenue cap for some time before falling to the allowed level (it may not fall as per the below elasticities discussion).²⁰³ We expect that our wash-up mechanism would force prices back down by forcing the EDB to return the over-recovery to consumers in subsequent years in the form of lower prices. This would likely prevent the EDB from achieving the high equilibrium price.
333. In addition, there are other factors which will also weaken the validity of the assumption:
- 333.1 first, the revenue cap will include a limit on the average price increase which would act as a constraint;
- 333.2 second, the above-mentioned pricing behaviour would likely breach the EA's pricing principles; and
- 333.3 other non-price constraints (eg media, public backlash) would likely make large, dramatic price increases unlikely.
334. Second, it assumes that at a high price level, demand and therefore revenue will fall. This requires high elasticities of demand, which appear unlikely for electricity demand unless prices are increased substantially (eg, electricity elasticity demand estimates we used in the WACC topic paper decision²⁰⁴ ranged from -0.013 to -0.030 in the short-run and -0.044 to -0.157 in the long run).²⁰⁵ Further, since line charges make up around one third of the final energy bill, the increase in EDB prices would have to be even higher.
335. Third, it assumes that costs fall with reductions in customers/volumes. This is what leads the firm to choose the high price equilibrium, as this maximises profits (ie, same revenue but lower costs). This has at least two associated concerns – an

²⁰³ It is possible that the EDB could reduce other prices at the same time in order to stay within the revenue cap. In practice, it appears unlikely that EDBs can price discriminate as flexibly and accurately as this would require.

²⁰⁴ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (20 December 2016) Chapter 4.

²⁰⁵ We note that elasticities can vary between different consumer groups, firms, the industry as a whole, and different price components (eg, fixed prices or time-of-use prices). Therefore, this assumption may hold more strongly for some consumer groups/firms or price components, and less strongly (or potentially not at all) for others.

incentive to reduce peak demand (potentially to inefficiently low levels, which could happen when price is not cost reflective) to avoid incremental costs, and an incentive to 'lose' customers (or incentives not to connect new customers), as every additional customer causes costs but does not increase revenue.

336. The model applies more to a vertically integrated utility that also generates electricity and so has higher variable costs,²⁰⁶ but much less so for a largely fixed cost EDB. Although this seems largely true for sunk costs, the concern remains to some extent for incremental costs, where higher prices can reduce incremental costs.²⁰⁷
337. Regarding the 'peak demand' concern, EDBs may indeed have an incentive (at least within the regulatory period) to excessively reduce demand peaks throughout their networks as this would reduce a key cost driver.²⁰⁸ However, this incentive is weakened when EDBs take a longer term view (in addition to the factors described in paras 331 and 334 above). This is because any investment that the EDB is potentially able to delay or avoid through over-pricing will not enter the RAB when prices are reset prior to the following regulatory period; which – other things equal – would result in lower allowed revenues and average prices for consumers. Furthermore, the EDB runs the risk that we reduce future expenditure allowances. Also, as we have noted in the past,²⁰⁹ investors focussed on the long term may not support a strategy of running down the RAB.
338. In relation to the potential incentive to 'lose' customers (or incentives not to connect new customers) as discussed in paras 100 and 101, we consider that EDBs are sufficiently incentivised to connect new customers (eg, capex goes into the RAB plus cost recovery can be accelerated through capital contributions) and our ID requirements can 'shine a light' and induce good performance. Some submitters have also made the point that EDBs take a longer term view when setting prices, saying for example that "EDBs are businesses that invest in long-term assets and are concerned to ensure that they can recover their investments".²¹⁰

²⁰⁶ The context in the Stoft paper is that of a vertically integrated utility with higher variable costs. Steven Stoft, "Revenue Caps vs. Price Caps: Implications for DSM", (1995).

²⁰⁷ Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016), p. 3.

²⁰⁸ This concern relates to situations where prices are set to inefficiently high levels. Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016), p. 3.

²⁰⁹ Commerce Commission "Regulatory incentives and the cost of capital" (23 June 2014), p. 4.

²¹⁰ ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016), para 41.

339. A final concern raised in the literature is that a revenue cap causes relative prices to move away from the Ramsey optimum;²¹¹ that is, charge high price-cost mark-ups to more price-sensitive consumers or services and low mark-ups to less price-sensitive ones. This would happen because a revenue capped firm maximises profits in this way: reducing cost via price-induced falls in volumes. This results in lower total welfare.
340. This concern also appears to assume costs are sensitive to volumes. This is not strongly the case for EDBs, except for incremental costs as mentioned above. Further, it assumes that EDBs can price discriminate more flexibly than we understand they do in practice.²¹² We note that EDBs' ability to price discriminate might increase over time, as a result of increasing availability of consumer data from smart meters (among other sources), coupled with increasing capabilities for data processing and analysis. However, other factors such as the extent/granularity of retailer pass-through of EDB prices might also mitigate this concern.
341. Nevertheless, this concern does not appear to consider all aspects of pricing efficiency. Ramsey pricing is primarily concerned with recovering sunk costs in the least distortionary manner (likely involving minimising reductions in sales/volumes/demand), rather than sending the right forward-looking pricing signals. So Ramsey pricing does not necessarily promote efficient investment outcomes. Having a higher price for price-sensitive consumers might be in fact be an appropriate signal in the event of capacity constraints. This might be the case where demand from these price-sensitive consumers is driving investment needs to meet peak demand.
342. A number of suppliers considered many of these concerns to be theoretical and overlook EDBs' actual business practices.²¹³ We conclude that these concerns that revenue caps give rise to may not apply as strongly in practice for EDBs, but some concerns may remain.

Compliance risks under WAPC pose barriers to price restructures

343. In choosing a WAPC for EDBs in 2010 we considered that in theory the WAPC should be expected to incentivise efficient pricing because regulated suppliers can utilise their knowledge of consumers' price responsiveness when pricing to maximise

²¹¹ Often referred to as Ramsey-Boiteux pricing, it is a pricing rule that maximises total welfare (consumer plus supplier) under the constraint of non-negative profits for suppliers. It says that the price markup should be lower for price sensitive consumers and higher for consumers that are less price sensitive. So it assumes that suppliers can price discriminate. Steven Stoft, "Revenue Caps vs. Price Caps: Implications for DSM", (1995).

²¹² ENA "Input Methodologies review – Topic paper 1, form of control and RAB indexation" (4 August 2016), p. 13.

²¹³ For a selection of views, see for example: Aurora "Cross-submission, Input Methodologies Review: Draft Decision and Determination Papers" (18 August 2016), p. 7

profits and manage demand risk – potentially reducing allocative inefficiency.²¹⁴
However, we have not seen this happening in practice to a significant extent.²¹⁵

344. We note that this does not necessarily mean that the WAPC has ‘failed’ in providing incentives to price efficiently. What it probably means is that other factors and circumstances have presented even greater incentives in the opposite direction. It is hard to isolate the causal forces behind the relative lack of efficient pricing to date.
345. We understand that suppliers are deterred from restructuring their tariffs because of the risk of non-compliance with their regulatory obligations (ie, breaching their price-path), or the risk of under-recovering revenue. Moving to a revenue cap will allow suppliers more flexibility to restructure tariffs and ensure that opportunities to change tariff structures that might result in more efficient pricing are not restricted.
346. Stakeholders presented mixed views on this point. For example, Vector suggested that, in future, the need for innovative network tariffs will become more frequent as the impact of emerging technology becomes more significant. However, they submitted that the current tariff restructuring requirements under the WAPC are onerous, which impede tariff innovation. This would be resolved by moving to a revenue cap.²¹⁶
347. Similarly, Wellington Electricity considered that under a revenue cap EDBs would have positive incentives to move towards more cost reflective tariffs.²¹⁷ It suggested that the lower volume risk will enable EDBs to be more innovative with their pricing without the fear of unintended revenue loss or compliance issues. It suggested that this will also enable clearer price signals to encourage consumer responses that could potentially assist to reduce peak demand periods to defer network capital expenditure.

²¹⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 8.3.8.

²¹⁵ The Lines Company is the only EDB that has taken significant steps in tariff reform. We also note the ENA's November 2016 technical discussion paper on new pricing options for EDBs.

²¹⁶ Vector "Input methodologies review – emerging view on form of control" (24 March 2016), para 11.

²¹⁷ Wellington Electricity "Input methodologies review – Commission emerging views" (24 March 2016), p. 3.

348. Eastland also suggested that there are significant incentives within the industry to develop cost reflective prices and that the current WAPC is a disincentive to developing new pricing.²¹⁸ Also, Network Tasman commented that a revenue cap would be administratively easier for a pricing restructure than a WAPC.²¹⁹
349. However, in response to our emerging views paper, MEUG also commented that a move to a revenue cap would encourage suppliers to persist with volume-based charging which it states is "a pricing mechanism that does not support efficient recovery of network costs and shifts the risk of over-investment".²²⁰
350. Prior to their latest announcement on next steps for the Distribution Pricing Review, the EA also suggested that efficient pricing could still emerge under a WAPC as some important factors are changing. For example, the increasing penetration of smart meters, the uptake of emerging technologies, and the EA's recent interpretation of the Low Fixed Charge regulations could result in suppliers restructuring prices more under the WAPC.
351. We consider that our decision to introduce a revenue cap removes a barrier to tariff restructuring, but may weaken some of the incentives that theory suggests a WAPC places on EDBs to price efficiently.

Other important incentives to make pricing more efficient

352. We consider that the choice of the form of control is not the only factor that can potentially positively incentivise more efficient pricing. For instance, independent, publically available reviews of EDB pricing practices have scored pricing methodologies against efficient pricing principles, and highlighted examples of particularly good practice.²²¹
353. We acknowledge that more scrutiny and/or prescription may be needed to assess efficient pricing under a revenue cap to maintain incentives on EDBs to improve pricing efficiency. This may result in increased regulatory costs (borne by either the EA and/or us). However, as suggested by the EA, the benefits of improving distribution pricing are likely to be substantial at more than \$1 billion over the next 25 years,²²² and therefore we consider that more scrutiny and/or prescription of EDBs' pricing approaches could be worthwhile for the substantial benefits available.

²¹⁸ Eastland submission on IM review draft decisions papers "Submission to the Commerce Commission – Input methodologies review" (4 August 2016).

²¹⁹ Network Tasman "Submission on the input methodologies review consultation" (4 August 2016), p. 4.

²²⁰ MEUG "Submission on emerging views on form of control" (24 March 2016).

²²¹ Castalia "Review of Electricity Distribution Businesses' 2013 Pricing Methodologies, Report to the Electricity Authority" (November 2013).

²²² Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016).

354. As part of its Distribution Pricing Review, the EA is focussed on facilitating an industry-led adoption of efficient distribution pricing. We note the concrete next steps that the EA has recently announced in this regard.²²³ The EA expects each distributor to publish (before 1 April 2017) its plan for introducing efficient pricing, including an outline of the planned process including consultation with consumers and a timeline with key milestones.
355. The EA also intends to:
- 355.1 monitor and report on distributor progress towards adopting efficient distribution price structures;
 - 355.2 review the current distribution pricing principles and associated information disclosure guidelines and consult on any proposed changes; and
 - 355.3 assess alignment of distributor prices against the distribution pricing principles (each year from April 2018).
356. We consider that the outcomes of the Distribution Pricing Review should provide additional incentives on EDBs to move to more efficient pricing; and should therefore help to offset the risk that the disincentives to price efficiently under a revenue cap are more significant in practice than the evidence before us suggests.
357. Lastly, emerging technology developments, which are independent of the form of control, increasingly present a threat for EDBs of some consumers self-supplying. Although we found inconclusive evidence of this risk increasing,²²⁴ the growing uncertainty surrounding this risk can provide an incentive on EDBs to make their prices more efficient.

Conclusion

358. On balance, we consider that moving EDBs from a WAPC to a pure revenue cap would remove potential compliance disincentives on suppliers to restructure their tariffs to be more efficient (consistent with s 52A(1)(b)).
359. We consider that there are a mix of factors encouraging pricing efficiency,²²⁵ which taken together, are likely to dominate over any potential diminished incentives to price efficiently under a revenue cap. These factors include EDB's longer term incentives to recover the cost of their investments; the nature of the sector's cost structure (ie, where fixed costs make up a significant proportion of the total); the dynamics of reaching the high price (which diminish the likelihood of a successful material price increase); relatively low price elasticities of demand; EDBs' limited

²²³ Electricity Authority "Market Brief – 25 October 2016" (25 October 2016).

²²⁴ Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016).

²²⁵ We note that some factors will positively encourage pricing efficiency but others may simply mean that any potential diminished incentives to price efficiently under a revenue cap do not hold in practice.

ability to identify price-sensitive consumers; the constraints placed by the design of the revenue cap; the EA's ongoing work on distribution pricing; emerging technology developments; and non-economic constraints on pricing such as public perceptions.



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20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26</i>
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27</i>
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28</i>
20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29</i>

Commerce Commission
Wellington, New Zealand

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Executive summary

Purpose of this paper

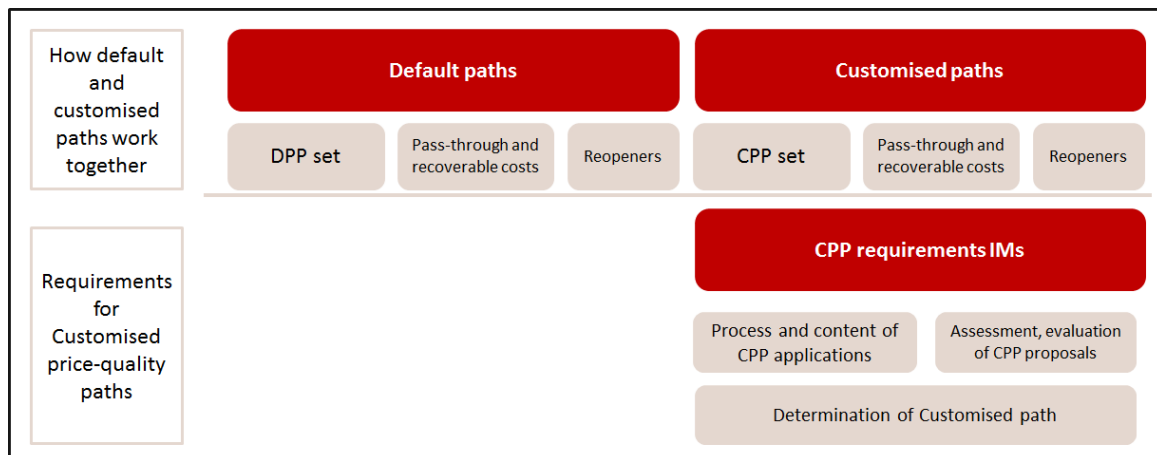
- X1. The purpose of this paper is to set out:
- X1.1 our views on the default/customised price-quality regime – including how default and customised paths work together, and changes to areas where improvements can be made; and
 - X1.2 our changes to the detailed requirements for customised price-quality paths (**CPPs**) set out in the input methodologies (**CPP requirements**).
- X2. This paper relates to electricity distribution businesses (**EDBs**) and gas pipeline businesses (**GPBs**) that are subject to price-quality regulation.
- X3. However, at this stage, we have not considered changes to the CPP requirements specific to GPBs that set out the information that is required to be included in a CPP proposal.¹

Overview of the CPP requirements topic

- X4. The review of the input methodologies (**IMs**) has provided us with an opportunity to consider what improvements can be made to how we implement the default/customised price-quality regime, as well as the specific requirements for CPPs. In particular, we have considered:
- X4.1 How default price-quality paths (**DPPs**) and CPPs work together — when setting the initial IMs in 2010, we did not have practical experience of how the two mechanisms would interact.
 - X4.2 Specific improvements to the CPP requirements — utilising experience with the first CPP proposal, and taking account of developments in information disclosure since the IMs were set in 2010.
- X5. Figure X1 illustrates the two different levels of this review and the components involved.

¹ As noted at paragraph 34 of this paper, we have not yet reached draft decisions on the CPP information requirements for gas pipeline businesses. This work remains within the IM review and we are currently planning to have a final decision for this work by quarter four of 2017.

Figure X1: Overview of the components of the review of CPP requirements topic



X6. This paper follows our consultation on this topic:

X6.1 Topic 8 of our IM review problem definition paper in June 2015.

X6.2 CPP fast track amendments in November 2015.

X6.3 Emerging views paper in February 2016 on opportunities to improve the way DPPs and CPPs work together.

X6.4 Technical workshop on CPP information requirements in April 2016.

X6.5 Our draft decisions on the IM review.²

X6.6 The technical consultation update paper we put out in October 2016.

Summary of changes that are part of the CPP requirements topic

X7. The changes explained in this topic paper are in the context of our view that fundamentally the underlying intent of our IMs for the DPP/ CPP regime remains sound. We consider the IM changes we have made to be improvements aimed at giving better effect to this intent.

X8. Accordingly, the majority of our changes are to reduce cost and complexity, and improve the certainty provided by how we specify the IMs.

² Commerce Commission "Input methodologies review draft decisions – Consolidated package of 16 June 2016 draft decisions papers" (16 June 2016).

- X9. A summary of the changes is set out in the series of tables X1-X5 that follow. Note, the change to align the DPP and CPP weighted average cost of capital (**WACC**) is explained in the cost of capital topic paper and included in Table X1 for summary purposes only.³

³ Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

Table X1: Summary of changes in relation to how DPPs and CPPs work together

Topic	Change	Reason for the change	Chapter
Quality-only CPP	Option for EDBs to apply for a quality-only CPP removed and replaced by a quality standard DPP reopener.	Reduced cost and complexity – suppliers are able to apply for a variation to their quality standards without the full cost of the CPP process. This also accounts for practical difficulties in assessing and evaluating 'single-issue' CPPs.	Chapter 3
Pass-through costs	Certain pass-through costs may be specified in advance for the forthcoming DPP period as part of the DPP reset process – no longer restricted to specifying these costs during the affected regulatory period.	Reduced cost and complexity – allows a greater number of pass-through costs to be specified through a DPP or CPP determination where the cost is outside of the control of the supplier, instead of requiring a change to the IMs.	Chapter 3
Prudently incurred expenditure	Allowing the recovery of prudently incurred costs, in response to an urgent project, between when a CPP is applied for and when it comes into effect. We have also extended the capex wash-up mechanism to CPPs.	Promotes the purpose of Part 4 – creates incentives to invest where urgent work is needed while the Commission is assessing a CPP proposal.	Chapter 3
CPP contingent projects	Allowing the CPP to be reopened for contingent and unforeseen projects, for EDBs and GDBs.	Promotion of the purpose of Part 4 – provides incentives for suppliers to innovate and invest by allowing a mechanism for the consideration of large incremental expenditure (to be approved where appropriate) in addition to the expenditure originally provided for in a CPP.	Chapter 3
Difference in DPP and CPP WACC rates	A single WACC should apply to all suppliers on DPPs and CPPs for the duration of each DPP regulatory period.	Promotion of the purpose of Part 4 – removing the separate WACC for CPPs so we do not dis-incentivise CPPs where they are in the long-term benefit of consumers or perversely incentivise CPPs where WACC increases.	Topic paper 4 – Cost of capital issues

Table X2: Summary of changes to information requirements for EDBs

Topic	Change	Reason for the change	Chapter
Modifications and exemptions	Exemption and modification provisions (completed November 2015 as part of IM review) explicitly specify scale as a potential consideration in the approval of exemption and modification requests. This change also applies to GPBs.	Additional certainty – now clear that Commission considers scale an important consideration in allowing CPP applicants to reduce the cost of preparing CPP application by applying for modifications and exemptions to the existing requirements.	Chapter 5
Duplication	Removing the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements.	Reduced cost and complexity – applicants able to rely more on already existing information when making a CPP proposal.	Chapter 5
Deliverability	Including new requirements for a deliverability plan for the proposed expenditure; and improving the way in which applicants demonstrate the deliverability of their proposed expenditure with existing requirements.	Additional certainty – deliverability expectations now clearer for applicants upfront.	Chapter 5
Level of disaggregation	Reducing the level of disaggregation required for certain information requirement – such as, related party transactions, capital contributions, depreciation and tax.	Reduced cost and complexity – applicants are no longer required to provide information at a more detailed level.	Chapter 5
Alignment with ID	Aligning the information requirements with EDBs' information disclosure requirements – such as the qualitative and quantitative information required in Schedules D and E.	Reduced cost and complexity – applicants are not required to reformat information already provided under ID, to comply with the CPP information requirements.	Chapter 5
Quality standard variation information	Updating the information requirements for when a supplier proposes a quality standard variation as part of a CPP proposal, to reflect how we currently set quality standards.	Promotes the purpose of Part 4 – ensures that we have the quality information to set CPP quality standards that deliver long term benefits to consumers.	Chapter 5

Table X3: Summary of changes to verification requirements

Topic	Change	Reason for the change	Chapter
Role and purpose	Adding a new section to the verifier's terms of reference in Schedule G of the IMs that defines the verifier's role, purpose, and obligations.	Additional certainty – both applicant and verifier have more information upfront on the verifier's role in the verification process.	Chapter 6
High level summary	Requiring the CPP applicant to provide us with a high level summary of their application by the time the verifier is engaged. Applicants will also have the option of providing this information by way of a workshop, with our agreement.	Reduced cost and complexity – contributes towards a more efficient process by allowing us information upfront to better prepare for the type of CPP proposal being developed.	Chapter 6
Communication protocol	Amending the tripartite deed requirements in Schedule F5 to include a communication protocol that sets out the roles and obligations of the parties during the verification process, and to allow meeting minutes to be used as the evidential basis for any verifier technical opinions.	Additional certainty – provides certainty to applicant that they can have confidence that they can engage openly with the verifier in the knowledge we will not view draft material.	Chapter 6
Flexibility in number of identified programmes	Allowing the verifier greater flexibility in the number of identified programmes that are selected to be verified in detail as part of the verification process.	Reduced cost and complexity – applicants not required to artificially allocate expenditure into projects and the verifier can focus detailed assessment on the most material parts of a CPP proposal.	Chapter 6
Non-standard depreciation and cost allocation	Removing the obligation for the verifier to consider non-standard depreciation and cost allocation.	Reduced cost and complexity – verifier no longer required to assess an area where its expert opinion adds little value.	Chapter 6
Removal of independent engineer	Removing requirement for an independent engineer, and allowing suppliers to prepare the quality standard variation report themselves, subject to verification by the verifier (EDBs only).	Reduced cost and complexity – removing need for separate roles where a verifier is likely to be able to provide an appropriate opinion on any quality standard variation.	Chapter 6

Table X4: Summary of changes to audit requirements

Topic	Change	Reason for the change	Chapter
Audit report	Clarifying the requirement for the auditor to provide a report with the auditor's opinion on specified matters.	Additional certainty – now clear the auditor must provide a report as part of the audit process.	Chapter 7
Clarified role – historical v forecast data	Differentiating the role of the auditor with respect to <i>historical</i> financial information and <i>forecast</i> financial information.	Additional certainty – now clear the specific type of assurance the auditor is expected to provide in respect of different types of information.	Chapter 7
Spreadsheets	Removing ambiguity around quantitative information provided in spreadsheets.	Additional certainty – now clear the specific type of assurance the auditor is expected to provide in respect of different types of information.	Chapter 7
Proper records	Clarifying the requirement on the auditor to provide a view in respect of proper records being kept.	Additional certainty – the scope of audit requirements is now clearer.	Chapter 7
Auditing cost allocation	Clarifying our expectations from the auditor regarding cost allocation information.	Additional certainty – the scope of audit requirements is now clearer.	Chapter 7

Table X5: Summary of changes to consumer consultation requirements

Topic	Change	Reason for the change	Chapter
Price-quality impact of alternative investment options	Amending the consumer consultation IMs to require CPP applicants to notify consumers of the price and quality impact of key alternative investment options in their CPP proposal, and why any proposed quality standard variation has been chosen.	Additional certainty – applicants have more information upfront on our expectations for the consumer consultation process.	Chapter 8
Verifier's view	In support of the change set out above, we have amended the verifier Terms of Reference in Schedule G of the IMs to require the verifier to report on the extent and effectiveness of the applicant's consumer consultation.	Reduced cost and complexity – contributes towards a more efficient process by allowing assessment of applicant's consumer consultation earlier in the process.	Chapter 8

Relationship with the final decision package

X10. This topic paper forms part of our package of decisions papers on the IM review. As part of the package of papers, we have also published:

X10.1 a summary paper of our decisions;

X10.2 an introduction and process paper which provides an explanation of how the papers in our decisions package fit together;

X10.3 a framework paper, which explains the framework we have applied in reaching our decisions on the IM review; and

X10.4 amendment determinations, which give effect to our decisions.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is twofold. It sets out:
 - 1.1 our views on the default/customised price-quality regime – including how default and customised paths work together, and areas where improvements might be made; and
 - 1.2 our changes to the requirements for customised price-quality paths (**CPPs**) set out in the input methodologies (**CPP requirements**).
2. In respect of the CPP requirements, it explains:
 - 2.1 the problems we have identified within this topic area;
 - 2.2 our solutions to these problems;
 - 2.3 the reasons for our solutions; and
 - 2.4 how we have taken stakeholders' submissions into account in considering the above.

Where this paper fits in to our package of decisions papers

3. This topic paper forms part of our package of final decision papers on the input methodology review. For an overview of the package of papers and an explanation of how they fit together, see the Introduction and process paper published as part of our decision package.⁴
4. To the extent our solutions involve changes to the input methodologies (**IMs**), this paper explains how we have changed our previous IM decisions to account for our solutions to problems within this topic area.
5. Our drafting changes to the IMs, including any resulting from this topic area, are shown in the amended determinations.
6. The framework we have applied in reaching our decisions on the IM review is set out in a separate paper, published alongside this paper.⁵ The framework paper explains that we have only changed the IMs where it is likely to:
 - 6.1 promote the Part 4 purpose in s 52A more effectively;

⁴ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

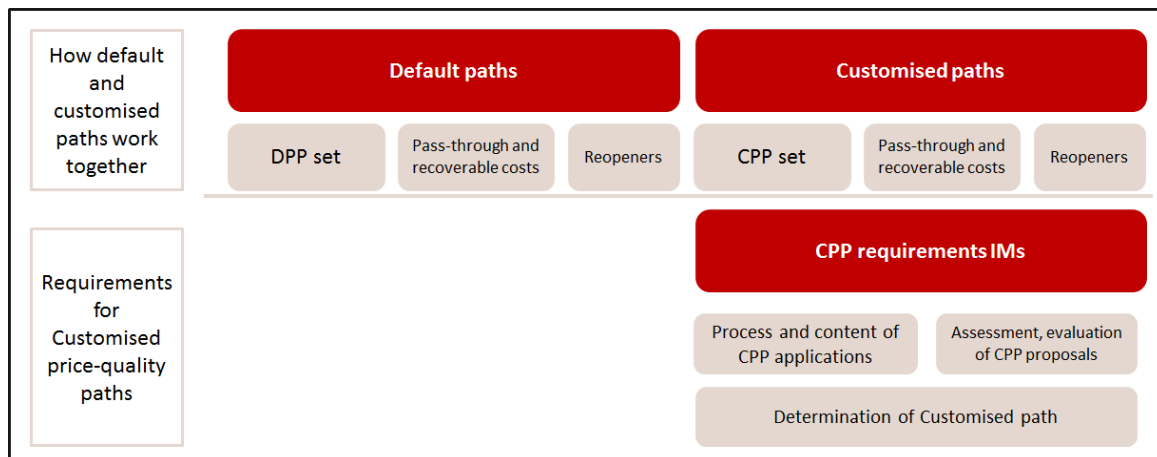
⁵ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

- 6.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 6.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
7. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.

Introduction to this topic

8. While Part 4 (**Part 4**) of the Commerce Act 1986 (the **Act**) specifies at a high level how the regime functions, it also gives significant discretion as to how we design and set the default price-quality path (**DPP**) and CPP mechanisms.
- 8.1 The DPP is the low-cost arm of DPP/CPP regulation. We are required to set a low-cost default path for all suppliers.
 - 8.2 The CPP offers suppliers the opportunity to propose a price-quality path that better meets their individual circumstances.
9. This topic paper considers both a regime level view of how default and customised paths work together, and the specific IM requirements for customised paths. Figure 1.1 illustrates the two different levels of this review and the different components involved.

Figure 1.1: Overview of the components of the default customised price-quality regime



10. This paper follows our consultation on this topic:
- 10.1 Topic 8 of our IM review problem definition paper in June 2015.⁶
 - 10.2 CPP fast track amendments in November 2015.⁷

⁶ Commerce Commission "Invitation to contribute to problem definition" (16 June 2015).

- 10.3 Emerging views paper in February 2016 on opportunities to improve the way DPPs and CPPs work together.⁸
 - 10.4 Technical workshop on CPP information requirements in April 2016.
 - 10.5 Our draft decision on the IM review.⁹
11. Note, the CPP fast track amendment process originally considered issues relating to the differences in WACC between DPP and CPP. These issues were discontinued as part of the fast track process in October 2015 and have been considered alongside other cost of capital issues as part of the main IM review. This paper includes the changes for this issue in summary form as it is an important feature of the total package of improvements to how the DPP and CPP work together. The cost of capital paper provides detailed discussion of the specific issue and our solution.¹⁰

Structure of this paper

- 12. The first part of the paper sets out the context for the default/customised price-quality regime (Chapter 2), and the opportunities for improvements we have taken as part of the review (Chapter 3).
- 13. In the second part of this paper we introduce the solutions to the problems that we have identified with the CPP requirements. This includes IM changes that are designed to improve the CPP process, by increasing clarity and removing unnecessary cost and complexity. We focus on each of the key requirements of a CPP proposal in individual chapters:
 - 13.1 evaluation of proposals (Chapter 4);
 - 13.2 information requirements (Chapter 5);
 - 13.3 verification requirements (Chapter 6);
 - 13.4 audit requirements (Chapter 7); and
 - 13.5 consumer consultation requirements (Chapter 8).
- 14. These specific CPP discussions are part of a broader, iterative, longer term set of refinements we will continue to make to the DPP/ CPP regime as our experience

⁷ Commerce Commission "Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track" (12 November 2015).

⁸ Commerce Commission "Emerging views on opportunities to improve the way default and customised price-quality paths work together" (29 February 2016).

⁹ Commerce Commission "Input methodologies review decisions: Topic paper 2 – CPP requirements" (16 June 2016).

¹⁰ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016).

grows and we complete more CPPs. Importantly, not all of these refinements will come through IM changes, but will also occur through improving our engagement with prospective and actual CPP applicants.

15. There are two attachments to this paper:
 - 15.1 Attachment A – sets out the high level process of CPP preparation and evaluation;
 - 15.2 Attachment B – explains, in respect of each CPP requirement IM decision, whether/how we have changed it and why/why not.

Who does this paper apply to?

16. This paper applies to:
 - 16.1 electricity distribution businesses (**EDBs**) that are subject to price-quality regulation; and
 - 16.2 gas pipeline businesses (**GPBs**), although at this stage, we have not made changes to the detailed information requirements for either gas distribution businesses (**GDBs**) or gas transmission businesses (**GTBs**).¹¹

¹¹ We have not yet reached draft decisions on the CPP information requirements IMs for gas pipeline businesses. Further discussion on this matter is found at para 34.

Chapter 2: Overview of the default/customised price-quality regime

Purpose of this chapter

17. This chapter provides an overview of the default/customised price-quality regime (**DPP/ CPP regime**), and summarises, at a high level, our view of the current regulatory settings, including the changes we have made as part of the IM review.

Structure of this chapter

18. This chapter is split into two sections:
 - 18.1 overview and evolution of the DPP/ CPP regime; and
 - 18.2 overview of the current regulatory settings and the IM changes we have made.

Overview and evolution of the default/customised price-quality regime

19. This section illustrates how the default/customised regime has evolved over time, and can continue to evolve as our experience develops.

The legislative context for DPP/ CPP regulation

20. Electricity distributors, gas distributors, and gas transmission businesses are subject to default/customised price-quality regulation under Part 4.¹²

21. The purpose of default/customised price-quality regulation is:¹³

To provide a relatively low-cost way of setting price-quality paths for suppliers of regulated goods or services, while allowing the opportunity for individual regulated suppliers to have alternative price-quality paths that better meet their particular circumstances.

22. There are also a number of other key statutory considerations specific to default and customised paths that we must take account of when setting default paths and the requirements for customised paths. These are set out in the table overleaf.

¹² Some electricity distributors are exempt from default/customised price-quality regulation where they meet the requirements set out in s 54G of the Act.

¹³ Commerce Act 1986, s 53K.

Table 2.1: Key statutory characteristics of DPPs and CPPs

DPP (as set)	DPP pass-through/ recoverable costs	DPP reopener (reconsideration)	CPP (as set)	CPP pass-through/ recoverable costs	CPP reopener (reconsideration)
<ul style="list-style-type: none"> • Relatively low-cost. • Commerce Commission (CC) bears the cost of determination (passed on to industry through general levies). • Section 53P limitations on how the CC sets a DPP – eg, restriction on benchmarking. • IMs must specify key inputs, eg, asset valuation, cost of capital. • 4-5 year regulatory period. 	<ul style="list-style-type: none"> • Costs that can be passed through to prices must be specified in the IMs. 	<ul style="list-style-type: none"> • Circumstances in which DPPs can be reconsidered within a regulatory period must be specified in the IMs. • Only affects path for the remainder of the DPP period. • Should generally accommodate issues affecting multiple suppliers (4+) that arise after the DPP is set (per High Court in Wellington International Airport Ltd & Ors v CC). • Potentially supplier, CC, or consumer initiated. • We bear the cost of reconsidering the DPP (passed onto industry through levies). 	<ul style="list-style-type: none"> • IMs must set out relevant scrutiny requirements and key inputs. • New regulatory period can be 3-5 years. • Only suppliers can apply and only once during a DPP period. • Cannot withdraw CPP proposal once submitted. • CC can agree with supplier on IM variations. • Applicant bears the cost of determining CPP. • CPP can extend across two DPP periods. 	<ul style="list-style-type: none"> • Costs that can be passed through to prices must be specified in the IMs. 	<ul style="list-style-type: none"> • Circumstances in which CPPs can be reconsidered within a regulatory period must be specified in the IMs. • Changes will only affect path for the remainder of the CPP period. • Potentially supplier, CC, or consumer initiated.

23. Within the bounds of Part 4, taking into account the statutory considerations above, there remains significant discretion for how we give effect to default and customised paths. This discretion includes how we set the IMs that underpin default/customised regulation, but also includes a number of other processes outside the IMs. For example:
- 23.1 periodic resets of default paths;
 - 23.2 mid-period reconsideration of price paths triggered by reopener provisions; and
 - 23.3 general engagement and guidance in reset processes and during the regulatory period.

Our approach to setting default paths has evolved over time

24. To set a default path we must set starting prices for each supplier based on the range of circumstances that we consider appropriate for default paths,¹⁴ noting that suppliers have the option to apply for a customised path where the default path does not meet their particular circumstances.
25. Over time both our approach to setting starting prices and the range of circumstances we have considered in setting default paths has changed. For example:
- 25.1 When we first set the IMs for default paths, we determined that a fairly simple ‘banded return on investment’ approach would likely be an appropriate low-cost approach to setting starting prices.¹⁵ However, we subsequently decided that the greater accuracy offered under a ‘building blocks’ approach was likely to better promote the s 52A purpose, when we reset the 2010-2015 DPP for EDBs after setting the IMs.¹⁶
 - 25.2 Since we first set the default path for EDBs in 2009 we have increased the range of supplier-specific circumstances taken into account in subsequent default paths, while maintaining the relatively low-cost purpose of the DPP. These include reopeners for catastrophic and change events, and an expanded range of recoverable and pass-through costs.¹⁷

¹⁴ That is, taking into account the low-cost purpose of DPP/CPD regulation and the outcomes sought more broadly under the purpose of Part 4.

¹⁵ A banded approach sets prices based on whether the supplier’s return on investment falls within a band of return values considered to be appropriate.

¹⁶ A building block approach to setting prices relies on an estimation of different costs faced by a supplier to keep network running, and uses these different components to forecast the revenue and prices that an efficient supplier would require.

¹⁷ We initially only allowed a DPP to be reopened for either an error, or misleading information.

Lessons from setting the first customised path

26. Setting a customised path naturally lends itself to a more intensive and complex process when compared to the default path.¹⁸ To support this process we are required to set the requirements for customised path applications as IMs.
27. When we originally set the CPP requirement IMs in 2010, our aim was to adopt a cost-effective approach, which still allowed us to apply an appropriate level of scrutiny to effectively assess the CPP proposal. Some of the areas we considered at the time included:¹⁹
 - 27.1 building on information that is required under information disclosure obligations;
 - 27.2 targeting the provision of more detailed information on proposed expenditure that is expected to be material to the proposal;
 - 27.3 generally, only requiring information on proposed expenditure that is consistent with the level of detail that would be expected to already be held in a well-run, well-governed business;
 - 27.4 focussing on requiring information that would be required for all CPP proposals;
 - 27.5 allowing some flexibility in how the applicant engages with consumers prior to submitting a proposal; and
 - 27.6 including audit and verification requirements, only where audit and verification will add value.
28. While we set the CPP requirements with these considerations in mind, we acknowledged that there would be need for refinements to the requirements as our experience with CPPs grew and the regime developed.²⁰
29. To date we have only set one CPP, which was for Orion New Zealand Limited (Orion), in 2013. Following Orion's CPP, we asked for feedback on the determination

¹⁸ For example, the Act requires us to specify verification, consumer consultation, and information requirements.

¹⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), at 9.2.5.

²⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), at 9.2.8.

process.²¹ This feedback has informed our problem definitions and the CPP changes that are explained in this topic paper.²²

We intend to continue to refine the regime over time

30. As highlighted by the changes we have made that are explained in this paper, there are opportunities for improvement in the DPP/ CPP regime. While we consider that the changes we have made go some way to improving the regime, we do not consider that these changes made as part of the IM review will eliminate the need for future changes.
31. This is in part because some issues and solutions lie outside of the IMs, but also because we do not consider that there is a single optimal setting for the DPP/ CPP regime that will hold true over time.
32. As we continue to reset DPPs and receive CPP proposals we will identify further opportunities for improvement and continue to refine our solutions to issues. Longer term we also expect there to be scope for change to suit a landscape where we have better knowledge of performance and are able to rely more on existing information.
33. In the short term, we intend to continue to evolve the regime by increasing consideration of supplier-specific circumstances in the default path where possible, and reducing the cost and complexity of the CPP process.

Areas for further work

34. We have not yet reached decisions on the CPP information requirements IMs for GPBs. This work remains within the IM review and we are currently planning to have a final decision for this work by quarter four of 2017.²³ We will continue to keep stakeholders updated on this process. As noted in our 29 February 2016 process update paper the reasons why this work has not been included in our current decisions on IMs are:²⁴
 - 34.1 there are no GDBs contemplating a CPP application in the near future;
 - 34.2 the GTB will be in a better position to engage next year as it will provide more time for it to establish an understanding of the business demands following the recent ownership change; and

²¹ A summary of this feedback, as well as individual submissions, is available at: <http://www.comcom.govt.nz/regulated-industries/electricity/cpp/orion-cpp/>.

²² Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015) at para 416-435; and [Commerce Commission "Summary of feedback on Orion customised price-quality path process" \(4 August 2014\)](#).

²³ Commerce Commission "Input methodologies review – Process update paper" (14 September 2016).

²⁴ Commerce Commission "Input methodologies review – Process update paper" (29 February 2016) at para 59-65.

- 34.3 the modification and exemptions provisions will allow for flexibility if needed in the interim.

Overview of the current regulatory settings and IM changes

35. In presenting our final decisions for the IM review, we think it is useful to explain how we have approached the review of the CPP requirements, in addition to the IM review framework, and provide a summary of our findings to help illustrate where we currently sit in the development of the DPP/ CPP regime.

The intent of the IMs underlying the default/customised regime remains sound

36. The review of the IMs has provided us with an opportunity to consider what improvements can be made to the DPP/ CPP regime.
37. In particular, we have considered:
- 37.1 how DPPs and CPPs complement each other. When setting the initial IMs in 2010, we did not have the experience of how these would work together in practice; and
 - 37.2 specific improvements we can make to the CPP regime, based on our experience in processing the first CPP proposal, and how we have implemented other regulatory instruments under Part 4 (eg, information disclosure) since setting the initial IMs in 2010.
38. To provide context for our changes, we consider it important to provide our view of the package of IMs underlying the DPP/ CPP regime.
39. Our view is that fundamentally the IMs for DPPs and CPPs are sound, and our changes are incremental improvements aimed at giving better effect to our intent since setting the IMs in 2010.
40. For default paths, we consider the current building blocks approach, and range of supplier-specific circumstances we are able to take account of, strikes an appropriate balance between its relatively low-cost intent and the outcomes sought by Part 4. We set out our views on how our approach to setting default paths meets the purpose of Part 4 in our Main Policy paper for the 2015-2020 default price-quality paths for electricity distributors.²⁵
41. For customised paths, we consider that they remain a viable alternative for suppliers who consider the default path does not meet their particular circumstances. This is illustrated in setting a customised path for Orion in 2013.
42. The Orion experience was potentially the most difficult first-up test the CPP regime could have had – a catastrophic event requiring a substantial network rebuild.

²⁵ Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 – Main policy paper" (28 November 2015).

Despite time pressures and teething issues with the CPP process, we were able to successfully set a path for Orion.

43. We have confidence that future CPP processes will benefit from this experience to run more smoothly, and while we could face a CPP under similar circumstances in the future, we do not expect that a typical CPP proposal would face these issues to the same extent.

Summary of IM changes

44. Table 2.2 presents, at a high level, the package of IM changes we have made to the DPP/ CPP regime.
45. Note that the table is intended to be a summary only and the individual changes are discussed in more detail in the chapters that follow. The exception is the change to remove the separate WACC for CPPs which is explained in the Cost of capital topic paper.²⁶

Table 2.2: Summary of package of IM changes to the default/customised regime

How DPP and CPP work together	
Quality-only CPP	Option for EDBs to apply for a quality-only CPP removed and replaced by a quality standard DPP reopener.
Pass-through costs	Certain pass-through costs may be specified in advance for the forthcoming DPP period as part of the DPP reset process – no longer restricted to specifying these costs during the affected regulatory period.
Prudently incurred expenditure	Allowing the recovery of prudently incurred costs, in response to an urgent project, between when a CPP is applied for and when it comes into effect. We have also extended the capex wash-up mechanism to CPPs.
CPP contingent projects	Allowing the CPP to be reopened for contingent and unforeseen projects, for EDBs and GDBs.
Difference in DPP and CPP WACC rates	A single WACC will apply to all suppliers for the duration of each DPP regulatory period. We have removed the CPP WACC and will reopen CPPs that straddle DPP regulatory periods to take account of the new DPP WACC rate. The reopener is applied mechanically for the sole purpose of taking account of the change in WACC.
Information requirements for EDBs	
Modifications and exemptions	Exemption and modification provisions (completed November 2015 as part of IM review) explicitly specify scale as a potential consideration in the approval of exemption and modification requests. This change also applies to GPBs
Duplication	Removing the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements.

²⁶ Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

Deliverability	Including new requirements for a deliverability plan for the proposed expenditure; and improving the way in which applicants demonstrate the deliverability of their proposed expenditure with existing requirements.
Level of disaggregation	Reducing the level of disaggregation required for certain information requirement – such as, related party transactions, capital contributions, depreciation and tax.
Alignment with ID	Aligning the information requirements with EDBs' information disclosure requirements – such as the qualitative and quantitative information required in Schedules D and E.
Quality standard variation information	Updating the information requirements for when a supplier proposes a quality standard variation as part of a CPP proposal, to reflect how we currently set quality standards.
Verifier	
Role and purpose	Adding a new section to the verifier's terms of reference in Schedule G of the IMs that defines the verifier's role, purpose, and obligations.
High level summary	Requiring the CPP applicant to provide us with a high level summary of their application by the time the verifier is engaged. Applicants will also have the option of providing this information by way of a workshop, with our agreement.
Communication protocol	Amending the tripartite deed requirements in Schedule F5 to include a communication protocol that sets out the roles and obligations of the parties during the verification process regarding communication and to allow meeting minutes to be used as the evidential basis for any verifier technical opinions.
Flexibility in number of identified programmes	Allowing the verifier greater flexibility in the number of identified programmes that are selected to be verified in detail as part of the verification process.
Non-standard depreciation and cost allocation	Removing the obligation for the verifier to consider non-standard depreciation and cost allocation.
Removal of independent engineer	Removing requirement for an independent engineer, and allowing suppliers to prepare the quality standard variation report themselves, subject to verification by the verifier (EDBs only).
Audit	
Audit report	Clarifying the requirement for the auditor to provide a report setting out the auditor's opinion on specified matters.
Clarified role – historical v forecast data	Differentiating the role of the auditor with respect to <i>historical</i> financial information and <i>forecast</i> financial information.
Spreadsheets	Removing ambiguity around quantitative information provided in spreadsheets.
Clarified role – proper records	Clarifying the requirement on the auditor to provide a view in respect of proper records being kept.
Role in auditing cost allocation	Clarifying our expectations from the auditor regarding cost allocation information.

Consumer consultation	
Price-quality impact of alternative investment options	Amending the consumer consultation IMs to require CPP applicants to notify consumers of the price and quality (EDBs) impact of key alternative investment options in their CPP proposal, and why any proposed quality standard variation has been chosen.
Verifier's view	In support of the change proposed above, we propose amending the verifier Terms of Reference in Schedule G of the IMs to require the verifier to report on the extent and effectiveness of the applicant's consumer consultation.

46. The majority of these changes are to reduce cost and complexity, and to improve the certainty provided by how we specify the IMs.
47. There are also a number of other areas of work outside the IMs discussed in this paper that can be considered improvements to the default/customised regime that are not represented in Table 2.2. These include:
- 47.1 greater tailoring for individual suppliers when setting default paths; and
 - 47.2 upfront engagement and additional guidance for intending CPP applicants.

Chapter 3: Improvements to the way the DPP and CPP work together

Purpose of this chapter

48. This chapter explains a number of changes that we have made to improve the way default and customised price-quality paths work together.

Structure of this chapter

49. This chapter starts by briefly explaining the background to our work on how the DPP and CPP work together. It then sets out changes we have made to improve the way the DPP and CPP work together to accommodate supplier-specific circumstances.

Early emerging views

50. In our problem definition paper, Topic 8 focussed on exploring opportunities to reduce the cost involved in making and assessing a CPP application.²⁷
51. That topic chapter noted a range of options for reducing the cost of better tailoring the price-quality path, including opportunities to reduce the CPP application and assessment requirements, where this could be achieved without compromising our ability to appropriately assess the application. Our decisions on these opportunities are set out in the second part of this paper (Chapters 4-8).
52. Topic 8 of the problem definition paper also touched on the possibility, raised by suppliers, of introducing 'single-issue' CPPs, which would be reduced in scope compared to a regular CPP where customisation is only sought in respect of one part of the supplier's DPP.
53. Rather than considering this suggestion in isolation, we thought it appropriate to step back and consider the range of options that currently exist for tailoring default/customised price-quality paths, and their effectiveness, before considering new mechanisms, such as single-issue CPPs that might provide for factors other than our existing quality-only CPP option.

Emerging views paper

54. On 29 February 2016 we published an emerging views paper on opportunities to improve the way default and customised price-quality paths, including the path change mechanisms within them (ie, pass-through costs, recoverable costs, and reopeners), work together to promote the long-term benefit of consumers.

²⁷ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).

55. In that paper we explained how promoting the long-term benefit of consumers in this context involves striking the right balance of scrutiny in our design and implementation of the DPP, CPP, and the path change mechanisms within them. This is because:
- 55.1 greater scrutiny can impose higher costs on both us and regulated suppliers, which can ultimately be passed on to consumers; but
 - 55.2 greater scrutiny can also benefit consumers by ensuring that regulated suppliers deliver services at more cost reflective price levels for the quality demanded.
56. This recognition of the costs and benefits of scrutiny, together with our experience of having now set a CPP and set and reset DPPs, informs the proportionate scrutiny principle.²⁸ The configuration of the DPP, CPP, and the path change mechanisms within them, should generally aim to accommodate suppliers' circumstances at a level of cost and scrutiny that is commensurate with the materiality of the changes to prices or quality experienced by consumers, within the constraints of the DPP/ CPP regime. Changes that would lead to material increases in prices or a material change in the quality of service should attract greater scrutiny.
57. There are also a number of other factors we will take into account when considering the appropriate level of scrutiny, such as the level of confidence we already have that the proposed tailoring delivers long-term benefits to consumers. This could be increased by:
- 57.1 the extent to which the supplier's previous forecasts were fit for purpose;²⁹
 - 57.2 scrutiny already applied – for example through summary and analysis, or under a previous CPP;
 - 57.3 the extent to which a forecast departs from historical trends; and
 - 57.4 the level of control the supplier has over a cost.³⁰

²⁸ As well as being consistent with promoting the long-term benefit of consumers in a cost effective manner, it is also consistent with Treasury's regulatory good practice principle of proportionality. That is, "the burden of rules and their enforcement should be proportional to the benefits that are expected to result", see: <http://www.treasury.govt.nz/regulation/bpr/bpregpa-feb15.pdf>, at p. 80.

²⁹ Forecasts will never be completely accurate. However, a supplier's ability to justify the difference between actuals and forecasts will contribute to our assessment of whether that forecast was fit for purpose.

³⁰ Where outside the control of a supplier, little is gained from scrutiny, as the supplier does not have the opportunity to affect that cost – hence, it may be appropriate to recover *ex-post*, or to provide *ex-ante* for it to be recovered (eg, through a pass-through cost mechanism).

Developing our emerging views

58. With this approach to scrutiny in mind, we considered opportunities to provide for greater supplier-specific tailoring in the DPP or price change mechanisms, while still providing an appropriate level of scrutiny, within the legislative bounds of the regime.³¹ We presented eight emerging views on how we thought the DPP and CPP could be improved to better accommodate supplier-specific circumstances and deliver greater long-term benefits to consumers:³²
- 58.1 Taking a more tailored approach to setting the DPP where this can be done without significantly increasing cost.
 - 58.2 'Single-issue' CPPs are not appropriate.
 - 58.3 Expanding the role of DPP reopeners.
 - 58.4 The quality-only CPP option should be replaced with a DPP reopener.
 - 58.5 Considering a CPP reopener for contingent and unforeseen projects.
 - 58.6 Considering approval of costs incurred prior to CPP approval.
 - 58.7 Providing for the expansion of the range of pass-through costs that can be added when setting the DPP.
 - 58.8 Applying a proportionate scrutiny principle in continuing to refine the CPP requirements and in assessing CPP proposals.
59. In our draft decision we explained these views and the changes to the IMs that we proposed to make to implement them.³³
60. The remainder of this chapter explains our final views and the changes we have made in relation to those views.

A more tailored approach to setting the DPP where this can be done without significantly increasing cost

61. We will look to take a more tailored approach to setting the DPP where it could be done without significantly increasing cost.
62. Suppliers have generally agreed with this view, in principle. For example in submissions on our emerging views paper Vector and Wellington Electricity submitted that we should not exclude the possibility that it may be appropriate to

³¹ Such as the need to ensure that DPP mechanism is low-cost.

³² Commerce Commission "Input methodologies review – Emerging views on opportunities to improve the way default and customised price-quality paths work together" (29 February 2016).

³³ Commerce Commission "Input methodologies review draft decisions: Topic paper 2 – CPP requirements" (16 June 2016).

tailor a DPP for a subset of EDBs in some circumstances.³⁴ We agree that in some circumstances it may be appropriate to treat some groups of suppliers differently under a DPP. For example, it may be appropriate to rely more on the capital and operating forecasts of a subset of smaller EDBs where we have increased confidence in the data (ie, summary and analysis supporting those forecasts is available).

63. For example, as part of the 2017 DPP reset for GPBs, we are looking to use an approach where we will use suppliers' own forecasts as a starting point for setting expenditure allowances.³⁵ That process is ongoing and we intend to release our draft decision in February 2017, which will include our responses to submissions on that approach.
64. We will continue to look for opportunities to tailor the DPP, where it can be achieved without significantly increasing costs. At this stage, we consider that the DPP IMs offer sufficient flexibility to allow this, and therefore no changes are needed.

'Single-issue' CPPs are not appropriate

65. A number of submitters continue to support single-issue CPPs³⁶ for a range of issues and reasons. However, we consider that single-issue CPPs are problematic due to:³⁷
- 65.1 problems with DPP/CPP regulatory period alignment;
 - 65.2 asymmetry between suppliers and consumers – suppliers could apply to tailor unfavourable elements of a DPP, but consumers could not apply to tailor overly favourable elements;
 - 65.3 interdependencies of inputs with other aspects of the path; and
 - 65.4 suppliers using their one CPP opportunity for the regulatory period to tailor a single parameter.
66. We consider that there are other mechanisms (such as the DPP quality standard reopener that we have introduced) that we can develop to address some of the issues that could have been addressed by a single-issue CPP instead. In some cases, however, a CPP will be the appropriate mechanism to address the issue, and while

³⁴ Comments on the emerging views paper are available at: <http://comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/interactions-between-dpps-and-cpps-and-the-requirements-for-cpps/>.

³⁵ Commerce Commission "Default price-quality paths for gas pipeline services from 1 October 2017 – Policy for setting price paths and quality standards paper" (30 August 2016).

³⁶ See, for example: Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 13.

³⁷ This is discussed in more detail in our emerging views paper: Commerce Commission "Emerging views on opportunities to improve the way default and customised price-quality paths work together" (29 February 2016).

we consider that it is appropriate for all CPPs to be full scope, we will look to adjust the depth of our scrutiny in line with the proportionate scrutiny principle.³⁸

67. We continue to hold the view that CPPs should always be full scope. By ‘full scope’, we mean that the scope of the application will encompass all inputs needed to set the price-quality path. This means that all inputs are potentially subject to scrutiny. Accordingly, we do not consider single-issue CPPs to be appropriate, and, as such we have removed the provisions in the IMs that allow EDBs to apply for a quality-only CPP (although we have replaced that option with a new DPP reopener).^{39, 40}

Expanding the role of DPP reopeners

68. We have expanded the range of circumstances under which we can reopen a supplier’s DPP.
69. Suppliers, submitting on our emerging views and draft decision, have generally been supportive of expanding the scope of reopener provisions provided for in the IMs.
70. In line with our draft decision, we have introduced a new reopener allowing an EDB to apply to vary its quality standards (this reopener will replace the option of applying for a quality-only CPP).
71. A number of suppliers have submitted that we should introduce a DPP reopener for contingent and unforeseen projects.⁴¹ GDBs have requested that we introduce a DPP reopener for constant price revenue growth. We have decided not to introduce these reopeners. Our reasons for this are discussed in this section.
72. We address the following reopeners in turn:
- 72.1 contingent and unforeseen projects for EDBs;
 - 72.2 contingent and unforeseen projects for GTBs;
 - 72.3 quality standard for EDBs; and
 - 72.4 constant price revenue growth.
73. For completeness, we note that we have introduced several other reopeners:
- 73.1 expanded error;

³⁸ The principle that the level of scrutiny applied should generally be commensurate with the price and quality impact on consumers of the tailoring being sought.

³⁹ We discuss in more detail under the ‘Quality standards for EDBs’ sub-section of the following section on DPP reopeners.

⁴⁰ See paragraphs 86-94.

⁴¹ The IMs for gas transmission currently provide for a CPP reopener for contingent and unforeseen projects. This allows the customised path to be reopened to build in incremental expenditure for major projects which were not foreseeable at the time the CPP was set, or which were foreseeable, but the timing, scope or cost of the project was uncertain at the time the CPP was set.

73.2 major transactions; and

73.3 DPP/ CPP WACC alignment.

74. These reopeners are discussed in the Report on the IM review or the topic paper they relate to. We provide a summary of these at the end of this sub-section.

Contingent and unforeseen projects for electricity distribution businesses

75. In submissions on the emerging views paper, a number of EDBs suggested including contingent and unforeseen project reopeners under the DPP (or some other type of DPP reopener which would allow a supplier's default path to be reopened to provide for additional capex).⁴²

76. Wellington Electricity disagreed with our position in our draft decision that such a reopener would not be appropriate.⁴³ It gave the example of a \$40 network capex programme which it considered could be accommodated through a DPP reopener, and suggested that the cost of considering the reopener could be reduced by limiting our assessment to this project.

77. We do not consider that an appropriate level of scrutiny could be applied to such a significant value programme, under the relatively low-cost DPP mechanism.

78. We consider that our draft decision on this matter is still appropriate – we do not consider that reopeners for incremental capex are appropriate. This is because:

78.1 we may not have thoroughly scrutinised the base DPP expenditure, so will not know the extent to which the incremental expenditure is already accommodated in the DPP;

78.2 capex is likely to be strongly linked with other inputs such as opex. As such, it would be difficult to adjust in isolation; and

78.3 capex projects are likely to have a significant impact on the price and quality observed by consumers. Therefore they will require a level of scrutiny which we consider is not appropriate under a relatively low-cost DPP mechanism.

79. This view was supported by Powerco.⁴⁴

Contingent and unforeseen projects for gas transmission

80. In its submission on the emerging views paper Maui Development Limited (**MDL**) submitted that we should introduce DPP contingent and unforeseen project

⁴² See comments from Wellington Electricity, Orion, the ENA and PwC, available at: <http://comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/interactions-between-dpps-and-cpps-and-the-requirements-for-cpps/>.

⁴³ Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016), p. 9.

⁴⁴ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 34.

reopeners for gas transmission businesses along with greater tailoring of the base DPP.

81. They suggested that gas transmission could be distinguished from electricity and gas distribution on the basis that there would be only a single supplier in the industry. They submitted that for a single supplier, the appropriate or proportionate depth of scrutiny could be applied both under a DPP reopener or a CPP.
82. First Gas supported this proposal in their submission on our draft decision.⁴⁵ As did Methanex:⁴⁶

We note the draft decision that GTBs should not be able to apply for a contingent projects reopener as part of the DPP. We submit that for GTBs, which have lumpy capex profiles, contingent project reopeners may be appropriate for modestly-sized replacement and renewal projects. This is subject to there being sufficient scrutiny of the expenditure to ensure it is reasonable and the project is justified, which may be manageable within the DPP. The benefit would be increased scrutiny over projects that may not be large enough to justify a CPP but still represent a step-change in expenditure. We consider that in the event that large, one-off, projects are contemplated, a CPP approach remains a suitable basis.

83. While we understand there would be benefits of allowing this sort of expenditure to be accommodated through a DPP reopener process, we do not think it is appropriate under the DPP/ CPP regime.
84. If a project of the magnitude that MDL suggests could be accommodated under a DPP reopener, it would still require significant scrutiny – necessitating information, consumer consultation and verification requirements in the vein of what we require under a CPP. We do not think that sufficient scrutiny could be applied to contingent projects, in keeping with the relatively low-cost purpose of the DPP mechanism, and we are not set up to apply this type of scrutiny during the DPP period.⁴⁷
85. There is also the issue of who pays for the tailoring under each mechanism. Our costs of considering a DPP reopener are funded through general gas levies which are paid for by both gas distribution and transmission businesses. Under a CPP however our costs can be billed back to the applicant.⁴⁸

⁴⁵ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016).

⁴⁶ Methanex "Input methodologies review and Gas DPP consultation" (4 August 2016), p. 5.

⁴⁷ For example, unlike under a CPP, we do not have the ability to pass our costs of scrutinising a DPP reopener onto the supplier.

⁴⁸ Refer to section 53Y(1).

Quality standards for EDBs

86. We have introduced a quality standard reopener, which allows us, based on an application from a supplier, to reopen the DPP to vary the quality standards applying to an EDB where:
- 86.1 an EDB submits a quality standard variation proposal that complies with the requirements set out in the IM; and
 - 86.2 the EDB demonstrates that the proposed quality standards better reflects the realistically achievable performance of the EDB over the regulatory period.
87. These requirements are similar to those that were required for a quality-only CPP, which include justifications for the variation, estimations of its effect, and the provision of an engineer's report supporting the variation. However, consistent with a DPP, the extent of upfront requirements needed to support a DPP quality standard reopener will be less than for the existing quality-only CPP.
88. The supplier will be required to provide evidence of the consumer consultation it has undertaken in respect of the proposed standards and the results of that consultation. We have not prescribed what consultation is necessary to justify a reopener. We consider that this is appropriate given that we have the ability to request further information or consultation before we reopen the path, and that there is a natural incentive for the supplier to provide this information to support their quality variation proposal.
89. Given that the basis for the quality standard variation will be a report from an independent registered engineer, we do not consider that audit or certification will be necessary in all cases. However, we are retaining our ability to require audit or certification of the information before reopening the path if we consider it appropriate.
90. Submissions on our draft decision requested that we remove the requirement for the supplier to provide a report from an independent engineer.⁴⁹ However, we have retained this requirement in order to reduce the our burden in assessing a quality-standard reopener application and frontload some of the work required in assessing the proposed quality standard variation.⁵⁰
91. In response to submissions we have updated the information required from suppliers proposing a quality standard variation as part of a CPP proposal or DPP reopener, to better reflect how we currently set quality standards. We have also removed the requirement to demonstrate the effect of the proposed change over the past five

⁴⁹ See, for example: ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 11.

⁵⁰ We note that we cannot recover the costs of considering a reopener from the EDB, as we previously could under a quality only CPP.

years, to allow some flexibility in how the supplier demonstrates the estimated historical effect of the proposed quality standard variation. These changes are explained in more detail in relation to CPP quality standard variations in para 303-309.

92. For the purposes of clarity, we have set out the criteria that we will consider when assessing a quality standard variation reopener, as suggested in submissions.⁵¹ These criteria are based on the criteria used to assess quality standard variations for CPPs.
93. In submissions on the draft decision PwC suggested that if a supplier comes in for a quality standard reopener, a decision to change the quality standards could be applied retrospectively, from the beginning of the DPP period.⁵² We do not think it is appropriate to apply the quality standard variation reopener to retrospectively alter the quality standards applicable in previous disclosure years. Suppliers who identify that the quality standards applicable under the DPP are not suitable should apply for a quality reopener in a timely manner. The quality standards set under the DPP are intended to provide *ex-ante* incentives to provide quality at a certain level. Adjusting these standards *ex-post* would remove these incentives.
94. The timing of when this reopener will take effect is discussed in the Report on the IM Review, in Attachment C – Timing and Transition Provisions in the IM Amendments determinations.

Constant price revenue growth

95. In the emerging views paper we identified constant price revenue growth (**CPRG**) as an input that could potentially be adjusted independently of others, and reopened in certain circumstances under a DPP.
96. We have considered the possibility of introducing a CPRG reopener, for early in the period. Although we consider that CPRG could potentially be an input that is appropriate for tailoring separately from the other inputs, we do not consider that there is an obvious need to introduce such a reopener.
97. This is because the issue it was initially designed to address (ie, where new information comes to light early in the DPP period which demonstrates that the CPRG forecast for and EDB is inappropriate) would largely be fixed by changing the form of control to a revenue cap for EDBs.⁵³ Submitting on the draft decision, Electricity Networks Association (**ENA**) suggested that if a revenue cap was selected as the form of control applying to EDBs then we should introduce a reopener for

⁵¹ ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 11.

⁵² PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), table at para 14.

⁵³ ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016).

unforeseen major connections.⁵⁴ We do not consider that this would be appropriate. Seeking a CPP or capital contributions would be an available options in such circumstances.

98. Submissions on our draft decisions suggested introducing a CPRG reopener for GDBs if we retained our draft decision that they would be subject to a weighted average price cap, following the next reset.⁵⁵ Submissions acknowledged that there are currently no significant issues with forecasting CPRG for GDBs, but still considered that there would be value in removing the risk of over and under-recovery for CPRG issues found early in the period.⁵⁶
99. If we were to introduce a DPP reopener for CPRG, we consider that:
- 99.1 There could be a disincentive for the supplier to provide all evidence upfront, as they would still have the opportunity for a reopener if they received an unfavourable CPRG forecast;
- 99.2 If the reopener was only able to be triggered by the applicant, we would have concerns regarding the asymmetry of the reopener – that is, suppliers would be incentivised to reopen the path to correct unfavourable CPRG forecasts, but not to correct overly favourable CPRG forecasts.
- 99.3 If the reopener was able to be triggered by the applicant and the Commission, submissions have identified that this could create material regulatory uncertainty for suppliers.⁵⁷
100. Given the limited circumstances in which a CPRG reopener would be available (only for issues identified very early in the DPP period, that were reasonably unforeseeable by the applicant and not considered during the setting of the DPP), and the lack of issues with CPRG forecasting for GDBs, we do not think a CPRG reopener is warranted.

Reopeners not linked to our emerging views

101. For completeness, we have briefly explained the other reopeners that we have introduced. These reopeners are discussed in the Report on the IM review or the topic paper they relate to.

⁵⁴ ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 15.

⁵⁵ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 128-131. Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), p. 34.

⁵⁶ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 35. Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), p. 34.

⁵⁷ See, for example: Vector "Emerging views on customised and default price paths" (24 March 2016), para 12.

Expanded error

102. We have expanded the pre-review error reopener to address the situation where the price-quality path was set on the basis of any type of error. This could include such cases where the data used was incorrect, or the data was correct, but was applied incorrectly. Previously, the error provisions were limited to incorrect data and could not be used to fix cases where, for example, the data was incorrectly or mistakenly applied.⁵⁸

Workability

103. As part of our draft decision we proposed to introduce a mechanism that would allow us and suppliers to apply the "next closest alternative" approach where an IM becomes unworkable. We also proposed that in the limited circumstances where making the IM workable would involve a change to an existing DPP (or the same occurs because a provision in the relevant s 52P determination becomes unworkable) that we would allow for a reopener to allow us to reopen the path where necessary, to enable suppliers to be able to implement the alternative approach.
104. We have decided not to introduce this reopener or provision, as discussed in the Report on the IM review.⁵⁹

Major transactions

105. This change provides a reopener to address the consequences of a major transaction which makes the price path unworkable.⁶⁰

DPP/ CPP WACC alignment

106. As discussed in Topic paper 4 – Cost of capital issues, we have made changes to align the CPP and DPP WACC rates for suppliers on a CPP. To implement this we have introduced a CPP reopener for when the DPP WACC changes.

Introducing a CPP reopener for contingent and unforeseen projects

107. We have introduced new CPP reopeners for contingent and unforeseen projects, for gas and electricity distribution businesses.⁶¹

⁵⁸ This change applies to both DPP and CPPs, and is discussed in more detail in the Report on the IM review at decision RP01. See: Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

⁵⁹ This change applies to both DPP and CPPs, and is discussed in more detail the Report on the IM review at decision RP01. See: Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

⁶⁰ This change applies to both DPP and CPPs, and is discussed in more detail the Report on the IM review at decision RP01. See: Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

⁶¹ The IMs for gas transmission currently provide for a CPP reopener for contingent and unforeseen projects. This allows the customised path to be reopened to build in incremental expenditure for major projects which were not foreseeable at the time the CPP was set, or which were foreseeable, but the timing, scope or cost of the project was uncertain at the time the CPP was set.

108. We consider that this is appropriate under a CPP as we have already scrutinised the underlying expenditure when we set the initial CPP. This means that we can build on incremental expenditure for projects where timing, cost and scope were not known at the time we set the CPP, without concerns that the project may be already provided for in the path.⁶²
109. Submissions on our emerging views paper and draft decision have supported this change, although a number of suppliers suggested that these reopeners should also be available under a DPP as well. As set out above, we do not consider that it is appropriate to provide for contingent and unforeseen project reopeners under a DPP.

Allowing contingent and unforeseen projects to include opex

110. Under the pre-review GTB IMs, contingent and unforeseen projects were defined by reference to the need for major capital expenditure. Consistent with our consideration of 'non-transmission solutions' when we evaluate a major capex project for Transpower under the terms of the Transpower Capex IM Determination, we have changed the IMs so that the contingent and unforeseen project provisions can apply where major operating expenditure is required as well.⁶³
111. This change should remove any incentives for a supplier to inefficiently class projects as capital expenditure for the purposes of allowing a reopener, even though incurring operating expenditure may be a more appropriate option in the circumstances.

Approval of costs incurred prior to CPP approval

112. We have introduced a new recoverable cost which will allow suppliers to recover prudently incurred costs in response to an urgent project where:
- 112.1 the costs are, or will be, incurred between the submission of a CPP application and the CPP coming into effect;⁶⁴
 - 112.2 we accept the CPP for our consideration; and
 - 112.3 we approve the cost by specifying it in the CPP determination.
113. We would retain the discretion to decline the recovery of pre-determination costs that were not considered to be consistent with the "investment case" submitted and approved as part of a CPP application.
114. Submissions were supportive of this change, though a number of suppliers requested that the recoverable cost should extend to expenditure incurred prior to a CPP being

⁶² More details on how this reopener works can be found in our original 2010 IM reasons paper: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.5.25-9.5.37.

⁶³ This includes the new provisions we have included for EDBs and GDBs.

⁶⁴ We note that our draft decision was only for costs incurred between submission and determination.

submitted. For example, Powerco suggested that we broaden this provision to allow CPP applicants to recover prudently incurred costs up to 24 months prior to submitting a CPP application.⁶⁵

115. As we outlined in our draft decision, we do not consider it appropriate to extend the recovery of costs to costs incurred prior to the CPP submission. We consider that this would remove the incentive for applicants to submit a proposal in a timely manner. Further, we consider that it is desirable to minimise the level of controllable expenditure that is approved *ex-post*.
116. PwC and ENA noted, in submissions on the draft decision, that the urgent project allowance excludes any costs which are treated as commissioned assets. They supported this exclusion on the condition that the capex wash-up recoverable cost, which was introduced for DPPs prior to the 2015 DPP Determination, is extended to CPPs.⁶⁶ We agree with this submission and have extended this mechanism to CPPs. This change is discussed in the Report on the IM review.⁶⁷

Expanding the range of pass-through costs that can be added when setting the DPP

117. We have widened the criteria-based pass-through costs,⁶⁸ which could previously only be specified *during* the regulatory period, so they are also able to be specified in a DPP or CPP determination at the time the DPP or CPP is determined. We have also changed the IMs so that any type of cost, which meets the pass-through cost criteria in the IMs, can be specified as a pass-through cost in a DPP determination, rather than just levies.⁶⁹
118. Submissions were supportive of this change.⁷⁰

Costs of preparing a CPP

119. Some suppliers have suggested that we widen the definition of recoverable costs to include certain additional costs associated with preparing a CPP application, such as

⁶⁵ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 6.

⁶⁶ ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016). PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 115, table item 2.

⁶⁷ Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

⁶⁸ The pre-review IMs provide the opportunity for us to specify new pass-through costs during a regulatory period in circumstances where a levy or other cost meets the criteria for a pass-through cost, set out in the IMs (criteria-based pass-through costs).

⁶⁹ This option has always been available for CPPs.

⁷⁰ See, for example: ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 15; First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 2.

costs of consumer consultation, costs of developing a financial model, consultant reports and project management.^{71, 72}

120. PwC, in its submission on the draft decision, noted that smaller suppliers which do not have teams which are geared up to manage complex regulatory projects will be particularly disadvantaged by not being able to recover these costs.⁷³
121. We do not consider that it is appropriate to introduce these proposed recoverable costs. While we consider that it is appropriate that some of the costs of applying for a CPP can be recovered from consumers, we consider that having the supplier bear some of the cost of preparing a CPP application creates appropriate incentives for the supplier to minimise the costs of preparing a CPP.
122. We also note that, following the introduction of an incremental rolling incentive scheme (**IRIS**) that applies to EDBs subject to a DPP, the impact of any temporary costs not directly recoverable from consumers, will be shared between consumers and suppliers. Under the current IRIS rules suppliers only bear about 34% of these temporary costs.⁷⁴
123. In submissions on our draft decision First Gas noted that the lack of an IRIS for gas pipeline businesses means that any additional costs incurred applying for a CPP are not shared with consumers and suggested that we introduce a mechanism whereby these costs would be shared with consumers.⁷⁵
124. We do not consider that this suggestion is appropriate. We have made a decision not to introduce an IRIS mechanism for gas, which was supported by stakeholders. Further, we do not consider that we would be able to clearly identify these efficient costs, in order to specify them in a CPP determination.

⁷¹ See, for example: ENA "Feedback on Orion customised price-quality path process" (14 April 2014), Orion Limited "Feedback on Orion customised price-quality path process" (14 April 2014), PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015); ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 5.

⁷² We currently allow audit, verification and independent engineer fees to be recovered.

⁷³ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016).

⁷⁴ Commerce Commission "Further amendments to input methodologies for electricity distributors subject to price-quality regulation – Incremental Rolling Incentive Scheme" (25 November 2015).

⁷⁵ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 5.

We have applied the proportionate scrutiny principle in continuing to refine the CPP requirements and in assessing CPP proposals

125. In our emerging views and draft decision papers, we presented the view that there are opportunities for us to be more targeted in the depth of scrutiny we apply when assessing a CPP proposal informed by:
- 125.1 the proportionate scrutiny principle (ie, the level of scrutiny applied should be commensurate with the price and quality impact on consumers of the tailoring being sought);⁷⁶ and
 - 125.2 the extent to which we have confidence in the supplier's own forecasts.⁷⁷
126. The proportionate scrutiny principle has also guided our approach to the changes to reduce unnecessary cost and complexity in the CPP requirements by:
- 126.1 making improvements to the scope and specificity of the information requirements for CPPs;
 - 126.2 clarifying the roles of the independent verifier, auditor and independent engineer, consistent with s 52R; and
 - 126.3 clarifying our consumer consultation expectations, also consistent with s 52R.
127. Submissions have been generally supportive of this view, though there were a number of requests for clarification as to how the proportionate scrutiny principle would work in practice.⁷⁸ There were also a number of suggestions by submitters that are dealt with in turn below.
128. We conclude this section with our views on the aims and benefits of applying the proportionate scrutiny principle to CPPs.

Case by case negotiation of information requirements

129. Orion suggested that the IMs could usefully include a process for suppliers to engage with the Commission on which items within a CPP would and would not need detailed scrutiny (in accordance with the proportionate scrutiny principle).⁷⁹ The

⁷⁶ Commerce Commission "Input methodologies review: Emerging views on opportunities to improve the way default and customised price-quality paths work together" (29 February 2016), para 35.

⁷⁷ Our level of confidence in each input will depend on the extent to which that input has already been scrutinised when we set the base DPP, or through summary and analysis. For example, if a supplier is seeking a CPP to accommodate a large, one-off, item of project expenditure, it might appropriate for the verifier and ourselves to apply a lower level of scrutiny to business-as-usual expenditure, and for scrutiny to be focused on the increment being sought.

⁷⁸ See, for example: Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 32.

⁷⁹ Orion "Submission on emerging views on opportunities to improve the way default and customised price-quality paths work together" (23 March 2016), para 15.

supplier could then tailor their proposal accordingly and only incur significant costs in preparing those aspects of the application that are most material.

130. Conversely though, Vector submitted that while the proportionate scrutiny principle could reduce barriers of cost and complexity for parties seeking a CPP, it is still important that when setting the process to strike the right balance between prescription and the ability of the Commission to exercise discretion.⁸⁰ Vector commented that if there was inconsistency in the level of scrutiny applied to individual cases, this will lead to a lessening of confidence in the process.
131. We considered the possibility of introducing a process which would allow us to, on a case by case basis, agree to reduce the information requirements for non-material aspects of a proposal. This could operate in a similar way to the exemption and modification provisions introduced as part of the CPP fast track amendments.
132. However, bearing in mind Vector's submission and the need to promote certainty under s 52R, we consider that it is appropriate to retain the full set of base information requirements (that is information required for all expenditure categories – not the detailed information that needs to be provided for the identified projects). This is because we consider:
- 132.1 this information should, generally, be relatively easy to compile (does not contribute significantly to cost); and
- 132.2 this information is likely to be valuable to our assessment of the proposal and will be crucial if we need to determine revenues that differ from the CPP proposal. Given the limited time available to determine a CPP, we consider that it is beneficial to have this information upfront, rather than to request it during the assessment process.
133. We also consider that it is appropriate to apply the modification and exemption provisions,⁸¹ on a case by case basis, where it will not materially detract from our ability to assess a proposal.⁸² This is likely to include the application of the proportionate scrutiny principle.

Rolling over information requirements for subsequent CPP applications

134. Vector requested that we provide for a CPP rollover mechanism, where a supplier already subject to a CPP wishes to apply for a second or subsequent CPP on substantially similar grounds.⁸³ They suggest that in these cases the supplier would

⁸⁰ Vector "Emerging views on customised and default price paths" (24 March 2016), para 9.

⁸¹ These allow suppliers to agree with the Commission to exemptions and modifications from the requirements for a CPP proposal application, where it will not detract, in more than a minor way, from the Commission's ability to evaluate and determine a CPP proposal, or the ability of interested persons to consider a provide views on the proposal.

⁸² For example where specific information requirement is not readily available, but adds little to our assessment of the proposal.

⁸³ Vector "Emerging views on customised and default price paths" (24 March 2016), para 10.

not need to replicate the original application. Rather, the application would focus only on updating the information supplied in the original application.

135. Where scrutiny has already been applied through a previous CPP, we think it is appropriate to consider using the exemptions and modification provisions to reduce the scrutiny requirements,⁸⁴ to the extent that it does not materially detract from our ability to assess a proposal.
136. For example, where historical information, which is required as part of a CPP proposal, has already been audited under a previous CPP, we may consider exempting an applicant from those audit requirements for the same information in a subsequent CPP application.
137. We consider this to be a practical approach to the issue, taking advantage of our existing provisions that allow for flexibility.
138. We recognise the potential benefits in doing sequential CPPs and may look to develop a more specific process in the future. When we have more experience in setting CPPs we will be in a better position to assess the extent to which a prior CPP can give us greater confidence in a supplier's forecasts for a subsequent CPP (and the extent to which we can relax the requirements as a result).
139. Some stakeholders have suggested that we develop IMs to govern the process for how we will treat a supplier who is transitioning from a CPP back onto a DPP.⁸⁵
140. As explained in our paper on Orion's transition to the 2015-2020 DPP,⁸⁶ we do not consider that it is necessary to include a prescriptive process for the transition from CPPs to DPPs in the IMs.
141. We consider a better transition option is to address this as part of our engagement process outside of the IMs, which provides flexibility to consider the specific supplier's circumstances at the time of the transition.⁸⁷

Aims and benefits of a proportionate scrutiny principle

142. When considering the appropriate mechanism for tailoring an aspect of a CPP, the level of scrutiny that is appropriate for that tailoring will be a key factor.
143. Where the benefits of scrutiny (that is the benefits received by consumers due to a path which results in a level of revenue that is more commensurate with the level of

⁸⁴ The IM requirements for information, consumer consultation, audit and verification, as well as how we assess an application.

⁸⁵ Orion New Zealand Limited "Submission on the IM Review" (21 August 2015), para 37; ENA "Response to the Commerce Commission's Input Methodologies review paper" (21 August 2015), para 124.

⁸⁶ Commerce Commission "Orion's transition to the 2015-2020 DPP – Key considerations and possible approaches" (14 March 2016).

⁸⁷ Refer paragraphs 28-35 of: Commerce Commission "Orion's transition to the 2015-2020 DPP – Key considerations and possible approaches" (14 March 2016).

quality demanded) are outweighed by the regulatory costs of the scrutiny, then a lower level will likely be more appropriate. This is more likely to be the case for small suppliers where they do not have the scale to spread the regulatory costs, and therefore the cost of scrutiny may itself have a potentially material price effect. We discuss the possible challenges faced by smaller suppliers in applying for a CPP and our approach in Chapter 4.

144. We consider that there are opportunities to apply the proportionate scrutiny principle when setting the requirements for, and assessing, the different elements of a CPP, ie, we will focus our assessment on the more material parts of a proposal, including:
 - 144.1 the scope and specificity of information requirements;
 - 144.2 verification and audit requirements;
 - 144.3 consumer consultation expectations; and
 - 144.4 our evaluation of the CPP proposal to satisfy the evaluation criteria.
145. We have looked to apply the proportionate scrutiny principle to CPPs, where possible, through our design of the CPP requirements and our changes.
146. We will also apply the principle in exercising our discretion and judgement, particularly in relation to the flexibility provided for under the modifications and exemptions provisions (introduced in the fast track part of this review).

Chapter 4: Evaluation of CPP proposals

Purpose of this chapter

147. The purpose of this chapter is to explain and clarify our approach to evaluating CPPs, including how the CPP requirements support that approach. It also introduces the changes we are making to the CPP requirements.

Structure of this chapter

148. This chapter begins by setting out our high level objectives for CPPs. It then explains how we evaluate CPP proposals, and how the CPP requirements, set out in the IMs, support that evaluation. Finally, it introduces the changes that we have made to the CPP requirements to better achieve our objectives and better support our evaluation and determination of CPP proposals. We also explain our changes to address the possible challenges that a smaller supplier might face when applying for a CPP.

Objectives for CPPs

149. This section sets out our current and forward-looking high level objectives in respect of CPPs. They are as follows:

149.1 We consider that CPPs should be used where they can better promote the long-term benefits of consumers than a DPP.

149.2 When a supplier applies for a CPP we have the opportunity to set a more tailored price-quality path than under a DPP.⁸⁸ This allows us to better match the path to the supplier's specific circumstances and better promote long-term benefits for consumers.

149.3 In applying scrutiny to the tailoring proposed and developing or approving comprehensive capex and opex forecasts, we ensure that the CPP applicant is able to undertake efficient expenditure to provide a level of quality that reflects consumer demands, while also being limited in its ability to extract excessive profits, consistent with the s 52A purpose.

149.4 Our aim is to make the CPP application process as cost-effective and straightforward as possible, while still ensuring that we are able to evaluate and determine a CPP in the statutory timeframes, at an appropriate level of scrutiny (in line with the proportionate scrutiny principle, discussed above in para 56).

⁸⁸ By "tailored" we mean a price-quality path that better takes into account the supplier's specific circumstances. Greater tailoring can better promote the long-term benefit of consumers where it ensures that the price-quality path provides for efficient investment and rewards superior performance with greater profits, but not to the point that those profits are excessive.

150. To support a CPP regime that gives effect to these objectives:
- 150.1 We understand a degree of flexibility is desirable in the format and level of information suppliers are required to supply. We have already introduced a level of flexibility as part of the CPP fast track amendments.⁸⁹ These IM amendments were aimed at improving the cost-effectiveness of preparation, assessment and determination of CPP applications by allowing:
 - 150.1.1 modifications or exemptions to the process for preparing, and the content of, CPP proposals;
 - 150.1.2 the use of alternative methodologies with equivalent effect (**AMWEEs**) for certain elements of CPP proposals; and
 - 150.1.3 allowing us to accept CPP applications for consideration if they comply with the process and content IMs "in all material respects".
 - 150.2 We consider it important that we provide clarity as to the role and purpose of the verifier, auditor, and our expectations for consumer consultation.
 - 150.3 We will focus our evaluation, where possible, on the drivers and most material elements of proposals (in line with the proportionate scrutiny principle).
 - 150.4 We are making a change to ensure there are no perverse incentives created through a misalignment between the DPP and CPP WACC rates (our solution to the DPP/CPP WACC misalignment issue is discussed in Topic paper 4 – Cost of capital issues).
151. Apart from making improvements to the CPP requirements as part of the IM review, there are opportunities for us to make it more likely suppliers will apply for a CPP where that results in greater benefits to consumers, including through:
- 151.1 clarifying for suppliers the opportunities for tailoring provided by the CPP option and other available tailoring mechanisms, through ongoing engagement;
 - 151.2 building on the lessons learned during the Orion CPP process, and improving our internal processes for the next CPP application we receive; and
 - 151.3 improving and encouraging upfront engagement with suppliers considering and preparing CPP proposals.

⁸⁹ Commerce Commission "Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for limb 1 of the CPP fast track" (12 November 2015).

How we assess CPP proposals

152. This section explains our approach to how we evaluate CPP proposals against the evaluation criteria set out in the IMs. The evaluation criteria are set at a high level. Our approach to *how* we carry out our evaluation is not set out in the IM requirements for CPP proposals – rather the IM requirements support our evaluation of a CPP proposal using this approach.

High level components of a CPP proposal

153. At any time after a DPP is set,⁹⁰ a supplier that is (or is likely to be) subject to a DPP may make a proposal to the Commission for a CPP.⁹¹

154. We have broad discretion under Part 4, as to exactly how we determine a CPP and we may determine any CPP that we consider appropriate, applying the relevant IMs.⁹² This means that once we have received a CPP proposal there are two steps we must undertake:

154.1 evaluating the applicant's proposal; and

154.2 determining a customised path that we consider to be appropriate. This may be the path proposed by the supplier, or a higher or lower path, if we consider that the proposal is not appropriate.^{93, 94}

155. In undertaking this exercise we assess the applicant's CPP proposal against the evaluation criteria set out in the IMs.

156. We consider that the use of a building blocks approach to determining expenditure, with a greater emphasis on supplier-specific costs than under a DPP, continues to be necessary to determine a CPP that is appropriately tailored to the supplier's specific circumstances.

157. A proposal to support a building blocks approach for determining a CPP broadly is comprised of three parts:

157.1 Price path information – this comprises the financial information – such as information on cost allocation, valuation, depreciation, tax, forecast opex, forecast commissioned assets and other income – that is used to create the price path. The compilation of this information is primarily governed by the input methodologies.

⁹⁰ Within the application windows specified in a 52P determination, and not in the final year of a DPP.

⁹¹ Commerce Act 1986, s 53(Q)(1).

⁹² Unless a variation to the IMs has been agreed with the supplier, under section 53V(2)(c) of the Act.

⁹³ Commerce Act 1986, s 53V.

⁹⁴ This will involve determining and explaining what we consider to be an appropriate level of expenditure that meets the expenditure objective.

- 157.2 Proposed expenditure information – this comprises forecasts of capital expenditure and operating expenditure and information on policies, strategies, assumptions, data, processes used to develop these forecasts.
- 157.3 Quality variation information – where a quality standard variation is proposed, information to justify the variation must also be provided.

Assessment of expenditure

158. A key component of our evaluation of a CPP proposal is the assessment of the applicant's expenditure forecasts.
159. Expenditure will often be the driver of a CPP application, and as such, will require specific focus when evaluating a CPP to ensure the path provides for a level of expenditure that allows the supplier to meet consumer demands at an efficient cost.⁹⁵ Forecasting appropriate levels of expenditure will require the exercise of judgement by both the supplier as well as the Commission.
160. We consider the approach to assessing expenditure that we set out in the 2010 IM reasons paper is still broadly appropriate. This section clarifies some elements of our approach, particularly in light of our experience in evaluating Orion's CPP application, and explains how it links with the proportionate scrutiny principle.⁹⁶ This guidance is intended to give potential CPP applicants an insight into how we think and go about assessing expenditure against the expenditure objective, which is set out in the CPP evaluation criteria IMs.⁹⁷ It is not intended to be a substitute for the evaluation criteria, or to impose further requirements than those set out in the IMs.

What we are trying to establish when assessing expenditure

161. Broadly, we need to be satisfied that the proposed expenditure is consistent with what would, and could, be delivered by a prudent supplier:⁹⁸ the right expenditure, at the right time, at the right cost. Ensuring the CPP applicant recovers the costs that a prudent supplier would incur to efficiently provide the regulated services at a quality that consumers demand is consistent with s 52A(1)(a), (b) and (d).⁹⁹
162. To establish if the proposed expenditure under a CPP is consistent with this objective, we consider it appropriate to use a predominantly top-down assessment approach. This requires us to obtain assurance that the proposed expenditure is

⁹⁵ In line with s 52A(1)(b) of the Commerce Act 1986.

⁹⁶ Explained above under sub-section 'We should apply a proportionate scrutiny principle in continuing to refine the CPP requirements and in assessing CPP proposals'.

⁹⁷ The expenditure objective means objective that capex and opex reflect the efficient costs that a prudent supplier would require to meet or manage expected demand for the regulated services, at appropriate service standards, during the CPP regulatory period and over the longer term; and comply with applicable regulatory obligations associated with those services.

⁹⁸ As required by the expenditure objective, see: clause 5.2.1 of the EDB IM Determination.

⁹⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), p. iv.

appropriate to meet consumer demands¹⁰⁰ (including quality), and regulatory requirements (including those outside of Part 4 regulation), that the supplier must meet.¹⁰¹

163. In assessing whether the proposed expenditure in a CPP proposal meets the expenditure objective, we are likely to consider whether:
- 163.1 the proposed investments align with the service outcomes;
 - 163.2 the projects can be delivered at the right time, within the bounds of the planning uncertainties;¹⁰²
 - 163.3 the processes for delivering the expenditure are efficient; and
 - 163.4 the supplier has adequate strategies for accessing the necessary resource to undertake an increased level of expenditure.¹⁰³
164. PwC submitted on the draft decision that these "additional criteria" were unhelpful to be included in the topic paper, without recognition of the existing criteria, particularly as it is unclear what the status of these new criteria is.¹⁰⁴
165. For the avoidance of doubt, the factors listed above are aspects that we are likely to consider when evaluating whether proposed expenditure meets the expenditure objective set out in the evaluation criteria – we consider that these factors would be considered by a prudent supplier in determining the efficient levels of opex and capex. The expenditure objective is high level and these are only intended to provide transparency and give insight into some of the more detailed factors that we may consider when applying the criteria set out in the IMs.

Our approach

166. While we consider that it is appropriate to obtain assurance that the proposed expenditure is consistent with the expenditure objective set out in the IMs,¹⁰⁵ this does not mean that we will undertake a detailed assessment of the supplier's entire spending programme. Rather we will undertake a "top-down" approach to assessing expenditure supported with a limited "bottom-up" review of selected projects and programmes.

¹⁰⁰ Meeting consumer demands means that the supplier will deliver appropriate service (quality) standards, to meet expected demand.

¹⁰¹ Suppliers must also be able to meet any regulatory requirements outside Part 4 – such as health and safety regulations.

¹⁰² For the purposes this paper references to projects may also include programmes, which are defined in the IMs as a group of related projects with a common purpose.

¹⁰³ We would not consider it appropriate to increase prices to consumers if the investments are unlikely to occur due to resource constraints.

¹⁰⁴ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 118-119.

¹⁰⁵ That is, the efficient costs that would be incurred by a prudent supplier facing the same circumstances as the applicant.

167. The top-down approach initially focusses on the supplier's policies, strategies and processes. This provides us with an understanding of how the business says that it will manage its assets to deliver the services required by consumers. We assess the supplier's policies, strategies and processes to ensure that, if they are implemented in practice, they will produce appropriate expenditure forecasts.
168. We then assess whether the development of the proposed expenditure forecast has been consistent with the policies strategies and processes. We would do this by sampling a subset of projects and programmes. This assures us that high level policies, strategies, and processes are being implemented consistently and that the right investments are being proposed.
169. A further step in our top-down approach is to assess the appropriateness of the input assumptions used by the business when forecasting expenditure. We would also expect to consider the level of confidence that can be placed on any data used by the supplier when forecasting expenditure. This will include consideration of the source, reliability and quality of the information together with the reasonableness of any assumptions made to fill data gaps.
170. As is discussed further below, a key aspect of our expenditure assessment approach is the use of a pre-application verification of proposed expenditure by an approved independent verifier. The independent verifier is responsible for selecting the sample of projects and programmes, and focusses on the most material projects, in line with the proportionate scrutiny principle. This pre-application verification process is intended to promote certainty for suppliers as to how their expenditure is likely to be assessed, as well as to assist us to make the most effective use of the tight statutory timeframes for evaluating CPP proposals, by highlighting which areas of a proposal we should focus on.
171. We will supplement our top-down assessment with a limited bottom-up review of areas highlighted by the verifier. We expect this review will complement, rather than repeat, the verifier's assessment. For example, where the verifier's final report identifies that the applicant does not appear to have followed its own planning standards for network or asset replacement, it would highlight this was an area that we needed to review.
172. We, rather than the verifier, are required to determine the appropriate level of expenditure. Therefore, we would also expect to review the models used to prepare the forecasts, and consider if the outputs and conclusions from the models are reasonable.

Proportionate scrutiny/materiality

173. We expect that in applying this top-down approach, we will require a higher level of assurance for more material elements of a proposal, in terms of the potential impact on price and quality. This is consistent with the proportionate scrutiny principle which provides that the scrutiny that an element of a CPP proposal receives should be commensurate with the potential impact of that element on price and quality.

174. The more material elements of a proposal may or may not be a small number of large individual projects. It is possible that the material elements will be formed by one or more programmes made up of several smaller work parcels.
175. As discussed in the verification chapter, we consider that the verifier should apply the proportionate scrutiny principle as part of its choice of projects that require more specific information on and which have a greater level of scrutiny applied.

Evaluation of price path information

176. In addition to assessing the applicant's expenditure forecasts, our evaluation involves ensuring that IM-compliant financial information relating to key 'building blocks' components is used appropriately to calculate the proposed price-quality path.
177. The way the price path is compiled is defined by the various building block IMs, and the process is largely mechanistic. As noted in our 2010 reasons paper, this promotes certainty and predictability of processes for both suppliers and the Commission.
178. However, there are some areas where the IMs provide flexibility for particular cases, which requires us to exercise our judgement. There are also instances where suppliers may propose variations to the building block IMs under s 53V(2)(c) of the Act, and we will assess these proposals in order to determine an appropriate price-quality path.
179. Our assessment of the price path typically involves a number of steps, such as conducting high level reasonableness checks that forecast information is consistent with the disclosure of past financial data (or, if not, that the applicant has satisfactorily explained why). We would also seek to establish that expenditure forecasts have the appropriate effect on building block elements such as the regulatory asset base (**RAB**), depreciation and revaluations, and we would assess the overall profile of the price path to understand whether 'in-period' smoothing of revenues via the price path 'X-factor' is desirable.

Evaluation of quality standard variation information

180. Suppliers may request a quality standard variation to either decrease, or in some circumstances increase, their quality standards. Where a CPP applicant applies for a quality standard variation as part of a CPP, we will also evaluate the proposed variation. At the highest level we will consider the extent to which the proposed quality standard reflects the realistically achievable performance of the EDB.¹⁰⁶

¹⁰⁶ As required by the evaluation criteria, set out in the IMs.

181. As part of our evaluation of whether a proposed quality standard variation better reflects the realistically achievable performance of an EDB we are likely to consider the following factors.
- 181.1 The components of reliability that are driving the change in quality performance.¹⁰⁷ This may include a consideration of any historical reasons for deterioration in quality and the decisions made to manage deterioration.¹⁰⁸
 - 181.2 The extent to which the proposed quality standards align with the level of investment proposed in the proposal.
 - 181.3 Statistical analysis of past SAIDI and SAIFI performance.
182. We will also consider the extent that the quality standard variation and the cost (trade-off) is supported by consumers (and if not, why not).¹⁰⁹

CPP requirements that support our evaluation using this approach

183. This section explains the CPP requirements that support our evaluation of a CPP proposal in line with the approach discussed above, and how they should be designed to ensure we are able to evaluate and determine a CPP that delivers long-term benefits to consumers.

Supplier must provide a proposal

184. A supplier is required to supply us with a proposal which sets out their proposed expenditure and must contain certain information that supports the expenditure. This proposal must be fit for purpose – that is it must allow us to undertake an assessment of the proposed expenditure and determine an appropriate customised price-quality path.
185. A proposal that is fit for purpose will clearly demonstrate that the expenditure forecast represents the efficient costs that the supplier needs to incur to meet the services required by the consumers. To do this a fit for purpose proposal will have:
- 185.1 Appropriate scope and specificity of information (specifying information requirements helps ensure this);

¹⁰⁷ For example: failure rates due to vegetation, equipment failure, or human error.

¹⁰⁸ ENA and PwC submitted that these factors did not align with the test required under the IMs. We disagree – these factors are likely to be relevant to establishing the level of performance that is realistically achievable by the EDB going forward. Understanding these factors allows us to consider whether the proposed level of investment (and if necessary policies) are targeted appropriately, to achieve the level of performance proposed.

¹⁰⁹ In line with the evaluation criteria, see for example the EDB IMs 5.2.1(f).

185.2 Information that we have confidence in and can rely on (this is assisted by requiring the supplier to have the proposal independently verified and audited); and

185.3 Evidence of how the supplier has determined the services required by consumers (as specified in the consumer consultation requirements).

186. We discuss each of the above requirements below.

Information requirements – appropriate scope and specificity of information

187. The CPP information requirements should ensure that we have sufficient information to be able to assess the applicant's proposal and minimise the need to seek additional information after it has been submitted, and set an appropriate level of expenditure.

188. We consider that there is a place for both flexibility and prescription in the IM requirements.

188.1 Prescription helps us ensure that we have the information we need in a CPP proposal to determine a path in the short statutory timeframe and provide an appropriate degree of certainty.

188.2 However, flexibility can be used to focus the information required on the elements of the proposal that are most material (such as those driving the application or that have the greatest potential impact on price and quality). It can also allow suppliers to provide information in a timely and cost-effective way that aligns with their existing business practices.

189. The following paragraphs explain how we provide for both flexibility and prescription in our information requirements.

Base information – prescription

190. While the level of scrutiny that we apply to some elements may vary depending on the level of assurance we attain at a high level, and the materiality/impact of the element on price and quality, we consider that the base information requirements should be the same for all expenditure elements of a CPP proposal (this does not include the detailed information required for specific projects that are selected by the verifier).

191. It will not always be possible to determine what elements of a CPP proposal will require specific focus until we receive a completed application. Given this it is appropriate that all base information is required to be provided with a proposal to enable a top-down assessment to be undertaken.

Modifications and exemptions – flexibility

192. While we consider that it is generally preferable to have prescriptive information requirements to ensure we are able to determine a CPP in the statutory timeframes in some circumstances added flexibility is appropriate.

193. The exemption and modification provisions that we introduced as part of the CPP fast track process, allow us to agree with an applicant to modify or remove specific information requirements, provided it does not detract from our ability to assess a CPP proposal in a way that is more than minor.
194. We will use these provisions, where appropriate, to further reduce the cost and complexity of the information requirements, in line with the proportionate scrutiny principle, for example, where a supplier can provide the same information in a different format which better aligns with their existing business practices. If the provision of the information in that way does not impair our ability to evaluate the proposal, we are likely to agree to a modification to the information requirements to allow this.
195. We also consider that it will be appropriate to use the modification and exemption provisions to take account of supplier scale (discussed below in paragraph 202).

Detailed information – flexibility

196. We also provide for flexibility in the more specific detailed information which we require from a sample of "identified" programmes in order to ensure that high level policies and strategies are implemented (discussed at paras 353-361). This information is required from a sample of material/high impact projects selected by the verifier, rather than all projects. The selection of projects will depend on the specific proposal. We consider that the verifier is in the best position to decide how this flexibility should be exercised to ensure that a fair sample is taken that will allow the verifier to gain sufficient assurance.
197. In our 2010 IM reasons paper we stated that the expenditure information required in a CPP proposal was likely to be analogous to that typically supplied to a supplier's Board. On reflection, the provision of more detailed information will likely be necessary in order to determine the appropriate level of expenditure proposed in a CPP.

The relevance of supplier scale

198. In our 2010 IM decisions we also stated that we considered that the same information requirements should be set for suppliers of all sizes, as the same type of supporting information for proposed expenditure is relevant to all suppliers. We also said that we expected to apply the same degree of scrutiny to all proposals, regardless of size.
199. In theory, if a supplier was proposing a major increase in expenditure under a CPP we would ideally want to undertake a detailed review of that expenditure, regardless of the supplier's size – and only apply a reduced level of scrutiny if the expenditure under consideration is relatively low. If the CPP proposes to impose a material impact on consumer prices then, it is appropriate that the supplier would have to fully justify the increase. Consumers should be entitled to the same level of scrutiny irrespective of the size of the regulated supplier.

200. However, in practice, many of the costs associated with preparing, verifying and evaluating a CPP might not reduce significantly for a smaller supplier. Therefore, for smaller suppliers, the cost of applying for a CPP, could be significantly high compared to the supplier's total revenue, and subsequently the cost of applying for a CPP will have a material impact on the price path (as some of the costs of applying for a CPP can be passed directly on to consumers). In these cases the regulatory cost of higher scrutiny on a per consumer basis may well outweigh the benefit of that scrutiny to the consumer (through determining a "better", more robustly scrutinised, price-quality path).¹¹⁰
201. On reflection, we acknowledge the increased burden that a CPP could potentially be for small suppliers.
202. We consider that it may be appropriate in some circumstances to take account of the supplier's size when exercising our judgement in applying the modification and exemption provisions introduced as part of the CPP fast track.¹¹¹ For example, where a small business simply did not hold the information required, or it was completely unrelated to their proposal. Accordingly, we propose that we expressly specify in the IMs that the scale of the business and materiality of the CPP proposal on consumers will be factors that we will consider when deciding on whether to approve an exemption or modification.
203. We also consider that the scale of the supplier could be taken into account by the verifier in exercising their judgement in choosing identified projects for detailed review and for which more detailed information must be provided (discussed further below in Chapter 6).
204. In its submission on our draft decision, Aurora submitted that it was positive that we acknowledged the increased burden that a CPP could be for smaller suppliers. However, it considered that our proposed changes only went part way to removing the barriers faced by small and mid-sized EDBs.¹¹²
205. As we laid out in our draft decision, looking forward, we will continue to assess the ongoing viability of CPPs as the regime develops – including whether they are viable for smaller businesses (there could be a role here for summary and analysis to determine this). However, we consider that the exemption and modification provisions will be a useful tool to remove barriers for smaller suppliers. We encourage any suppliers considering a CPP to approach us to discuss how these provisions could be used to lessen the barriers to a CPP.

¹¹⁰ The example of Centralines coming in for a CPP demonstrates the extreme end of the scale. If the CPP preparation, verification and evaluation cost were \$1m (possibly a conservative estimate), this would be a regulatory cost of \$120 per consumer, across Centralines' 8,500 strong consumer base.

¹¹¹ Commerce Commission "Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for limb 1 of the CPP fast track" (12 November 2015).

¹¹² Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 13.

Information that we can rely on – verification and audit

206. In order to ensure that we can evaluate and determine an appropriate customised price-quality path, we need to be able to rely on the information contained in a CPP proposal. As already discussed, we have a limited statutory timeframe in which we are able to do this.
207. The use of an independent verifier and auditor helps us ensure that we can rely on the information provided as part of a CPP proposal, so we can focus our evaluation on the key drivers of a CPP proposal.

Verification

208. We have a verifier to help support our assessment by ensuring that we can rely on the forecast capital expenditure, and operating expenditure included in the proposal that we receive from an applicant.
209. The key tasks assigned to the verifier are to:
- 209.1 provide an assessment of whether the CPP applicant's policies, strategies, and procedures are appropriate such that services will be provided efficiently and align with consumer demands;
 - 209.2 ascertain whether these policies, strategies, and procedures have been applied in practice;
 - 209.3 review the material aspects of the proposed CPP to ensure that it is sufficiently complete in content and that it supports the expenditure objective,¹¹³ prior to the Commission review;
 - 209.4 assess and report on the reasonableness of the assumptions made or practices used in developing the information that supports the CPP application, and to then report on any aspects that may warrant an in depth review by the Commission; and
 - 209.5 comment on the extent and effectiveness of the applicant's consumer consultation.
210. The verifier also has a role in selecting a sample of "identified" programmes for which more detailed information is required (as discussed in Chapter 6).

Audit

211. The auditor has a similar role to the verifier, but with a focus on providing us confidence in the quality of financial and quantitative information. The auditor's role is to ensure that financial and quantitative information provided is robust, reliable, and in compliance with applicable IMs.

¹¹³ The expenditure objective is one of the evaluation criteria discussed in para 220-222.

Consumer consultation

212. Setting a price-quality path that reflects consumer demands is an important consideration in determining a CPP that delivers long-term benefits to consumers.
213. Accordingly, we require that suppliers notify consumers of their proposed CPP application, and provide an opportunity for consumers to comment. This consultation should be meaningful and the supplier should, where possible, use it to support its proposed expenditure. This is particularly important when a supplier is proposing expenditure that will have a material impact on the price paid for services by consumers, or there is likely to be a significant change in the service quality experienced by consumers, or both.
214. The consumer consultation IMs require suppliers to inform and engage with consumers on the implications of the CPP proposal for consumers. We have previously seen that consumer consultation has been undertaken at a relatively high level, often with a starting presumption that consumers demand the current level of service, and survey questions that do not allow consumers to provide informed views on the trade-off between price and quality.
215. To support a CPP proposal, which by its nature is likely to include some step change in expenditure and/or service, we would expect that affected consumers will have been supplied with sufficient information on the likely outcomes for a range of investment scenarios. As a minimum, the information should allow consumers to make informed choices on relevant price and quality trade-offs.
216. We acknowledge that the supplier may have a better understanding of the need for network investment than its consumers, which is why we do not require consumer agreement. Rather, we will take the extent of consumer support into account when assessing the proposal, along with the supplier's explanation of this support (or opposition).

The CPP submission timeline – how the process comes together

217. All of these components come together as part of the CPP process. We have published a diagram at Attachment A which sets out a high level, indicative timeline, to illustrate how the process is intended to work in practice.

Summary of improvements to the CPP requirements

218. This section summarises the changes that we are proposing to make to the CPP requirements that support our evaluation of CPP proposals, which are explained in greater detail in the following chapters.
219. We consider that the intent of the CPP requirements IMs is generally still sound. However we are proposing to make a number of amendments to provide greater clarity and certainty, and to reduce the cost and complexity of the CPP process, in line with the IM review framework.

Evaluation criteria

220. We have reviewed the CPP evaluation criteria set out in the IMs and consider that it supports our approach to evaluating CPP proposals outlined above.
221. We have not made any changes to the evaluation criteria, as set out in the IMs.
222. We have provided some additional clarification as to how we intend to evaluate CPP proposals against these criteria within this paper as guidance.

Information requirements

223. At a high level, the changes we have made to the CPP information requirements are mostly intended to reduce the complexity and compliance costs of the CPP information requirements, and to focus these requirements on what is most material to price and quality.¹¹⁴ Where possible, our intent is for the information required in CPP applications to leverage off existing regulatory disclosures under information disclosure (**ID**), including asset management plans (**AMP**). At this stage, our changes relate to EDBs only, as we are deferring consideration of changes to the detailed information requirements for GPBs.
224. We have made the following changes to Schedules D and E to reduce the cost and complexity of preparing a CPP proposal, and ensure we have the information required to assess and determine a CPP. We have:
- 224.1 removed the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements;
 - 224.2 aligned the cost allocation information requirements in the IMs and the ID Determination;
 - 224.3 improved the way in which applicants demonstrate the deliverability of their proposed expenditure;
 - 224.4 removed the perceived need to duplicate price path information;¹¹⁵
 - 224.5 reduced the level of disaggregation of information;
 - 224.6 allowed increased flexibility in providing information, and
 - 224.7 refined the information requirements for quality standards.
225. We have also clarified that the information presented in the financial spreadsheets referred to in the IMs does not need to be duplicated.
226. These changes are discussed in more detail in Chapter 5.

¹¹⁴ This approach is consistent with the proportionate scrutiny principle set out at paragraph 56.

¹¹⁵ By clarifying that information provided in spreadsheets can form part of the CPP proposal.

Verifier

227. The changes we have made to the verifier requirements clarify the verifier's role, and simplify the way suppliers and the Commission engage with the verifier.
228. The specific changes we have made are:
- 228.1 adding a new section to the verifier's Terms of Reference that defines the verifier's role, purpose, and obligations;
 - 228.2 removing the obligation for the verifier to consider non-standard depreciation and cost allocation;
 - 228.3 requiring the CPP applicant to provide us with a high level summary of their application;
 - 228.4 amending the tripartite deed requirements to include a communication protocol setting out the roles and obligations of the parties during the verification process regarding communication;
 - 228.5 Allowing the verifier greater flexibility in the number of identified programmes that are selected to be verified in detail as part of the verification process; and
 - 228.6 removing the requirement for an independent engineer, and allowing suppliers to prepare the quality standard variation report themselves, subject to verification by the verifier (EDBs only).
229. These changes are discussed in more detail in Chapter 6.

Audit

230. We propose to expressly require the auditor to provide an audit report, clarify the audit standards and quantitative accuracy, and align the scope of audit requirements with the information requirements.
231. These changes are discussed in more detail in Chapter 7.

Consumer consultation

232. Where possible, we expect that meaningful consultation with consumers should require the consideration of price/quality trade-offs by consumers. We are proposing to expressly require this as part of an applicant's consumer consultation requirements.
233. These changes are discussed in more detail in Chapter 8.

Chapter 5: Information requirements

Purpose of this chapter

234. This chapter explains the problems we have identified with the information requirements for CPP proposals, and our solutions to these problems.
235. These problems and solutions predominantly concerns the EDB CPP IMs, because we are deferring consideration of changes to the detailed information requirements for GDBs and GTBs.¹¹⁶ The exception is the requirements relating to cost allocation in Schedules B and C, which we have considered for EDBs and GPBs.

Structure of this chapter

236. The first section of this chapter summarises the changes we are making to the CPP information requirements. The remaining sections focus on specific problems we have identified with the information requirements, and our solutions to those problems. The key problems are:
- 236.1 misalignment of CPP information requirements and ID requirements;
 - 236.2 misalignment between the cost allocation information requirements in the IMs and the ID Determination.
 - 236.3 applicants were not required to demonstrate that they are able to deliver their proposed expenditure at a business-wide level;
 - 236.4 duplication of price path information within the CPP application;
 - 236.5 unnecessary disaggregation of certain information increasing the cost and complexity of CPP proposals;
 - 236.6 insufficient flexibility for suppliers providing the information, particularly for smaller suppliers increasing cost and complexity; and
 - 236.7 the quality standard variation information does not reflect how we set quality standards.

Summary of changes

237. At a high level, we consider that the policy intent behind the information requirements which we set out in 2010 remains relevant.¹¹⁷ The intent behind the information requirements is that the applicant will provide information which will allow us to test whether the CPP application meets the evaluation criteria and to determine a CPP.

¹¹⁶ Commerce Commission "Input methodologies review – Process update paper" (29 February 2016), para 59-66.

¹¹⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.3.14-15.

238. The changes we have made are intended to reduce the cost and complexity of complying with the CPP information requirements, and to focus these requirements on information that explains, and is required to assess, the parts of the proposal that have the most material impact on price and quality. Our aim is for the information required in CPP applications to, where possible, better leverage off existing regulatory disclosures under ID, including suppliers' AMPs.

Changes discussed in this chapter

239. We have made a number of changes to address the problems we have identified through reviewing the CPP information requirements IMs, namely:
- 239.1 removing the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements;
 - 239.2 aligning cost allocation information requirements in the IMs and the ID Determination;
 - 239.3 improving the way in which applicants demonstrate the deliverability of their proposed expenditure;
 - 239.4 removing the perceived need to duplicate price path information;¹¹⁸
 - 239.5 reducing the level of disaggregation of information on depreciation and tax;
 - 239.6 allowing flexibility in providing information, and
 - 239.7 refining the information requirements for quality standards.

Misalignment between requirements in Schedule D and ID

240. Schedule D of the IM Determination specifies the qualitative information to support the expenditure proposal. Qualitative information allows the supplier to provide context, reasoning, and justification for the quantitative data used in its proposal.¹¹⁹

Problem definition

241. Previously the information requirements in Schedule D were not aligned with the requirements for AMPs. For example, information provided in the AMPs was required to be recast and re-grouped in order to comply with the CPP IMs. This created a compliance burden for applicants, with limited benefit in terms of scrutiny.
242. In feedback on the Orion process, the ENA submitted that:

¹¹⁸ By clarifying that information provided in spreadsheets can form part of the CPP proposal.

¹¹⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para K3.7.

We suggest that the CPP application process could be significantly simplified if the information requirements for a CPP proposal were better aligned to the information each business already has available for its operations, planning and compliance activities. This could include removing the compulsory status of some of the IM requirements, and linking the proposal content better to existing regulatory information, in particular AMPs.¹²⁰

243. PwC, submitting on behalf of 20 EDBs on our Problem definition paper, made a similar comment:¹²¹

[W]e consider that the CPP IMs should... enable EDBs to use their Asset Management Plans as the basis for their CPP applications. The key factors supporting the application should already be present in the AMP and the CPP application should build on this information incrementally in support of the proposed CPP price path and quality standards.

244. However, as Geoff Brown noted at our 19 April 2016 CPP workshop, the depth of information required for a CPP application goes beyond that required for AMPs.¹²²

245. In other words, the information we require to evaluate a CPP application is wider in scope than an AMP, which is focussed on asset management planning.

Solution

246. Our solution is to follow an 'AMP-plus' approach to Schedule D. To implement the AMP-plus approach, we have amended Schedule D to:

- 246.1 align its structure with the AMP requirements in Schedule A of the ID requirements; and
- 246.2 require additional information over and above the AMP requirements where it is necessary to justify the expenditure proposed in the CPP.

247. This approach was developed after discussions with stakeholders at our CPP workshop on 19 April 2016, and is based in part on a structure the ENA proposed.¹²³

248. The scope of the information that we require to be provided is summarised in the table below.

¹²⁰ ENA "Feedback on Orion customised price quality path process" (August 2014) para 33. Orion raised the same issue, Orion, "Feedback on Orion customised price quality path process" (August 2014) para 43, as did other submitters, Vector, "Feedback on Orion customised price quality path process" (August 2014) para 12; Powerco "Feedback on Orion customised price quality path process" (August 2014), para 20.

¹²¹ PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), para 121.

¹²² Commerce Commission "Input methodologies review – Summary of views from CPP workshop held 19 April 2016" (22 June 2016).

¹²³ PwC on behalf of ENA "CPP IM Reducing Cost and Complexity – Schedule D" (6 May 2016).

Table 5.1: Scope of Schedule D requirements

Information we require	Reason for inclusion
Information on policies on governance and descriptions of systems, management of information and data, treatment of risks and uncertainties.	To give us an understanding that the expenditure forecast is prepared using good practice asset management principles and methodologies expected of a prudent supplier.
An overview of any internal challenge, review and approval process applied before the forecasts were finalised for inclusion in the CPP proposal.	To ensure that the proposal has been properly challenged. Different business units prepare parts of the expenditure plan. This can result in duplication of expenditure items or resource requirements. A robust challenge process at a business-wide level can remedy this.
Key assumptions and information on data and models used to prepare the forecast.	To ensure that the inputs used to prepare the forecasts are sound, and that the investments are made at the right time. This includes the reliance we can place on data used and how data deficiencies have been addressed.
Strategies, policies, rationale for policies and planning standards.	To ensure that the relevant strategies are in place and that they are appropriate and sufficiently robust to ensure that the services will be provided efficiently.
The process or approach used to develop the forecasts.	To assess the validity of the forecasts.
Detailed information on identified programmes.	To ensure that the forecast expenditure is consistent with the applicant's strategies, policies and processes.
Forecasts of consumer connections, distributed generation, electricity volumes carried, and maximum demand.	To provide the background necessary for an informed assessment of the application.
A high level description of all network development projects included in the forecast.	To provide an overview of the development projects included in the CPP proposal.
A description of how the business support and system operations and network support operations are organised, and the extent that these operations are shared with unregulated business activities and the extent to which the cost of these activities are capitalised.	To provide an insight into the relevance of existing costs and how they are split between opex and capex, and between regulated and unregulated business activities.
A description of any anticipated changes to this information over the forecast period.	To provide a high level understanding of the reasons for increases in the forecast expenditure over the forecast period, particularly if they are step changes.

Information we require	Reason for inclusion
A detailed description of the drivers for opex programmes and explanation of the basis for determining the forecast increased or new expenditure requirement.	To assess the reasonableness of opex expenditure forecasts.
Information that demonstrates the deliverability of the applicant's work volumes represented by a CPP expenditure forecast (to the extent that these are higher than current levels).	To show that they have considered delivering the work volumes in the CPP, where these are higher than current levels. This is to avoid setting revenue based on expenditure that an applicant does not have the capacity to deliver.

249. As these changes draw an explicit link between Schedule D of the IMs and Attachment A of the ID determination, adopting this AMP-plus approach will also have the following flow-on effects:

- 249.1 we will have to reconsider and potentially amend the Schedule D of the IMs when we review the ID determination (increasing our resource requirement at that time);
- 249.2 there could be a degree of uncertainty for a prospective CPP applicant during any period when we review the ID determination. In their response to the draft decision, submitters disagreed that this would be an issue,¹²⁴ and
- 249.3 the completeness assessment of a CPP will not be mechanistic, and may require a greater degree of communication between the applicant and the Commission during this phase of assessing a CPP proposal.¹²⁵

Improvements to cost allocation information- Schedules B and C

- 250. We did not propose any changes as part of our draft decision, to the cost allocation information required in Schedules B and C.
- 251. Submissions on the draft decision suggested that these schedules should be replaced by the equivalent tables in the ID determination and suggested a number of drafting refinements that could improve the consistency and workability of the schedules.¹²⁶

¹²⁴ For example: ENA "Submission on IM review draft decision – CPP requirements" (4 August 2016), para 73.

¹²⁵ The applicant could reduce this by thorough cross-referencing and presenting the AMP in manner suitable for assessing completeness.

¹²⁶ See, for example: PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016) para 189.

252. We have now changed the tables in Schedules B and C and amended relevant subclauses of 5.4.9 to ensure that they:¹²⁷
- 252.1 align with the requirements under the ID determination; and
 - 252.2 clearly specify what information is required.
253. We consider that these changes will reduce the cost and complexity of compiling this information for CPP applicants.

Introducing a materiality threshold for updated information

254. We have also introduced a materiality threshold so the CPP applicant does not need to submit updated information, for Schedules B and C, during the assessment of the CPP application unless the value allocated to the regulated service changes by 5% or more. This is intended to reduce compliance costs on the CPP applicant during the CPP application process, where the change in value is not significant, and is therefore less likely to have a material impact on price.

Considering the overall deliverability of the work plan

255. The CPP information requirements require suppliers to explain the deliverability of each opex and capex category and identified programme.¹²⁸ This requirement was included in the IMs to ensure that the applicant is able to demonstrate that it is not constrained in its ability to carry out the work in the timeframes.¹²⁹

Problem definition

256. The pre-review CPP information requirements did not require the supplier to report on deliverability at a whole-of-business level. This meant that while each category or programme of expenditure may be deliverable, when taken as a whole the proposal may not be.
257. This created a significant risk that expenditure would be approved for work that is both prudent and efficient, yet due to insufficient resources the EDB would be unable to deliver it. The result of non-delivery would be that consumers would pay for beneficial outcomes that would not be realised.

¹²⁷ We consulted on the drafting of these tables as part of our technical consultation. See Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016).

¹²⁸ Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, Schedule D7(1)(b), D7(2)(b), D12(1)(b), and D12(2)(a)(ii).

¹²⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.5.12.

Solution – requirement to report on overall deliverability

258. Our solution to this problem is to require applicants provide a deliverability risk assessment that takes account of:
- 258.1 regulatory consents required;
 - 258.2 accommodating a step change in workload above historical levels;
 - 258.3 alignment of resource schedules where shared resources are utilised for different opex and capex-related tasks;
 - 258.4 the extent of outsourcing required; and
 - 258.5 contractor and skilled personnel availability and ability.
259. We expect that CPP applicants will have fully assessed the deliverability of the proposed work-plan required to achieve the objectives set out in their CPP application. Accordingly, the provision of this information should not require the applicant to create any additional information.
260. In submissions on our draft decision Powerco, PwC and ENA supported the consideration of deliverability as part of our CPP evaluation, and the inclusion of information requirements to support this.¹³⁰ As suggested in these submissions, we have made minor changes to these requirements to ensure that deliverability is considered as a whole and not at the individual project level.

Removing duplication of price path information

261. The information requirements require CPP applicants to include annual dollar amounts (in nominal terms) for the applicant's proposed building blocks allowable revenue (BBAR) for each year of the proposed CPP regulatory period. The IMs also require the applicant to provide all the supporting information used to calculate the proposed BBAR amounts.

Problem definition

262. The pre-review CPP requirements were not explicit about whether the spreadsheets are part of the CPP proposal. This omission led Orion to duplicate the information, increasing the cost of preparing its application.

¹³⁰ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016); PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016); ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016).

263. The IMs state that the applicant must provide the calculations for BBAR and maximum allowable revenue (MAR) in spreadsheet form.¹³¹ However, the IMs did not explicitly state that these spreadsheets form part of the CPP proposal.¹³²
264. In feedback on the Orion process, the ENA indicated that the IMs were not flexible enough, and prevent information in the price path model from forming part of the CPP application. Therefore, Orion needed to replicate all of the outputs for each of the building blocks.¹³³

Solution – clarify that information can be provided in spreadsheets

265. Our solution to this problem is to clarify that the information included in the spreadsheets does form part of the CPP proposal. Applicants have the option of relying on information provided elsewhere, provided certain usability requirements for providing information in spreadsheet form are met.
266. As part of our draft decision we set out these expectations for how this information should be provided, but did not make a change to the IMs. Submissions suggested that we should expressly set out how this information must be provided in spreadsheets, in the IMs.¹³⁴
267. We have now changed the IMs to set out the criteria that must be met by an applicant when providing information in spreadsheet form. For example the applicant must provide cross-references.¹³⁵ We consider that this change will allow us to better assess CPP proposals, by ensuring that we receive spreadsheet information presented in an appropriate and useful way.

Reducing the level of disaggregation of information

268. The pre-review CPP IMs required information to be provided at a highly disaggregated level, including the very granular asset type level.

Problem definition

269. We consider the requirements to provide certain information at a highly disaggregated level imposes additional cost and complexity, while producing little value in terms of assessing the proposal and determining the price path.

¹³¹ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 5.4.7-5.4.8.

¹³² Commerce Commission "Electricity and gas input methodologies determination amendments (No.2) 2012, Reasons paper" (15 November 2012), paragraph K2.8 states that the Commission intends to develop a revenue model template that is consistent with the IMs, which a supplier may use in preparing its proposal. The spreadsheet model will not be part of the IM. However, this note is referring to the Commission's revenue model.

¹³³ ENA "Feedback on setting Orion's customised price-quality path" (14 April 2014), Attachment 1, Section 3.

¹³⁴ See, for example: ENA "[DRAFT] Electricity Distribution Services Input Methodologies Determination 2012" (18 August 2016), p. 151-152.

¹³⁵ These criteria are set out in the EDB IMs at 5.4.7 and the GDB and GTB IMs at 5.5.5.

270. Specifically, we were concerned with suppliers needing to provide:
- 270.1 forecasts of capex disaggregated by asset type, for the purposes of asset valuation, depreciation and regulatory tax;¹³⁶
 - 270.2 expenditure forecasts disaggregated by service categories;
 - 270.3 opex disaggregated into controllable and uncontrollable opex;¹³⁷ and
 - 270.4 related party transaction information that must be disclosed by forecast capex programmes and projects;¹³⁸ and
 - 270.5 forecasts of capital contributions by asset type.

Depreciation and tax

271. Forecasting on an asset type basis adds complexity to CPP proposals, and increases the cost to applicants. While this level of disaggregation is consistent with the requirements under ID, the ID requirements are completed on an *ex-post* basis. Those requirements are necessary for *ex-post* reporting of commissioned assets. Since the CPP information requirements are completed on an *ex-ante* basis, the value of forecasting in such detail is questionable given its complexity.

272. Orion suggested that:

In addition, the IMs require material to be presented in a specific way that did not align with processes and information sources we hold. For example:

The asset valuation and regulatory tax IMs which are components of the price path require a great deal of disaggregation of forecast data which creates model complexity and it is questionable whether this is necessary.¹³⁹

273. The ENA echoed this, suggesting that the Commission:

Reduces the level of disaggregation inherent in the forecasting methods for the regulatory asset base and regulatory tax allowance/adjustments. These are currently based on the ID methods, which are relatively precise (given they are prepared *ex-post*). We question whether this is necessary or appropriate for *ex-ante* forecasts, and a more simple/aggregated forecasting approach may be reasonable (i.e. generate sensible forecasts) and, importantly, is likely to be less costly to prepare and support. We note that the DPP methods are extremely aggregated, and we do not consider this level of aggregation is a reasonable approach for a CPP.¹⁴⁰

¹³⁶ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, cl 5.4.12.

¹³⁷ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, cl 5.4.30(3); Schedule D16; Schedule E, Table 3(b).

¹³⁸ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, Schedule E, Table 4 and Table 5.

¹³⁹ Orion "Orion feedback on customised price quality path process 14 April 2014" (August 2014), para 41.

¹⁴⁰ ENA "ENA feedback on Orion customised price quality path process" (August 2014), para 6.1 (b).

274. We have changed the IMs to reduce the level of disaggregation for this information. We now require a breakdown for depreciation by asset category, and only require aggregated values for regulatory tax asset values.
275. We consider that the aggregated levels we have specified will still provide a reasonable estimate of forecast depreciation and tax for the purpose of determining the price path. We now require:
- 275.1 forecast depreciation to be provided by asset category; and
 - 275.2 the forecast regulatory tax asset value to be provided at the aggregated level as the sum of tax asset values.¹⁴¹
276. However, given the variability in timing of projects, the value of more detailed forecasting is questionable. For example, a supplier cannot forecast exactly when it will commission a given power transformer, and using an estimate will not make the resulting calculations any more accurate.¹⁴²
277. While we have specified that information on the forecast regulatory tax should be provided at the aggregate level in the CPP proposal, we may request information at a more disaggregated level when assessing the proposal, if we consider that more disaggregated information is necessary for us to determine the CPP.
278. In coming to our solution on forecast depreciation, we also considered the following alternatives:
- 278.1 using the DPP approach of assuming a 45 year asset life to estimate the value of depreciation of forecast commissioned assets;
 - 278.2 disaggregating by asset type at an aggregate value of commissioned assets level rather than at a project level; and
 - 278.3 disaggregating by asset expenditure categories at aggregate value of commissioned assets level.¹⁴³
279. We consider that the solution that we have chosen provides the best balance of sufficient accuracy and without undue cost and complexity.

Controllable and uncontrollable opex

280. Disaggregation of opex forecasts as controllable and uncontrollable was originally included in the information requirements to make allowance for IRIS. However, our approach to IRIS has changed, and this type of disaggregation is no longer required.

¹⁴¹ Both Powerco and ENZ have submitted that disaggregation tax information by asset category is costly.

¹⁴² However, we note that, at a macro level, a supplier should be able to forecast the increased number and capacity of its transformer assets and how the utilisation will change over time.

¹⁴³ These alternatives were discussed at our CPP information requirements workshop (held 19 April).

281. We have removed the requirement on suppliers to disaggregate based on service categories or into controllable and uncontrollable opex. These changes bring the CPP information requirements in line with the requirements under ID, eliminating the need to recast information in an unnecessary way.

Related party transactions

282. Forecasts on a project-by-project basis are appropriate in other instances, but it is not feasible to forecast related party transactions on this basis. It is not possible to forecast who will deliver which projects if the projects are awarded via competitive tendering.¹⁴⁴ Tenders are called after a project is set up and scoped and would normally be at the time of implementation, not several years in advance.
283. We have removed the requirement to disaggregate forecasts project-by-project, and instead to require forecasts on an aggregated basis across the business.
284. In response to submissions on our draft decision we have also made further changes to the related party information requirements.¹⁴⁵
285. Schedule D of the IM seeks information on related parties such as the nature of service provided, contractual terms and method of valuing the contract.
286. ENA proposed that the related party information requirements in Schedule D should focus on information on contracts that are in place in the last year of the current period, those that will be ongoing into the future, the process used to procure the services and the basis of valuing that service.
287. We have decided to adopt the ENA's suggestions. These changes clarify the information requirements for related parties. Specifically the CPP applicant is required to:
- 287.1 identify and describe any current, ongoing or potential future contracts with related parties or anticipated related parties;
 - 287.2 describe the relationships with, and services provided by, related parties; and
 - 287.3 describe the processes for procuring services from related parties or anticipated related parties, including the methodology used to value the services.

Capital contributions

288. Stakeholders have submitted that it may not be practical to forecast capital contributions at an asset level as currently required and that it is more practical to

¹⁴⁴ The exception is if there is a long term service agreement with the related party.

¹⁴⁵ See, for example: ENA "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), p. 22.

forecast capital contributions at an aggregate level. The changes to information requirements in Schedule E have simplified the information requirements for forecast capital contributions by netting them off against forecast total values of the capex expenditure categories.¹⁴⁶

Greater flexibility afforded when providing information

289. As mentioned in Chapter 4 there is significant diversity in the size of price-quality regulated EDBs, which has practical implications for the relative cost/benefits of making of CPP application.¹⁴⁷

Problem definition

290. The IMs specify the provision of expenditure information, policies, procedures, and strategies at a scope and depth that may exceed the levels of information that a prudent supplier of that size would maintain.

291. In such cases, the supplier will either incur costs to create the information, or will decide that the compliance cost outweighs the benefits that might be expected to accrue from a CPP application.

292. Requiring suppliers to create expenditure information, policies, procedures, or strategies solely to apply for a CPP might not benefit our evaluation of the proposed expenditure. If the supplier's investment decision has been made independent of some of the information required for a CPP application, creating and including this information might not improve the scrutiny we can apply, or to benefit consumers.

293. PwC, submitting on behalf of 20 EDBs (including several smaller price-quality regulated EDBs), commented in submissions on the problem definition for the IMs review:

In order to make the CPP a more viable option we suggest that the CPP IM should be less prescriptive. The IM should allow an applicant to present their case for an alternative price path and quality standards using information which is directly relevant to their application, and is based on information retained by the EDB which supports the EDB's own planning and operating practices. While we understand the need for the Commission to receive comprehensive information in support of a CPP proposal, we consider the IMs can be substantially improved by allowing EDBs more flexibility in how they compile this information. This is not inconsistent with the expectation that well run EDBs will have sufficient information available in support of their application.¹⁴⁸

294. However, in contrast to PwC's observation, we are commonly asked to be more specific about the information we require.

¹⁴⁶ Capital contributions are netted off as they are not part of the regulated revenue.

¹⁴⁷ Other issues related to supplier scale and CPP applications are discussed in Chapter 4.

¹⁴⁸ PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015).

295. Accordingly, there is clearly a trade-off between the certainty provided through greater specificity, and allowing for greater flexibility where the applicant proposes the appropriate level of information.

Solutions

296. We consider that greater flexibility for suppliers, in particular smaller ones, is warranted. The extent of the flexibility we propose providing will depend on the specific circumstances of an application.
297. Where an applicant has not relied on a particular policy, procedure, or strategy in preparing its CPP application, we do not expect the applicant to create these for completeness sake. The pre-review IMs did not require this.
298. Where an applicant has relied on a particular policy, procedure, or strategy in justifying its expenditure, but that policy is not formally documented, we require the applicant to provide an explanation. For example, if the CPP application includes an increase in capex to support an increase in security and reliability to part of its network (eg, inner CBD), and this was driven by a change to the applicant's planning criteria, we would require that policy to be provided with the CPP application. However, if there was no policy underpinning this decision, we would likely question the basis on which the applicant decided to change the level of security.
299. Therefore, regardless of the size of the supplier's business, we expect applications will provide sufficient supporting justification commensurate with the materiality of the expenditure.
300. In addition, the Limb 1 CPP fast track amendments introduced provisions which allow for exemptions and modifications from the CPP information requirements. These provisions will also help mitigate any specific information requirement challenges facing smaller suppliers.¹⁴⁹
301. To make our intent clear, we have amended the IMs to expressly specify that we will consider the scale of businesses when deciding whether to approve an exemption or modification.
302. In order to keep the IMs less prescriptive we have decided not to make some of the changes requested in submissions on our draft decision. These include:
- 302.1 Powerco submitted that we need to clarify what is deemed to be 'sufficient information' in subclause D10(1).¹⁵⁰ We did not make this change. We consider that the IM explains the purpose of this information and we are leaving it to the applicant to provide the extent of information that in their view will allow us to assess the information provided it meets that purpose.

¹⁴⁹ Commerce Commission "Input methodologies review: Amendments to input methodologies for customised price-quality paths – Final reasons paper for limb 1 of the CPP fast track" (12 November 2015).

¹⁵⁰ Powerco "IM review draft determinations submission" (4 August 2016), paragraph 13.

- 302.2 ENA submitted that we should clarify how 'constant prices' are to be presented for the 'current period'. We have not made this change and prefer to provide the applicant with flexibility to present this in a manner consistent with its business practice.

Information on quality standards

303. We have made two changes to the information requirements on quality standard variations.

Removing the requirement to show effect of variation if applied for previous 5 years

304. When a supplier proposes a quality standard variation as part of a CPP proposal, the IMs previously required that the supplier provide information demonstrating the estimated effect of the proposed quality standards had the proposed quality standards applied over the previous 5 years. We have also removed the reference to 5 years, to allow some flexibility in how the supplier demonstrates the estimated historical effect of the proposed quality standard variation, as suggested by submissions.¹⁵¹
305. We may still request further information if the supplier does not provide adequate information for us to assess the quality standard variation proposal.

Updating quality standard variation information to reflect how we set quality standards

306. Where an EDB CPP applicant proposes a change to the quality standards set under the DPP, as part of a CPP proposal (a quality standard variation), they are required to submit certain information relating to the proposed quality standard variation.
307. In response to our draft decision, PwC submitted that information on proposed quality standard variations could be improved to:
- 307.1 reflect the changes to how we set quality standards which were introduced in the recent EDB DPP Determination;
 - 307.2 remove references to earlier DPP quality standard terms; and
 - 307.3 reflect the fact that alternative methods of setting quality standards may have different properties.¹⁵²
308. In line with PwC's submission we have updated the information required for suppliers proposing a quality standard variation as part of a CPP proposal to better reflect how we currently set quality standards.

¹⁵¹ See, for example: ENA "[DRAFT] Electricity Distribution Services Input Methodologies Determination 2012" (18 August 2016), p. 151.

¹⁵² PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 189.

309. However we have also retained the reference to earlier DPP quality standard terms – namely the mean and standard deviation of the proposed SAIDI and SAIFI. While we may no longer set the quality standards using these metrics, we consider that this information can be easily generated by the EDB and can be useful in our assessment.

Further improvements to information requirements

310. We have made a number of additional changes to further reduce the cost and complexity of complying with these information requirements and improve clarity in the schedule.

Areas where we have made further improvements

311. Submissions identified parts of the information requirements that created unnecessary cost and complexity, and that lacked clarity. Specifically we have addressed issues with:
- 311.1 the information requirements for unit costs and cost escalators;
 - 311.2 the information requirements for industry costs; and
 - 311.3 the alignment of the definition of asset category with the ID determination.

Unit costs and expenditure escalators

312. We have increased flexibility in the manner in which CPP applicants can provide information on cost escalation. This should reduce cost by allowing suppliers to provide this information in a way that is better suited to their existing practices.
313. To support increased flexibility, we are also requiring the applicant to justify its methodology, key assumptions and the resulting values and explain why these are reasonable.
314. We have removed the requirement to provide detailed information on unit costs as part of the proposal. However, when assessing a CPP proposal the Commission may require the applicant to provide this information, if it is pertinent to the specific CPP proposal.

Industry costs

315. We have removed the requirement for the applicant to compare its unit costs with average industry-wide unit costs, because submissions stated that average industry-wide unit costs were not available. We consider that we will be able to deduce this information from the data on industry costs available either to us or in the public domain.

Aligned definition of asset category with the ID determination

316. We have made changes to the definition of asset category. The new definition aligns with the manner in which asset category is used in the EDB ID Schedules 4 and 5.

317. Powerco submitted that we should remove the definition of asset category from the IMs. Instead of removing this definition, we decided to redefine 'asset category'.
318. By aligning the usage of asset category in the EDB ID Determination and the EDB IM, we have improved clarity and reduced the complexity of providing information.

Chapter 6: Verification requirements

Purpose of this chapter

319. This chapter explains the problems we have identified with the verification requirements for CPP proposals, and our solutions to these problems.¹⁵³

Structure of this chapter

320. The first section of this chapter summarises our changes to the CPP verification requirements. The next section addresses the common problems we have identified with the verifier's role and purpose.
321. The following sections focus on specific problems we have identified with the verifier requirements, and our solutions to them. These problems relate to:
- 321.1 the way the applicant and the verifier communicate;
 - 321.2 the number of identified programmes the verifier scrutinises;
 - 321.3 the role of the independent engineer; and
 - 321.4 the verifier's review of non-standard depreciation and cost allocation information.
322. The final section responds to other issues raised by stakeholders, where we consider no change to the IMs is required. These issues are:
- 322.1 the way the verifier is selected and engaged;
 - 322.2 the time available for verification; and
 - 322.3 the verification of the extent and effectiveness of consumer consultation.

Summary of changes

323. We consider that the intent behind the verifier requirements set out in 2010 remains appropriate.¹⁵⁴ The pre-application verification process is intended to promote certainty for suppliers as to how their expenditure is likely to be assessed, as well as to assist us to make the most effective use of the tight statutory timeframes for evaluating CPP proposals, through the verifier highlighting which areas of a proposal we should focus on.
324. The changes we have made to the verification requirements are intended to clarify the verifier's role, and simplify the way suppliers and the Commission engage with the verifier. The overall intent of these changes is to provide greater certainty for

¹⁵³ Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, clause 5.5.2 and Schedule F.

¹⁵⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.6.3 and 9.5.13.

suppliers – consistent with the s 52R purpose – while at the same time reducing the cost and complexity of CPP proposals.

325. The specific changes we have made are:

- 325.1 adding a new section to the verifier's Terms of Reference in Schedule G of the IMs that defines the verifier's role, purpose, and obligations;
- 325.2 requiring the CPP applicant to provide us with a high level summary of their application by the time the verifier is engaged;
- 325.3 amending the requirements in Schedule F5 to require the tripartite deed to include a communication protocol. This change will require the deed to set out the roles and obligations of the parties during the verification process regarding communication, and will allow meeting minutes to be used as the evidential basis for any of the verifier's technical opinions;
- 325.4 allowing the verifier greater flexibility in the number of identified programmes that are reviewed,
- 325.5 removing the obligation for the verifier to consider non-standard depreciation and cost allocation information;
- 325.6 removing requirement for an independent engineer to review any proposed quality standard variation, and instead allowing suppliers to prepare the report themselves, subject to verification by the verifier (EDBs only); and
- 325.7 limiting the requirement for the verifier to provide us with a list of all information provided to it by the applicant, to information *relied upon* by the verifier in fulfilling its obligations under Schedule G.

Verifier's purpose and role

- 326. A common problem across the issues stakeholders have identified with the current verifier requirements is that the purpose of the verifier and their role is not clear.
- 327. In 2010 we explained that the purpose of the verifier had two key components:
 - 327.1 ensuring we can rely on the information supporting the CPP; and
 - 327.2 highlighting the key issues we should focus on during our assessment, to avoid duplication of effort.

328. We explained the reliability point in our 2010 IMs reasons paper saying:¹⁵⁵

It is also important that the Commission is able to rely on information contained in a CPP proposal. Therefore, the Commission considers that the proposal should be verified in some way before it is submitted to the Commission. The key considerations when selecting the appropriate form of verification are how critical the information is to the decision and the amenability of the information to the different types of verification [including] independent opinions on information by a subject matter expert (referred to as 'independent verification').

329. In addition, we explained that:¹⁵⁶

A key aspect of the Commission's expenditure approach is the use of pre-submission verification (prescribed by the Commission) of proposed expenditure by an independent verifier. This should promote certainty for suppliers as to how their expenditure will be assessed, as well as assist the Commission in managing the tight statutory timeframes for assessment. Suppliers have an opportunity to rectify any concerns raised by the verifier before it applies for a CPP and the process should allow the Commission to focus on the most important aspects of the CPP proposal during its assessment period.

330. We also stated that where possible, we would not seek to duplicate the effort expended in the verification of a CPP proposal:¹⁵⁷

The Commission will need to undertake its own assessment of the proposal in order to make a s 52P determination as is required under the Act. In doing so, to the extent practicable, the Commission will seek to avoid duplication of effort and to rely on the professional opinion expressed by the verifier.

Problem definition

331. Our experience with the Orion CPP suggests that we have not made it entirely clear that the intent behind the verifier role is to 'frontload' as much of the evaluation work as possible to reduce the pressure on the Commission of evaluating the CPP proposal and determining a CPP in a tight statutory timeframe. This lack of clarity in intent led to issues during the Orion CPP process. For example, we expected that the verifier would assess the reliability of the input data used to form the expenditure forecast, and the key assumptions made by Orion. Equally, we expected that the verifier would have understood and assessed the extent to which the proposed expenditure was required to meet service level requirements and quality demanded by customers.
332. Submissions on the Orion CPP process show the importance of frontloading and avoiding duplication, with several submissions questioning the necessity of the

¹⁵⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.6.3.

¹⁵⁶ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.5.13.

¹⁵⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.6.1.

verification process where there was a perceived duplication of effort by the Commission.¹⁵⁸

333. For example, Vector submitted:¹⁵⁹

In practice, it seems that the IM requirement for a verifier has resulted in duplication of effort, unnecessary expense and confused expectations. We therefore question the need for a verifier as specified in the IMs; although the verifier role may be worth retaining if the verifier was also utilised throughout in the process to assist the Commission in reviewing the CPP application.

334. Another reason that frontloading is important is because potentially we may evaluate four (or more) EDB CPP proposals in any one year, and these must be considered within 150 working days. Understanding resource requirements and the nature of the proposal(s) will be crucial to us planning a cost-effective evaluation process.

335. Orion observed that there was some confusion about whether we should have had sight of the draft version of its application provided to the verifier. In addition, the verifier for Orion's proposal considered we would have liked some advance notice of the proposal, so we could have planned our evaluation around the likely contents of what was going to come in, but it considered the draft to be confidential.¹⁶⁰

Solution – Expressly lay out verifier's key purpose and role

336. Our solution to the lack of clarity about the purpose and role of the verifier is to add an additional section to the verifier's Terms of Reference (Schedule G2 of the IMs) that clearly sets out expectations for the verifier's role.

337. The new section of Schedule G explains that the role of the verifier is to:

- 337.1 provide an assessment of whether the CPP applicant's policies, strategies, and procedures meet the expenditure objective;
- 337.2 ascertain whether these policies, strategies, and procedures have been applied in practice;
- 337.3 review the CPP proposal to ensure that it is sufficiently complete in content, prior to the Commission review;

¹⁵⁸ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 20; Powerco "Feedback on Orion customised price-quality path process" (14 April 2014), para 25. We note that Orion described the role of the verifier as a "valuable" one, while at the same time expressing concern about the duplication of effort, Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 19-20.

¹⁵⁹ Vector "Feedback on Orion customised price-quality path process" (14 April 2014), para 13.

¹⁶⁰ Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 62; Denis Jones (Orion) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), p. 252.

- 337.4 assess the extent to which the CPP applicant is able to deliver its capex and opex forecasts during the regulatory period;
 - 337.5 to report on the extent and effectiveness of the supplier's consultation with consumers; and
 - 337.6 provide a list of the key issues which the Commission should focus on when assessing the CPP proposal.
338. In response to submissions on our draft determination, we have made several changes to our draft proposals to improve clarity of the role and ensure consistency with the terminology used elsewhere in the IMs, for example, by linking the verifier's assessment of the applicant's policies to the expenditure objective.¹⁶¹

Solution – High level summary

339. We have introduced a requirement for the applicant to provide us with a high level summary of its proposal, prior to engaging the verifier, to enable us to undertake our preliminary resource planning for our evaluation of the CPP proposal.
340. Some suggested not including this requirement.¹⁶² They considered that the level of detail required was too high and was required to be provided too early in the process.
341. Submissions also considered that the value of the summary would not outweigh the increased cost and complexity. Some submitters also suggested that the information could be better provided in other ways, such as through a workshop with the Commission.¹⁶³
342. We consider that the provision of a high level summary, early in the CPP process will allow us to plan appropriate resources for the evaluation of the CPP proposal, which occurs in a tight statutory timeframe. It is not intended to be a burdensome requirement. To ensure this is not the case, we have made some refinements to reduce the level of information required and allow the information to be provided through a workshop instead, with our agreement. We consider that these changes should ensure that we have access to the information we need to plan our evaluation process, without placing undue cost and complexity on the supplier.

¹⁶¹ See, for example: ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), para 91.

¹⁶² See ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 7 and 24; Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 29 and 45; Orion "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 86-88.

¹⁶³ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 29 and 45.

343. The high level CPP proposal summary will require information on:
- 343.1 at a high level, the rationale for seeking a CPP, including a brief explanation of key projects linked to this rationale;
 - 343.2 when the proposed CPP will take effect;
 - 343.3 an estimate of the capex and opex forecasts for the intended CPP proposal;
 - 343.4 the likely anticipated change/effect on prices;
 - 343.5 whether the supplier intends to propose a quality standard variation as part of the CPP proposal, and if so, the indicative impact on quality standards of the intended variation;
 - 343.6 the supplier's proposed approach to engaging with consumers on the proposal; and
 - 343.7 any other information it considers would assist us in planning the assessment of its CPP proposal.

Communication between the applicant and verifier

Problem definition

344. In the Orion CPP, we required that the verifier's conclusions in the verification reports were supported by a verifiable paper trail. Geoff Brown Associates (GBA) – the verifier for Orion – stated that this requirement created an onerous "paper trail" of information. GBA stated that the technical judgements made by the verifier need to be recognised as such, without reference to detailed supporting information.¹⁶⁴
345. However we are concerned that we may need to make reference to conversations between the applicant and the verifier during the consultation process, and that doing so in a transparent way may be difficult in the absence of a written record.

Solution

346. The verifier and applicant need to have the ability to have open technical discussions to resolve issues on an informal basis. We acknowledge that requiring documentation of every verifier opinion is costly and onerous. However, we do need to reference these discussions if they have been used to form verifier opinions.
347. We expect that, in most cases, the verifier will form its views and technical judgements on documented information and data. Providing references to support technical judgements is expected for an expert witness report, and we expect this level of diligence from the verifier.

¹⁶⁴ Geoff Brown (Geoff Brown Associates) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), p. 254.

348. We have amended the tripartite deed requirements in Schedule F5 of the IMs to include a communication protocol that sets out the roles and obligations of the parties during the verification process regarding communication and to allow meeting minutes to be used as the evidential basis for any verifier technical opinions.
349. The main reason for this change is that it will result in a more efficient and cost-effective verification process. For example we may agree with the parties that the verifier may contact us to discuss our interpretation of the IMs and the verifier's obligations under Schedule G, in order to provide greater clarity of how we will assess the applicant's proposal.
350. We have also changed the requirement for the verifier to provide us with a list of all information provided to it by the applicant.
351. We have limited the list required in the verifier's report to information relied upon by the verifier in fulfilling its obligations under Schedule G.
352. This will remove the requirement for the verifier to record all information provided to it by the CPP applicant, but will still ensure that the information relied on is documented for the Commission's assessment.

Number of identified programmes

Problem definition

353. Submitting on the Orion CPP, stakeholders suggested that the IMs should allow the verifier to pre-select sample projects or programmes ('identified programmes') for review, rather than have the sample projects selected later in the process. This would allow sufficient evidence on the pre-selected projects to be prepared in advance, making the process more efficient.¹⁶⁵
354. Orion also pointed to the fact that had there been a smaller number of projects to require detailed review, the cost of the application would have been reduced. In Orion's case, projects had to be artificially constructed and defended to meet the requirements.¹⁶⁶
355. Stakeholders have also commented that the reference to "identified programmes" in the IMs is excessive, and does not reflect the capex and opex budgets of small networks. These smaller networks may not be sufficiently resourced to meet this task.¹⁶⁷ Additionally, MDL commented that some businesses simply will not have this many projects in total.¹⁶⁸

¹⁶⁵ Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 30(d).

¹⁶⁶ Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 25-28.

¹⁶⁷ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 13-14.

¹⁶⁸ MDL, Untitled submission on problem definition paper (21 May 2015), para 12.

Solution

356. Our solution is to allow a level of flexibility in the number of identified programmes that are verified in detail as part of verification process. We will do this by allowing the verifier to judge on a case by case basis the appropriate number of identified programmes for which more detailed information must be provided (also forming part of the CPP proposal), and which will be scrutinised by the verifier at greater depth. The current number of identified programmes (20) required will remain as the maximum.¹⁶⁹
357. This change will directly reduce the cost and complexity of CPP applications for the verifier, the applicant, and the Commission, and is consistent with the proportionate scrutiny principle, as it allows the verifier's detailed assessment to be targeted at the programmes that most affect the price, quality, and investment aspects of the applicant's business. We first proposed this change as part of our draft decision, and we also set out our proposed criteria that the verifier would use to select the number of identified programmes for verification.
358. As suggested by submissions, we have refined the criteria to ensure that the considerations are directly relevant to the verifier's selection of an appropriate sample.¹⁷⁰
359. For example, we have removed the requirement for the verifier to consider the extent to which the number of projects or programmes in the CPP proposal is consistent with the number of projects or programmes in previous asset management plans.
360. We have also made some minor refinements to the drafting to improve clarity and ensure consistency with the terminology used elsewhere in the IMs and the Act.
361. When selecting the number of identified programmes the verifier will consider:
- 361.1 the long term interests of consumers;
 - 361.2 our ability to effectively review whether the applicant's forecasts are consistent with the expenditure objective;
 - 361.3 the applicant's rationale for seeking a CPP;

¹⁶⁹ We note that Powerco submitted that the maximum number of identified projects was excessive and should be capped at 10 as this number will be adequate. We consider that the draft number remains appropriate as this is only a maximum and the verifier will have discretion to choose a lesser number that it considers adequate. However, it will also allow the verifier to choose a number of projects, larger than ten, which may be suitable, for example, where a supplier has split its projects into many small projects.

¹⁷⁰ See: ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), para 96.

- 361.4 its ability to provide an opinion on whether the capex and opex forecasts have been prepared in accordance with the policies and planning standards of the applicant;
- 361.5 its ability to assess any quality standard variation proposed; and
- 361.6 the materiality of the projects or programmes to the CPP proposal, and the capex and opex forecasts.

Role of the independent engineer

Problem definition

- 362. The independent engineer preparing the report on network quality (for EDBs seeking a quality standard variation) adds unnecessary cost, and this role could be performed by the applicant.
- 363. The pre-review IMs required the applicant to engage an independent third-party (other than the verifier) to report on a proposed quality standard variation. Stakeholders have suggested this is a task that could be performed by the verifier.¹⁷¹

Solution

- 364. We have made changes to allow the applicant to prepare its own quality standard variation report, and have the verifier assess the report.
- 365. This change will eliminate the need for an independent engineer, which will reduce compliance costs. However it will still ensure that the report is subject to appropriate independent scrutiny, of the kind that the verifier will be well placed to provide.
- 366. Some submissions suggested that we merge the roles of the verifier and the independent engineer, however we do not consider this to be an appropriate alternative solution. Applicants are likely to have access to the right kind of expertise to prepare the quality standard variation report. However, it would be a departure from the verifier's independent status for them to prepare and then verify their own report.
- 367. In response to submissions, we have also made a change to the verifier's terms of reference, to clarify the verifier's role in reviewing any proposed quality standard variations.¹⁷²

¹⁷¹ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 21-23; Dennis Jones (Orion) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), p. 247.

¹⁷² See: ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), para 97.

Verification of non-standard depreciation, cost allocation and insurance information

Problem definition

368. The verifier is required to produce an independent report on the CPP proposal based on the terms of reference in Schedule G of the IMs. Feedback on the scope of the verifier's report indicates that some of the material the IMs require should be excluded from the report.
369. Stakeholders have said that non-standard depreciation and cost allocation should not be included in the report. Their view is that these issues fit more comfortably within the Commission's review than within the verifier's.¹⁷³ Additionally, Orion has said that insurance costs should not be within the scope of the verifier's report.¹⁷⁴ Commenting on the draft decision, First Gas also identified that the verifier's role in assessing insurance was not completely clear.¹⁷⁵

Solution – remove requirement to review non-standard depreciation

370. Our solution is to remove the requirement to review non-standard depreciation and cost allocation information from the verifier's terms of reference.
371. Our main reason for this change is that the verifier would likely need to engage specialist economic advice to assess non-standard depreciation, which adds cost and complexity to the process. We agree with submissions that the review of non-standard depreciation is better suited to our own review rather than the verifier's review.

Solution – remove requirement to review cost allocation

372. As part of our draft decision we proposed to retain the requirement for the verifier to review the CPP applicant's cost allocation information.
373. In submissions on the draft decision ENA suggested that the auditor should audit the cost allocation information, rather than the verifier.
374. We agree that the auditor's skill set is likely to be better suited to performing this role than the verifier's. As such, we have removed the requirement for the verifier to provide a view on this information, and, for the avoidance of doubt, added this to the requirements of the audit report.

Verifier's role in assessing insurance decisions

375. We expect that insurance costs will be assessed by the verifier as these costs will form part of the applicant's proposed opex forecast – a key aspect of a CPP proposal. A specialist insurance report may be included as part of a CPP proposal. We consider

¹⁷³ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), Attachment 1, p. 16.

¹⁷⁴ Dennis Jones (Orion) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), p. 246.

¹⁷⁵ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 6.

that the verifier will be better placed than the Commission to provide an initial comment on:

375.1 the level of cost versus risk that the applicant is exposing certain assets to; and

375.2 whether the balance between self-insurance and external insurance has been adequately made.

376. In circumstances where the verifier considers that more detailed analysis, from someone with specific expertise in the insurance field is required, we would expect the verifier to recommend that we engage an expert.

377. We consider that in some circumstances it may be useful to clarify our verification expectations, in relation to insurance, in the tri-partite deed – for example, where we think insurance decisions are likely to be pertinent to our evaluation of a CPP proposal.

Other issues raised by stakeholders

378. This section responds to a number of issues raised by stakeholders where we consider no changes to the information requirements are required.

Selection and engagement of the verifier

379. The CPP IMs require the applicant to engage the verifier using the process set out in Schedule F of the IM Determinations. Specific problems with the engagement process have focussed on how the verifier is approved, and on the tripartite deed between the verifier, the applicant, and the Commission.

380. Suppliers have submitted that the current process to select and approve the verifier is complex and time-consuming. Stakeholders have suggested that we could reduce the time and cost involved by providing a pre-approved list of verifiers, and through the use of a template deed.

381. Orion described selecting and obtaining approval for the verifier as "unduly onerous" when submitting on the problem definition paper for the IM review. It stated that the time spent on this process could have been better used elsewhere.¹⁷⁶

382. Orion previously submitted the approval process could benefit from being "streamlined", possibly by the use of a pre-approved verifier list.¹⁷⁷ They also commented that the small number of potential verifiers in New Zealand posed a

¹⁷⁶ Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 66.

¹⁷⁷ Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 24.

practical issue for CPP applicants.¹⁷⁸ This sentiment was echoed by the ENA in its feedback on the Orion process, who characterised the process as "complex".¹⁷⁹

383. Regarding the tripartite deed, Orion suggested at the IMs forum that the preparation of a standard deed could reduce the time taken to develop and agreed the deed.¹⁸⁰ This suggestion was also supported in submissions on the draft decision.
384. While we agree with the issues highlighted by Orion and other submitters, we consider that differences in circumstance (when compared with the Orion CPP) and changes elsewhere in the IMs will mitigate these problems in future. We remain open to the solutions, that do not require changes to the IMs that submitters have suggested, specifically:
- 384.1 introducing a template tripartite deed; and
 - 384.2 introducing a pre-approved verifier list in future, should this problem persist.
385. The issues Orion faced in approving the verifier were to some extent a result of the challenging circumstances of their application, and the fact that it was the first CPP application. Furthermore, the removal of the timing constraints imposed by the CPP WACC Determination allows for better pre-application engagement between the Commission and suppliers.
386. We are open to developing a template or "benchmark" tripartite deed outside of the IM review process. The deed used in the Orion process could form the basis of this, but the specifics of any template require input from stakeholders. In the interim we will work with potential CPP applicants to help develop a suitable deed, and reduce these costs where possible.

Time available for verification

387. For EDBs, the time allowed for the verifier to carry out their work was previously limited by the timing of the CPP WACC Determination in September and the CPP application windows in February and May. This led to a compressed timeframe for the verifier to prepare their report, which may have consequently reduced the quality of the CPP application.
388. Our change to eliminate the difference between the CPP WACC and the DPP WACC resolves this problem. With the need for the CPP WACC Determination removed, applicants, the verifier, and the Commission will have a wider time frame for both pre-application engagement and for the verification process. This change will help

¹⁷⁸ Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 21.

¹⁷⁹ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 18.

¹⁸⁰ Dennis Jones (Orion) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), p. 245-246.

not only with this specific issue, but with some of the other timing problems outlined in previous sections.

Use of a separate verifier for consumer consultation

389. In their submission Major Electricity Users Group (**MEUG**) suggested that we should amend the IMs to allow for a separate verifier to scrutinise the applicant's consumer consultation process.¹⁸¹ They submitted that the verifier may not have the appropriate expertise to be able to provide an opinion on the appropriateness of the applicant's consumer consultation.

390. While we agree that the verifier may not have specific expertise in consumer consultation, the verifier is not limited to being a single person. We consider that if further expertise in consumer consultation is needed that the verifier could take on additional staff, or use external consultants in order to gain assurance over the consumer consultation steps. Further we are open to providing feedback to applicants on the appropriateness of their consumer consultation steps, and we will further scrutinise the process once the proposal is received.

¹⁸¹ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 15.

Chapter 7: Audit requirements

Purpose of this chapter

391. This chapter explains our solutions to the problems we have identified with the audit requirements for CPP proposals.

Structure of this chapter

392. This chapter begins with a summary of our changes to the audit requirements for CPP proposals and an explanation of the policy intent of the audit requirements. The following sections then identify specific problems with implementing that intent, and set out our solutions for each.

Summary of proposed changes

393. The changes we have made are intended to provide greater certainty for CPP applicants of our expectations for the audit requirements, consistent with s 52R. These are:
- 393.1 differentiating the role of the auditor with respect to historical financial information and forecast financial information;
 - 393.2 removing ambiguity relating to quantitative information provided in spreadsheets;
 - 393.3 clarifying the requirement on the auditor to provide a view in respect of proper records being kept;
 - 393.4 clarifying the requirement that the auditor must provide a report setting out its opinion on specified matters; and
 - 393.5 expressly setting out the auditor's role in auditing cost allocation information.

Policy intent of the audit requirements

394. We rely on the information provided by CPP applicants in assessing CPP proposals and making CPP determinations. In order to make appropriate and cost-effective CPP determinations we need to have confidence in the information provided by applicants.¹⁸²
395. One of the means by which we gain confidence over the quality of financial and quantitative information provided by CPP applicants is by requiring the information to be subject to examination by independent auditors (ie, audit).

¹⁸² Verification provides a complementary, but distinct role to audit. A key task of the verifier is to provide an assessment of whether the CPP applicant's policies, strategies, and procedures are appropriate such that services will be provided efficiently and align with consumer demands. Auditors are not qualified to form opinions on such matters.

396. The policy intent behind the audit IM requirements for CPPs is to ensure that financial and quantitative information provided as part of a CPP proposal is robust, reliable, and in compliance with applicable IMs.
397. Overall, we consider that the audit IM requirements for CPPs are fundamentally fit for purpose, but that we can make some clarifications and refinements to better meet their intent. Specifically, by referencing professional engagement standards, and clarifying the terminology used with respect to the role of the auditor, we can better align with the audit profession and clarify the role of the auditor with respect to CPP applications.
398. Through our review of the IMs, and drawing on feedback on the Orion CPP process, we have identified three problems related to the audit requirements. Specifically:
- 398.1 the role of the auditor with respect to financial, non-financial, and forecast information lacks a link to professional engagement standards;
 - 398.2 the audit requirements contain unclear or ambiguous terminology which can confuse the role of the auditor; and
 - 398.3 an audit must be conducted, but no audit report is explicitly required to be provided by the auditor.

Clarifying the role of the auditor with respect to financial, non-financial, and forecast information

Problem definition

399. The role of the auditor may vary depending on the nature of the information and the type of engagement sought. The professional engagement standards that auditors comply with reflect these differences:¹⁸³
- 399.1 Where a high standard of comfort is required over the reliability of historical financial information, an audit may be required involving the application of appropriate audit engagement standards. This is typical in cases where an organisation wishes to issue its financial statements publicly and therefore seeks an opinion as to their fair presentation.
 - 399.2 There are other engagements that may be undertaken involving a lesser standard of comfort and/or different types of information, regulations, rules, policies or guidelines, which may be performed under applicable assurance engagement standards. These engagements may include, for example, a review of an organisation's procurement practices.
400. A CPP proposal is required to contain a range of information, including historical financial information, forecast information, and other non-financial information.

¹⁸³ Auditing and Assurance Standards as issued by the External Reporting Board or the New Zealand Auditing and Assurance Standards Board (NZAuASB).

However, the pre-review audit IMs referred only to an *audit* being required, which has been interpreted to mean the high standard of assessment which applies in a typical audit of historical financial information.

401. Submitters had comments about the role of the auditor, particularly with respect to what is required under the audit IMs in relation to *historical* information and *forecast* information. For example, Orion stated that:¹⁸⁴

...there are limits to the extent that [forecast] information can be or should be audited. We suggest the focus of the audit should be on verifying actual/historical information and ensuring that the historical and forecast information has been prepared consistent with the IMs.

402. Similarly, ENA considered that the Commission should ensure that "the audit is focused on the areas where it can add the most value (such as confirmation of historical information and consistency with the IMs which are relevant to the price path)."¹⁸⁵ ENA also considered that the audit IMs could more appropriately reflect different assurance requirements for historical and forecast information.
403. We consider there is merit in clarifying and differentiating the obligations of the auditor under the audit IMs with respect to actual/historical financial information relative to those for forecast financial information. We consider an auditor can (and should) audit the veracity of historical/actual financial information in CPP applications against source information held by the applicant in accordance with relevant *audit engagement standards*, and provide an opinion on whether the CPP application information complies with the IMs.
404. However, a high audit standard applied to forecast financial information is problematic, as the accuracy of forecast information cannot be known by an auditor *ex-ante*, and the information cannot be verified back to source documentation (as this can only occur *ex-post*).

Solutions

405. Our solution is to amend the audit IMs for CPPs to differentiate the role of the auditor with respect to historical financial information and forecast financial information by linking to existing audit engagement standards and assurance engagement standards under the Financial Reporting Act 2013 (or other standards where appropriate).¹⁸⁶
406. In submissions on our draft decision PwC submitted that the linkage to audit and assurance engagement standards issued under the Financial Reporting Act 2013 was

¹⁸⁴ Orion "Feedback on setting Orion's customised price-quality path" (14 April 2014), p. 6.

¹⁸⁵ ENA "Feedback on setting Orion's customised price-quality path" (14 April 2014), p. 8.

¹⁸⁶ Where historical financial information is concerned, requiring an audit of this information under the IMs is appropriate – as the events giving rise to this information, and the associated amounts, can be verified. An auditor can (and should) audit the veracity of historical financial information in CPP proposals against source information held by the applicant in accordance with relevant audit engagement standards, and provide an opinion on whether the CPP proposal information complies with the IMs.

not appropriate. They submitted that the standards issued under that legislation are only applicable to audits of financial statements and would not be relevant to the audit of either the historical financial information or forecast financial information included in a CPP proposal.¹⁸⁷ We have made minor alterations to this provision to ensure that it is expressed accurately – by reference to the applicable auditing standards issued by the External Reporting Board in accordance with its functions under the Financial Reporting Act 2013.

407. PwC also recommended that we specifically reference the relevant audit and assurance standards in the IMs.¹⁸⁸ We do not consider this appropriate. We consider that the auditor will be best placed to judge the appropriate standards to apply to a CPP proposal. Further, audit and assurance standards are regularly changing. We consider that by keeping the requirements flexible and relying on the auditor's professional judgement, it is less likely that the IMs will become unworkable when standards are changed or removed – which would create uncertainty.
408. The effect of these changes will result in the following:
- 408.1 historical financial information will be audited in accordance with applicable audit engagement standards issued by the External Reporting Board under the Financial Reporting Act 2013 (or applicable successor);
 - 408.2 forecast financial information will be examined in accordance with applicable assurance engagement standards issued by the External Reporting Board under the Financial Reporting Act 2013 (or applicable successor), or other appropriate standards; and
 - 408.3 quantitative historical information provided in spreadsheets will be properly compiled on the basis of the relevant underlying source documentation.
409. Our main reason for these changes is to provide a greater level of certainty to CPP applicants (and their auditors) in relation to the audit standards we expect to be applied to a CPP proposal.

Submissions requested further clarity in the Audit IMs

410. While submissions on our draft changes to the audit IMs were generally supportive, some submitters suggested that they should be further amended to provide greater clarity and, in some cases, prescription.¹⁸⁹ For example, the specific change proposed by PwC discussed in paragraph 407 above.

¹⁸⁷ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 154.

¹⁸⁸ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 155.

¹⁸⁹ See, for example: ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), p. 27; PwC "Submission to the Commerce Commission on

411. We have considered all of these submissions and concluded that further changes are unnecessary. We consider that a number of the suggestions raised by submitters would result in very detailed IMs if implemented, which would add little value, while potentially unnecessarily limiting the scope of the audit or creating further uncertainty through added complexity.
412. We rely on the auditor to exercise their professional judgement when undertaking the audit, to provide a view on the robustness of the relevant information in a CPP proposal, so that we can assess the reliance we are able to place on that information.

Audit requirements contain unclear or ambiguous terminology which can confuse the role of the auditor

Problem definition

413. To gain confidence in the information provided by a CPP applicant, the policy intent of the IMs is to require the auditor to provide an opinion on whether 'proper records have been kept' by the applicant on which the CPP proposal information has been based.
414. Consequently, the IMs required an auditor to audit a CPP proposal as to whether proper records have been kept to enable the complete and accurate compilation of information by the applicant.
415. However, this requirement previously did not reflect the fact that some information required under the IMs may not be traditionally produced by applicants for business or regulatory purposes, meaning it may need to be created or developed from other information that is actually produced and kept by the applicant.
416. Given that the information may need to be created, the references to "proper records" and "complete and accurate compilation of information" had the potential to cause confusion and difficulty for applicants and auditors in terms of complying with the IMs.
417. Submissions also noted that the audit IMs require quantitative information provided in spreadsheets to be "accurately presented". In its submission of 14 April 2014 Orion noted that their auditors were not comfortable with the IM requirement "...for them to opine on whether information had been "accurately presented" as it was not clear what this term required in practice."¹⁹⁰ In its submission, ENA also questioned the use of the term "accurately presented" in a CPP context.¹⁹¹ These submissions are referring to clause 5.5.3(d) in the EDB IMs, and clause 5.6.3(d) in the GDB and GTB IMs.

input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 150–155.

¹⁹⁰ Orion "Feedback on setting Orion's customised price-quality path" (14 April 2014) p. 6.

¹⁹¹ ENA "Feedback on setting Orion's customised price-quality path" (14 April 2014) p. 16.

418. We consider that the expression "accurately presented" is problematic with respect to forecast quantitative information, as there is no way for the auditor to know *ex-ante* whether the information is indeed "accurate". This underlies the concerns of auditors as they are being required to provide an opinion that a forecast is accurate, when in fact this cannot be known at the time the opinion is provided (ie, before the fact).
419. Further, the expression "accurately presented" is unclear as to what dimension it is focussing on. For example, it is not clear whether the IM is requiring accurate presentation in terms of the underlying substantive information, or the presentation of that information (given there may be different ways to present the information), or both.
420. For the same reasons outlined earlier in terms of the Commission needing to be able to rely on the information provided in CPP applications, we consider that the intent of the relevant IMs is sound. However, the current wording of the IMs is problematic in the context of forecast financial information. We consider that a modification to the relevant IMs is needed to differentiate between what the auditor must exercise their judgment on with respect to *historical* quantitative information provided in spreadsheets and *forecast* quantitative information provided in spreadsheets.

Solution

421. We have added exemptions and modifications to the record-keeping requirements under the IMs relating to information requirements to address this problem. This change will allow a degree of flexibility in determining whether information may need to be created or developed from other information that is actually produced and kept by the applicant.
422. Our solution is to align the scope of audit requirements to the information requirements, ie, the auditor is required to provide their opinion as to "whether proper records have been kept to enable the compilation of information required for a CPP proposal".
423. We have also removed some of the ambiguity in assessing quantitative information provided in spreadsheets by removing the expression "accurately presented" from the audit IM requirements. PwC supported this change but suggested that we should provide further guidance for auditing spreadsheets. We do not consider that this suggestion is desirable for the reasons set out above in paras 410 to 412.
424. With respect to quantitative information provided in spreadsheets, we have modified the IMs to require the auditor's opinion on whether:
- 424.1 quantitative *historical* information provided in spreadsheets has been properly compiled on the basis of the relevant underlying source documentation; and

424.2 quantitative *forecast* information provided in spreadsheets has been properly compiled on the basis of relevant and reasonable disclosed assumptions.

425. Our main reason for these changes is to provide clarity on the scope of audit requirements.

Lack of explicit requirement for auditor to provide audit report

Problem definition

426. A report setting out the opinion of the auditor is a key part of the application package that we rely on when considering a CPP proposal. Being clear about the requirement for this report is important to ensure applicants and auditors know what the work of the auditor must culminate in.

427. The pre-review audit IMs stated that CPP proposals must be audited by an auditor, but did not explicitly require the auditor to provide a report setting out the auditor's views on specified matters contained in the IMs, as part of that audit (albeit that a different clause, clause 5.1.4, requires the supplier to provide one as part of the CPP application).

428. Accordingly, the need for a formal view to be provided by the auditor (in order for us to have confidence in the CPP proposal information), and the output required from the auditor under the IMs, was not as clear as it could be.

Solution

429. Our solution is to stipulate in clause 5.5.3 of the EDB IMs, and clause 5.6.3 of the GDB and GTB IMs that the auditor must provide a report setting out the its opinion on specified matters set out in those clauses. This will:

429.1 more easily enable us to assess the reliability of the financial and quantitative information provided in the CPP proposal;

429.2 make it clear to stakeholders and auditors what output is required under the IMs; and

429.3 improve the link between those IMs and clauses 5.1.1(2)(a) and 5.1.4.

Role in reviewing cost allocation information

430. As discussed above in paragraphs 372 to 374 we have removed the requirement for the verifier to review cost allocation information, as we consider this is a role better suited to the auditor.

431. While we consider that the auditor's role should already cover a review of this information, for the avoidance of doubt, we have changed the audit IMs to expressly lay out our audit expectations in relation to cost allocation. These expectations are aligned with the requirements that were previously required of the independent verifier.

Chapter 8: Consumer consultation requirements

Purpose of this chapter

432. This chapter explains our solutions to the problem we have identified with the consumer consultation requirements for CPP proposals.

Structure of this chapter

433. This chapter begins with a summary of our changes to the consumer consultation requirements. Following this, we explain the policy intent of the consumer consultation requirements. We then discuss the lack of clarity in those requirements, and set out our solutions to this problem.

Summary of changes

434. We have made two changes to the IMs to provide greater certainty of our expectations for consumer consultation, consistent with s 52R by:
- 434.1 amending the consumer consultation IMs to require CPP applicants to notify consumers of the price and quality impact of any alternative investment options in its CPP proposal; and
 - 434.2 requiring the verifier to report on the extent and effectiveness of the applicant's consultation.

Intent of the consumer consultation requirements

435. Having reviewed the consumer consultation requirements for CPP proposals, we consider that the intent behind them remains appropriate.
436. The current consumer consultation requirements require suppliers to inform and engage with consumers on the implications of the CPP proposal for consumers. This means the proposal is more likely to reflect the service quality that consumers demand and are willing to pay for.
437. In our 2010 IMs reasons paper, we stated:
- The requirement relating to consumer consultation is one of 'adequate notification', by which the Commission means that the process, the medium used and the information provided must be sufficient to enable consumers to engage. This will likely differ according to the specific consumer base and the nature of the CPP proposal, and the supplier has discretion as to how it engages with its consumers.
438. Some suppliers sought clarification of what is considered 'adequate'. We have intentionally left this broad to allow suppliers to exercise some discretion as to the proposed channel of communication, given the nature of their consumer base.¹⁹²

¹⁹² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.6.16-9.6.17.

439. Under Part 4, we must ensure that suppliers have incentives to supply services at a quality consumers demand.¹⁹³ The requirement that suppliers consult with consumers on a CPP application is a clear means of promoting this outcome.
440. A similar sentiment was expressed by the MEUG in submissions on our CPP emerging views paper:
- ...the long term benefits to consumers and the economy as a whole are, in the view of MEUG, likely to be higher if we can lift the level of engagement between monopoly service providers and end consumers and steer the response by the monopolies to that engagement towards that found in service-based sectors...
441. We consider that we can provide greater certainty to suppliers of the level of consumer engagement we expect under the consumer consultation IM requirements.

Feedback identified we should further clarify our expectations concerning consumer consultation

Issues identified by stakeholders

442. In both feedback on the Orion CPP process, and submissions on the IM review, stakeholders identified the following issues related to the consumer consultation requirements:
- 442.1 the lack of clarity about what we expect from consumer consultation;
 - 442.2 duplication between Orion's consultation and our consultation process; and
 - 442.3 the lack of time for adequate consultation due to the relative timing of the CPP WACC Determination and the CPP application windows for EDBs.
443. The ENA considered that in the Orion CPP, the Commission expected a more comprehensive consultation than specified in the IMs. The ENA suggested that a review of consultation IMs was required.¹⁹⁴
444. Orion submitted that the CPP IMs do not specifically require the applicant to consult on options and the impacts different options would have on price and quality. Orion

¹⁹³ Commerce Act 1986, s 52A(1)(b).

¹⁹⁴ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 26.

recommended that the CPP IMs set out clearly what is required in this regard.¹⁹⁵ Other submitters have expressed similar views.¹⁹⁶

445. Submissions further argued that this lack of clarity contributed to the high cost of the CPP application process.¹⁹⁷
446. On the other hand, Vector noted in its feedback on the Orion CPP process that "it is appropriate for the IMs to require consultation to be carried out but to not be prescriptive of the form of the consultation – the regulated supplier should be able to judge the best mechanisms for gaining the views of their consumers". Vector suggested that our pre-engagement with the supplier could help ensure the consultation process will meet the needs of both parties.¹⁹⁸
447. Orion questioned whether the Commission was best placed to present the CPP proposal to consumers, and whether this duplication was necessary.¹⁹⁹ The ENA echoed this view, further suggesting that any overlap should be avoided, as it may confuse consumers, and impose unnecessary cost.²⁰⁰ While we will look to avoid any unnecessary duplication with the applicant's own consultation, under the Act, we are required to consult on an applicant's CPP proposal and our draft decision.
448. In addition, the timing of the WACC determination for CPP applications by EDBs (at the end of September) relative to the windows for EDBs to apply for a CPP (in February and May) limited the timeframe in which applicants can consult with consumers. Stakeholders have said that this timeframe is not sufficient for adequate consultation.²⁰¹

¹⁹⁵ Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 34. Orion reiterated this point during its presentation to the IM Review Forum and its submission on the problem definition paper, Dennis Jones (Industry Developments Manager (Commercial), Orion) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), pp. 247-248; Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 70.

¹⁹⁶ PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), para 115 and 122; MDL, Untitled submission on problem definition paper" (21 May 2015), p. 12; Powerco "Feedback on Orion customised price-quality path process" (14 April 2014), para 9; Wellington Electricity's submission "Input methodologies review – Problem definition" (21 August 2015), p. 9.

¹⁹⁷ Commerce Commission "Input methodologies review draft decisions: Topic paper 2 – CPP requirements" (16 June 2016).

¹⁹⁸ Vector "Feedback on Orion customised price-quality path process" (14 April 2014), para 5.

¹⁹⁹ Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 38.

²⁰⁰ ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 26(d). See also: Powerco "Feedback on Orion customised price-quality path process" (14 April 2014), para 11. A similar point was raised during the IM review forum, Lynne Taylor (PwC) "Cost-effectiveness of the rules and processes for CPP application" (presentation at the Commerce Commission input methodologies review forum, Wellington, 29 July 2015), p. 269.

²⁰¹ Genesis "Feedback on Orion customised price-quality path process" (14 April 2014), p. 1-2; Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 36; Powerco "Feedback on Orion customised price-quality path process" (14 April 2014), para 10.

449. This last issue has been resolved by a change to the cost of capital IMs, aligning the CPP WACC with the underlying DPP WACC.²⁰²

Problem definition

450. The consumer consultation IMs did not provide enough clarity about our expectations. In particular, they did not specify that suppliers must consult on the price and quality impacts of any alternative investments the supplier proposes in its CPP. We consider that conclusions drawn from consumer consultation that have not clearly presented price/quality trade-offs are likely to be unreliable.
451. Consistent with the expenditure objective in our CPP evaluation criteria, we expect that a prudent supplier has weighed up the price/quality trade-offs when it considers various investment alternatives, where relevant, and would inform affected consumers of these trade-offs – providing an opportunity for affected consumers to comment.
452. However, in practice, the IMs do not explicitly set out this expectation, as we are not prescriptive about the content and form of consumer consultation, requiring "adequate notification".²⁰³ This is consistent with our view that suppliers are likely to be best placed to judge the best manner of engaging with their particular customer base.
453. However, the lack of prescription in the IMs appears to have resulted in a lack of certainty about our expectations for consumer consultation.
454. We agree with stakeholders that greater certainty of applicants' consumer consultation obligations is warranted. To provide this, we propose the solutions below.

Solution – explicitly lay out requirement to consult on price/quality trade-offs

455. As part of our draft decision we proposed to amend the IMs to explicitly require applicants to consult with consumers on the price/quality impact of any proposed investment alternatives.
456. Our main reason for this change was to provide greater clarity about our expectations for CPP consultation.
457. While submissions generally acknowledged the benefits of clarifying our consultation expectations in the IMs, a number of submitters suggested that it was not practically realistic for a supplier to consult on *all* alternative investment options.²⁰⁴

²⁰² Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

²⁰³ Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, cl 5.5.1(1).

²⁰⁴ See: ENA "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), p. 28; PwC "Submission to the Commerce Commission on input methodologies

458. We agree with these submissions, and in our final decision we have limited this requirement so that CPP applicants are only required to consult on price/quality trade-offs of expenditure alternatives where they are directly associated with the applicant's rationale for seeking the CPP proposal.²⁰⁵ This will reduce the cost and complexity for the CPP applicant and aims to focus the additional consumer scrutiny on the parts of the CPP proposal that are likely to have the greatest impact on consumers.
459. Some parties have submitted that further prescription or guidelines would be beneficial.²⁰⁶ However, we consider that this change is sufficient at this stage, and have not included any further prescriptive requirements for consumer consultation. We consider that any further requirements might limit supplier's ability to tailor its consultation to the circumstances of its customers and of their applications, or cause additional consultation costs that might provide little additional benefit. We consider that the best way to provide additional clarity of our expectations will be to provide feedback and guidance as part of our engagement with potential CPP applicants, prior to the submission of a CPP proposal.
460. Where we are not satisfied that the applicant's level or quality of consultation is sufficient, we retain the ability to undertake our own further consultation.

Solution – verifier to review consumer consultation

461. We are also proposing to add a requirement to the verifiers' Terms of Reference to support the change to the consultation requirements. This change will require the verifier to report on the extent and effectiveness of the supplier's consultation with consumers.
462. As part of the submissions on our draft decision, First Gas questioned the decision to include this as part of the verifier's role, as it is not something that would be in the normal scope of the verifier's capabilities.²⁰⁷ MEUG suggested that we should require a separate verifier with expertise in public consultation to be engaged, rather than relying on the normal verifier who may not have the expertise in consumer consultation to provide an informed expert view.²⁰⁸

review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016) para 162-164; Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), p. 47; Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 13.

²⁰⁵ An explanation of the applicant's reasons for applying for a CPP are required to be provided as part of the CPP proposal.

²⁰⁶ See, for example: MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), p. 5-6; Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 13

²⁰⁷ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 5.

²⁰⁸ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 15.

463. We do not consider that this step is necessary. If verifier does not have sufficient expertise to provide a view on the extent and effectiveness of the consumer consultation process, then it may be appropriate for the verifier to subcontract expertise in this area to provide input into that component of its review.
464. We consider that a separate verifier for consumer consultation would likely add unnecessary cost and complexity to the verification process. However, as a safeguard, where we are not satisfied with the verifier's assessment of an applicant's consumer consultation process, we are likely to undertake our own assessment as part of our CPP evaluation process.

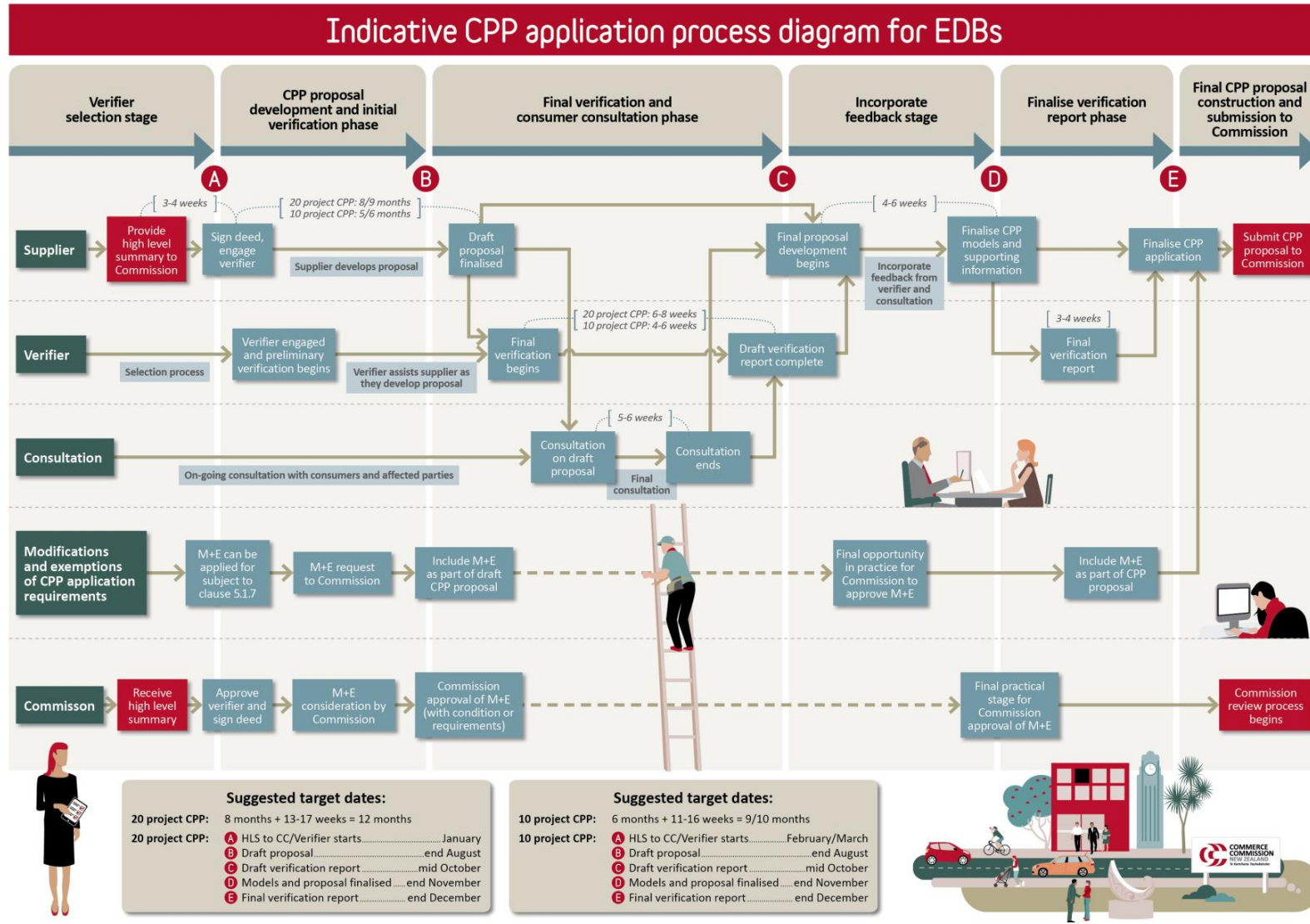
Attachment A: Indicative CPP application process diagram

Purpose of this attachment

465. This attachment contains an indicative diagram of the CPP application process that illustrates how the different components of the application process set out in the CPP IMs interact.
466. It is intended to be an aid for stakeholders to better understand how the CPP application process works in practice. In particular we think the diagram is a useful starting point for intending CPP applicants and a prompt for early discussion and engagement between the CPP applicant and the Commission.

Key considerations in using the diagram

467. Readers should note:
- 467.1 The timeframes provided in the diagram are indicative only, intended to be a guide at the early stages of a supplier's consideration of a CPP proposal in the absence of other information. We anticipate the stages of the process may vary in length depending on the nature of different proposals and the business practices of the particular applicant.
- 467.2 For simplicity we have represented the CPP application process from the viewpoint of an electricity distribution business. We expect the diagram to also be a useful starting point for GPBs but note that in the absence of a specified CPP application window for GPBs, there might be some nuances in the process that this diagram does not take account of. We encourage any suppliers contemplating a CPP to approach us to discuss more detailed timeframes, taking account of the specific circumstances.
- 467.3 We have used the following acronyms: HLS ('high level summary' – see Schedule F5 of EDB IM determination), CC ('Commerce Commission'), CPP ('customised price-quality path'), M+E ('modifications and exemptions' – see clause 5.1.7 of EDB IM determination), EDBs ('electricity distribution businesses').



Attachment B: Summary of the review of CPP IMs

Purpose of this attachment

468. The purpose of this attachment is to:

468.1 present the results of our review of the CPP requirements IMs for electricity lines services and gas pipeline services in accordance with our decision-making framework; and

468.2 summarise our decisions on whether to change the CPP requirements IMs, and explain our reasons for changing or not changing them.

469. In doing so, this attachment performs, in respect of the CPP requirements IMs, the role that the report on the review performs in respect of all other areas of the IMs.²⁰⁹

Relationship with the Report on the IM review

470. The Report on the IM review is a separate paper that records our decisions on whether to change each of the existing IM decisions as a result of the IM review. For those existing IM decisions we have decided to change, it explains how and why. It also explains our reasons for not changing those decisions we propose not to change as part of the IM review.

471. As noted in the Report on the IM review, for some areas of the IMs, extracting the existing IM decisions was straightforward (for instance, for those chapters of the 2010 IM reasons papers that began with IM overview tables summarising decisions we made in that area).²¹⁰ In other areas, including for the CPP requirements IMs, we have extracted the pre-review decisions from descriptions in the text of the relevant reasons papers.

Why we have presented our decisions in respect of the CPP IMs separately

472. Rather than being included in the Report on the IM review, our decisions on the CPP requirements IMs are instead covered by this attachment, so that all information about our decisions regarding the CPP requirements is in one place.

²⁰⁹ Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

²¹⁰ For example, for EDB and GPB cost allocation policy and implementation decisions, refer to Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), p. 55-56.

Structure and format of this attachment

473. We have structured the decisions relating to the CPP requirements IMs as follows:
- 473.1 content of CPP applications;
 - 473.2 process relating to CPP proposals;
 - 473.3 assessing and evaluating CPP proposals; and
 - 473.4 determining a CPP.
474. As in the Report on the IM review, we have assigned each pre-review decision with a unique code (eg, CP01) and presented each pre-review decision in the same tabular format.
475. For each pre-review decision, this attachment indicates whether or not we have changed it (either at a policy level, or in terms of the implementation of the decision).
476. For those pre-review decisions that we do propose changing, it summarises how and why, referring back to the body of this paper or other papers for more information.
477. It also presents those pre-review decisions that, having considered them in light of our framework, submissions on the IM, and all other relevant information before us, we have not changed.

Review of existing decisions relating to the content of CPP applications

Price path information

Decision CP01 Price path information	<p>Original 2010 decision</p> <p>CPP application must contain sufficient information to support a building blocks analysis necessary to determine a price path.</p> <p>Building block information to be provided in spreadsheets.</p> <p>See section 9.2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

478. We have made an implementation change to IM decision CP01.
479. We have changed the IMs to explicitly set out the criteria that must be met by an applicant when providing price path information in spreadsheet form.

Why we have made an implementation change to this decision

480. We consider that this change will reduce ambiguity and provide greater certainty to CPP applicants. Further details are set out in Chapter 5 – Information requirements.

Expenditure information – qualitative

Decision CP02 Expenditure information – qualitative	<p>Original 2010 decision</p> <p>CPP application must include information on capex, opex, demand and network in qualitative form as specified in Schedule D.</p> <p>See section 9.5 and Appendix K3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

481. We have made an implementation changes to IM decision CP02 as it applies to EDBs. We have yet to consider whether a change is required for GPBs at this stage.²¹¹

²¹¹ We have not yet reached draft decisions on the CPP information requirements IMs for gas pipeline businesses. Further discussion on this matter is found at paragraph 34.

482. We have:

- 482.1 better aligned the information requirements set out in Schedule D of the IMs with the EDB ID Determination;
- 482.2 reduced the level of disaggregation required for certain information; and
- 482.3 improved the requirements to provide information on the deliverability of proposed expenditure; and
- 482.4 simplified the information requirements on related parties and expenditure escalations.

Why we have made this implementation change

483. We consider that this change will reduce the cost and complexity of applying for a CPP, and provide additional certainty as to our expectations for deliverability information. Further details are set out in Chapter 5 – Information requirements.

Expenditure information – quantitative

Decision CP03 Expenditure information – quantitative	<p>Original 2010 decision</p> <p>CPP application must include information on capex, opex, demand and network in quantitative form.</p> <p>This information is quantitative and must be provided in spreadsheet format contained in schedule E.</p> <p>See section 9.5 and Appendix K3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes for this decision

484. We have made implementation changes to IM decision CP03 as it applies to EDBs. We have yet to consider whether a change is required for GPBs at this stage.²¹²

485. We have:

- 485.1 better aligned the Schedule E information requirements with the EDB ID determination; and
- 485.2 reduced the level of disaggregation required for certain information.²¹³

²¹² We have not yet reached draft decisions on the CPP information requirements IMs for gas pipeline businesses. Further discussion on this matter is found at paragraph 34.

Why we have made these implementation changes

486. We consider that these changes will reduce the cost and complexity of applying for a CPP and clarify these areas of the CPP requirements IMs. Further details are set out in Chapter 5 – Information requirements.

Period of information required

Decision CP04 Period of information required	<p>Original 2010 decision</p> <p>CPP applicant must specify the period of the CPP that is sought and provide information sufficient to cover a 5 year CPP period and the preceding years for which ID information is not yet available.</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

487. We have not made any changes to IM decision CP04 or the way it is implemented.

Detail on material projects and programmes

Decision CP05 Detail on material projects and programmes	<p>Original 2010 decision</p> <p>CPP application must include detailed information on the most material projects and programmes relating to the CPP proposal.</p> <p>See section 9.5 and Appendix K3 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made an implementation change for this decision

488. We have made an implementation change for IM decision CP05 as it applies to EDBs and GPBs.

489. We have allowed a level of flexibility in the number of identified programmes for which more in depth information is required, as part of the CPP proposal (these programmes are then able to be verified in greater detail). The verifier will judge on a case by case basis the appropriate number of "identified programmes".

²¹³ Such as the information required for capital contributions, related party transactions, and controllable and uncontrollable opex.

Why we have made this implementation change

490. We consider that this change will reduce the cost and complexity of applying for a CPP and ensure that the verifier is able to focus the detailed verification on the most material programmes in a CPP proposal.

491. Further details are set out in Chapter 6 – Verification requirements.

Information relevant to prices

Decision CP06 Information relevant to prices	<p>Original 2010 decision</p> <p>CPP application must contain information on proposed new pass-through costs, and proposed recoverable costs relating to costs of making CPP application.</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

492. We have not made any changes to IM decision CP06 or the way it is implemented.

493. We note that we are applying this IM decision CP06 by expanding the range of pass-through and recoverable costs for CPPs, as discussed in Chapter 3 – Improvements to the way the DPP and CPP work together.

Verification

Decision CP07 Verification report	<p>Original 2010 decision</p> <p>CPP application must include a verification report, all information provided to the verifier, and certification from the verifier.</p> <p>See section 9.6 and Appendix K4 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

494. We have not made any changes to IM decision CP07 or the way it is implemented.

495. We note that we have made changes to the verification process requirements (which results in the production of the verification report), as set out below in IM decision CP21.

Audit and assurance

Decision CP08 Audit and assurance report	<p>Original 2010 decision</p> <p>CPP application must include an audit report signed by the auditor.</p> <p>See section 9.6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

496. We have not changed IM decision CP08 or the way it is implemented.

497. We note that we have made changes to the audit and assurance process requirements (which result in the production of the audit report), as set out below in IM decision CP22.

Consumer consultation

Decision CP09 Consumer consultation evidence	<p>Original 2010 decision</p> <p>CPP application must provide evidence of consumer consultation.</p> <p>See section 9.6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

498. We have not made changes to IM decision CP09 or the way it is implemented.

499. We note that we have made changes to the consumer consultation process requirements, as set out below in CP23.

Certification

Decision CP10 Certification	<p>Original 2010 decision</p> <p>CPP application must include the certificates recording Director's certification.</p> <p>See section 9.6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

500. We have not made changes to IM decision CP10 or the way it is implemented.

Modifications and exemptions of CPP application requirements

Decision CP11 Modification or exemption of CPP application requirements (2015 decision)	<p>Original 2015 decision (as part of IM review fast track)</p> <p>CPP application must include information relating to all approved modifications and exemptions, including evidence any conditions of the approval have been met, and an indication of where the exemptions and modifications have been applied.</p> <p>Input methodologies review – Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision as part of the main IM review

501. This decision was first introduced earlier in the IM review as part of the fast track process. We have not made any subsequent changes to CP11 or the way it is implemented.

Information regarding quality

Decision CP12 Information regarding quality	<p>Original 2010 decision</p> <p>If sought, a CPP application must include information to support a quality standard variation, including reasons for the change and an engineer's report (EDBs only).</p> <p>See section 9.3 and Appendix K2 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB

We have made implementation changes to this decision

502. We have made changes to the way that IM decision CP12 is implemented. We have updated the information requirements for CPP proposals where a quality standard variation is proposed, to reflect the most recent way we set quality standards. We have also removed the requirement to show the effect of the proposed quality standard variation if it had applied the previous 5 years.

Why we have made the implementation changes

503. These changes are discussed in more detail in Chapter 5 – Information requirements.

Cost allocation information

Decision CP13 Cost allocation information	<p>Original 2010 decision</p> <p>CPP application must include information on the allocation of operating costs and RAB values.</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes to this decision

504. We have made changes to the way that IM decision CP13 is implemented for EDBs and GPBs.

505. We have:

505.1 better aligned the cost allocation information requirements, including Schedules B and C, with the relevant ID Determinations; and

505.2 added a materiality threshold that must be met, before providing certain cost allocation information; and

505.3 included tables in Schedules B and C requiring the applicant to provide the rationale for selecting proxy cost allocators.

Why we have made these implementation changes

506. We consider that these changes will reduce the cost and complexity of applying for a CPP. Further details are set out in Chapter 5 – Information requirements

Asset valuation information

Decision CP14 Asset valuation information	<p>Original 2010 decision</p> <p>CPP application must include information on RAB roll forward, depreciation, revaluations, commissioned assets, asset disposals, and works under construction.</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

507. We have made changes to IM decision CP14 and its implementation, as it applies to EDBs.

508. We have reduced the level of disaggregation of forecast depreciation. For example by:

- 508.1 grouping projects and programmes by asset categories and simplifying the calculation of depreciation for forecast commissioned assets; and
- 508.2 amending the depreciation information requirements to reflect that depreciation is calculated using asset expenditure category which is a more aggregated category than asset types.

Why we have made these changes

509. We consider that these changes will reduce the cost and complexity of applying for a CPP. Further details are set out in Chapter 5 – Information requirements.

Tax information

Decision CP15 Tax information	Original 2010 decision CPP application must include information on regulatory tax allowance, tax losses, permanent differences, amortisation of initial differences in asset values, deferred tax, temporary differences, and regulatory tax asset value. Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes to this decision

- 510. We have made changes to the way that IM decision CP15 is implemented.
- 511. We have removed the requirement to provide regulatory tax asset value information by asset categories.

Why we have made these changes

512. We consider that this change will reduce the cost and complexity of applying for a CPP. Further details are set out in Chapter 5 – Information requirements.

Information relevant to alternative methodologies

Decision CP16 Information relevant to alternative methodologies	Original 2015 decision (as part of IM review fast track) CPP application must include information demonstrating alternative methodologies have equivalent effect. Input methodologies review – Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision as part of the main IM review

513. This decision was first introduced earlier in the IM review as part of the fast track process. We have not made any subsequent changes to CP16 or the way it is implemented.

Cost of capital information

Decision CP17 Cost of capital information	Original 2010 decision CPP application must include information regarding WACC. Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

514. We have not made changes to IM decision 17 or the way it is implemented.²¹⁴

Gas pricing methodology to be submitted with CPP proposals – GDBs and GTBs

Decision CP18 Gas pricing methodology to be submitted with CPP proposal – GDBs and GTBs	Original 2010 decision GPB will be required to submit a pricing methodology as part of its CPP proposal if it has been identified through the most recent information disclosure summary and analysis as being required to do so, were it to apply for a CPP. See section 9.3 and Appendix I of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	GDB/GTB

We have not made any changes to this decision

515. We have not made any changes to IM decision CP18 or the way it is implemented.

²¹⁴ We note that we have made some consequential changes to the WACC information requirements to reflect that a CPP WACC is no longer published, and that the DPP WACC applies instead.

Review of existing decisions relating to processes for CPP proposals

General matters

Decision CP19 General matters	<p>Original 2010 decision</p> <p>A supplier may seek a CPP by submitting a CPP application that complies with the requirements specified in the IMs. CPP application must include the reasons for the proposal, information on priority of the proposal, and duration of the CPP period sought.</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

516. We have not made any changes to IM decision CP19 or the way it is implemented.

Quality-only CPP

Decision CP20 Quality-only CPP	<p>Original 2010 decision</p> <p>A supplier may seek a quality-only CPP which does not require verification. The quality-only CPP must be reviewed by an independent engineer (EDBs only).</p> <p>See section 9 and Appendix K2 of the 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB

How we have changed this decision

517. We have made a change to IM decision CP20 to remove the option for EDBs to apply for a quality-only CPP.

Why we are have made this change

518. We consider that we will be able to achieve a materially equivalent outcome to a quality-only CPP using a DPP reopener and we consider that this is a more appropriate mechanism for this type of change to the quality path. This change will not take effect until 2020.

519. Further details on our proposed decision to remove quality-only CPPs and introduce a quality standard variation reopener are set out in Chapter 3 – Improvements to the way the DPP and CPP work together.

Verification requirements

Decision CP21 Verification requirements	<p>Original 2010 decision</p> <p>A verifier must be engaged and all proposals must be verified, except quality-only proposals. Applicant must provide verifier with necessary information to verify the proposal.</p> <p>See section 9.6 and Appendix K4 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This original decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes for this decision

520. We have made implementation changes to IM decision CP21 as it applies to EDBs and GPBs.
521. We have made changes to clarify the role of the verifier, improve the verification process and allow a degree of flexibility in the verification process.
522. We have:
- 522.1 added a new section to the verifier's Terms of Reference in Schedule G of the IMs that defines the verifier's role, purpose, and obligations;
 - 522.2 required the CPP applicant to provide us with a high level summary of their application by the time the verifier is engaged;
 - 522.3 amended the tripartite deed requirements in Schedule F6 to include a communication protocol that sets out the roles and obligations of the parties during the verification process regarding communication, and to allow meeting minutes to be used as the evidential basis for any verifier technical opinions;
 - 522.4 allowed the verifier greater flexibility in the number of identified programmes that are selected;
 - 522.5 removed the obligation for the verifier to consider non-standard depreciation;
 - 522.6 removed the requirement for an independent engineer to provide a report on a quality standard variation, and instead allowing suppliers to prepare the report themselves, subject to verification by the verifier (EDB IMs only); and
 - 522.7 limited the requirement for the verifier to provide us with a list of all information provided to it by the applicant, to information *relied upon* by the verifier in fulfilling its obligations under Schedule G.

Why we have made these implementation changes

523. Further details are set out in Chapter 6 – Verification requirements.

Audit and assurance requirements

Decision CP22 Audit and assurance requirements	Original 2010 decision An auditor must be engaged and the CPP proposal must be audited. See section 9.6 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This original decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes for this decision

524. We have made implementation changes for IM decision CP22 as it applies to EDBs and GPBs.

525. Our changes more clearly distinguish the auditor's role in respect of historical and forecast information, and better align the IM requirements with industry standards for audit under the Financial Reporting Act 2013.

526. We have:

- 526.1 modified the audit requirements to differentiate the role of the auditor with respect to historical financial information and forecast financial information;
- 526.2 clarified that the auditor needs to provide a report as part of the audit; and
- 526.3 set out our expressly lay out our expectations in relation to cost allocation information.

Why we have made these implementation changes

527. Further details are set out in Chapter 7 – Audit requirements.

Consumer consultation requirements

Decision CP23 Consumer consultation requirements	<p>Original 2010 decision</p> <p>A CPP applicant must consult with its consumers. Consumer feedback is particularly relevant where different price/quality trade-offs are available. Our requirement is that there should be adequate notification and promotion of consumer engagement. The applicant must report on the extent that consumer feedback has been taken into consideration but the Commission notes that consumer agreement to the proposed CPP is not required.</p> <p>See section 9.6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This original decision applies to (sectors):	EDB/GDB/GTB

We have made implementation changes for this decision

528. We have made implementation changes for IM decision CP23 as it applies to EDB and GPBs.
529. We now:
- 529.1 require CPP applicants to notify consumers of the price and quality impact of any alternative investment options in their CPP proposal, that are linked to the applicant's rationale for applying for a CPP;
 - 529.2 require the applicant to notify consumers why any proposed quality standard variation had been chosen over alternative quality standards;
 - 529.3 require the verifier to report on the extent and effectiveness of the applicant's consultation; and
 - 529.4 require the applicant to provide us with its planned consultation strategy early in the CPP process.
530. Further details are set out in Chapter 8 – Consumer consultation requirements.

Certification requirements

Decision CP24 Certification requirements	<p>Original 2010 decision</p> <p>The Commission requires certification of the information in a proposal.</p> <p>See section 9.6 of 2010 EDB-GPB IM reasons paper:</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This original decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

531. We have not made changes to this decision or the way it is implemented.

Reconsideration of a CPP

Decision CP25 Reconsideration of a CPP	<p>The IM decision in respect of reconsideration of a CPP is IM decision RP02, which is set out in the Report on the IM review. This CP25 reference is a placeholder only (ie, not a separate IM decision). We have included it in this attachment to ensure that reference to all decisions affecting CPPs are captured in one place.</p>
This decision applies to (sectors):	EDB/GDB/GTB

Modification or exemption of CPP application requirements

CP26 Modification or exemption of CPP application requirements (2015 decision)	<p>Original 2015 decision (as part of IM review fast track)</p> <p>Commission may approve modification and exemption to the content of a CPP application; information required in a CPP proposal; and consumer consultation, verification, and audit and certification requirements for CPP proposals.</p> <p>Input methodologies review – Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)</p>
This decision applies to (sectors):	EDB/ GDB/GTB

We have made an implementation change to this decision

532. This decision was first introduced earlier in the IM review as part of the fast track process. We have since changed the way IM decision CP26 is implemented for EDBs as part of the main IM review.

533. We have explicitly identified that the scale of a supplier can be taken into account when deciding on requests for modifications and exemptions.

Why we have made this implementation change

534. Further details are in Chapter 4 – Evaluation of CPP proposals; and Chapter 5 – information requirements.

Review of existing decisions relating to processes for assessing and evaluating CPP proposals

Evaluation criteria

Decision CP27 Evaluation criteria	Original 2010 decision Commission must assess all CPP proposals against the evaluation criteria specified in the IMs. See section 9.4 of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

535. We do have not made changes to IM decision CP27 or the way it is implemented.

536. Further discussion of how we apply the evaluation criteria is set out in Chapter 4 – Evaluation of proposals.

Review of existing decisions relating to processes for determining a CPP

Determination of annual allowable revenues

Decision CP28 Determination of annual allowable revenues	Original 2010 decision Allowable revenue amounts by reference to building blocks components and a 'CPI-X' smoothing requirement. see section 9.3 and Appendix K of 2010 EDB-GPB IM reasons paper: Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This original decision applies to (sectors):	EDB/GDB/GTB

How we have changed this decision

537. We have made changes to IM decision CP28 as it applies to GDBs, to codify the approach to claw-back that we used in making Orion’s 2013 CPP determination.²¹⁵ In particular, we have:

- 537.1 reflected that the claw-back can be for historical over-recovery and under-recovery of revenue; and
- 537.2 that the present value of claw-back amounts would be used if adjusting for claw-back in the BBAR calculation.

538. In addition, to give effect to the change from a lagged revenue cap to a pure revenue cap for GTBs,²¹⁶ we have removed references to the ΔQ factor in the revenue-setting formula in the GTB CPP IMs.

Cost allocation and asset valuation

Decision CP29 Cost allocation and asset valuation	<p>Original 2010 decision</p> <p>Allocation of forecast operating costs and calculation of rolled-forward asset values must largely follow rules applying to information disclosure.</p> <p>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</p>
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

539. We have not made any changes to IM decision CP29 or the way it is implemented in this paper. However, we note that this pre-review decision would be affected by changes we have made to the pre-review decisions on cost allocation and asset valuation. These changes are discussed in the Report on the IM review at Chapter 3 – Cost allocation decisions we have changed, and Chapter 4 – Asset valuation decisions we have changed.

²¹⁵ ENA and PwC have previously submitted that the wording of the formula that adjusts BBAR for any applicable claw-back could be clarified to reflect that the claw-back can be for historical over-recovery and under-recovery of revenue. See ENA and PwC "Review of Input Methodologies" (14 February 2014), para 31.

²¹⁶ See: Commerce Commission "Input methodologies review decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016); and Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016), under existing decision SP02.

Treatment of taxation

Decision CP30 Treatment of taxation	Original 2010 decision Regulatory tax allowance is calculated using the modified deferred tax method for EDBs and GDBs and a tax payable method for GTBs. Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

540. We have not made any changes to IM decision CP30 or the way it is implemented in this paper. However, we note that this decision is affected by changes we have made changes to our IM decisions on taxation. These changes are discussed in the Report on the IM review at Chapter 5 – Treatment of taxation decisions we have changed.

Cost of capital

Decision CP31 Cost of capital	Original 2010 decision Method of determining cost of capital uses the simplified Brennan-Lally model. Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)
This decision applies to (sectors):	EDB/GDB/GTB

We have not made any changes to this decision

541. We have not made changes to IM decision CP31 in this paper. However, we note that this decision is affected by changes to our IM decisions on the cost of capital. These changes are discussed in the Report on the IM review at Chapter 6 – Cost of capital decisions we have changed.

Alternative methodologies with equivalent effect

<p>Decision CP32 Alternative methodologies with equivalent effect (2015 decision)</p>	<p>Original 2015 decision (as part of IM review fast track) Alternative building block methodologies for cost allocation and asset valuation, treatment of taxation and the TCSD may be applied where they produce an equivalent effect. Input methodologies review – Amendments to input methodologies for customised price-quality paths – Final reasons paper for Limb 1 of the CPP fast track (12 November 2015)</p>
<p>This decision applies to (sectors):</p>	<p>EDB/GDB/GTB</p>

We have not made any changes to this decision as part of the main IM review

542. This decision was first introduced earlier in the IM review as part of the fast track process. We have not made any subsequent changes to CP32 or the way it is implemented.



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20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016</i> [2016] NZCC 26
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20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016</i> [2016] NZCC 29

Commerce Commission
Wellington, New Zealand

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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to:
- X1.1 summarise our understanding of the changing energy landscape, the Commission's role as an economic regulator in that context, and the impacts of some emerging technologies on the input methodologies (**IMs**);
 - X1.2 explain in relation to the emerging technology topic:
 - X1.2.1 the problems we identified within this topic area;
 - X1.2.2 our assessment of potential solutions to these problems; and
 - X1.2.3 the reasons for our chosen solutions; and
 - X1.3 explain how we have taken stakeholders' submissions into account in considering the above and in deciding on our solutions to problems identified within this topic.
- X2. All of the solutions and changes to IMs described within this paper apply to electricity distribution businesses (**EDBs**).
- X3. This paper may also be of particular interest to:
- X3.1 gas pipeline businesses (**GPBs**), as the changes to the cost allocation IM presented in Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) also apply to them;
 - X3.2 electricity retailers who raised concerns about ensuring there is a 'level playing field' between regulated and non-regulated markets. Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) discusses this issue; and
 - X3.3 other parties interested in emerging technologies, such as Ministry of Business, Innovation and Employment (**MBIE**), Electricity Authority, Transpower, and consumer groups.

Overview of the emerging technologies topic

- X4. We are very aware of the potential for significant change to arise from the combination of falling costs, improving performance and increasing capabilities of some new technologies, new business models (especially in the spaces currently occupied by EDBs, electricity retailers and generators), and evolving consumer preferences. These developments present opportunities and challenges for EDBs, and have the potential to deliver significant benefits to consumers.

- X5. It is not clear how EDBs will respond to these changes and opportunities, but it seems that the boundaries between participants in different vertical segments of the electricity market may be blurred, which may require changes to legislation or regulations.
- X6. We have therefore reviewed the IMs to test their fitness for purpose in this changing environment. Based on the information available to us, we do not consider that fundamental changes to the IMs are needed at this time.
- X7. We would not want the IMs, or our regulatory regime more generally, to discourage suppliers (or others) from using new technology and new business models for their and consumers' benefit. Our view is that the IMs can deal appropriately with likely developments, but we will need to continue to engage with stakeholders, including government agencies, on how the sector is developing and any changes that may be required to the IMs or other regulatory and policy settings in the future. We have the ability to revisit the IMs in response to emerging developments when they arise.
- X8. We consider that the available evidence is inconclusive on whether the risk of partial capital recovery for EDBs' regulated businesses has increased, and, if it has, by how much. We consider that partial capital recovery seems unlikely to be a significant concern in the short term, but may be an issue over the longer term. The longer-term view on how electricity networks might be used in the future has become more uncertain compared to 2010.
- X9. Therefore, as a precautionary measure, we have decided to allow EDBs to recover the cost of assets more quickly. In particular, we will offer EDBs the option to apply for a net present value (**NPV**) neutral shortening of their remaining asset lives. This is capped at a 15% reduction in remaining average asset lives as compared to the situation at the time of the default price-quality path (**DPP**) reset. This measure has been designed to ensure that total cost to consumers does not increase, in NPV terms, over the life of the assets. So, if suppliers exercise the asset shortening option at the next reset in 2020, prices to consumers would rise moderately in the short term and fall in the longer term, compared to the status quo.
- X10. This initiative signals our willingness to amend the IMs in the face of emerging developments, and to move early to give suppliers greater confidence to invest as well as avoiding subsequent "regulatory catch up", which could lead to large future price shocks.
- X11. Some stakeholders (mainly electricity retailers) expressed significant concern with electricity distributors entering unregulated energy markets. Their key concern was that EDBs' status as a regulated monopoly provider and the rules applied to them, especially the cost allocation IM, may give them an undue competitive advantage in, or otherwise distort, competitive energy markets (either existing or new).

- X12. In our judgement, rules around industry structure generally lie outside the IMs. However, we have decided to remove the avoidable cost allocation methodology (**ACAM**) as a stand-alone cost allocation option for EDBs and GPBs to ensure that consumers of regulated services benefit over time from any efficiency gains achieved by EDBs and GPBs supplying regulated and unregulated services together.¹
- X13. Table X1 summarises the areas in this topic where our decisions have led to changes in the IMs. There are other issues that we have considered in relation to this topic which have not resulted in changes to the IMs; these issues are also discussed in this paper.

¹ This is consistent with the s 52T(3) requirement that the IMs must not unduly deter investment by regulated suppliers in the provision of other services.

Table X1: Summary of changes in relation to this topic

Change	Outcomes of the change	Chapter
<p>We have amended the IMs to allow EDBs, at the time of the DPP reset, to apply for a discretionary NPV-neutral shortening of their remaining asset lives. This is capped at a 15% reduction in remaining average asset lives as compared to the situation at the time of the DPP reset.</p>	<p>Allowing EDBs the option of a more rapid time profile of capital recovery is a precautionary measure to address increasing uncertainty regarding the risk of partial capital recovery.</p> <p>This change mitigates the risk of potential future price shocks for consumers, which would likely be required to maintain the expectation of <i>ex-ante</i> financial capital maintenance (FCM) if (and when) the downside risk of partial capital recovery becomes more likely.</p>	<p>This change is discussed in Chapter 3: Risk of partial capital recovery.</p>
<p>We have amended the IMs to remove ACAM as a stand-alone cost allocation option for EDBs or GPBs. Suppliers will continue to be able to allocate up to the ACAM level across all regulated services under OVABAA.</p>	<p>This change would maintain incentives on suppliers to promote efficiencies through diversification in other regulated and unregulated services (consistent with s 52A(1)(b) and 52T(3)), while at the same time better ensuring that the benefit of those efficiency gains are shared with consumers of regulated services (consistent with s 52A(1)(c)).</p>	<p>This change is discussed in Chapter 4: Regulatory treatment of revenues and costs from emerging technology.</p>
<p>We have strengthened the requirement in the IMs to make it clear that the use of proxy cost allocators must be justified when applying ABAA. We will also require additional information under information disclosure about why suppliers could not use a causal allocator and why their selected proxy allocator is appropriate.</p>	<p>This change will put more onus on suppliers to demonstrate that:</p> <ul style="list-style-type: none"> • a causal relationship cannot be established; and • the proxy cost allocator selected is appropriate. <p>We consider this better gives effect to our original intent of the application of the ABAA approach by ensuring that the flexibility to use proxy rather than causal allocators is only used where no causal approach is suitable.</p> <p>The additional information required under information disclosure will help us assess whether the requirements need to be further tightened in future.</p>	<p>This change is discussed in Chapter 4: Regulatory treatment of revenues and costs from emerging technology.</p>

- X14. This topic paper forms part of our package of decision papers on the IM review. As part of the package of papers, we have also published:
- X14.1 a summary paper of our decisions;
 - X14.2 an introduction and process paper, which provides an explanation of how the papers in our decision package fit together;
 - X14.3 a framework paper, which explains the framework we have applied in reaching our decisions on the IM review;
 - X14.4 a report on the IM review, which records our decisions on whether and how to change the IMs as a result of the IM review overall; and
 - X14.5 amendment determinations, which give effect to our decisions.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to:
 - 1.1 summarise our understanding of the changing energy landscape, our role as economic regulator in that context, and the impacts of that emerging technology on the input methodologies (**IMs**);
 - 1.2 explain in relation to the emerging technology topic:
 - 1.2.1 the problems we identified within this topic area;
 - 1.2.2 our assessment of potential solutions to these problems; and
 - 1.2.3 the reasons for our chosen solutions; and
 - 1.3 explain how we have taken stakeholders' submissions into account in considering the above and in deciding on our solutions to problems identified within this topic.

Where this paper fits in to our package of decisions papers

2. This topic paper forms part of our package of decision papers on the IM review. For an overview of the package of papers and an explanation of how they fit together, see the Introduction and process paper published as part of our decisions package.²
3. This paper explains our solutions to problems identified within the topic of emerging technology.
4. To the extent our solutions involve changes to the IMs, this paper explains how we have changed our existing IM decisions within this topic area.³ The Report on the IM review then collates our changes to the IMs and presents them as decisions to change the IMs.⁴

² Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

³ To the extent our solutions lie outside (or partially outside) of the IMs, we also identify other regulatory instruments or tools that might be affected (eg, information disclosure or price-quality determinations, or guidance notes).

⁴ Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016).

5. The drafting changes to the IMs, including those resulting from this topic area, are shown in the amendment determinations, which we have published alongside this topic paper.⁵
6. The framework we applied in reaching our decisions on the IM review is set out in a separate paper, also published alongside this paper.⁶ The framework paper explains that we have only changed the IMs where this is likely to:
 - 6.1 promote the Part 4 purpose in s 52A more effectively;
 - 6.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 6.3 significantly reduce compliance costs, other regulatory costs, or complexity (without detrimentally affecting the promotion of the s 52A purpose).
7. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.

Structure of this paper

8. The first chapter of this paper provides an overview of the changing energy landscape, including:
 - 8.1 why the landscape is relevant for the IM review;
 - 8.2 what is changing and what is not;
 - 8.3 our role as economic regulator; and
 - 8.4 the role of the IMs in the emerging technology context.
9. The two remaining chapters in this paper address the two key problem areas within the emerging technologies topic that we have addressed through changes to the IMs:
 - 9.1 the risk that a significant number of consumers disconnect from electricity networks (referred to as 'the risk of partial capital recovery'); and
 - 9.2 the regulatory treatment of revenues and costs from emerging technology.

⁵ Electricity Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 24; Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25; and Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26.

⁶ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

Introduction to this topic

10. In our problem definition paper,⁷ we described our initial views on the future impact of emerging technologies in the energy sector topic.
11. The emerging technologies topic is about the evolving nature of the energy system, and the potential impacts on electricity and gas networks. The combination of new technologies, business models, and consumer behaviours may lead to significant changes in how the electricity and/or gas systems are managed. This may in turn suggest that changes are required in how they (or parts thereof) are regulated.
12. The potential problem areas we considered within this topic are as follows:⁸
 - 12.1 risk of partial capital recovery – increasing deployment of emerging technologies potentially changes the risk to suppliers' ability to fully recover their invested capital;
 - 12.2 regulatory treatment of revenues and costs from emerging technologies (including cost allocation):
 - 12.2.1 use of the avoidable cost allocation methodology (**ACAM**) – materiality thresholds based on a percentage of revenue or costs are not necessarily appropriate, especially for suppliers with relatively large cost bases; and
 - 12.2.2 use of proxy cost allocators – suppliers can have an incentive to allocate as much cost as possible to the regulated service, which means that the regulated service may bear a greater proportion of costs than it should; and
 - 12.3 efficient investment incentives:
 - 12.3.1 the benefits of investment in emerging technologies may not accrue until future regulatory periods;
 - 12.3.2 the benefits of investment in some emerging technologies are split along the value chain, which may result in under-investment; and
 - 12.3.3 incentives to innovate may need to be stronger.

⁷ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).

⁸ As we discuss in the following chapters, we consider that some of these amount to problems, while others do not.

Who do the solutions described within this paper apply to?

13. All of the solutions and changes to the IMs described within this paper apply to electricity distribution businesses (**EDBs**).
14. This paper may also be of particular interest to:⁹
 - 14.1 gas pipeline businesses (**GPBs**), as the changes to the cost allocation IM presented in Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) also apply to them;
 - 14.2 electricity retailers who raised concerns about ensuring there is a 'level playing field' between regulated and non-regulated markets. Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) discusses this issue; and
 - 14.3 other parties interested in emerging technologies, such as Ministry of Business, Innovation and Employment (**MBIE**), Electricity Authority, Transpower and consumer groups.

⁹ This list is not exhaustive. Rather it is intended to provide some guidance to readers about parts of this paper that might be of particular interest to them.

Chapter 2: The changing energy landscape

Purpose of this chapter

15. This chapter provides the context for the specific problems we identified in this topic area and our solutions in response to those problems.

Structure of this chapter

16. The chapter begins with an overview of the market environment within which we apply the IMs. It describes how that environment is changing, and sets out our role as an economic regulator. It then goes on to outline the role of the IMs in the context of emerging technologies, and our key areas of focus for the IM review. It concludes by responding to concerns raised by some submitters about the incentives for EDBs to invest in emerging technologies.

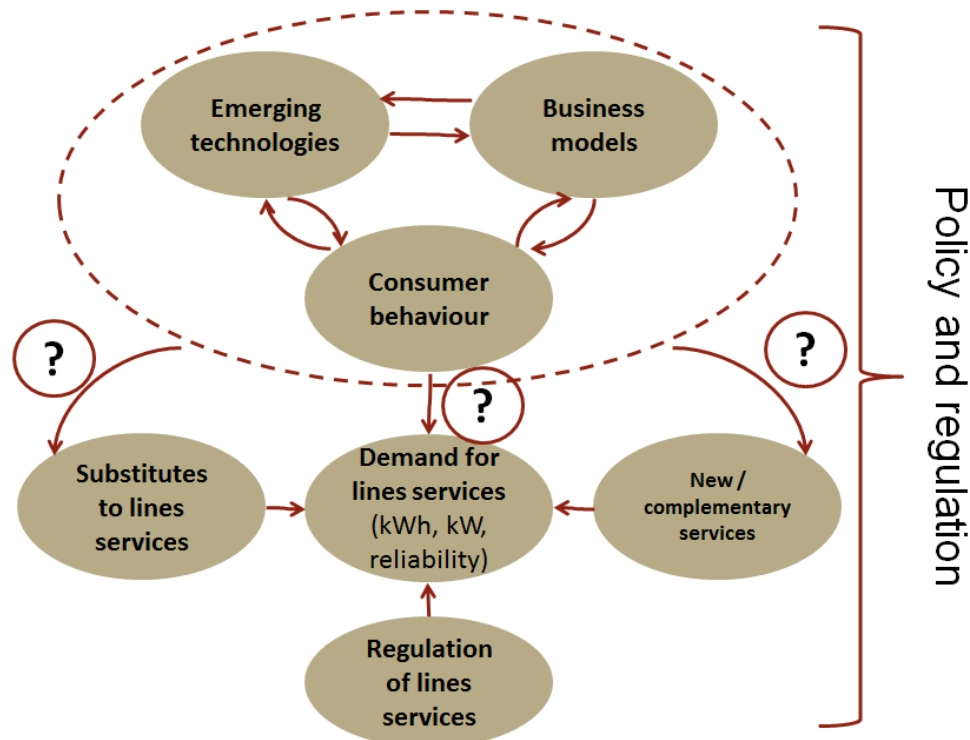
Why is the landscape relevant for the IM review?

17. In reviewing the IMs, it is important to consider the wider environment within which we apply them, as the rules were not created and are not applied in a vacuum.
18. There is an exciting range of developing and emerging technologies which have the potential to shape the electricity networks of tomorrow. These technologies, variously described as emerging, evolving, developing, or edge technologies, include, for example, distributed and grid electricity storage, distributed electricity generation including solar photovoltaic (**PV**) and wind, electric vehicles, and home automation systems. Their broad deployment will contribute to the evolution towards a smart grid.¹⁰ These developing technologies will enable new business models, and seem destined to enjoy consumer acceptance, both by giving consumers greater options and choice over how they use energy (and how much), and as they facilitate continued global moves to greater use of renewable energy.
19. These technologies, business models, and consumer behaviours are interrelated with policy and regulations that affect market structure (eg, separation between electricity generation/retailing, distribution/transmission and other energy-related services), conduct (eg, pricing and investing), and performance (eg, profitability).

¹⁰ MBIE's Smart Grid Forum defines a Smart Grid as follows: "A Smart Grid is an electricity network that can intelligently integrate the actions of all users connected to it – generators, consumers and those that do both – in order to efficiently deliver sustainable, economic and secure electricity supplies". See: Smart Grid Forum "Architecting a future electricity system for all New Zealanders" (April 2014), p. 1. Available at: <http://www.mbie.govt.nz/info-services/sectors-industries/energy/electricity-market/nz-smart-grid-forum/meeting-1/final-tor-scope-definition.pdf/view>.

20. We show a possible depiction of some of these interrelationships as they affect EDBs in Figure 1.

Figure 1: Some key interrelationships in the electricity sector



Note: arrows represent direction of influence.

21. As Figure 1 shows, there is currently some uncertainty regarding the future role of, and demand for, electricity lines services, which is the service that Parliament has defined and mandated should be regulated. A key driver for this uncertainty is that the ‘trio’ of emerging technologies, new business models, and changing consumer behaviour has the potential to create viable substitutes to lines services, or at least erode their natural monopoly characteristics.¹¹ At the same time, as a result of the same ‘trio’, the electricity distribution network has the potential to provide increasing value to consumers who remain connected to it by enabling the delivery of new or complementary services.¹²

¹¹ For example, the Rocky Mountain Institute noted "...what happens when solar and battery technologies are brought together? Together they can make the electric grid optional for many customers—without compromising reliability and increasingly at prices cheaper than utility retail electricity". See: Rocky Mountain Institute "The economics of grid defection: When and where distributed solar generation plus storage competes with traditional utility service" (February 2014), p. 1. Available at: http://www.rmi.org/electricity_grid_defection.

¹² For example, p2power is a retailer that allows for peer to peer trading of electricity. See: www.p2power.co.nz.

22. Several stakeholders recognised the various interrelationships between the different regulatory agencies and the wider environment within which we apply the IMs. For example:

22.1 Orion submitted:

Changes to the IMs in relation to emerging technologies should be co-ordinated with the Electricity Authority and the Ministry of Business, Innovation and Employment as they hold some other relevant policy levers (e.g. pricing methodologies, low-user fixed charge regulation). It is necessary to ensure the policy/regulatory directions are consistent.¹³

22.2 Vector submitted:

Vector recognises that, to some extent, the issues raised by the emergence of a new operating environment go beyond the current review of IMs. For example, as technology that enables customers to remain energised during an outage is more widely integrated, the measures the Commission uses for quality and reliability will need to be reviewed.

These changes in the sector raise important questions of over-arching regulatory policy, and will need to be addressed in an appropriate forum. That said, we consider that there are a number of ways in which regulation under Part 4, and the IMs in particular, can be better attuned to the new market environment suppliers are now faced with.¹⁴

What is changing; what is not?

23. There are a wide range of views about the evolving nature of the energy system and the potential impacts on electricity and gas networks.
24. What is not changing is our purpose, which is to promote the long-term benefit of consumers of regulated services (electricity lines and gas pipelines in this context). We will continue to do so within our current (and any future) statutory remit, regardless of the changing environment.
25. However, the changing environment does influence how, within the 'tools and levers' at our disposal, we pursue our purpose. For example, where the environment becomes more uncertain, we look to maintain or enhance the flexibility that the IMs give businesses to respond and adapt (eg, maintaining two complementary cost allocation approaches). Where the issues cut across government agencies and regulators, we look to collaborate with them to achieve the best outcome for consumers (eg, our collaboration with the Electricity Authority on assessing the impact of emerging technologies and the form of regulatory control on distribution pricing).

¹³ Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 39.

¹⁴ Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), p. 11.

26. The prevailing consensus appears to be that the New Zealand electricity grid will continue to be needed and used by most consumers to satisfy their various energy requirements. However, the way those consumers use the grid, and in particular the distribution network, will evolve and change. At the outset of our IM review process, representatives from the Smart Grid Forum presented to a wide range of stakeholders at our IM forum on their work to date on emerging smart grid technology in the energy sector. Those representatives noted that the distribution network of the future will need:¹⁵
- 26.1 to be consumer centric – providing energy choices and options to consumers;
 - 26.2 to facilitate customer and third party transactions (open access), supplementing with locally generated electricity, and providing supply reliability and resilience; and
 - 26.3 the network operator to ensure:
 - 26.3.1 the safe and reliable operation of the network;
 - 26.3.2 systems stability, power quality and adequacy of supply; and
 - 26.3.3 the integrity of network assets.
27. So what in the environment is changing? Below we present a selection of stakeholder views.

¹⁵ Smart Grid Forum, "The future impact of emerging technologies in the energy sector", Commerce Commission IM review Conference, 29 July 2015. A presentation by Paul Atkins, John Hancock, and Ryno Verster.

Stakeholders' views vary widely

28. Most stakeholders agree that the key changes to be considered in undertaking the IM review are new and improved technologies, innovative business models, and changing consumer needs and behaviour.

28.1 In its presentation to our stakeholder forum, the Smart Grid Forum identified four key changes for the providers of electricity lines services:¹⁶

28.1.1 uncertainty over future demand patterns with credible scenarios for increased and decreased use, two-directional power flows, and demand potentially becoming more intermittent and peaky;

28.1.2 system instability from variable generation, leading to power quality issues, and potential frequency excursions;¹⁷

28.1.3 competing network requirements with greatly varying uptake rates for new technology, but safety and reliability remaining paramount; and

28.1.4 a need to better understand consumers and the differences between consumers.¹⁸

28.2 The New Zealand Institute of Economic Research (**NZIER**) described these changes in its report to the Major Energy Users' Group (**MEUG**):

When the IMs were being developed prior to 2010, there was little prospect of the electricity industry being subject to the sorts of disruptive changes that are starting to emerge. The potential for change was talked about but the IMs were developed in an energy system where, for instance, nearly all electricity was generated far from the point of use, transported by the grids and offered for sale and purchased in the wholesale market.

This has now changed and will continue to do so, requiring a re-consideration of the risks and incentives for both networks businesses and for consumers of network services.

Declining demand growth for energy, climate change concerns, strong growth of renewable local generation of electricity, energy storage systems and demand management, as well as the use of smart technology in the operational management of grids have all combined to jump start what is now regarded as potentially the most profound changes to the energy industries since the initial development of the networks.¹⁹

¹⁶ Smart Grid Forum, "The future impact of emerging technologies in the energy sector", Commerce Commission IM review Conference, 29 July 2015. A presentation by Paul Atkins, John Hancock, and Ryno Verster.

¹⁷ A frequency excursion is a temporary deviation of frequency from the normal operating frequency of the power system due to a mismatch between electricity generation and demand.

¹⁸ We note that many of these changes are outside the scope of the IMs, and this review of the IMs.

¹⁹ NZIER's submission on the problem definition paper "Commission review of the IM's identifying problems with current IM's" (report prepared for MEUG, 21 August 2015), p. 7.

28.3 Vector described the changes as follows:

The current electricity distribution IMs were designed for a traditional market environment.

That market environment could be fairly characterised as:

- having little customer choice;
- stable, with predictable, incrementally increasing demand and very limited risk of significant change in operating conditions;
- continuous, with historical investment supporting the current provision of services; and
- consistent, with different geographical regions facing similar conditions (albeit with slightly different cost structures, demand profiles and density).

The conventional energy distribution business model is a product of this particular market environment. A stable, continuous and predictable market environment promotes a relatively high prospect of cost recovery that provides the appropriate incentives to undertake the types of large, sunk investment required in traditional energy markets.

The market changes that Vector and other suppliers are now observing and experiencing suggests a move towards a very different market environment from the one in respect of which IMs were expected to apply.²⁰

29. Some stakeholders consider that emerging technology could have a significant impact on the electricity industry. For example:

29.1 Solarcity submitted:

"Change is coming to the electricity sector that is so significant it will make the creation of the electricity market look like re-arranging the deck chairs" That is the view expressed by the former head of Meridian Energy, Keith Turner, in an address to the energy industry leaders, August 2015. The changes, driven by reducing costs of solar, batteries, electronic control systems, clean technology, energy efficient appliances and information systems will "turn the industry on its head".²¹

²⁰ Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), p. 4.

²¹ Solarcity's submission on the problem definition paper "Submission to Commerce Commission – Discussion paper on input methodology review" (21 August 2015), p. 2.

29.2 Vector submitted:

Market change has been characterised as 'unconventional' and 'disruptive' because of the challenge it presents to suppliers' prevailing business models. Competition from new alternatives is affecting all levels of the value chain and components that were previously seen as complementary are now competing to secure a greater share of the value offered to consumers. It will become increasingly difficult to determine where energy solutions chosen by customers fit within the traditional boundaries of generator / grid operator / distributor / retailer. This is a remarkable change for a previously stable, segmented sector of the economy.²²

29.3 John Irving considered that:

... world-wide a paradigm change in the power sector is taking place and inevitably it will also develop in the NZ power market.²³

29.4 Genesis also considered that the changes emerging technologies will bring to the energy sector could be significant:

Genesis Energy believes the traditional vertical relationship focussed on the supply of electrons to the end consumer will become outdated and be replaced with a market where end consumers will purchase multiple products and services that suit their individual needs - changing and shaping the way they receive and consume energy. Proliferation in the highly competitive "beyond-the-meter" market is likely to also create new pressures from new, non-traditional players as diverse as product retailers to telecommunications companies. The shift to a consumer-centric energy eco-system, while maintaining the security, reliability and supply of energy the sector is expected to deliver, will be challenging for all, but stalling roadblocks to advancement are not the answer.²⁴

30. Other stakeholders considered that the impacts of emerging technology will be less material and that distribution networks will continue to provide benefits to consumers in the future. For example:

30.1 Orion submitted:

Our view is that the network will continue to be needed and valued by the overwhelming majority of consumers for the foreseeable future. We therefore consider the risk of asset stranding to be low, although acknowledge that utilisation patterns may change.²⁵

²² Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), p. 7.

²³ John Irving's submission on the problem definition paper "Topic 4: The future impact of emerging technologies in the energy sector" (13 July 2015), p. 1.

²⁴ Genesis "Input methodologies review draft decisions – Topic paper 3: The future impact of emerging technologies in the energy sector" (4 August 2016), p. 2.

²⁵ Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 41.

30.2 Sustainable Electricity Association of New Zealand (**SEANZ**) submitted:

An appropriate market regime which operates at the local level will promote the long term benefit of consumers only if they are induced/incentivised to remain connected. This should be a long term focus of any regulatory action.²⁶

30.3 Electricity Networks Association (**ENA**) submitted:

Recent innovations and technological breakthroughs in terms of producing solar PV, batteries, electric vehicles, etc. at ever lower costs is likely to drive significant change in the electricity sector. We currently see only a low risk that there will be widespread disconnection from the electricity network. However, patterns of use are likely to change and this will bring new challenges for ENBs [Electricity Network Businesses] to manage.²⁷

31. Some stakeholders consider that the benefits of technology-driven changes are significant, and there should be incentives for parties to adapt sooner rather than later. For example:

31.1 John Irving noted:

It is also evident that technologically driven changes in the energy/power sector will have benefits in (a) supporting Gov'ts initiatives to meet new Climate Change targets, (b) attracting private sector investment (i.e. by consumers for PV systems and batteries) into the energy market; (c) reducing the need for imported fossil fuels for transport - by supporting the greater use of electric vehicles and concurrent development of V2G technologies; and (d) increasing competition to help drive down electricity charges.²⁸

31.2 SEANZ submitted:

To address the impact of these new consumer-led technologies, regulatory change is needed to meet [the] IM objective of promoting the long term benefit for consumers. To provide a framework to guide future energy investments (either by the consumer or the supply industry, these issues must be addressed now.²⁹

32. Some consider that the impact is imminent. For example:

32.1 SEANZ submitted:

The prevalent view is that these consumer-led technologies represent massive imminent disruption to the existing supply industry business models.³⁰

²⁶ SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), p. 4.

²⁷ ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), p. 23.

²⁸ John Irving's submission on the problem definition paper "Topic 4: The future impact of emerging technologies in the energy sector" (13 July 2015), p. 1.

²⁹ SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), p. 4.

³⁰ SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), p. 3.

32.2 Vector noted:

The Commission's characterisation of this emerging market as "future impact" risks creating a perception that a more competitive market is a speculative issue. Rapid change is occurring in the market now.³¹

33. Other stakeholders note there is significant uncertainty over the timing of extensive emerging technologies deployment and advised against making substantial amendments to the IMs as part of this IM review.

33.1 Orion submitted:

We agree it is worth including this topic in the review but are not yet convinced that the IMs need to change materially in response to emerging technologies. There may be some smaller adjustments that could be helpful.³²

33.2 Powerco considered:

Emerging technologies have the potential to have a dramatic impact on the sector in the future, and it may be that when those impacts are known the IMs will require amendment. However the nature of the impacts and their timing is currently quite unclear. It would be inappropriate to make substantial amendments to the IMs in this review cycle. Rather, the emphasis should be on understanding the issues and monitoring developments.³³

33.3 The Smart Grid Forum submitted:

At this point there is no clear problem that would justify changing the existing regulatory governance structure. Indeed, in the domain of fast-changing technology a market-led approach, relying on market participants and customers to choose if and when to invest is likely to be the most dynamically efficient.³⁴

34. Some submitters considered further reviews of either the IMs or the wider regulatory framework are needed to address the impacts of emerging technologies. For example:

- 34.1 Powerco suggested that, rather than waiting another seven years for the next IM review, we should undertake a mid-period review on the impact of emerging technologies.³⁵

³¹ Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), p. 2.

³² Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 38.

³³ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 259.

³⁴ Smart Grid Forum's submission "Input methodologies review – Invitation to contribute to problem definition" (18 July 2015), p. 2.

³⁵ See, for example, Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 283.

- 34.2 MEUG considered a refresh of Part 4 and the regulatory framework should be considered within the next four to five years.³⁶
- 34.3 Molly Melhuish suggested that the legal basis of the 'purposes' of energy regulation needs a complete overhaul to protect the interests of domestic consumers, and to re-emphasise the need to also protect the planet's climate.³⁷
- 34.4 Genesis suggested that the Commission, Electricity Authority and MBIE should be jointly leading industry discussions on facilitating emerging technology ('e-tech') in competitive markets. Genesis noted a decision on e-tech does not need to be reached this year, and it should be separated out from the IM review to consider the future integration of e-tech into the regulatory framework.³⁸
- 34.5 Electricity Retailers' Association of New Zealand (**ERANZ**) also considered a more co-ordinated approach is needed from the respective policy and regulatory bodies, and suggested the Commission should commit to undertaking a review of market developments within the next two or three years.³⁹

The Commission's perspective

35. A key task we have faced has been to determine what in the changing environment has the potential to majorly impact the consumers of the regulated service.
36. The two key areas we identified are:
- 36.1 demand for electricity lines services: the extent to which consumers of electricity and gas need and want the grid now and in the future given the relative value/cost proposition of the alternatives, and what that means for whether and/or how we regulate EDBs. We discuss this area in Chapter 3 where we deal with the risk of partial capital recovery for investors in existing infrastructure; and

³⁶ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 10.

³⁷ Molly Melhuish submission on IM review draft decisions papers "Commentary on letters from Electricity Authority to Commerce Commission dated 30 May 2016 (form of control) <https://www.ea.govt.nz/dmsdocument/20784> and 1 June 2016 (on treatment of cash flows, emerging technology) <https://www.comcom.govt.nz/dmsdocument/14337>" (4 August 2016), p. 1.

³⁸ Genesis "Input methodologies review draft decisions – Topic paper 3: The future impact of emerging technologies in the energy sector" (4 August 2016), p. 4.

³⁹ ERANZ "Submission to the Commerce Commission on input methodologies for emerging technology" (4 August 2016), para 158.

- 36.2 incentives on suppliers of electricity lines services: ensuring the current monopoly providers of these services have incentives to respond efficiently to the changing environment (eg, adopt new technologies or re-orient their business model), so their consumers benefit from the developments described above. We discuss this area in the last section of this chapter and also in Chapter 4, where we deal with the regulatory treatment of some emerging technologies.
37. As mentioned above, although some aspects of the environment in which the IMs were set are changing, our purpose remains the same.
38. We discuss this in more detail below.

Our role as economic regulator

39. Our purpose is to promote the long-term benefit of consumers of the regulated service. To fulfil this, we identified the following two related areas of work:
- 39.1 Increasing our knowledge and understanding of ongoing and potential emerging technology-related developments. This is important in order to ensure our review of the IMs is done with an adequate contextual understanding, in order to ensure their effectiveness today and in the short-to-medium term.
- 39.2 Encouraging open debate and disseminating knowledge to inform discussions. This is important, not only to ensure that we had a good understanding, but also to promote a shared level of stakeholder understanding, including on how we approach the issues as regulator. We consider that this encourages suppliers to more actively consider how emerging technology-related developments can affect their businesses, and to more efficiently respond.
40. In order to progress the above areas, we purposely kept the scope of our review wide. This was in recognition that the nature of the issues affects many stakeholders along the energy value chain, including other government agencies.

41. In 2015 we published two papers,⁴⁰ held an open forum,⁴¹ and an industry workshop.⁴² We also engaged publicly and bilaterally with several key stakeholders, including the Electricity Authority, MBIE, the Treasury and the Smart Grid Forum.⁴³ We received a wide range of submissions and cross submissions on our draft decision on this topic published in June 2016,⁴⁴ and also on our updated draft decision on cost allocation published in September 2016.⁴⁵
42. We have found the process to be valuable and consider that we have made good progress in the two areas.
- 42.1 On the understanding front, we have comfort that the IM decisions explained in Chapters 3 and 4 have been made with an adequate understanding of the current and future context in which the relevant IMs will be applied.

⁴⁰ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015) and Commerce Commission "Input methodologies review – Emerging technology pre-workshop paper" (30 November 2015).

⁴¹ See: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/input-methodologies-review-forum-2/>.

⁴² See: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/emerging-technology/>.

⁴³ Commerce Commission's Downstream 2016 presentation "Regulation and the future impact of emerging technologies" (3 March 2016); Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on implications of regulatory treatment of cash flows for emerging technology (1 June 2016).

⁴⁴ Commerce Commission "Input methodologies review draft decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (16 June 2016).

⁴⁵ Commerce Commission "Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (22 September 2016).

- 42.2 We have been pleased with the widespread level of engagement in our process, particularly from stakeholders who we do not directly regulate, but who have an interest in this space (eg, ERANZ,⁴⁶ SEANZ,⁴⁷ John Irving,⁴⁸ Molly Melhuish,⁴⁹ Bryan Leyland,⁵⁰ among others). Their different points of view have enriched the debate. We are also encouraged to see some EDBs taking concrete actions to better understand and respond to the changing environment.⁵¹
43. We find it useful to emphasise the following two key points that have been raised through this process.
- 43.1 What we regulate: we regulate services, not assets or technologies. In the case of electricity, we regulate electricity lines services as defined by Parliament. We only regulate companies in as much as they are involved in delivering the regulated service. As a result, we are technology agnostic in the way we regulate electricity lines services, but recognise that new technologies may change the way in which suppliers deliver electricity lines services. Our rules seek to ensure consumers of electricity lines services benefit from these changes.
- 43.2 Areas out of scope: some emerging technology-driven changes are in areas outside the scope of the IMs. Some span across existing industry segments, others do it across regulators. The key areas include:
- 43.2.1 Distribution pricing: EDBs make changes to their prices as they respond and adapt to increasing deployment of emerging technologies. Distribution pricing falls mainly within the remit of the Electricity Authority, although the form of control we impose on EDBs plays a role in influencing EDB pricing decisions;

⁴⁶ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016).

⁴⁷ SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), and SEANZ's cross submission on the problem definition paper "SEANZ cross submission on the IM for the electricity sector" (8 September 2015).

⁴⁸ John Irving's submission on the problem definition paper "Topic 4: The future impact of emerging technologies in the energy sector" (13 July 2015).

⁴⁹ For example, Molly Melhuish's submission "Input methodologies review, invitation to contribute to problem definition" (24 August 2015), and Molly Melhuish's cross submission on the problem definition paper "Cross-submission input methodologies review" (4 September 2015).

⁵⁰ Bryan Leyland "Submission on problem definition – Topic 4: The future impact of emerging technologies in the energy sector (Rev A)" (21 August 2015).

⁵¹ For example, Alpine Energy's grid-scale battery storage trial (see: http://infratec.nz/index.php?option=com_content&view=article&id=89:alpine-energy-to-explore-new-technology-opportunities&catid=35&Itemid=644); Counties Power's grid-scale battery storage trial (see p. 168 at: <http://www.countiespower.com/vdb/document/56>), and Vector, who has forged a relationship with Tesla Energy to bring its "Powerwall" battery to NZ (see: <https://vector.co.nz/tesla-energy;jsessionid=667526C0D48D00A296A227E23D2AAA0A>).

43.2.2 Market structure: new technologies have the potential to be simultaneously valuable for the delivery of regulated and unregulated services. For example, electricity storage technology can help EDBs deliver electricity lines services, and at the same time be used to provide unregulated services. This situation raises important questions on the existence and functioning of markets associated with the regulated service and the unregulated ones. For example, should demand response that helps deliver electricity lines services at the distribution level be delivered via a market, and should EDBs be allowed to participate in it, and on what terms? The Electricity Authority, via the Electricity Industry Act 2010, has some ability to decide over these matters.⁵² Parliament has ultimate decision-making power should more fundamental changes to industry structure be deemed appropriate; and

43.2.3 Boundaries of regulation and competition: more fundamentally, if new technologies erode the natural monopolistic characteristics of electricity lines services (or gas pipeline services),⁵³ then policy makers (Parliament) will have to revisit what aspects, if any, require continued economic regulation, and potentially amend legislation. For the avoidance of doubt, while our IM review was not aimed at answering this question, we have not found evidence to suggest that electricity lines services no longer have natural monopoly characteristics, now or probably in the medium term.

44. The Electricity Authority promotes competition in, reliable supply by, and the efficient operation of, the New Zealand electricity industry for the long-term benefit of consumers.⁵⁴ It does this through market design, overseeing market operations, and monitoring and enforcing compliance with market rules.⁵⁵
45. The above highlights the renewed importance of collaboration between regulators and policy makers to ensure the long-term benefit of consumers is promoted in these times of change. MBIE is taking the lead on this topic from a policy perspective.

⁵² Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on implications of regulatory treatment of cash flows for emerging technology (1 June 2016).

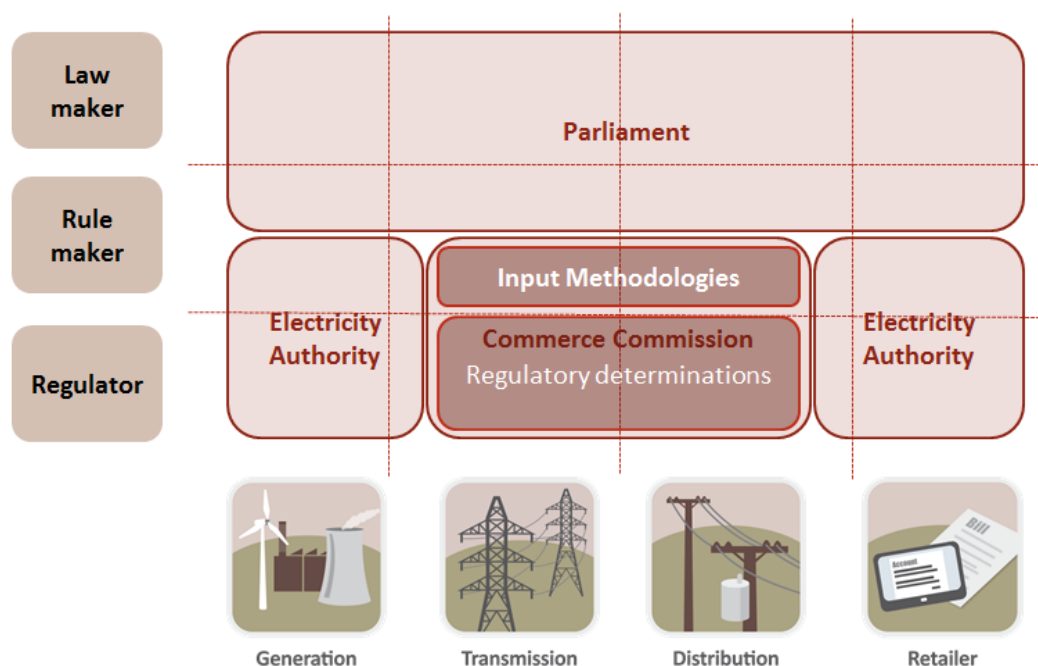
⁵³ We note that Australia's National Competition Council recently determined that that "light regulation" (ie, based on information disclosure and negotiate arbitrate arrangements) be applied to the services provided by Queensland Gas Distribution Network (QGDN). While considering that QGDN enjoys, and will continue to enjoy, market power, the Council acknowledged the precarious competitive position of gas in the areas served by QGDN and noted that the ability of end users to substitute to other forms of energy (electricity and LPG) acts as a constraint on QGDN's market power.
See: <http://ncc.gov.au/images/uploads/LRQGDNFD-001.pdf>.

⁵⁴ See: <http://www.ea.govt.nz/>.

⁵⁵ See: <http://www.comcom.govt.nz/dmsdocument/9673>.

- 46. As well as supporting and participating in MBE’s cross-agency discussions, we intend to monitor the rate of deployment of new technologies, how they are used, and the impacts they are having. We will continue to collaborate with the Electricity Authority regarding the challenges and opportunities we face as regulators in this changing environment, and will support the Electricity Authority as it seeks to promote competition in the electricity industry, including in markets affected by emerging technologies. As we noted in our framework for the IM review, we consider that significant changes outside the seven-year review cycle may be required at some stage and we are open to re-looking at the IMs if circumstances change.⁵⁶
- 47. Figure 2 provides an overview of the roles and areas of responsibilities of the regulators and policy makers in the electricity industry and sets the regulatory context for emerging technologies and the IM review.

Figure 2: The regulatory context for input methodologies in the electricity sector



The role of the IMs in the emerging technology context

- 48. The role of the IMs in the context of emerging technology is to ensure they provide an appropriate balance of incentives which facilitates efficient industry response, benefiting consumers in the long term.
- 49. In considering changes to the IMs, we also want to future-proof them to the extent possible, given the information available to us today.

⁵⁶ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016), para 53.

50. However, the IMs are only one part of our regulatory toolkit. We also have a monitoring and influencing role through our information disclosure requirements and through our summary and analysis of publicly disclosed information. This aspect of our work can have a valuable role to play, for example, by identifying and disseminating good practice, socialising learnings from emerging technology trials, and informing ongoing debates.
51. Regarding the relatively narrow remit of the IMs, we have identified the following key areas of focus for the IM review:
- 51.1 risk of partial capital recovery (Chapter 3);
 - 51.2 regulatory treatment of revenues and costs associated with emerging technology (Chapter 4); and
 - 51.3 efficient investment incentives (discussed below).
52. Chapter 4 starts by setting out the problems we have identified and our solutions to these problems. Other relevant issues raised by stakeholders, in particular the concerns raised by electricity retailers and the Electricity Authority about the participation of EDBs in related competitive markets, and our perspectives on these issues, are included in the second half of the chapter.

Efficient investment incentives

53. Regarding incentives for EDBs to efficiently invest in emerging technologies, submitters raised the following three issues:
- 53.1 that the benefits of investment in emerging technologies may not accrue until future regulatory periods;
 - 53.2 that the benefits of investment in some emerging technologies are split along the value chain, which may result in under-investment; and
 - 53.3 that incentives to innovate may need to be stronger.

The benefits of investment in emerging technologies may not accrue until future regulatory periods

54. This concern is that EDBs may not make certain investments (eg, related to smart grid, demand-side management, energy efficiency) that are in the long-term interest of consumers.⁵⁷ This is because the benefits to the EDB (and eventually consumers) of such investments, in the form of lower future costs, only materialise in future regulatory periods, while the costs happen up-front. The concern is that EDBs would be penalised for incurring those costs now, and not be able to recoup the benefits in future periods.
55. We consider that this point is a general one, not specific to emerging technologies, and we are not convinced EDBs lack sufficient incentives to invest. We generally plan to set an efficient expenditure allowance, which should be adequate on average and allow an expectation of a normal return.⁵⁸ We expect EDBs to make trade-offs on the timing of expenditure within that allowance, and the incremental rolling incentive scheme (**IRIS**) neutralises any incentive to inefficiently delay any efficiency-enhancing expenditure. Investments that reduce costs relative to allowances are rewarded.⁵⁹ Furthermore, regardless of whether any investment fails or succeeds in delivering the anticipated benefits, their capital costs are added to the regulatory asset base (**RAB**) and start earning the weighted average cost of capital (**WACC**) from subsequent regulatory periods.

The benefits of investment in emerging technologies are split along the value chain

56. This concern is that EDBs may not make certain investments that are in the long-term interest of consumers.⁶⁰ This is because the costs fall on one party (the EDB in this case) while the benefits are shared with additional parties along the value chain. To the extent that the costs to the party investing exceed the benefits this party is able to capture, it will not invest, even though the overall benefits may outweigh the costs.

⁵⁷ This concern was raised in a number of submissions, including: Unison "Submission on input methodologies review invitation to contribute to problem definition" (24 August 2015), para 7 b); ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 144; Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 49; and PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 101.

⁵⁸ EDBs would not be penalised for incurring the up-front costs, provided the efficiency enhancing expenditure is forecast at the start of the period.

⁵⁹ Under a DPP for EDBs, the allowance for opex is currently based on an extrapolation of historic levels of operating expenditure. Therefore, provided this approach continues in the future, EDBs will be rewarded for efficiency gains, irrespective of whether they occur in this period or future periods.

⁶⁰ Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 40; Smart Grid Forum's submission "Input methodologies review – Invitation to contribute to problem definition" (18 July 2015), p. 6-7.

57. We acknowledge that there may be transaction costs associated with coordination and contracting between parties.⁶¹ This is to be expected given the vertically separated structure of the industry. However, if the total benefits of the investment outweigh the total costs, we would expect it to go ahead. We do not consider that this issue warrants regulatory intervention.

Incentives to innovate should be stronger

58. Several submitters suggested that the IMs should include specific incentives for EDBs to invest in research and development in relation to emerging technologies.⁶²
59. Some also noted that there is a natural incentive for EDBs to favour investment in known technologies.⁶³
60. The Smart Grid Forum submitted that "the IMs must mimic the competitive market where companies offset the costs of a failed technology pilot or trial against the benefits of successful pilots put into production".⁶⁴
61. On the other hand, MEUG considered the IMs should not provide explicit incentives for innovation, and noted EDBs have the option to apply for a CPP if they have particular innovation investment issues.⁶⁵
62. We consider that our regime places adequate incentives on EDBs to innovate.
- 62.1 Twelve of the 29 EDBs are consumer owned and are exempt from price-quality regulation. These EDBs should have a 'natural' incentive to innovate since they fully capture the benefits that successful innovation brings to their consumer-owners (either in the form of lower costs and prices, or higher profits, or a combination of the two).

⁶¹ The Smart Grid Forum discussed this coordination point in the context of ripple control investments and reached similar conclusions. See item 9 at: http://www.mbie.govt.nz/info-services/sectors-industries/energy/electricity-market/nz-smart-grid-forum/meeting-4/minutes-and-actions.pdf/at_download/file.

⁶² For example: Orion "Submission on emerging technology and the IM review" (4 February 2016), para 18-19; PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Emerging technology pre-workshop paper" (4 February 2016), p. 11; and Transpower's submission "Input methodologies review – problem definition and decision-making frameworks" (21 August 2015), Section 4.2.1.

⁶³ PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), p. 21; and Solarcity's submission on the problem definition paper "Submission to Commerce Commission – Discussion paper on input methodology review" (21 August 2015), p. 8.

⁶⁴ Smart Grid Forum "Emerging technology pre-workshop paper" (29 January 2016), p. 4.

⁶⁵ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 22-23.

- 62.2 The remaining 17 EDBs are subject to price-quality regulation, with 16 of them being under a DPP. Many of these are also, at least partially, consumer owned. We set DPPs in a relatively low-cost way, which we partly achieve by applying less scrutiny to individual suppliers' expenditure plans and forecasts than under a customised price-quality path (**CPP**).⁶⁶ This, together with the rate of return uplift we allow, is intended to result in EDBs expecting to earn at least normal returns. Our approach to DPPs also allows EDBs to innovate without individual projects needing authorisation (as would be the case for large projects for Transpower under an individual price-quality path (**IPP**)). Therefore, DPPs provide EDBs with project flexibility and funding headroom to innovate. Furthermore, if the EDB is successful in innovating, and doing so results in costs being lower than expected when the DPP was set, it gets an upside in returns during the regulatory period.
63. We are not convinced that further explicit innovation incentive mechanisms, funded by consumers, are likely to be in their interests. This is because evidence in New Zealand does not indicate there is a lack of incentives to innovate, so additional funding would risk being irrelevant and/or crowd out other funding sources.
64. However, we note that the government does have a contestable fund for research and development (**R&D**) into which EDBs can bid to get innovation funding.⁶⁷ We consider that it may be inefficient to replicate the systems and processes needed to administer another funding scheme.
65. There are also likely to be opportunities for EDBs and other participants in the sector to partner or collaborate in trialling innovative ways to provide regulated services. This can reduce costs on individual EDBs and socialise any knowledge created.

⁶⁶ The purpose of DPP/ CPP regulation is to provide a relatively low cost way of setting price-quality paths for suppliers of regulated goods and services, while allowing the opportunity for individual suppliers to have alternative price-quality paths that better meet their particular circumstances.

⁶⁷ See: <http://www.callaghaninnovation.govt.nz/grants>.

66. Indeed, a number of EDBs are already modelling the likely investment requirements of emerging technologies and investigating, trialling, and rolling out various new technologies to improve the delivery of the regulated lines service. For example, a recent presentation to the Smart Grid Forum featured a range of EDB initiatives using emerging technologies. These are summarised below and lend support to the view that EDBs already have adequate current incentives to invest in emerging technologies.⁶⁸
- 66.1 ENA's work on the 'Transform' model to understand the potential effects of credible emerging technology scenarios on New Zealand EDB investment. That work concluded that major increases in investment to accommodate emerging technologies, or expand smart network applications, are unlikely to be required in the short term.
- 66.2 Modelling by Orion on the impact of emerging technologies on winter and summer sub-transmission peak loads, which noted that further sub-transmission and low voltage network investment may still be required in some contexts, even under scenarios assuming relatively high penetration of solar PV, distributed storage and electric vehicles.
- 66.3 A range of initiatives by Vector, including development of its electric vehicle charging network, deployment of batteries including Tesla Powerpacks and smaller residential-scale batteries, and enhanced collection and use of data to better model future scenarios.
- 66.4 Unison's three stage development of a smart grid, which commenced in 2009, has seen 1,200 smart network assets installed to date, and is already realising significant benefits.
- 66.5 The benefits of WEL Network's smart meter programme.
- 66.6 Northpower's efforts to encourage the roll-out of electric vehicles including its own extensive electric vehicle charging network.
- 66.7 Powerco's Basepower initiative for remote regions which has been deployed to ten sites to date.

⁶⁸ Glenn Coates, Rogan Clarke, Jaun Park and Ryno Verster "Presentation from electricity distributors on the impact of new technologies and business models on lines businesses", 4 May 2016, available at: <http://www.mbie.govt.nz/info-services/sectors-industries/energy/electricity-market/nz-smart-grid-forum/meeting-10/6-sgf-update-from-edbs.pdf/view>.

66.8 EDBs continue to invest in, and innovate in, new technologies. For example, in October 2016 Vector commissioned Asia Pacific's first grid-scale Tesla Powerpack battery storage system to be integrated into a public electricity network. It is reported that Vector's \$5m investment in this battery will avoid a conventional \$12m upgrade to existing network infrastructure.⁶⁹

⁶⁹ See: http://www.nzherald.co.nz/vector/news/article.cfm?c_id=1503810&objectid=11736123; and <https://www.vector.co.nz/newsdisplay/Vector-unveils-Asia-Pacific's-first-grid-scale-Tesla-Powerpack>.

Chapter 3: Risk of partial capital recovery

Purpose of this chapter

67. This chapter explains the risk of partial capital recovery problem and our solution to this problem.

Structure of this chapter

68. This chapter begins by defining the problem for EDBs and then setting out our chosen solution in respect of this problem. We address submissions on our chosen solution and explain, where relevant, why we have not adopted these. Finally, the chapter discusses implications for gas distribution businesses (**GDBs**) and whether there is a problem relating to risk of partial capital recovery for that sector.

Problem definition for electricity distribution businesses

69. This section explains the problem definition for EDBs, including how it evolved through comments from submissions.
70. The problem: increasing deployment of emerging technologies potentially changes the risk to EDBs' ability to fully recover their invested capital, under existing physical asset lives assumptions set out in the IMs. These new technologies enable greater deployment of distributed generation or greater distributed electricity storage. Such technologies may enable:
- 70.1 more consumers to generate and store their own electricity; and/or
 - 70.2 new competitors to enter the market and bypass distributors' networks.
71. As a result, an EDB's network may be used by fewer consumers and the EDB may not be able to fully recover the costs of its historic investment from its remaining consumers. We have assessed the potential change in this risk relative to what it was in 2010, when we first set the IMs.

72. The IMs allow for assets to stay in the RAB even though they have ceased to be used (ie, become physically stranded).⁷⁰ Therefore, physical asset stranding is not the risk under consideration. Rather, it is the risk that the network becomes economically stranded.⁷¹ That is, the risk is that at some future point enough consumers elect to disconnect from EDBs' networks such that the revenue EDBs are able to recover from the remaining customer base is insufficient to allow them to fully recover their historic capital investment (hence the title 'risk of partial capital recovery').⁷² This is because prices to those remaining consumers would need to rise beyond their willingness to pay given their economic alternatives (or beyond politically acceptable levels).⁷³
73. Therefore, partial capital recovery does not necessarily imply that the network stops being used altogether. Rather, that the revenues EDBs are able to recover do not cover their return of and on investment. EDBs not expecting to recover their return of and on capital would be inconsistent with our principle of *ex-ante* financial capital maintenance (**FCM**).⁷⁴
74. In relation to the FCM principle, the ENA submitted that it:

...does not believe it is acceptable that the Commission has raised the prospect of EDBs failing to fully recover their investments and suggesting that this would be acceptable if asset stranding reached a particular level. This is inconsistent with FCM=0 core economic principle and will not promote section 52A(1)(a).⁷⁵

⁷⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para E11.1-E11.16.

⁷¹ We note that the ENA questioned the distinction between "asset stranding" and "economic network stranding" (see: ENA "Input methodologies review – Impact of emerging technologies – Submission to the Commerce Commission" (4 August 2016), para 49-51). We consider that we and the ENA are in agreement on what this means, which is that if this risk materialises, EDBs may be "unable at a certain point in time to recover the costs of their investments", whether or not this is associated with widespread physical asset stranding.

⁷² Merely reducing grid-sourced electricity consumption is necessary but probably not sufficient to significantly alter the risk, since EDBs can reform pricing to reflect the value that being connected brings to consumers (eg, reliability), and in doing so, continue to recover their invested capital.

⁷³ See, for example, Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), para 42.

⁷⁴ As discussed in our framework paper, released alongside this paper, the principle of real FCM means we provide regulated suppliers with the expectation *ex-ante* of earning their risk-adjusted cost of capital (ie, a 'normal return'), which provides suppliers with the opportunity to preserve their financial capital in real terms over timeframes longer than a single regulatory period. However, price-quality regulation does not *guarantee* a normal return over the lifetime of a regulated supplier's assets. See: Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

⁷⁵ ENA "Input methodologies review – Impact of emerging technologies – Submission to the Commerce Commission" (4 August 2016), para 52.

75. Similarly, PwC submitted that:

The distributors which support this submission are concerned by the comment in the consultation paper that distributors may ultimately fail to recover their investments in certain circumstances. Distributors have invested in their networks in the expectation of cost recovery and if this is not forthcoming, or is not supported by the regulator, future investment incentives will be affected. The Commission's statement appears inconsistent with the Part 4 Purpose and the Commission's FCM principle.⁷⁶

76. We consider that our discussion of the risk of partial capital recovery, and our chosen risk mitigation solution, are consistent with the FCM principle. Our approach to the FCM principle is explained in the framework paper.⁷⁷

To the extent the key economic principles continue to assist us to give effect to the s 52A purpose and outcomes we would not depart from them lightly. The Part 4 regime was intended to provide greater certainty over time, and we accept that wholesale rejection of principles we have consistently applied may affect this certainty. However, if the principles cease to be consistent with s 52A, or are not in a particular situation consistent with s 52A, we would be transparent with stakeholders about the fact that we could not continue to apply these principles.

Specifically, we acknowledge that there may come a time when, due to the development of emerging technologies or other circumstances, the key economic principles no longer assist us in promoting the s 52A purpose and application of these principles is no longer sustainable. Over the longer term, this could be one possible outcome (although not a probable outcome, under currently available information) of the continued uptake of some emerging technologies that may act as substitutes to the regulated service. The market risk, in that context, is that if enough consumers disconnect from the network, the remaining consumers will not be willing or able to pay the prices that would be required for suppliers to achieve FCM, even if our price path remains consistent with FCM. There may also be a political risk in that if circumstances change to a sufficient extent, the government may intervene and amend or repeal Part 4. If such a 'tipping point' occurs, regardless of any action we might take, suppliers may not be able to achieve FCM.

77. It is not clear what that critical mass of consumer disconnections may need to be to cause economic stranding of networks. It is likely to be different for different networks, and depend on factors like the economic availability of substitutes, size of the sunk capital base relative to the number of consumers, and local political sensitivity to energy prices.

⁷⁶ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 207-208.

⁷⁷ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016), para 151-152.

78. This risk, which is linked to the potential for disconnections, is probably asymmetric for EDBs' regulated business.⁷⁸ This is because regulation limits EDBs' ability to grow revenue beyond forecast (especially so under a revenue cap), which constrains the upside to returns.⁷⁹ For example, there is less scope for EDBs to grow electricity connections (and hence revenue) within existing households, since most already have one. This is different for GDBs, as discussed in paragraphs 97 to 101 below, where growing connections under a weighted average price cap could result in increased revenue, and potentially higher returns within the regulatory period.
79. However, while the risk of partial capital recovery may be asymmetric for EDBs' regulated business, we understand that the underlying drivers affecting this risk may be offsetting to an uncertain degree. For example:
- 79.1 on the one hand, there are the continued cost and performance improvements of distributed generation and battery storage, which may make them viable economic substitutes to electricity lines services;⁸⁰ and
- 79.2 on the other hand, the same cost and performance improvements for batteries (both for electric vehicles and domestic electricity storage) increase the prospects of mass deployment of electric vehicles. This may make a connection to an EDB's network more valuable to consumers. Similarly, emerging technology (eg, smart grids, especially storage) allows increased asset utilisation.⁸¹

⁷⁸ There may be an upside to EDB returns in unregulated services that emerge as a result of new technologies. The opportunities in unregulated businesses will arguably tend to make the risk of partial capital recovery more symmetric.

⁷⁹ There are of course opportunities to grow returns by reducing costs.

⁸⁰ Although we note that this may be an offsetting upside (ie, increased EDB profits) to the extent that they are more economic alternatives to traditional 'poles and wires', since EDBs are currently allowed to invest in these emerging technology assets (or contract for their services) in order to deliver electricity lines services.

⁸¹ For example, Unison noted in its submission to our problem definition paper that "there are likely to be significant long-term benefits to consumers from EDBs investing in smart grid technologies to increase asset utilisation, defer replacement investments and better manage growth-driven expenditure". See also Transpower's Transmission Tomorrow work, which concluded that the grid will continue to play a valuable role in New Zealand's energy system taking into account all the changes that Transpower anticipates may occur in coming decades (Transpower "Transmission tomorrow" (1 June 2016), p. 14, available at: <https://www.transpower.co.nz/about-us/transmission-tomorrow/about-transmission-tomorrow>).

80. We consider that the available evidence is inconclusive on whether the risk of partial capital recovery for EDBs' regulated business has increased and, if so, by how much. We consider that partial capital recovery is unlikely to be a significant concern in the short term, but may be an issue over the longer term. We presented the main elements of the analysis that supports this conclusion in Attachment A of the draft topic paper.⁸²
81. What also seems clear to us is that the magnitude and direction of the risk (when considering both the potential downsides to the regulated business and potential upsides from EDB involvement in unregulated services) has become more uncertain compared to 2010.
82. The uncertainty surrounding this risk for EDBs' regulated activities suggests that we could reconsider our existing decision to primarily base asset lives on physical asset lives.

Solution for this problem

83. This section describes our chosen solution in respect of the risk of partial capital recovery problem which applies to non-exempt EDBs (ie, EDBs subject to price-quality regulation).

Our solution

84. We have decided to implement a 'net present value (**NPV**) neutral' risk mitigation measure. We consider that the best way to reflect the higher uncertainty attached to the magnitude and direction of the risk of partial capital recovery is to allow EDBs to apply for a discretionary NPV-neutral shortening of their remaining asset lives. This would happen at the time of the DPP reset.
85. This adjustment will be capped at a 15% reduction in remaining average asset lives as compared to the situation at the time of the DPP reset.⁸³ EDBs may propose a smaller reduction, but the Commission has the final say over this quantum. We note that the IMs already allow EDBs to extend their asset lives.⁸⁴
86. This solution changes our pre-review IM decision on asset lives to provide a mechanism for firms to elect new asset lives based on their assets' expected economic asset lives rather than their physical asset lives. These changes to the IMs will take effect at the next reset for EDBs.

⁸² Commerce Commission "Input methodologies review draft decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (16 June 2016), Attachment A.

⁸³ The 15% reduction in remaining average asset lives allows EDBs to increase depreciation by more for some assets and less for others.

⁸⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para E10.33-E10.35.

87. We present the details of this asset lives adjustment in the Report on the IM review.⁸⁵

Reasons for preferring this solution

88. Our chosen solution mitigates the risk of potential future price shocks for consumers, which would likely be required to maintain the expectation of *ex-ante* FCM if (and when) the downside risk scenario becomes more likely. In that sense, this is a precautionary measure consistent with the nature of the problem – one of increased uncertainty.⁸⁶ By allowing EDBs the option of a more rapid time profile of capital recovery, should the risk of widespread disconnections eventuate, the amount of remaining capital to recover at that time will be less than would otherwise be the case. Not permitting asset life adjustments now would risk increasing the materiality of any potential future adjustment to asset lives, if the risk becomes more likely. The resulting price shock would be larger, and we therefore consider that acting now is a prudent way for the IMs to reflect the changed environment.
89. At the same time, *ex-ante* our solution is NPV-neutral because EDBs should expect to still receive the same return on and of capital, consistent with the FCM principle and ensuring incentives to invest efficiently (s 52A(1)(a) and (b)).⁸⁷ Furthermore, if the risk of partial capital recovery does not actually increase, consumers do not end up paying an unnecessary ‘premium’ over time for this precautionary measure, consistent with limiting EDBs’ ability to extract excessive profits (s 52A(1)(d)).
90. Based on the 2015-2020 DPP model, and all other things being equal, we estimate that a 15% reduction in remaining average asset lives would have resulted in an approximately 3-6% increase in starting prices (ie, average distribution charges), depending on EDBs’ individual circumstances. This would translate into around a short term 1-2% increase to the average electricity consumer bill, offset by lower prices in the longer term.⁸⁸

⁸⁵ See decision AV17 in the Report on the IM review: Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016).

⁸⁶ We note Contact’s submission that "there is inconclusive evidence that the risk of partial capital recovery has increased as a result of emerging technology. The Commission’s proposal for accelerated depreciation, therefore, lacks compelling reasoning, and is not reflective of the risks EDBs face" (see: Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 2). We agree that it is unclear whether the risk has increased. That is why our solution is an NPV neutral measure that mitigates the impact to consumers should the risk eventuate, rather than compensating suppliers for bearing the risk.

⁸⁷ To the extent that EDBs recover the invested capital before the risk eventuates. If the risk eventuates before the capital is fully recovered, and no further changes to our regime can successfully maintain an expectation of *ex-ante* FCM at that time, then the NPV of suppliers’ investments might be negative. Our solution makes this scenario less likely.

⁸⁸ This assumes that distribution costs account for about a third of the average consumer’s electricity bill.

91. Because all other things are rarely equal, where an EDB applies an asset life adjustment prior to a DPP being set, the Commission will have the final say over the quantum of the average asset life reduction at the time of the next price reset. This is to ensure that accelerating cash-flows does not result in excessive price increases to consumers (on average).
92. Our solution is only modest and partial. It likely does not fully mitigate the downside risk. This is intentional. EDBs ultimately bear the risk of economic network stranding (as opposed to asset stranding). They are therefore best placed, and have the strongest incentive, to manage this risk, for example through pricing (eg, to ensure uptake of solar PV is not inefficiently incentivised).⁸⁹ Our solution expands their ability to mitigate this risk. We would expect EDBs to act if they genuinely see this risk increasing.
93. Given the uncertainty associated with this risk, we are open to reassessing the regulatory settings in the future, should circumstances change materially. Our solution should clearly signal our continued adherence to the principle of *ex-ante* FCM.⁹⁰
94. The ENA recommended that this solution be amended in a number of ways.⁹¹ Here are the ENA's points and our responses.
- 94.1 Removal of the 15% cap: we disagree. This is a precautionary and modest solution that is only aimed at partially mitigating the downside risk of network economic stranding, in the context of a DPP. We consider that bearing this risk places incentives on suppliers to improve the efficiency of their expenditure (eg, in certain circumstances, an opex solution may be superior to committing capital to a 40-year asset). Removing the cap risks undermining those incentives to the extent that suppliers perceive that recovering sunk costs quicker will be considerably easier or more likely. Furthermore, the level of evidence that we will likely require to assess an application to shorten assets by significantly more than 15% will be higher. This goes against ENA's view that the level of evidence required should be "relatively low if the option is to be meaningful and useful". It also risks undermining the 'low cost' nature of DPPs. Finally, if a supplier considers that the risk of network stranding it faces is significantly higher, we can consider alternative depreciation profiles under a CPP.

⁸⁹ Our proposal to move to a revenue cap should facilitate pricing reform by removing the risk that changes to price structure or levels result in non-compliance with the price path or a revenue under-recovery.

⁹⁰ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016), para 117.1.

⁹¹ ENA "Input methodologies review – Impact of emerging technologies – Submission to the Commerce Commission" (4 August 2016), para 40-45.

- 94.2 Publication of guidance on how the Commission will assess applications for asset life shortening: we are open to this in advance of the next EDB DPP reset.
- 94.3 Extend option to all EDBs, exempt and non-exempt: we have directed the mechanism to non-exempt EDBs because they are subject to a price-quality path: this potentially allows non-exempt EDBs to advance cash-flows – which they otherwise could not do – but it also requires them under information disclosure to disclose a RAB consistent with the way cash-flows have been advanced. That ensures that our *ex-post* profitability assessment can be undertaken on a consistent basis. Exempt EDBs are not price-quality constrained, so they can advance cash-flows if they want already. Exempt EDBs can always disclose additional information in their disclosures (eg, if they want to advance cash-flows), and can always explain in their disclosures how and why they are doing that and what effect it might have on the RAB.
- 94.4 Allow suppliers to apply for this option more than once: there will be another IM review prior to the 2025 reset for EDBs, so this is something we can consider then, if needed. Also, it is possible to review the IMs part-way through the 7-year cycle, and we remain open to doing so if the need arises.
95. In addition, the ENA recommended that the IMs specify a reduced life of 25 years for all new assets on the basis that the risk of "partial asset recovery" is particularly large for new assets. We do not consider this to be a proportionate solution to the problem. We reject this recommendation for similar reasons to those set out above – shortening asset lives to 25 years for all new assets risks undermining efficient expenditure incentives to the extent that suppliers perceive that recovering sunk costs quicker will be considerably easier or more likely. We note that our solution is not asset specific, but rather provides the option of shortening *average* remaining asset lives. Any potential stranding risk that suppliers perceive for any of their assets, new or old, can be partially mitigated under our chosen solution, or the more encompassing CPP option.

Implications for gas distribution businesses

96. This section discusses implications of emerging technology for GDBs and whether there is a problem relating to the risk of partial capital recovery for that sector.

The risk of partial capital recovery for gas distribution businesses – issues raised by stakeholders

97. Some stakeholders have highlighted the risk of asset stranding for gas networks, mainly in the context of asset beta. We interpret this as economic network stranding rather than asset stranding, causing partial capital recovery, as discussed above, although the potential reasons for stranding differ from the electricity sector.

98. This risk of partial capital recovery is mainly driven by:
- 98.1 the somewhat more discretionary nature of pipeline-delivered gas as a fuel for meeting domestic consumers' energy needs. For example, electricity can meet most of these energy needs, and bottled gas is an economic alternative for 'low' users;
 - 98.2 the increasing competitiveness of economic alternatives to gas for meeting these needs (eg, electricity heat pumps for space heating). The degree of substitutability between gas and electricity will be influenced by whether the consumer has already invested in the relevant domestic equipment (eg, gas water heater) or not;
 - 98.3 the lower penetration of piped gas may place GDBs closer to the 'death spiral tipping point'. As the number of consumers per 'unit' of network is lower, the average cost may be higher and on the steeper side of the average cost curve.⁹² This in turn may imply that every disconnection causes average costs to rise by an increasing amount, making it increasingly likely that the remaining consumers will be unwilling to pay the costs, given the alternatives;
 - 98.4 the fixed component of EDB prices (including capacity charges), which may increase in the coming years as they respond to emerging electricity technology developments. This would result in lower average per unit electricity prices, which would encourage greater electricity consumption (assuming consumers do not disconnect), potentially at the expense of gas;⁹³
 - 98.5 those households with their own distributed generation (eg, rooftop solar PV) will likely have an incentive to consume it, again potentially at the expense of gas; and
 - 98.6 the higher cost of safety regulations for gas is another factor that may discourage gas use.
99. On the other hand, GDBs also have the ability and incentive to grow connections in any given regulatory period (ie, they have an upside that is greater than for EDBs). We understand this is one of the main reasons why GDBs support maintaining the weighted average price cap as a form of control.⁹⁴ This may make the risk facing GDBs less asymmetric than for EDBs.

⁹² CEG "Relative risk of gas transport services: A report for Vector" (March 2016), p. 3-6.

⁹³ A caveat may be that peak electricity prices might discourage disconnections from the gas network, as it increases the attractiveness of gas use at peak times in the electricity network.

⁹⁴ See for example: Powerco "Submission on the four emerging view papers (29 February 2016)" (24 March 2016), para 18.

100. However, like EDBs, it is not clear to us whether the risk of partial capital recovery has materially increased for GDBs since 2010 when we set the IMs. In our draft decision, we indicated that we were also open to an optional shortening of asset lives for GDBs as a way of partially mitigating the risk of partial capital recovery, if this risk has increased for GDBs (backed by evidence).⁹⁵
101. First Gas suggested it would be prudent to apply the asset shortening option to gas networks:

We note that the IMs being amended now will not only be used for setting gas DPPs from 2017 to 2022, but likely for those from 2022 to 2027 as well. Within that time frame we cannot rule out a potential impact of emerging technologies on GPBs. Therefore, it would be prudent to provide the same option to GPBs as is being provided to EDBs.⁹⁶

102. On the other hand, Oxera argued against it:

The Commission has considered whether to allow gas pipeline businesses the option of shortening asset lives to mitigate stranding risk. However, as gas networks are still growing, the burden on each consumer of shortening asset lives to permit accelerated recovery of sunk investment costs would be high. The regulated asset base (RAB) of gas pipeline businesses per connection point is NZ\$7,720, compared with NZ\$4,384 for electricity networks. This suggests that attempting to recover the RAB over a shorter period of time would imply a disproportionate increase in gas tariffs (relative to electricity tariffs). An increase in gas tariffs might deter future connections growth and/or hamper gas networks' ability to price up to their cap if customers perceive the tariff increase to be untenable and switch off their gas connection.⁹⁷

⁹⁵ There may be alternative methods for the mitigation or compensation of this risk for GDBs other than the shortening of asset lives. We remain open to exploring the options available in this area.

⁹⁶ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 2.

⁹⁷ Oxera "Asset beta for gas pipelines in New Zealand. Final report: Prepared for First Gas" (3 August 2016), p. 37-38.

103. Likewise, MGUG, Methanex and Oji Fibre considered that the asset shortening option should not be extended to gas networks:

MGUG disagrees with First Gas on this matter for two reasons. Firstly the Commission was open to considering asset lives for GDBs only on the basis that any increased risk of stranding was backed by evidence. Since there is no evidence MGUG can't see a basis for changing the Commission's draft decision on this topic. Secondly the Commission only opened this up for GDBs, not GTBs, so by suggesting that the option should be there for GPBs First Gas has gone beyond the Commission's scope for the issue.

We question the general principle of reducing asset lives in response to a conceptual future risk of asset stranding – such outcomes are not consistent with workably competitive markets. In any case, even if such treatment is considered appropriate for EDBs, we do not believe there is evidence that GPB's, and GTBs in particular, face the emerging technology risk that has been attributed to EDBs.⁹⁸

104. Given the evidence currently available to us, we have decided not to make any changes to the IMs for GDBs at this stage in response to the issues outlined above. However, as mentioned earlier in the paper, should it become clearer in the future that emerging technology developments risk impacting gas networks, we have the ability to revisit the IMs in response.

⁹⁸ Methanex "Input methodologies review and gas DPP consultation cross-submission by Methanex New Zealand Limited" (18 August 2016), p. 2.

Chapter 4: Regulatory treatment of revenues and costs from emerging technology

Purpose of this chapter

105. This chapter explains the problems relating to the treatment of revenues and costs between regulated and unregulated services in respect of emerging technology, our chosen solutions in respect of these problems, and our assessment of other potential solutions. In other words, the issues in this chapter relate to the boundary between regulated and unregulated services.
106. This chapter also responds to a number of issues raised by stakeholders, in particular concerns raised by retailers about whether regulated suppliers should be allowed to deliver unregulated services using assets shared with the regulated services.

Structure of this chapter

107. This chapter begins with the problems we have identified in this area, and then for each problem we set out the problem definition, our chosen solution and our assessment of other potential solutions.
108. Many of the issues stakeholders raised in this area provided important background, but did not directly relate to the two problems we identified in this area, which we discuss in the sections immediately below. We present the issues stakeholders have raised in the second half of the chapter, and explain why we do not consider these issues amount to problems to be addressed in the IM review.

Problems identified

109. The way that costs are allocated between regulated and unregulated services has an important bearing on how efficiency gains from supplying both types of services together (ie, s 52A(1)(b)) are shared with consumers of regulated services over time (ie, s 52A(1)(c)), as well as whether investment by regulated suppliers in the provision of other services is not unduly deterred (ie, s 52T(3)).⁹⁹ It is important to note that the focus is on the services being delivered, not the choice of assets or technologies.
110. The pre-review cost allocation IM provided for three complementary approaches for EDBs and GPBs to allocate costs that are shared between regulated and unregulated services:
- 110.1 the accounting-based allocation approach (**ABAA**), which requires operating costs and asset values to be allocated based on causal factors, or based on proxy factors where causal-based allocators are not available;

⁹⁹ Section 52T(3) requires that our cost allocation IM must not unduly deter investment by a regulated supplier in the provision of other regulated or unregulated services.

- 110.2 the optional variation to the accounting-based allocation approach (**OVABAA**), which is available in those situations where the application of ABAA might unduly deter investments in unregulated services; and
- 110.3 the avoidable cost allocation methodology (**ACAM**), which allocates non-avoidable shared costs to the regulated service. ACAM was available where regulated and unregulated services have only a small proportion of their costs in common.¹⁰⁰

111. We identified the following problems which related to the pre-review cost allocation IM:

- 111.1 problem 1, which related to the use of ACAM; and
- 111.2 problem 2, which related to the use of proxy cost allocators.

Problem definition for problem 1: Use of ACAM

- 112. Use of ACAM on a permanent basis for all or some of the costs of some regulated suppliers may allow a significant amount of shared costs (in absolute dollar terms) to be permanently allocated to the regulated service. As a result, potentially significant efficiency gains from the supply of regulated and unregulated services together will not be shared with consumers of regulated services now, or in the future.
- 113. When we first set the cost allocation IM in 2010, we recognised that the application of ACAM will, in most instances, not promote cost allocation and efficiency sharing outcomes consistent with those that occur in workably competitive markets. Rather, ABAA would be expected to move the allocation of shared costs closer to those in workably competitive markets than when applying ACAM. Nevertheless, we noted it was possible that, where shared costs are low, an approach that allocates shared costs between regulated and unregulated services (such as ABAA) will not produce outcomes that are materially different from those that would arise under ACAM.¹⁰¹

¹⁰⁰ Where a regulated supplier provides more than one type of regulated service (eg, both electricity distribution and gas distribution services, the allocation across all regulated services must be no higher than the allocation resulting from ACAM applied to those services in aggregate. A summary of the cost allocation IM is provided in: Commerce Commission "Input methodologies review, emerging technology pre-workshop paper" (30 November 2015), Appendix 2. We have retained this constraint, so ACAM has not been removed from the cost allocation IMs entirely.

¹⁰¹ Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), para 3.2.65, 3.3.3, 3.3.5, 3.3.42 and 3.3.43.

114. Consequently, we decided that regulated suppliers should only be permitted to use ACAM as a stand-alone cost allocation methodology if doing so would not have a material impact on their regulated revenue, compared to using ABAA. We considered that a material impact would be 1% of regulated revenue. For the purposes of cost allocation, this 1% threshold was interpreted as meaning approximately a 1%-2% impact. This guided our setting of percentage materiality thresholds for unregulated revenue, operating costs and asset values. Having such a threshold was intended to avoid changing a supplier's existing use of ACAM as its cost allocation methodology, where doing so would be unlikely to move outcomes materially closer to those produced in workably competitive markets.¹⁰²
115. In our draft decision we proposed to lower the revenue materiality threshold to ensure that when EDBs or GPBs use ACAM that it would not result in increases to regulated revenue greater than 1-2%, compared to the use of ABAA.¹⁰³ In addition, we reiterated our original view that, subject to the materiality thresholds, ACAM would deliver outcomes that would not be materially different relative to the generalised use of ABAA.¹⁰⁴
116. In our updated draft decision we agreed with Contact's submission to remove ACAM as a stand-alone cost allocation option.¹⁰⁵ Contact noted that the materiality thresholds set in terms of percentage of revenue, operating costs or asset values could still allow EDBs to invest hundreds of millions of dollars in emerging technology assets operated in contestable markets while utilising ACAM.¹⁰⁶
117. Our updated view was that ACAM materiality thresholds based on a percentage of revenue or costs are not necessarily appropriate, especially for suppliers with relatively large cost bases (regulated asset base or operating expenditure).

¹⁰² Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), para B3.6.

¹⁰³ Commerce Commission "Input methodologies review draft decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (16 June 2016), para 112-113.

¹⁰⁴ Commerce Commission "Input methodologies review draft decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (16 June 2016), para 116.

¹⁰⁵ Commerce Commission "Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (22 September 2016).

¹⁰⁶ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 14-15.

118. We noted that allowing ACAM to continue to be applied on a permanent basis for all or some of the costs of some regulated suppliers may allow a significant amount of shared costs (in absolute dollar terms) to be permanently allocated to the regulated service. As a result, potentially significant efficiency gains from the supply of regulated and unregulated services together will not be shared with consumers of regulated services now, or in the future. The magnitude of these foregone benefits appears likely to significantly outweigh any costs of removing ACAM, particularly in the case of larger regulated suppliers.¹⁰⁷

Solution for problem 1: Remove ACAM as a stand-alone cost allocation option

119. Our solution in respect of this problem is to remove ACAM as a stand-alone cost allocation option from the cost allocation IM for EDBs and GPBs. Therefore, we are also removing all materiality tests associated with whether ACAM may be applied. EDBs and GPBs will continue to be allowed to allocate up to the ACAM level across all regulated services under OVABAA where relevant.
120. These changes will take effect for information disclosure purposes from (and including) the 2018/19 disclosure year.¹⁰⁸ These changes will therefore affect DPPs set for EDBs from the 2020 reset, and for GPBs from the 2022 reset. Changes will affect CPPs that take effect in or after 2020 for either EDBs or GPBs.
121. However, we encourage suppliers to implement these changes for information disclosure purposes before the above date. Earlier implementation will help to establish the need for any potential review of OVABAA.

Reasons for preferring this solution

122. Consistent with the framework for the review, we consider that removing ACAM while maintaining ABAA and OVABAA will continue to maintain incentives on suppliers to promote efficiencies through diversification in other regulated and unregulated services (consistent with ss 52A(1)(b) and 52T(3)), while at the same time better ensuring that the benefit of those efficiency gains are shared with consumers of regulated services (consistent with s 52A(1)(c)).

¹⁰⁷ These costs largely relate to changing regulatory accounting systems, and are therefore likely to be one-off or short-term in nature.

¹⁰⁸ We note Wellington Electricity's submission that this timeframe should be extended by 12 months. See: Wellington Electricity "Input methodologies review: Response to technical consultation update paper" (3 November 2016), p. 7. We have responded to this submission in our Report on the IM review. See: Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016), Attachment C.

123. Removing ACAM should allow for potentially significant efficiency gains from the supply of regulated and unregulated services together to be shared with consumers of regulated services in the future, especially over time.
124. The magnitude of these foregone benefits appears likely to significantly outweigh any costs from removing ACAM.¹⁰⁹
125. A number of stakeholders, especially EDBs and their representatives, noted that our updated draft decision was not based on new information or compelling new evidence.¹¹⁰ On the other hand, ERANZ submitted that:

The Commission must be entitled to amend its view between the draft decision and the final determination based on submissions received in the process... Providing an updated draft decision for consultation is an additional step for which the Commission is to be commended rather than criticised... The Commission has sufficient evidence to revisit the assessment in its draft decision... While the concept of regulatory certainty is important, it should not be used to limit or restrict the Commission in making reasonable decisions within a reasonable process.¹¹¹

126. We agree with ERANZ's view. We also note that the option to remove ACAM as a stand-alone cost allocation option is not new; it was raised in submissions¹¹² on our November 2015 pre-workshop paper and we considered it in our June 2016 draft decision.
127. Some stakeholders also submitted using ACAM subject to materiality thresholds has no material impact on prices for consumers of the regulated service, and therefore these consumers are not disadvantaged.¹¹³

¹⁰⁹ Unison submitted that it estimated the costs of developing new accounting systems to potentially be \$50k to \$150k. See: Unison "Unison submission on amended draft decision to remove ACAM as a cost allocation option from the input methodologies" (13 October 2016), p. 2.

¹¹⁰ For example, see: ENA "Input methodologies review updated draft decision on cost allocation – submission to the Commerce Commission" (13 October 2016), para 5-7; and Powerco "Submission on Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (13 October 2016), para 7-12.

¹¹¹ ERANZ "Cross submission on the updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (25 October 2016), p. 1.

¹¹² Contact Energy "Submission on Emerging Technology Pre-Workshop Paper: 30 November 2015" (4 February 2016) p. 6.

¹¹³ For example, see ENA "Input methodologies review updated draft decision on cost allocation – submission to the Commerce Commission" (13 October 2016), para 11-13; and PwC "Submission to the Commerce Commission on Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (13 October 2016), p. 6.

128. As explained above, we have refined our view of what is material in this context. We consider that costs potentially in the order of hundreds of millions of dollars, allocated to the regulated service under ACAM, are material. Even if this has no more than a 1-2% impact on the revenue of regulated suppliers in any particular year, it is the extended or potentially permanent application of ACAM that adds to the materiality, particularly from the perspective of foregone consumer benefits, in aggregate.
129. Furthermore, consistent with ERANZ's cross submission, we consider that the view of some suppliers that consumers of the regulated service are 'no worse off' under ACAM is not the appropriate interpretation of s 52A(1)(c) – the benefits of efficiency gains should be shared with consumers of the regulated service, which does not happen under ACAM.¹¹⁴
130. PwC submitted that their "second preferred option is to allow smaller EDBs (perhaps those with less than 100,000 ICPs) to continue to use ACAM... [to] reduce the harm caused by removing ACAM".¹¹⁵ We considered this at the updated draft decision stage, and following PwC's submission. We have decided not to exempt smaller EDBs from the removal of ACAM. If necessary, we consider that compensating specific businesses for any incremental costs would provide greater ongoing net benefits to consumers.
131. Unison submitted that our decision to remove ACAM as a stand-alone cost allocation option had "taken into account irrelevant considerations about the impact on competition in other markets".¹¹⁶ That is incorrect. As we made clear in our updated draft decision, our decision does not depend on any of the possible wider benefits that might arise if removing ACAM were to mitigate some concerns about impacts on competition in other markets. We consider that the long-term benefits from ensuring consumers of the regulated service are not permanently precluded from sharing in the efficiency gains from supplying regulated and unregulated services together are sufficient to outweigh any short-term costs from changing allocation approaches.

¹¹⁴ ERANZ "Cross submission on the updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (25 October 2016), p. 5-6.

¹¹⁵ PwC "Submission to the Commerce Commission on input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (13 October 2016), para 12-13.

¹¹⁶ Unison "Unison submission on amended draft decision to remove ACAM as a cost allocation option from the input methodologies" (13 October 2016), p. 1.

132. Regarding OVABAA, some stakeholders submitted that its application would result in outcomes not necessarily consistent with outcomes in workably competitive markets.¹¹⁷ A number of others called for a review of OVABAA "to identify if improvements can be made to make the option more practicable and less costly".¹¹⁸ On the other hand, ERANZ considered that "a review of OVABAA is not necessary, at least until there is experience of it being used".¹¹⁹ Yet others, such as MEUG, called for the removal of OVABAA arguing that "it would be bizarre if retention of OVABAA to ensure EDB could cross-subsidy [*sic*] forays into non-regulated businesses led to exit of or a reluctance of non-regulated suppliers to compete to offer that service".¹²⁰
133. In respect of the removal of OVABAA, we agree with the ENA that it should be retained. Its removal would risk unduly deterring investment by suppliers of regulated goods or services in the provision of other goods or services, and therefore be potentially inconsistent with s 52T(3).
134. Regarding the need to review OVABAA, we agree with ERANZ that launching a review would be premature without first establishing the case for it, with clearly defined problems.
135. We are open to such a review in future if it becomes apparent that the current OVABAA specification is problematic. We note that a good way to test this is by suppliers actually using it. In that sense, the earlier that suppliers use it under information disclosure, without there being any revenue implications, the earlier any potential problems with OVABAA will become apparent.

¹¹⁷ Unison "Unison submission on amended draft decision to remove ACAM as a cost allocation option from the input methodologies" (13 October 2016), p. 2.

¹¹⁸ For example, see: ENA "Input methodologies review updated draft decision on cost allocation – submission to the Commerce Commission" (13 October 2016), para 34-35; and PwC "Submission to the Commerce Commission on Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (13 October 2016), para 15-16.

¹¹⁹ ERANZ "Cross submission on the updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (25 October 2016), p. 9.

¹²⁰ MEUG "Submission on Update draft decision on Cost Allocation" (13 October 2016), p. 1.

136. Some EDBs also raised concerns regarding the implications of the removal of ACAM on their existing commercial agreements, mainly with telecommunications providers. Here are the main points raised and our response:

...the use of network poles by telecommunications providers also provides an efficiency to customers on the price of the telecommunications service they receive... The efficiency benefits to consumers from avoiding dual telecommunications and electricity infrastructure, where possible, should not be underestimated.¹²¹

Powerco has an arrangement with communications companies where fibre can be placed on some of our poles to assist with the Ultra-Fast Broadband deployment... Had we known... ACAM would not be an available option, we may have been less likely to reach the current agreement we have with the fibre provider.¹²²

In this respect [EDB asset sharing with telecommunications network service providers], ACAM has been successful with encouraging infrastructure collaboration to fulfil the government's communications infrastructure agenda.¹²³

137. We agree that asset sharing between EDBs and telecommunication providers creates efficiencies. However, under ACAM, the beneficiaries of these efficiencies are not the EDB's consumers. As explained above, the intent of s 52A(1)(c) is that the benefits of efficiency gains are shared with consumers of the regulated service.
138. Furthermore, since both sides (EDBs and telco providers) benefit from asset sharing, we would not expect that a cost allocation methodology creates an outcome where infrastructure is duplicated (we would expect both sides to reach an asset sharing agreement, as they have). Finally, given that these are commercial arrangements, we would expect that EDBs will have sought the best deal they could achieve. It is not clear to us how changes in a cost allocation methodology would change this.
139. A number of EDBs mentioned that, since ACAM is still the implicit limit for both ABAA and OVABAA, they would still need to implement ACAM to ensure correct application of the cost allocation IM. They argued this could involve "considerable effort and cost".¹²⁴ Applying ACAM is not required, and therefore neither is the associated "cost and effort". We understand that in most cases, ABAA or OVABAA should result in less shared costs allocated to the regulated service. However, suppliers can elect to apply ACAM in order to satisfy themselves (or their auditors) that they are within the ACAM cost allocation limit.

¹²¹ Wellington Electricity "Input methodologies review: Response to updated draft decision on cost allocation" (13 October 2016), p. 1-2.

¹²² Powerco "Submission on Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (13 October 2016), para 13.

¹²³ Vector "Vector submission on the draft decision on cost allocation for electricity distribution and gas pipelines" (13 October 2016), para 10.

¹²⁴ For example, see: PwC "Submission to the Commerce Commission on Input methodologies review: Updated draft decision on cost allocation for electricity distribution and gas pipeline businesses" (13 October 2016), p. 8.

Problem definition for problem 2: Use of proxy cost allocators

140. There are two parts to this problem: first, the policy intent expressed in the 2010 reasons paper to justify the use of proxy cost allocators was not clearly carried over into the information disclosure requirements.¹²⁵ Second, some suppliers have not been as rigorous as they could be in justifying the use of proxy cost allocators when applying ABAA.
141. ABAA requires the regulated supplier to try to identify an activity (eg, staff time) which has caused the cost or asset utilisation in question over the last 18 months. This activity (referred to as a causal allocator) is then used as the basis for allocating Operating Costs not Directly Attributable (**OCnDA**) and/or Asset Values not Directly Attributable (**AVnDA**) between the services that the business offers.¹²⁶
142. Where it is not possible to find an activity which directly drives cost or asset utilisation, the business may use a proxy allocator (eg, revenue), but it must provide us with the rationale for selecting this proxy.¹²⁷
143. When we set this IM in 2010, we adopted a non-prescriptive approach, providing regulated suppliers with a lot of flexibility in deciding which allocators to apply.
144. There are often multiple causal allocators available to a regulated supplier. Similarly, where no causal allocator exists, there may be multiple proxy indicators available. In both cases, the IM is not prescriptive as to which allocator suppliers should use.
145. The choices of allocators can have a large impact on the allocation of cost between the regulated and unregulated services. Since suppliers have an incentive to allocate as much cost as possible to the regulated part of the business, this may mean that the regulated business bears a greater proportion of costs than it should, and consumers of regulated services share in less of the efficiency gains arising from the supply of both regulated and unregulated services together.

¹²⁵ See Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), sections 3.3.17-3.3.22 for further details.

¹²⁶ For example, suppose that a regulated supplier decides that the number of staff has a causal relationship to the amount of rent which is incurred. Suppose also that the regulated part of the business employed six staff members and the unregulated part of the business employs four staff members. Then 60% of office rent would be assigned to the regulated service and 40% to the unregulated service.

¹²⁷ See Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), section B4 for further details.

146. We were alerted to this issue in 2010 and discussed it in the EDB/GPB Reasons Paper but ultimately decided to address this issue by requiring suppliers to disclose their reasons for their selection of allocators.¹²⁸ This allowed us to periodically review the appropriateness of the allocators selected and make changes to the rules where required. The only strict rule that we put in place is that regulated suppliers must use a causal allocator where it was available.
147. Although in the 2010 reasons paper we stated that we would require suppliers who elected to use a proxy allocator to justify its use, this requirement was not clearly carried over into the information disclosure requirements. As a result, the information we currently require is more limited than the 2010 IM decision suggests it would be.
148. Some suppliers have not been as rigorous as they could be in justifying the use of proxy cost allocators when applying ABAA. As a result, interested persons are sometimes not able to have the confidence that these suppliers are using proxy cost allocators appropriately.
149. The EDBs' disclosure data indicates that only 25% of allocators are causal and these allocators distribute only 13% of all cost and asset values. There is little to suggest that this is increasing over time.
150. Further, we have found that when cost/asset values are attributed based on causal allocators, less is attributed to the regulated activity (59%) than when proxy allocators are used (68%).
151. While none of this necessarily indicates that EDBs have been applying the IMs incorrectly, we are concerned that proxy allocators are being used too heavily. Further, when we reviewed the justification provided by EDBs for their use of proxy allocators, we found that the information provided was often insufficient to allow us to form a view as to whether an appropriate causal allocator was available.

¹²⁸ See Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), sections 3.3.17-3.3.22 for further details.

Solution for problem 2: Use of proxy cost allocators*Our solution – strengthen requirement to justify use of proxy cost allocators*

152. Our solution in respect of this problem is to strengthen the requirement in the IMs to make it clear that the use of proxy cost allocators must be justified when applying ABAA.¹²⁹ This will put greater onus on EDBs and GPBs to better demonstrate that:
- 152.1 a causal relationship cannot be established; and
 - 152.2 the proxy cost allocator selected is appropriate.
153. In order to implement this, we have increased the quality of information we require under information disclosure, including requiring additional information about why suppliers could not use a causal allocator and why their selected proxy allocator is appropriate.
154. We consider that this solution better gives effect to our original intent of the application of the ABAA approach by ensuring that the flexibility to use proxy rather than causal allocators is only used where no causal approach is suitable. Given the sometimes limited reasoning provided for the use of proxy and causal allocators to date, we intend to give more attention to these compliance issues in future.
155. We note the submission from First Gas that the requirement to justify the use of a proxy cost allocator should be subject to a materiality threshold.¹³⁰ We disagree, and consider our solution will not impose a material burden on suppliers.¹³¹

¹²⁹ ENA and Powerco submitted that these requirements are better suited to the information disclosure determinations and should be included there only, rather than in the IMs. We disagree with these submissions and consider including these requirements in the IMs emphasises their importance. See: ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), p. 7; and Powerco "Submission on input methodologies review: Technical consultation update paper" (3 November 2016), p. 12.

¹³⁰ First Gas "Submission on Input methodologies review draft decisions (excluding cost of capital)" (4 August 2016), p. 2.

¹³¹ Methanex submitted against imposing a materiality threshold. See: Methanex "Input methodologies review and gas DPP consultation cross submission" (18 August 2016), p. 1-2.

We considered requiring EDBs and GPBs to provide a declaration from their Chief Financial Officer

156. In our draft decision we proposed to require EDBs and GPBs to provide a declaration from their Chief Financial Officer (**CFO**) that no causal allocator was available and that their selected proxy allocator was appropriate. We have considered submissions and have decided not to require this CFO declaration.¹³² This is because there is already a requirement for Director signoff for information disclosures, and the additional information on the appropriateness of proxy allocators will also be captured by the existing signoff requirement.¹³³ This information will help us assess whether the requirements need to be further tightened in future.¹³⁴

Other submissions relating to information disclosure

157. We received a number of other submissions relating to information disclosure. For example:

157.1 ERANZ submitted that schedules 5f & 5g of the ID requirements should be publically disclosed;¹³⁵

157.2 Methanex considered more onus should be placed on GTBs to produce a comprehensive cost allocation methodology which minimises the need for proxy allocators;¹³⁶ and

157.3 the ENA suggested we should develop ID requirements to provide more information on the use of proxy allocators.¹³⁷

158. Although we are not explicitly considering further changes to the information disclosure requirements at this time, we remain open to considering these issues in the future.

¹³² For example, see: GasNet "Submission on input methodologies review draft decisions papers" (4 August 2016), para 15; Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 273; and Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 164-165.

¹³³ *Electricity Distribution Information Disclosure Determination 2012* [2012] NZCC 22, Clause 2.9 and Schedules 17-18.

¹³⁴ Especially if EDBs' involvement in unregulated activities grows, perhaps associated with greater deployment of emerging technologies.

¹³⁵ ERANZ "Submission to the Commerce Commission on input methodologies for emerging technology" (4 August 2016), para 140.

¹³⁶ Methanex "Input methodologies review and Gas DPP consultation" (4 August 2016), p. 4.

¹³⁷ ENA "Input methodologies review – Impact of emerging technologies – Submission to the Commerce Commission" (4 August 2016), para 33.

Regulatory treatment of revenues and costs from emerging technology – issues raised by stakeholders

159. This section presents the main issues stakeholders have raised in this area. As noted above, many of these issues do not amount to problems to be addressed in the IM review. In the next section we set out our views and why we consider that these issues do not amount to problems to be addressed in the IM review.
160. The issues in this area have evolved during the consultation process, and have been refined following the December 2015 workshop we held on the topic and following our draft decision in June 2016. We present the evolution of stakeholder views below.

Stakeholder views before the December 2015 emerging technologies workshop

161. Before the emerging technologies workshop, there seemed to be a lack of clarity and shared understanding regarding the regulatory treatment of costs and revenues from non-traditional investments in some emerging technologies. This was a key reason why we decided to hold the workshop.
162. Submissions on our problem definition paper raised various concerns, but articulated them differently, sometimes in conflicting ways. Some submissions highlighted the importance of flexibility in the cost allocation rules and standards for the assets that go into the RAB. For example, Vector said:

Cost allocation: More flexible allocation methodologies will be needed as boundaries between competitive and monopolistic market segments blur and change over time, challenging current regulated capex and opex allocations.

Asset valuation: Standards for what can be included in the RAB will need to be adjusted to accommodate new types of investment.¹³⁸

¹³⁸ Vector "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), para 10.

163. Other submissions said that too much flexibility can harm competition and stressed the importance of a 'level playing field' between regulated and non-regulated markets.

163.1 For example, Contact mentioned:

The need for a clear line between "grid level" network investment and "behind the meter" investment to avoid the potential for cross subsidisation by distribution businesses, and to ensure consumers bear only the appropriate costs and risks of the regulated services.

Where distribution businesses are involved in "behind the meter" services, ensuring their new technology businesses operate on an arm's length basis from the traditional distribution business, to provide an open and level playing field in the market for energy services.¹³⁹

163.2 Similarly, Mighty River considered that:

...providing greater flexibility potential[ly] runs the risk of restricting competition for the provision of such technologies by providing a regulated cost advantage which is not in the long term interests of consumers.

This points to the need for more robust tests and allocation requirement to ensure that only appropriate assets are included in the regulated asset base of electricity distribution businesses.¹⁴⁰

¹³⁹ Contact Energy "Cross submissions on the Commission's invitation to contribute to problem definition" (4 September 2015), section 1.

¹⁴⁰ Mighty River Power "Input Methodologies Review: Cross-submission on invitation to contribute to problem definition" (4 September 2015).

- 163.3 Finally, PwC (submitting on behalf of 20 EDBs) considered that the cost allocation IM is effective in its current form:

The cost allocation methodology can be applied successfully to a range of different business models and does not cause particular compliance problems. Seeking to prescribe the approach more closely would add cost rather than remove it and may impede the use of efficient business structures. We also see value in the various options – ABAA, ACAM, OVABAA – remaining in the IMs. Now that these have been developed there is only limited value in removing them from the IMs. We also consider that some of these features may become more widely used in the future as EDBs invest in non-traditional assets and services in response to consumer demand.

Where an EDB makes an investment in an alternative technology to defer traditional network reinforcement, it is clearly an investment that is being undertaken to provide electricity distribution services and should therefore be included in the RAB. Where the investment is used to supply both regulated and unregulated services the sharing component of the cost allocation IM applies.

The Consultation Paper questions what would happen if a third party made this investment. We are not sure why this is relevant – if the third party made this investment to sell the service to the EDB, that cost would be regulated opex for the EDB. If the third party invested in grid-scale battery storage for a different reason then it would not be providing electricity distribution services and should not fall within the RAB.¹⁴¹

164. The above views, especially those challenging the effectiveness of the cost allocation IM, led us to place added emphasis on reviewing this IM. The results of this effectiveness review led to the changes presented earlier in this chapter.

Stakeholder views following the December 2015 emerging technologies workshop

165. After the workshop, clearer stakeholder views emerged, which we have organised around the following themes:
- 165.1 the legal definition and interpretation of the regulated service;
 - 165.2 the appropriateness of the cost allocation IM and potential need for revenue allocation rules; and
 - 165.3 industry structure and potential restrictions on suppliers of the regulated service delivering unregulated services using shared assets.
166. Below we present a non-exhaustive selection of representative views for each theme. We respond to these views in paragraphs 188 to 251, except for the points raised on revenue allocation rules, which we address in paragraphs 173 to 174.

¹⁴¹ PwC "Submission to the Commerce Commission on Input methodologies review: Invitation to contribute to problem definition" (21 August 2015), p. 20 and 28.

The legal definition and interpretation of the regulated service

167. The ENA (representing 29 regulated EDBs), was supportive of the definition and interpretation we presented in the pre-workshop paper that assets (or costs) used to provide (or attributable to) the regulated service fall within the scope of regulation.

The ENA agrees with the Commission's interpretation of the definition of electricity lines services, as set out in the pre-workshop paper. We consider that this is the clear meaning of the definition.¹⁴²

168. This was enforced by the opinion of Russell McVeagh, for the ENA, who argued that batteries can be included in the RAB, regardless of whether they fall within the definition of lines when they are used to provide the regulated service.¹⁴³

169. Electricity retailers advanced an alternative view, which the ERANZ articulated. In short, ERANZ considered that we are not appropriately interpreting the definition of the regulated service, and that our treatment of emerging technologies is inconsistent with the Part 4 purpose. Furthermore, our interpretation is:

...effectively re-defining the regulated service by seeking to include in that definition emerging technologies... this unnecessarily increases the potential scale and scope of the regulated monopoly business by including assets and goods/services that can be provided by a competitive market.¹⁴⁴

The regulatory treatment of emerging technologies should be consistent with the inherent nature of the products, services or activities being directly facilitated or produced by the technology. Above all, the key characteristic of the service or activity should be the extent to which it is, or may become, suitable for provision under workable competition.¹⁴⁵

170. This view was supported by a legal opinion from Alan Lear, for ERANZ, who argued that our statutory interpretation was not correct. He considered the correct interpretation was to exclude customer storage and EV batteries as they are in the competitive part of the electricity market.¹⁴⁶

¹⁴² ENA "Submission on IM review: emerging technologies" (4 February 2016), para 5.

¹⁴³ Russell McVeagh (report prepared for ENA) "Review of Alan Lear advice on definition of electricity lines services" (18 August 2016), para 4.

¹⁴⁴ Electricity Retailers' Association of New Zealand (ERANZ), "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 5.

¹⁴⁵ Electricity Retailers' Association of New Zealand (ERANZ), "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 7.

¹⁴⁶ Alan Lear (report prepared for ERANZ) "Input methodologies review: Treatment of emerging technologies in the electricity industry under Part 4 of the Commerce Act 1986: legal definition and interpretation of electricity lines services" (4 August 2016), para 5.

Potential need for revenue allocation rules

171. Regarding treatment of revenues related to emerging technologies (discussed in the context of a grid-scale battery), ERANZ considered that:

...if the battery is considered to be performing regulated services then revenue earned in the performance of those services should also be treated as regulated. Noting that allowed revenue is inflated due to the impact of capital and operating costs on the building block analysis, it would be appropriate for an assessment of wholesale energy revenue from discharging the batteries (for regulated service purposes) should be deducted in the allowable revenue calculation. This would ensure that consumers of the regulated service did not pay twice.¹⁴⁷

172. Conversely, the ENA's view was that a revenue allocation IM is not necessary at this time.

We consider that the cost allocation IM has the equivalent effect; i.e. that the costs are allocated out of the regulated business and thus must be covered by the unregulated revenues.¹⁴⁸

...

It is conceivable that an ENB could provide a demand management service or product to a consumer that comprises both regulated and unregulated services to that consumer and the consumer pays a single bill directly to the ENB for that service.

We note it is unlikely that an ENB could send a bundled bill to a consumer that included the standard lines charges (e.g. the c/kWh or c/day charges) unless the ENB has a direct billing relationship with the customer. At present only one ENB directly bills all of its consumers. For other ENBs, retailers can, and do, re-bundle the lines charges they receive from ENBs and the consumer then pays the re-bundled charge. Accordingly, on the basis that the current industry structure prevails, the ENA does not consider that bundling of lines charges and unregulated service charges is likely to be a material problem.¹⁴⁹

173. We consider that this issue can be addressed, to the extent it becomes material in future, with the tools and discretion currently available under regulatory determinations (ie, s 52P determinations), rather than revenue allocation rules at the IM level.

¹⁴⁷ Electricity Retailers' Association of New Zealand (ERANZ), "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 22.

¹⁴⁸ ENA "Submission on IM review: emerging technologies" (4 February 2016), para 76.

¹⁴⁹ ENA "Submission on IM review: emerging technologies" (4 February 2016), para 58-59.

174. Particularly, when setting price paths in either a DPP or a CPP setting, the Commission has discretion to determine an amount for 'other regulated income' and factor it into the price path in the case of a weighted average price cap, or in the case of a revenue cap, to scrutinise the amount of other regulated income being disclosed for compliance purposes.¹⁵⁰ Any future revenue resulting from the use of emerging technologies, and associated with the supply of electricity distribution services, could be appropriately recognised as part of 'other regulated income'.¹⁵¹

Industry structure and potential restrictions on suppliers of the regulated service delivering unregulated services using shared assets

175. The Electricity Authority sent a letter to us on this topic, where it outlined its thoughts and queries.¹⁵² The letter noted the Electricity Authority's and the Commission's overlapping interests in emerging technologies, and outlined the potential implications of the Commission's cost allocation approach on competition in the wholesale spot and ancillary markets. Specifically, they raised a concern that competition could be reduced in ways that do not deliver long-term benefits to consumers. We published the letter as part of our draft decisions and welcomed stakeholder comment on it.

¹⁵⁰ Other regulated income means "income associated with the supply of electricity distribution services other than through prices, investment-related income, capital contributions, or vested assets". Note that our review of the current definition of 'capital contributions' is set out in the Report on the IM review: Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016).

¹⁵¹ For an explanation of how we regulate, and some worked examples of how our rules treat investments in some emerging technologies, see: Commerce Commission "Input methodologies review – Emerging technology pre-workshop paper" (30 November 2015).

¹⁵² Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on implications of regulatory treatment of cash flows for emerging technology (1 June 2016).

176. Rather than refining the cost allocation IM, ERANZ proposed what it considers a materially better approach in order to assign a value to the benefit an emerging technology delivers to the regulated service. It aims to promote the creation of a market with a corresponding market price:

ERANZ believes that a materially better approach is to require that domestic scale batteries are only included in the RAB if they meet certain criteria... which confirm they are not likely to be provided in markets where competition might develop. To achieve this, our proposal is that if an EDB invests directly in domestic scale batteries and includes domestic scale batteries in the RAB then the "value of commissioned assets" should be required to be zero. EDBs would then be much better [able] to make any such investments in domestic scale batteries beyond the point of supply through an arms-length related party, distinct from the regulated service. The EDB could then acquire those (battery generated) services that support the provision of the regulated services, on an arms-length and transparent basis. Alternatively the EDB could acquire the service from other entirely unrelated third party providers (in either case the cost would form a legitimate cost of the regulated service).^{153, 154}

177. In order to give effect to the proposal (ie, identify which assets should be given a value of zero if added to the RAB), ERANZ submitted that we create a new schedule which would include the "criteria for assessing if an asset and/or the service benefits provided by the asset are or could be provided through workable competition." The schedule would also contain the current list of assets/services identified as meeting the requirement, and the process to make changes to the list.

178. Three observations on ERANZ's proposal that are relevant for our response in paragraphs 190 to 213 below are:

178.1 the proposal is different to the common understanding of the term 'ring-fencing' in that it does not involve specifying the 'terms of separation' between the EDB and the potential related party (eg, accounting, functional, legal, ownership separation). We understand that the key feature of the proposal is that any potential transaction between the EDB and the third party would be 'at arms-length' – ie, transacting at third party terms (price and non-price) as if the transaction was between unrelated parties;

178.2 however, the aim of the ERANZ proposal – to achieve arms-length transactions – is the same as under more traditional forms/degrees of separation. Therefore, it can be regarded as a structural intervention (or pseudo-structural at least); and

¹⁵³ Electricity Retailers' Association of New Zealand (ERANZ) "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 18. We understand that ERANZ's proposal applies broadly to other assets and technologies, so in this quoted fragment, the term 'domestic scale batteries' can be used interchangeably with 'other current and emerging technologies'.

¹⁵⁴ ERANZ reiterated its proposal in its submission on our June 2016 draft decisions, and referred back to the detail in its 4 February 2016 submission on our emerging technologies workshop and pre-workshop paper (see footnote 153). See: ERANZ "Submission to the Commerce Commission on input methodologies for emerging technology" (4 August 2016), para 111-114.

178.3 the proposal would be implemented through the asset valuation IM, not the cost allocation IM.

179. Contact was concerned that where EDBs invest in assets that deliver both regulated and unregulated services, they may not have incentives to realise the full value of these investments, to the detriment of consumers. This point was also presented in support of placing restrictions on EDBs' ability to own certain emerging technology assets:

For example, if an investment in alternative technologies could provide services in addition to conveyance services the full value of the investment could be attributed to consumers and deny consumers the additional benefits that could be derived. This is inefficient and could be avoided by the competitive provision of all the services of the technology.¹⁵⁵

180. An additional concern was that EDBs may be able to earn additional returns from assets included in the RAB (eg, from ancillary services) without consequential adjustments to the regulated return.¹⁵⁶

181. On the other side of the argument, the ENA did not consider that the Commission is best placed to impose structural restrictions:¹⁵⁷

Fundamentally we do not agree that the best way to promote competition in a new market, such as the battery storage and electric vehicle charging markets, is to use Part 4 regulation to restrict investment decisions by regulated firms in these markets.

It is not the Purpose of Part 4 regulation to impose structural regulation on ENBs through use of cost allocation and asset valuation IMs. If there are concerns about ENBs' involvement in related markets, then these issues should be addressed by policy-makers through, for example, the Electricity Industry Act 2010 (EIA).¹⁵⁸

¹⁵⁵ Contact Energy "Submission on the Commerce Commission's Emerging technology pre-workshop paper: 30 November 2015 (Workshop paper)" (4 February 2016), p. 3.

¹⁵⁶ Contact Energy "Submission on the Commerce Commission's Emerging technology pre-workshop paper: 30 November 2015 (Workshop paper)" (4 February 2016), p. 3.

¹⁵⁷ Other submitters also considered that structural change is a question for policy makers, not the Commission. For example, see: Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 22; PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 211; Unison "Submission on the input methodology review" (4 August 2016); para 16; and Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), p. 4.

¹⁵⁸ ENA "Submission on IM review: emerging technologies" (4 February 2016), para 10.

182. Commenting on the merits of structural restrictions, the ENA considered that "Prohibiting any particular model for procuring the services potentially provided by emerging technologies is likely to create inefficiency", adding that:

The costs of imposing onerous ring-fencing requirements on all ENBs would be real and immediate. Potential benefits of restricting ENB investments in emerging technologies are unclear. In fact, it may be detrimental as the market may not emerge at all if ENBs are not active. A better approach is for the Commission and policy makers to continue to monitor technology and market developments and intervene only if necessary.¹⁵⁹

183. The ENA also noted that regulated suppliers have been investing in services in the way that ERANZ wants to discourage:

ENBs have invested in demand management services for many years (e.g. through ripple control or mobile generators) and this is a legitimate part of network management. It seemed the suggestion at the workshop was to ring-fence all ENB demand management services, which would be impractical and impose additional costs for a service ENBs have been providing for years.¹⁶⁰

184. Orion submitted emerging technologies will lead to material benefits in the electricity sector, including improved resilience, reliability and efficiency. Orion considered that these benefits would be best achieved by EDBs co-ordinating the technologies across the network, and that any regulatory intervention would increase costs to consumers.¹⁶¹

185. PwC submitted that the markets for emerging technologies are still nascent and it is not clear what kind of business model or product offering will be most successful:

Retailers' closer relationship with the consumer may prove decisive. Alternatively, large global technology companies may be able to leverage their brand and scale to an extent that New Zealand firms cannot compete with. In the face of these other advantages, any cost sharing between regulated and unregulated business activities may not be very material.¹⁶²

¹⁵⁹ ENA "Submission on IM review: emerging technologies" (4 February 2016), para 12 and 14.

¹⁶⁰ ENA "Submission on IM review: emerging technologies" (4 February 2016), para 12.

¹⁶¹ Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 15-17.

¹⁶² PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 214.

186. Commenting on economies of scope, Trustpower submitted that:

Third-party providers of network-supporting technology, especially owners of assets that have already been invested in, must be able to achieve the same economies of scope as a network company considering investing in the technology itself.

We are not convinced that the incentives in the current Part 4 regime are sufficient to encourage network companies to contract with, and adequately compensate, third-party providers of network support services.¹⁶³

187. This submission provides an alternative perspective on the economies of scope argument, which was generally considered in relation to EDBs' ability to benefit from these economies. It is relevant to the industry structure debate because, arguably, industry structures influences what types of scope economies arise, and who benefits from them – EDBs or firms operating in competitive markets.

Our perspective on the main issues raised by stakeholders

188. This section presents our perspective on the main issues presented in the above paragraphs and why we consider that they do not amount to problems to be addressed in the IM review.

189. Our emerging technology pre-workshop paper contains relevant background that complements the views we present below.¹⁶⁴ For example, our view regarding the definition and interpretation of the regulated service remains unchanged (we expand on this below and respond to submissions on this matter). In addition, readers should refer to that paper for an explanation of the cost allocation IM, and a recap on what and how we regulate.

ERANZ's proposal

190. ERANZ provided a detailed proposal which ultimately aims to deliver a competitively-determined market price for the services delivered by emerging technologies. It relies on restrictions on EDBs' ability to include some assets in their RAB.¹⁶⁵

191. We welcome ERANZ's proposal and consider that it raises a valid issue – the potential trade-offs between integration and competition; between economies of scope/transaction costs and concerns around leveraging of monopoly power in competitive markets.

¹⁶³ Trustpower "Trustpower submission on the input methodologies review draft decisions" (4 August 2016), para 1.2.1 c)-1.2.1 d).

¹⁶⁴ Commerce Commission, "Input methodologies review: Emerging technology pre-workshop paper" (30 November 2015).

¹⁶⁵ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 18-21; and ERANZ "Submission to the Commerce Commission on input methodologies for emerging technology" (4 August 2016), para 111-114.

192. Regardless of where the optimal balance may lie in this trade-off, we do not consider that Part 4 is the appropriate instrument to implement changes to industry structure. On that basis, we have decided not to further consider the ERANZ proposal. This is explained in the next sub-section.
193. Regarding the merits of the trade-off, on the basis of the information currently available to us, we have concluded that it is not yet clear where 'the line should be drawn' along the integration-competition spectrum.
194. Part of the rationale that underpins the proposal rests on a different interpretation from ours of the legal definition of the regulated service. We explain this later in the chapter.
195. Aside from the interpretation of the legal definition of the regulated service, it is currently unclear to us that restrictions on EDB ownership and operation of certain emerging technologies would benefit consumers of the regulated service more than the updated cost allocation IM, although we note it is possible it (or some other form of business separation) could. The requirement of arms-length transactions risks undermining the incentive on EDBs to improve efficiency through economies of scope, consistent with s 52A(1)(b).¹⁶⁶ In addition, the likely higher transaction costs associated with arms-length transactions is one important (and growing) factor that could cause this.
196. We note that it is plausible, if unclear to us at this stage, that the benefits of the above-mentioned economies of scope may be outweighed by the benefits associated with a competitive market (eg, various types of efficiencies) for delivering the services (both regulated and unregulated) of some emerging technologies. The development of such a market would be supported by a regulatory requirement for market transactions. However, as we explain below, we do not consider the case has been made for regulators to mandate market transactions in place of integration at this time.
197. In addition, as noted above, s 52T(3) requires that our cost allocation IM must not unduly deter investment by a regulated supplier in the provision of other regulated or unregulated services.¹⁶⁷ This suggests that EDBs should be able to benefit from their existing assets and activities when providing new services. Consumers of regulated services will be the ultimate beneficiaries of the economies of scope realised by regulated suppliers from engaging in new activities, consistent with s 52A(1)(c).

¹⁶⁶ See appendix 2 of the pre-workshop paper for an explanation of how the cost allocation IM promotes efficiency through diversification. Commerce Commission, "Input methodologies review: Emerging technology pre-workshop paper" (30 November 2015), Appendix 2.

¹⁶⁷ Submissions made the point that emerging technology was not in the horizon when Part 4, especially s 52T(3), was drafted. We note that s 52T(3) is generic and technology agnostic.

198. We note ERANZ's point that its proposal relates to the 'asset valuation IM', and therefore, in ERANZ's view, it is not in conflict with s 52T(3).¹⁶⁸ We disagree. The proposal is to impede allocation of asset-related common costs to the regulated asset base.¹⁶⁹ In doing so, it restricts EDBs' ability to benefit from their assets when providing new services. We consider that this would unduly deter investment by EDBs in those assets in the first place.¹⁷⁰ Therefore, we consider the ERANZ proposal is inconsistent with s 52T(3).
199. Some recent work suggests that "economies of scope and coordination will become increasingly important" as a result of growing deployment of widespread emerging technologies.¹⁷¹ It also raises questions on the desirability of the existing industry structure:

In an increasingly innovative even disruptive market, technological advances are no longer limited to the discreet market layers that emerged from the post-Hilmer reforms. In such an environment, scope economies between network and some contestable services are likely to be valuable for customers. Furthermore, the networks themselves face competition in the form of feasible 'off-grid' alternatives to network supply, which may become even more commercially attractive for customers as the costs of the emerging technologies decline. There is a compelling case for allowing NSPs [network service providers] a greater involvement in contestable markets and to compete to supply an 'on-grid' alternative to 'off-grid' supply.

... the vertical separation that arose, with strong justification, from Hilmer is now unlikely to be the best means of delivering this outcome ... Scope economies are becoming more important relative to scale economies, which means that industry structure and regulation, in particular, must focus more on measures that, unlike structural and functional separation, do not impede the availability of new technologies, and with them the emergence, internalisation and transfer to final customers of the benefits of scope economies.

... it is important that regulation does not frustrate the generation of these scope economies whether through proscription, by removing incentives for NSPs to participate, or by imposing discriminatory participation costs that are large in comparison with the scope economies.¹⁷²

¹⁶⁸ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 21.

¹⁶⁹ Refer to s 52T(1)(a)(iii).

¹⁷⁰ Section 52T(3) requires that it is the regulated supplier which must not be unduly deterred from investing in the supply of other services, not the broader corporate entity (or related party).

¹⁷¹ Lawrence Berkeley National Laboratory, "Electric Industry Structure and Regulatory Responses in a High Distributed Energy Resources Future" (November 2015), p. 1.

¹⁷² Synergies Economic Consulting, George Yarrow, "Applying the Hilmer Principles on economic regulation to changing energy markets: A report prepared by Synergies Economic Consulting and George Yarrow for the Energy Networks Association", April 2016, p. 39, 41 and 63. Available at: <http://www.synergies.com.au/applying-the-hilmer-principles-on-economic-regulation-to-changing-energy-markets/>.

200. As we would expect, we see evidence of some EDBs and regulators responding by either starting or facilitating the transition towards new roles for electricity distribution companies.^{173, 174} These new roles have been variously characterised, but probably share the attribute of more active network management.
201. The precise nature of future electricity distribution networks is uncertain and currently subject to wide international debate. We consider that imposing regulatory restrictions on EDBs' ability to efficiently respond to the changing environment is not appropriate at this stage and given the current legislative framework.
202. Implementation of ERANZ's proposal entails costs and added complexity that are more certain than the benefits it could deliver to consumers of the regulated service. On the costs side, it relies on a new asset-specific schedule with the criteria to assess if an asset and/or the service provided by the asset are or could be provided through workable competition. It would also contain a list of assets/services that meet the requirement and the process to make changes to the list to keep it current. Beyond the costs and complexity involved, this represents a departure from our current approach to regulation, which is asset/technology agnostic.¹⁷⁵
203. On the benefits side, the added costs and complexity could be justified if there was clearer, compelling evidence that the benefits to consumers of the regulated service outweigh the costs. Our understanding is that the objective, outcome and benefit of ERANZ's proposal is as follows.
- 203.1 Objective: to promote competitive markets where this is compatible with the nature of the assets and services, by eliminating what it sees as an "undue competitive advantage" enjoyed by EDBs vis-à-vis willing third parties as a result of the cost allocation IM.
- 203.2 Outcome: the potential creation of a new workably competitive market(s) for services (potentially both regulated and unregulated) delivered by emerging technologies, and the associated market prices.
- 203.3 Benefit: potentially appropriate pricing of the network benefit received by EDBs (and therefore appropriate cost imposition on consumers of the regulated service).
204. In other words, the benefits are conditional on the creation of a workably competitive market that does not fully exist today.

¹⁷³ For example, Powerco aims to evolve to a "Distribution System Integrator". Powerco, "Delivering New Zealand's energy future: electricity asset management plan 2016" p. 138-140.

¹⁷⁴ For example, Ofgem sees a role for them in facilitating DNOs transitioning to new roles. Ofgem, "Making the electricity system more flexible and delivering the benefits for consumers" (30 September 2015), p. 25.

¹⁷⁵ We regulate a service as defined by Parliament. The assets and technologies involved in delivering the regulated service may change over time.

205. One way of characterising the issue is to ask whether consumers' interests are best served by regulators mandating market transactions in place of integration. The answer to this question will depend on the specific context in which it is asked. Factors including transaction costs, economies of scale, scope, and externalities will influence the answer.¹⁷⁶ Regulators should only consider intervening where there is a market failure (eg, risk of exercise of exclusionary market power) such that markets would not produce an efficient outcome. ERANZ has taken the view that market transactions, instead of integration, are in consumers' best interests in this case and at this stage. We do not consider that there is enough information at this stage to demonstrate that the factors that need to be present for a market to be the most efficient way for EDBs to acquire these services are present.
206. Nevertheless, a market may yet develop; one in which market players compete on the basis of their competitive advantage, free from regulatory constraints. We do not consider the cost allocation IM stands in the way of this. Our decision to remove ACAM as a stand-alone allocation option should help alleviate some of the retailers' concerns without precluding EDBs from active involvement in these technology areas, where they may be the most efficient suppliers.
207. We do not consider that the cost allocation IM gives EDBs an undue advantage. This IM is intended to ensure that consumers of regulated services benefit over time from any efficiency gains achieved by EDBs supplying regulated and unregulated services together, consistent with s 52A(1)(c). As a consequence of these efficiency improvements, consumers of unregulated services also benefit.
208. EDBs may be able to achieve such efficiency gains because they can use their existing regulated activities to achieve economies of scope, which may give them an efficiency advantage (ie, a competitive advantage) relative to other market participants who are not able to do likewise. The High Court has acknowledged the potential existence of a competitive advantage, and observed that this outcome is consistent with s 52T(3):

[Section] 52T(3) refers to investment by a regulated supplier in the provision of other goods or services including, of course, unregulated goods and services, which s52A(1) does not specifically deal with.

We think a reasonable approach to considering s 52T(3) is that, so long as the unregulated service receives some portion of efficiency gains (and thus bears less than its SAC [stand alone cost]), it potentially has a competitive advantage over a firm that does not have existing regulated service infrastructure to draw upon. If that condition is met, investment in the unregulated service will not be unduly deterred.¹⁷⁷

¹⁷⁶ For example, Coase showed in his 1937 paper "The Nature of the Firm" that firms exist because "there is a cost of using the price mechanism". So transacting through the market can be costlier than within a firm.

¹⁷⁷ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289 at [1860]-[1861].

209. Trustpower made the point that "Third-party providers of network-supporting technology... must be able to achieve the same economies of scope as a network company".¹⁷⁸ We note that, depending on their circumstances, third parties should also potentially benefit from economies of scope. If they do, they should be able to offer their network support services to EDBs at more competitive terms than if they did not achieve those economies. We consider that the cost allocation IM does not stand in the way of this possible outcome.
210. Also, there is a requirement for EDBs to explain in their asset management plans the extent to which non-network alternatives were considered.¹⁷⁹ Similarly, the capex IM requires Transpower to consult on planned major capex projects, which includes invitation and consideration of grid and non-grid potential solutions to the identified need.¹⁸⁰
211. Furthermore, application of the ACAM (which is no longer available as a stand-alone cost allocation option, but the outcome of which can still be achieved under OVABAA), which is the methodology that would allow the allocation of the greatest proportion of shared costs to the regulated service, should still implicitly result in no less than the incremental cost of all unregulated services being allocated to those services (in aggregate). To the extent that EDBs engage in predatory pricing or other illegal anti-competitive conduct, the competition provisions in Part 2 of the Act would apply.
212. Finally, other existing or potential participants in the relevant markets may benefit from competitive advantages of their own, which EDBs may not have. For example, retailers may have the competitive advantage of a direct relationship with consumers.
213. In any case, matters of industry structure and the creation of markets are areas which are not best addressed by Part 4, as the next section explains.

¹⁷⁸ Trustpower "Trustpower submission on the input methodologies review draft decisions" (4 August 2016), para 1.2.1.

¹⁷⁹ *Electricity Distribution Information Disclosure Determination 2012* [2012] NZCC 22, Clauses 11.9-11.10.

¹⁸⁰ See for example Transpower's recent July 2016 consultation "Waikato and upper north island voltage management long-list consultation: including invitation for information on non-transmission solutions".

Industry structure is not a matter for Part 4

214. A number of parties submitted that EDBs should be restricted in their ability to participate in emerging technologies markets. For example, some parties submitted that we should require regulated companies to procure services for some emerging technologies on an arm's length basis, while some suggested that ring-fencing requirements be imposed. Submitters pointed to initiatives in other jurisdictions such as Australia and the United Kingdom as support for the proposition that ring-fencing measures should be implemented.¹⁸¹
215. We view ERANZ's proposal and the ring-fencing requirements proposed by other submitters as structural interventions. We consider that Part 4 regulation is not the vehicle to introduce structural remedies. Indeed Part 4, through s 52T(3), requires that our cost allocation rules do not unduly deter investments by suppliers of regulated services in the provision of other services.
216. Matters of industry structure in New Zealand have in the past been decided by policy makers and implemented through legislation.¹⁸² Provisions dealing with the separation of electricity distribution from generation and retailing are found in the Electricity Industry Act 2010, which is administered by the Electricity Authority.¹⁸³
- Under the Electricity Industry Act 2010, the Authority can create markets and provide for broader participation in existing markets... We have also worked with Transpower and the Commerce Commission to put in place measures to address the adverse effects on competition of the Transpower demand response programme.¹⁸⁴
217. The tools available to us under Part 4 were not designed to effect, and cannot directly deliver, changes to industry structure. Our understanding of ERANZ's proposal is that it intends to achieve an equivalent effect to a structural solution (ie, arm's length transactions) using the tools available to us under Part 4 (in particular, the asset valuation IM) to place incentives on EDBs to act in a way consistent with how they would act under a structure featuring a greater degree of separation and as mentioned above, in our view this approach would not be consistent with s 52T(3).
218. Therefore, our view is that structural changes in this context, if deemed necessary, are not best delivered indirectly by the Commission through changes under Part 4.

¹⁸¹ We note that 'ring fencing' is a broad term, and different jurisdictions appear to use it to refer to different types of interventions.

¹⁸² We note that the Commission may have an influence on industry structure in general, including through decisions on mergers and advocacy in relation to policy development.

¹⁸³ Electricity Industry Act 2010, Part 3.

¹⁸⁴ Letter from Carl Hansen (Chief Executive, Electricity Authority) to Sue Begg (Deputy Chair, Commerce Commission) on implications of regulatory treatment of cash flows for emerging technology (1 June 2016).

*Definition of the regulated service*Background

219. The definition of 'electricity lines services' is set out in s 54C and provides that:

... unless the context otherwise requires, electricity lines services –

(a) means the conveyance of electricity by line in New Zealand...

220. Section 54C(2) sets out a number of exclusions which generally relate to generation, services that are subject to actual direct competition and services excluded on the basis of their small scale.

221. Then s 54E provides that "electricity lines services are regulated" under Part 4.¹⁸⁵ Simply put, the definitions in the Electricity Act generally exclude "electrical installations" unless the "fitting" is used in association with the conveyance of electricity.

222. This structure provides guidance to the overall approach taken in the legislation, being that every service that falls within the very general description of "conveyance of electricity by line in New Zealand" is within scope unless it is expressly excluded in s 54C(2).

223. Based on this, in our pre-workshop paper, we set out the relevant questions to consider when assessing the scope of the regulated service. These are:

223.1 Is what the supplier is doing part of a service where the service is the conveyance of electricity by line in New Zealand?

223.2 Is what the supplier is doing part of a service where the service is not excluded by any of the exceptions listed in s 54C(2)?

¹⁸⁵ Section 54C(4) incorporates the definition of "lines" in the Electricity Act 1992. "Lines" is defined in the Electricity Act as "works that are used or intended to be used for the conveyance of electricity". The definition of "works" incorporates the broad concept of "fittings" and excludes any part of an "electrical installation".

An "electrical installation" is defined by reference to the location or use of particular assets that are beyond the point of supply or that are used for generation. The relevant exception to this exclusion is any fittings that are used, designed or intended for use in or in association with the conversion, transformation, or conveyance of electricity by distribution or transmission lines (which is set out at (b)(iii) of the definition).

224. While there are exceptions from the definition of 'line' in the Electricity Act 1992, we do not consider these exceptions operate to exclude certain types of assets from being included in the RAB, where those assets are used by a supplier in (or in relation to) its supply of the regulated service. Rather, we consider that the definition of 'line' in the Part 4 context is relevant only to the extent that it describes the nature of the regulated service, which is conveying electricity to the point of supply.
225. This legislative structure means that assets beyond the point of supply may fall within the scope of the regulated service, to the extent they are used or intended to be used by an EDB for the conveyance of electricity, to the point of supply.¹⁸⁶ In any event, there is no requirement for every asset used to support a regulated service to fall within the definition of a 'line' before it may be included in the RAB. For example, office equipment might be wholly or partly used in providing or supporting the supply of the regulated service, despite not being used for the physical conveyance of electricity by line.

Summary of submissions

226. A number of parties disagreed with our interpretation of "electricity lines services", claiming our approach is too broad and results in the regulation of services that are subject to competition.¹⁸⁷
227. Contact Energy submitted that Part 4 is not intended to regulate services that are subject to competition, and pointed to the wording of the provisions of Part 4, specifically.¹⁸⁸

The statements in section 52 that Part 4 provides for the regulation of services in markets where "there is **little or no competition** and little or no likelihood of a substantial increase in competition",

Section 52A purposes are designed to "replicate outcomes produced in competitive markets",

Sections 54C(2)(a) – (d) which exclude from the regulated lines services lines services which are not used to provide a monopoly transport service, and

Section 54C(2)(e), which **excludes** from the regulated service services that involve "conveying of electricity...**by a line or lines that are mostly in competition with a line or lines** operated by another supplier of electricity lines that is not an associate of that person".

(emphasis in the original)

¹⁸⁶ An asset that is a fitting beyond the supply which is used or intended to be used by an EDB for the conveyance of electricity to the point of supply would fall outside the definition of 'electrical installation', given that fittings designed or intended for use in or in association with the conveyance of electricity by distribution or transmission lines are excluded from that definition.

¹⁸⁷ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 4.

¹⁸⁸ Contact Energy "Submission on the Commerce Commission's emerging technology pre-workshop paper: 30 November 2015 (workshop paper)" (4 February 2016), Appendix A.

228. Similarly, ERANZ submitted that our approach is a redefinition of the regulated service which effectively expands the scope of regulated activities,¹⁸⁹ and that, contrary to the intent of Part 4:¹⁹⁰

[s]ervices that are substitutes for, or functionally equivalent to, the conveyance of electricity by line are therefore included in the definition of the regulated service.

229. Consistent with the above, some submitters disagreed that batteries could be used to support the provision of the regulated service. For example, ERANZ argued that batteries:¹⁹¹

store energy, they do not convey it. Nor are they, in any ordinary sense of the word, a 'line'.

(emphasis in the original)

230. Thus, in ERANZ's view, batteries are 'electrical installations' which are excluded from the definition of 'line' under the Electricity Act and therefore:¹⁹²

...it does not seem appropriate that something is considered to 'support the regulated service' when the definition of the regulated service has been constructed in such a way as to exclude that thing.

231. This view was further supported in the opinion of Alan Lear, for ERANZ.^{193, 194} The opinion argued that assets used for services related to the storage and generation of electricity that are located beyond the point of supply are expressly not included in the definition of lines and that:

The problem with the Commission's approach is that by not restricting the scope of the lines assets as defined, begs the very question as to what is the regulated service that assets have to be "used for" if no boundary is set as to where those assets may be located or of their nature.¹⁹⁵

¹⁸⁹ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 5.

¹⁹⁰ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 6.

¹⁹¹ ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 8.

¹⁹² ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), p. 9.

¹⁹³ Alan Lear (report prepared for ERANZ) "Input methodologies review: Treatment of emerging technologies in the electricity industry under Part 4 of the Commerce Act 1986: legal definition and interpretation of electricity lines services" (4 August 2016), para 19.

¹⁹⁴ Alan Lear's opinion was also supported by other submitters. For example, see: Mercury "Input methodologies review draft decisions Topic paper 3: The future impact of emerging technologies in the energy sector" (4 August 2016), p. 1.

¹⁹⁵ Alan Lear (report prepared for ERANZ) "Input methodologies review: Treatment of emerging technologies in the electricity industry under Part 4 of the Commerce Act 1986: legal definition and interpretation of electricity lines services" (4 August 2016), para 20.

232. He argued that this is consistent with Part 4 as customer storage batteries are in the competitive part of the electricity market which should be allowed to develop without any distorting effects from the regulated/monopoly part.¹⁹⁶
233. The opinion also considers that storage batteries do not fall within the exception to the definition of "electrical installation" as a matter of statutory interpretation.¹⁹⁷
234. Genesis submitted that irrespective of whether the asset is used to supply regulated services, if it is beyond the meter the asset is in a different market to the network itself and the Commission should not be regulating the asset as there is competition in these markets. Genesis stated that the Commission should remove this decision from this process and allow more time for discussion with stakeholders and collection of evidence on the impacts of its approach.¹⁹⁸
235. Meridian argued that Parliament only ever contemplated electricity lines services to be provided by poles and wires, not by batteries. In Meridian's view, the Commission's position fails to recognise the point at which a regulated provider has ceased to provide the regulated service contemplated by Parliament and is now providing something else instead.¹⁹⁹
236. By contrast, other parties agreed with our technology neutral approach.²⁰⁰ The ENA submitted that excluding batteries from the scope of lines would have perverse effects.²⁰¹ For example, other non-lines related assets would also be excluded (like office chairs) because they did not fall within the definition of 'lines'.²⁰² PwC submitted that it agreed with the Commission's position and to narrow the interpretation to just 'lines' would be unworkable and would prevent innovation.²⁰³

¹⁹⁶ Alan Lear (report prepared for ERANZ) "Input methodologies review: Treatment of emerging technologies in the electricity industry under Part 4 of the Commerce Act 1986: legal definition and interpretation of electricity lines services" (4 August 2016), para 5.

¹⁹⁷ Alan Lear (report prepared for ERANZ) "Input methodologies review: Treatment of emerging technologies in the electricity industry under Part 4 of the Commerce Act 1986: legal definition and interpretation of electricity lines services" (4 August 2016), para 22-24.

¹⁹⁸ Genesis "Input methodologies review draft decisions – Topic paper 3: The future impact of emerging technologies in the energy sector" (4 August 2016), p. 3.

¹⁹⁹ ERANZ also submitted that the Commission's interpretation was beyond the scope of what had been defined by Parliament.

²⁰⁰ For example, see: PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 209; and Vector "Vector cross submission on IM review submissions" (18 August 2016), para 11.

²⁰¹ ENA "Submission on IM review: emerging technologies" (4 February 2016), para 19 and 48.

²⁰² Orion submitted that a narrower view would exclude core activities like business support services.

²⁰³ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 210.

237. Russell McVeagh, for the ENA, submitted that Alan Lear's opinion misunderstands the correct legal position. Russell McVeagh argued, in line with the Commission's position, that an asset does not have to fall within the statutory definition of lines in order for it to be included in the RAB as a cost of providing the regulated service, but rather, it is the use of the asset that is the relevant question that determines whether it is in the RAB.²⁰⁴

Our conclusion

238. We have considered submissions and remain of the view that our approach to defining the regulated service, as set out in detail in the pre-workshop paper, is appropriate.
239. First, the focus of the definition of the regulated service is on the service provided, not on the specific types of assets being used to provide the regulated service. This also means that the type of asset being used is not important, that is, we consider that the Act is technology neutral. In terms of Meridian's argument, the approach taken in the Act means that it does not matter whether a pole, wire or battery is used in delivering the regulated service, but rather that the regulated service itself is delivered and the costs for the delivery of the regulated service are accounted for.
240. In response to Genesis' submission,²⁰⁵ as set out above, the approach taken in s 54C has a broad inclusory approach to the definition of "lines", with specific and limited exclusions provided for. Given this, it is our view that Parliament has in fact addressed the possibility of competition in the exclusions set out in s 54C(2)(c).
241. As set out in examples in the pre-workshop paper, an asset can be used to provide both regulated and non-regulated services. For example, consider the situation where an EDB owns and controls a battery 'behind the meter' on a consumer's premises for the purposes of load control on the distribution network, to avoid or defer capital expenditure in relation to the conveyance of electricity to the point of supply. In this situation, while the asset is physically located beyond the point of supply, it is clearly being used for, or in support of, the conveyance of electricity to the point of supply. This is in contrast to a situation where a battery is used and controlled by the consumer only, and is not being "used in association with" conveyance of electricity to the point of supply.

²⁰⁴ Russell McVeagh (report prepared for ENA) "Review of Alan Lear advice on definition of electricity lines services" (18 August 2016), para 22.

²⁰⁵ See paragraph 234 above.

242. In this regard, in reference to Alan Lear's opinion, he considers the key question to be whether or not storage batteries are precluded from falling within the relevant exception in the "electrical installation" definition. However, we consider the key question to be whether the storage battery is used for, or in support of, the regulated service (ie, the conveyance of electricity by line). If the answer is yes, in our view the storage battery may be included in the RAB. It is not the nature of the storage battery itself (ie, that it is a storage device) that determines whether it may be included in the RAB.
243. Where an asset is used to provide both regulated and unregulated services, suppliers must apply the cost allocation IMs to determine the appropriate treatment of costs and revenues attributable to the use of the battery for regulated services. This means that even if the battery is also being used to provide services in a competitive market, as argued by Genesis, where the battery is being used for the provision of the regulated service, an appropriate portion of costs can be allocated to the RAB.
244. In this respect, it is important to note that, while suppliers have some discretion on the assets they use to support the regulated service, the onus of proof is on them to justify that the costs and revenues attributed to those assets relate to the delivery of the regulated service and have been allocated in the appropriate proportions.
245. Second, in our view there is no requirement that all assets used to support the conveyance of electricity by line must themselves be 'lines'. The definition of 'line' in the Electricity Act is incorporated into 'electricity lines services' "unless the context otherwise requires." Thus, 'line' must be interpreted in the context of the purpose of Part 4 when used in relation to the definition of the regulated service. In our view, it is unlikely that this term, which excludes certain classes of assets, is intended to operate to restrict the scope of the regulated service under Part 4.
246. This is supported by the practical application of the term: if the exclusions in the Electricity Act definition operated to exclude 'non-lines' assets legitimately used to support the regulated service, equipment such as office chairs, printers and telephones, which are legitimately used to support the regulated service, would be excluded. That is why the IMs allow such equipment to form part of the RABs of EDBs (and other regulated entities).
247. Overall, it is the *use* of an asset in supplying the regulated service which, under the asset valuation IMs, determines whether or not the asset may be included in the RAB, and if so, the cost allocation IM determines in what proportion.

Incentives on suppliers to act in the best interest of consumers

248. Our emerging technology pre-workshop paper recapped what and how we regulate. A fundamental attribute of our regulatory regime is that it incentivises EDBs to improve efficiency.²⁰⁶ The basic way in which we do this is by capping the revenues that EDBs can recover from customers of the regulated service. We do that at the start of the five-year regulatory period, and that cap remains until revenues are reset prior to the next regulatory period.
249. By capping revenues, EDBs are incentivised to find more cost-effective ways of delivering the regulated service.
250. Contact raised a concern that EDBs may not have incentives to realise the full value of investments, to the detriment of consumers (see paragraph 179 above).²⁰⁷ We do not see why an EDB would not seek to derive the full benefit from their investments, regardless of whether they are used in the provision of the regulated or the unregulated service. They have an incentive to do so, and consumers of both regulated and unregulated services benefit as a result, since the costs of the investment are allocated to both services under ABAA.
251. An additional concern raised by Contact was that EDBs may be able to earn additional returns from assets included in the RAB (eg, from ancillary services) without consequential adjustments to the regulated return (see paragraph 180 above). Our cost allocation IM is designed to address this issue by, on the one hand, balancing the requirement not to unduly deter investment by suppliers of regulated services in other goods and services, and on the other hand, ensuring that efficiency gains are shared with consumers of the regulated service.

²⁰⁶ This is recognised as being part of the purpose of Part 4 regulation in s 52A(1)(b) of the Commerce Act.

²⁰⁷ We understand that an example of Contact's concern could be where an EDB invests in an asset (eg, a grid-scale battery) that can be used to deliver both regulated and unregulated services, but the EDB only uses it to deliver regulated services. In this case, consumers of the unregulated service would not benefit from the investment.



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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to explain in relation to the cost of capital topic:
- X1.1 the issues we have identified within this topic area;
 - X1.2 our responses to these issues, which include changes to the input methodologies (**IMs**);
 - X1.3 the reasons for our responses;
 - X1.4 the steps we have taken to ensure that all the parameters remain fit for purpose given changes in the overall environment faced by suppliers since the IMs were originally set; and
 - X1.5 how we have taken stakeholders' submissions into account in considering the above and in reaching our decisions presented in this paper.
- X2. This paper relates to electricity distribution businesses, gas transmission business, gas distribution businesses, Transpower and regulated airports.

Overview of the cost of capital topic

- X3. We have reviewed our cost of capital IM and consider it remains broadly fit for purpose. Our review included:
- X3.1 re-examining the case for a trailing average cost of debt in response to the substantive stakeholder submissions on this;
 - X3.2 examining a proposal by the Major Electricity Users' Group (**MEUG**) for a cross-check with Black's Simple Discounting Rule;
 - X3.3 examining the issues raised by the High Court (ie, alternative models, split cost of capital, and the term credit spread differential (**TCSD**));
 - X3.4 updating our estimates of beta and leverage to reflect more up-to-date information of the observed beta and leverage for comparable companies;
 - X3.5 considering whether any adjustment to beta is required in light of our changes to the form of control for electricity distribution businesses (**EDBs**); and
 - X3.6 reviewing key parameter estimates such as tax adjusted market risk premium (**TAMRP**) in light of updated information.

- X.4. Table X1 summarises the areas in this topic where our analysis has led us to changes to the IMs, and the reasons for those changes. As can be seen in the table, we have primarily made changes that we consider improve our estimate of a weighted average cost of capital (**WACC**) and ensure that it remains fit for purpose. A better estimate of WACC helps to promote the purpose of Part 4 (**Part 4**) of the Commerce Act 1986 (the **Act**) by ensuring that suppliers have appropriate incentives to invest. There are other issues that we have considered in relation to this topic which have not resulted in changes. These issues are discussed as part of the following chapters in this paper.

Table X1: Summary of changes in relation to the cost of capital compared to the pre-review IMs

Change	Outcomes of the change	Chapter
<p>Continue to estimate the risk-free rate using prevailing rates, but use three months of data instead of one month.</p>	<p>We consider that prevailing rates still better achieve the Part 4 purpose and the potential dynamic efficiency benefits of investment, than the use of historic rates. However, it is possible that using a one month determination window may have some distortionary effects if there are significant hedging activities by regulated suppliers, so we have increased the determination window to three months.</p>	<p>This change is discussed in Chapter 3.</p>
<p>Modify the debt premium methodology implementation by:</p> <ul style="list-style-type: none"> • using a five-year historical average to estimate the debt premium, rather than the previous prevailing approach; • applying no annual updating; • retaining a five-year original term for the risk-free rate and debt premium estimates and by applying a TCSD; • relaxing the government ownership limitation on relevant bonds; and • having regard to the Nelson-Siegel-Svensson (NSS) curve. 	<p>We have decided it is appropriate to protect suppliers and consumers against significant temporary changes in the debt premium by applying a historical average.</p> <p>Relaxing the government ownership limitation increases the size of the core sample of bonds used to determine our debt premium estimate, helping alleviate difficulties associated with the small pool of relevant corporate bonds that we currently rely on.</p>	<p>This change is discussed in Chapter 3.</p>

Change issuance costs from 35 basis points (bps) (0.35%) p.a. to 20 bps (0.20%) p.a.	We consider, on the basis of the evidence now available, that an allowance for debt issuance costs of 20 bps is appropriate to cover the costs of issuing NZ domestic corporate bonds and the costs of any required swaps.	This change is discussed in Chapter 3.
Remove an allowance for swap costs from the TCSD and include it as part of the debt issuance costs.	Reduces the administrative burden on suppliers.	This change is discussed in Chapter 3.
Change the asset beta for EDBs and Transpower from 0.34 to 0.35.	This reflects updated comparator sample analysis. ¹	This change is discussed in Chapter 4.
Change the asset beta upwards adjustment for GPBs – from 0.10 to 0.05. Therefore, change the asset beta estimate for GPBs – from 0.44 to 0.40.	Based on additional evidence, we now consider an uplift of 0.05 is appropriate, rather than the previous uplift of 0.10.	This change is discussed in Chapter 4.
Change the leverage estimate for EDBs and GPBs – from 44% to 42%.	We have updated our estimates of leverage to reflect more up-to-date information of the observed leverage for comparable companies.	This change is discussed in Chapter 4.
Change the leverage estimate for airports – from 17% to 19%.	We have updated our estimates of leverage to reflect more up-to-date information of the observed leverage for comparable companies.	This change is discussed in Chapter 4.

¹ Note that our estimate for asset beta has been updated since the draft decision due a correction of spreadsheet errors for weekly estimates, and minor refinements to the comparator sample in response to submissions.

<p>Retain the TCSD allowance for energy businesses but remove for airports.</p> <p>Modify the methodology of the TCSD so that it uses a fixed linear relationship to determine the additional debt premium associated with debt issued with an original maturity term of more than five years.</p>	<p>The TCSD has been removed for airports because the additional TCSD allowance for bonds with an original tenor longer than five years is offset by a consequential reduction in debt issuance costs.</p> <p>For energy businesses we have estimated a (positive) fixed linear relationship between the TCSD allowance and the original tenor of the debt, from historical market data. This ensures that the intent of the TCSD (that additional compensation is provided for issuing longer-term debt) is met.</p> <p>The revised approach removes the requirement on suppliers to obtain market pricing information associated with individual debt issuances when estimating the TCSD, which reduces the complexity of the TCSD.</p>	<p>This change is discussed in Chapter 3.</p>
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- X5. This topic paper forms part of our package of decision papers on the IM review. As part of the package of papers, we have also published:
- X5.1 a summary paper of our decisions;
 - X5.2 an introduction and process paper, which provides an explanation of how the papers in our decisions package fit together;
 - X5.3 a framework paper, which explains the framework we have applied in reaching our decisions on the IM review;
 - X5.4 a Report on the IM review, which records our decisions on whether and how to change the IMs as a result of the IM review overall; and
 - X5.5 amendment determinations, which give effect to our decisions.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to explain in relation to the cost of capital topic:
 - 1.1 the issues we have identified within this topic area;
 - 1.2 our responses to these issues, which include changes to the input methodologies (IMs);
 - 1.3 the reasons for our responses;
 - 1.4 the steps we have taken to ensure that all the parameters remain fit for purpose, given changes in the overall environment faced by suppliers since the IMs were originally set; and
 - 1.5 how we have taken stakeholders' submissions into account, in considering the above, and in reaching our views presented in this paper.

Where this paper fits in to our package of decisions papers

2. This topic paper forms part of our package of decision papers on the IM review. For an overview of the package of papers and an explanation of how they fit together, see the introduction and process paper published as part of our decision package.²
3. This paper explains our responses to the issues identified within the cost of capital topic.
4. To the extent our approaches involve changes to the IMs, this paper explains how we have changed our previous IM decisions to account for issues within this topic area. The report on the IM review then collates our changes to the previous IMs and presents them as decisions to change the IMs.³
5. Our drafting changes to the IMs, including any resulting from this topic area, are shown in the amendment determinations.
6. The framework we have applied in reaching our decisions on the IM review is set out in a separate paper, published alongside this paper.⁴ The framework paper explains that we have only changed the IMs where this is likely to:
 - 6.1 promote the Part 4 purpose in s 52A more effectively;

² Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

³ Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

⁴ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

- 6.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 6.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
7. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.

Structure of this paper

8. This paper is divided into chapters, each addressing a series of identified issues within the cost of capital topic. Each of the chapters broadly follows the following structure:
- 8.1 description of the issue and how it was identified;
 - 8.2 explanation of whether we have made changes in response to the issue;
 - 8.3 explanation of our assessment of other potential responses to the issue; and
 - 8.4 explanation of how we have updated the other cost of capital parameters in that section.
9. In describing the issues and assessing potential responses, we explain how we have taken stakeholders' submissions into account and how they have helped to shape our decisions.

Introduction to this topic

10. The cost of capital is the expected financial return investors require from an investment given its risk. A more detailed explanation of what the weighted average cost of capital (**WACC**) is, the role it plays in Part 4 regulation, and how it is calculated, can be found in Chapter 2.
11. We identified a number of issues through consultation on our problem definition paper,⁵ cost of capital update paper,⁶ and the High Court's comments in the 2010 IM judgment.⁷ We have sought to address these issues and detail our approaches at the beginning of each chapter.
12. Dr Martin Lally has provided us with advice on a number of cost of capital issues including the cost of debt, asset beta adjustments, the tax adjusted market risk

⁵ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).

⁶ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015).

⁷ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289.

premium (**TAMRP**), Regulated Asset Base (**RAB**) indexation and inflation risk. We published his two reports, one in February,⁸ and one in May,⁹ and considered his advice and the submissions we received on that advice, when forming our draft decisions. Dr Lally has also provided us with further advice on these issues, which has helped us form our decisions, and we have published his latest report alongside this topic paper.¹⁰

13. As we indicated in our problem definition paper, we also need to determine specific values of the key parameters of the WACC calculation. We have sought to ensure that the parameters remain fit for purpose given changes in the overall environment faced by suppliers since the IMs were originally set. The availability of more recent data has also helped to provide a better estimate for these parameters.¹¹ The discussion of these parameters and our reasoning for any amendments to them follow the discussion of the identified issues in each chapter.

Who does this paper apply to?

14. This paper applies to:
 - 14.1 Electricity Distribution Businesses (**EDBs**);
 - 14.2 Gas Transmission Businesses (**GTBs**);
 - 14.3 Gas Distribution Businesses (**GDBs**);
 - 14.4 Transpower; and
 - 14.5 regulated airports.

⁸ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016).

⁹ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016).

¹⁰ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016).

¹¹ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), p. 60.

Chapter 2: Context

Purpose of this chapter

15. The purpose of this chapter is to provide an introduction to:
 - 15.1 the WACC;
 - 15.2 our previous IM for estimating the cost of capital and its key parameters;
 - 15.3 the role of the cost of capital IM in Part 4 regulation; and
 - 15.4 our review of the cost of capital IM, including our review of the issues identified by the High Court and the changes we have made.

What is the weighted average cost of capital?

16. The cost of capital is the expected financial return investors require from an investment given its risk. Investors have choices, and will not invest in an asset unless the expected return is at least as good as the return they would expect to get from a different investment of similar risk. The cost of capital is an estimate of that expected rate of return.
17. Our WACC estimates are used in conjunction with regulatory asset values to determine the return on capital for each supplier subject to price-quality path regulation. The return on capital is one component of the building blocks allowable revenue for each supplier.
18. The WACC reflects the cost of debt and the cost of equity, given the mix of debt and equity. There is a post-tax WACC and a vanilla WACC. The former includes the after-tax cost of debt; the latter includes the cost of debt before tax, as shown in the following equations.

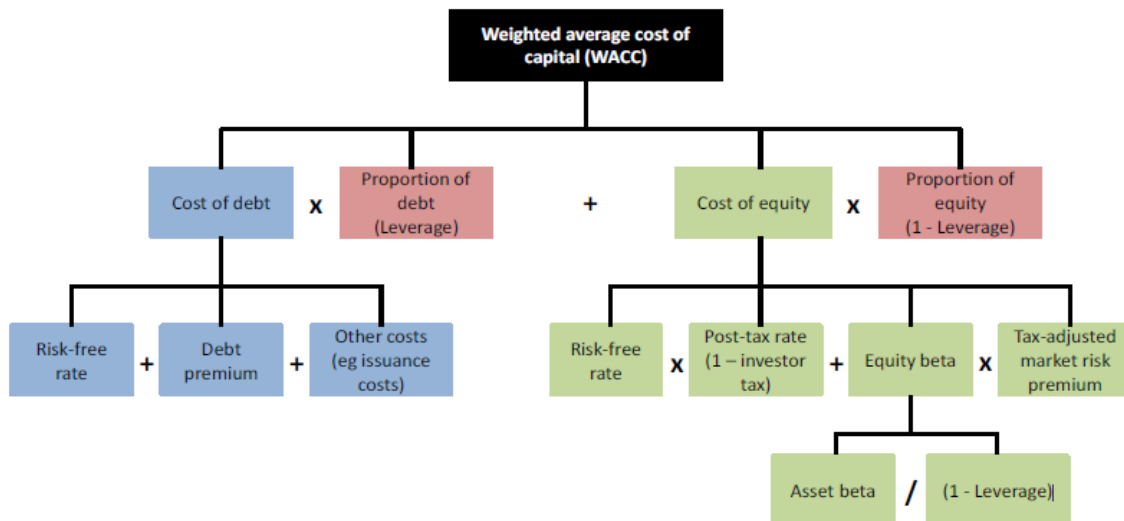
$$\text{Post-tax WACC} = \text{cost of debt (after tax)} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$$

$$\text{Vanilla WACC} = \text{cost of debt} \times \text{leverage} + \text{cost of equity} \times (1 - \text{leverage})$$

19. Post-tax WACC estimates are more frequently used in New Zealand, and more easily understood by interested persons, than vanilla WACC estimates. However, the use of vanilla WACC estimates is consistent with the IM's approach to regulatory tax for default price-quality paths (**DPPs**) and customised price-quality paths (**CPPs**). Accordingly, vanilla WACC estimates are currently used for DPPs, CPPs, and individual price-quality paths (**IPPs**), while both vanilla WACCs and post-tax WACCs are estimated for the purposes of information disclosure (**ID**) regulation.

20. A number of parameters must be calculated to derive our estimates. These are as set out in Figure 1, below.

Figure 1: WACC and its parameters



21. There are two main types of capital: debt and equity capital. Both have a cost from the perspective of the entity that is seeking funds from investors. For debt, it is future interest payments. For equity, it is the expectation of dividend payments by the firm, and where profits are retained and reinvested, the expectation of larger dividend payments by the firm sometime in the future.
22. WACC reflects the cost of debt and the cost of equity, and the respective portion of each that is used to fund an investment.
23. WACC is estimated because it cannot be observed directly. The relevant estimate is the market’s view of the cost of capital for providing the service, not the cost of capital specific to one supplier, or a supplier’s view of its cost of capital for that service.
24. If suppliers of a regulated service have similar exposure to systematic risk to each other, then we should, in principle, apply a ‘benchmark’ or service-specific cost of capital for all suppliers of the regulated service. On the other hand, if suppliers have a materially different exposure to systematic risk then we should, in principle, apply a supplier-specific cost of capital for each supplier of the regulated service.¹²
25. In 2010 we identified the parameters in the cost of capital estimation that could be considered on a supplier-specific basis as leverage, debt premium, and the equity (or asset) beta. In making our decisions for electricity distribution services and gas pipeline services, we considered each of these parameters individually and

¹² Further discussion on the exposure of suppliers to systematic risk is provided in Chapter 4.

concluded that service-specific estimates would be more appropriate for each of them. We continue to consider that service-specific estimates are more appropriate for these parameters.

What is the cost of capital input methodology?

26. Our cost of capital IM comprises two parts.
 - 26.1 The first and most significant component is a methodology for calculating WACC. The WACC is determined for each regulated service and applies to all regulated suppliers of that service.
 - 26.2 The second component is the term credit spread differential (**TCSD**) (explained in paragraph 52), which is treated as a separate component because it will apply to qualifying firms only.
27. The cost of capital IM is used to produce estimates of the cost of capital for regulated services on a forward-looking basis. That is, it reflects expectations of the returns required in the future, which cannot be observed in advance. The estimate of the cost of capital is used to assess the profitability of regulated suppliers (in ID regulation) and as an input in setting price-quality paths.

How is the WACC component of the cost of capital IM estimated?

28. The estimation of the cost of capital is not a mechanical task. The available tools used to estimate the cost of capital are imperfect; the data can be hard to obtain or unreliable and can change over time; older data can be reinterpreted in new ways and newer data may call into question previous assumptions.
29. To determine the methodology for estimating the cost of capital, and to assure ourselves that the estimate is reasonable and meets the Part 4 purpose and the purpose statements for ID regulation and price-quality regulation, we therefore have to exercise a degree of judgement.
30. In estimating the current WACC methodology, we carefully considered the effect of a number of choices individually and in combination to estimate the cost of capital based on current market conditions. We then tested the resulting estimate of the cost of capital against a range of market information to ensure the IM is reasonable and commercially realistic, in the context of how the cost of capital is to be applied in regulation under Part 4.
31. The cost of capital IM does not specify the cost of capital for a regulated service directly. Rather, it sets out the methodology for determining the cost of capital for each service. Some parts of the IM specify values for certain parameters, such as tax rates, while other parts specify a methodology for obtaining estimates where information is constantly changing, such as interest rates. We explain in more detail how the cost of capital IM estimates these parameters below.

32. In addition to estimating all of the relevant parameters, we must assess the risk associated with setting the WACC too high or too low. We consider that the costs of our WACC estimate being wrong are asymmetric, and as a result, we increase the WACC used for price-quality regulation by using a percentile higher than the mid-point estimate.¹³
33. The final part of our review is to conduct reasonableness checks to test whether our application of the IM will produce commercially realistic estimates of the cost of capital. The reasonableness checks are intended to help identify any potential oddities in our estimates, which would suggest modifications should be made to the cost of capital IMs. The reasonableness checks we have undertaken are very similar to those used in the 2010 IMs reasons paper,¹⁴ and the 2014 WACC percentile reasons paper.¹⁵

Cost of debt

34. Debt is an important source of capital for many businesses. We estimate the cost of debt by observing the interest rate paid by the New Zealand Government, and the additional premium corporate borrowers pay to compensate investors for the additional risks of lending to them (relative to the Government). We also allow for the costs of issuing debt (for example, to cover roadshows and legal fees), and the cost of entering interest rate swaps to shorten the term of part of the cost of debt and better align it to the length of the regulatory period.
35. Our estimate of the cost of debt comprises three parameters:
- 35.1 the risk-free rate;
 - 35.2 the debt premium; and
 - 35.3 debt issuance costs.¹⁶
36. The risk-free rate is the rate of interest expected when there is no risk of default. Debt issued by the New Zealand Government and denominated in New Zealand dollars is considered to be free of default risk. The rate of interest on government issued debt can generally be readily observed from trading on the debt market.
37. The debt premium is the additional interest rate, over and above the risk-free rate, required by suppliers of debt capital to compensate them for being exposed to the

¹³ Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016) explains our draft decision to publish a midpoint WACC and standard error for airports information disclosure regulation, rather than the 25th to 75th percentiles.

¹⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010).

¹⁵ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

¹⁶ We have included an allowance for swap costs as part of debt issuance costs.

risks of default in lending to a firm, plus an allowance for the inferior liquidity of corporate bonds relative to government bonds. In general, the longer the firm wishes to borrow the debt for, the higher the debt premium that the firm has to pay to the suppliers of debt capital.

38. Firms incur costs when raising new debt. These costs are not reflected in the debt premium but are an inherent cost of raising the debt finance needed to support an ongoing business. We consider these costs should be included in the cost of capital for regulated suppliers.
39. Firms have a mix of debt maturities to manage refinancing risk, including issuing long-term debt. This spreads a firm's refinancing requirements over a longer period and reduces the amount of debt that needs to be refinanced in any one year. Reducing refinancing risks has benefits for consumers, but long-term debt typically has a greater cost than medium or short term debt.
40. Firms are able to manage movements in the risk-free rate by using an interest rate swap. An interest rate swap enables a supplier, if it wishes, to cover the cost of aligning the interest rate setting to the price setting. We consider that some degree of hedging activity by suppliers can be beneficial to consumers, as it can enable suppliers to both reduce their risk exposure and lower interest costs (to the extent that it reduces the term over which suppliers have fixed interest payments). We have therefore included an allowance for the costs of entering interest rate swaps, as part of the debt issuance costs.

Cost of equity

41. Equity is the second main source of capital. The difficulties in estimating the cost of equity are greater than in estimating the cost of debt.¹⁷ The cost of equity, and most of its components, cannot be directly observed, so they have to be estimated based on an analytical model.
42. The cost of equity is higher than the cost of debt as equity holders take on more risk than debt holders (taking account of the different taxation treatments that may apply). There is a significant variation in risk between firms in different sectors of the economy.
43. There are a number of methods to estimate the cost of equity including the Capital Asset Pricing Model (**CAPM**), the dividend growth model and the Fama-French three factor model. Of these, the CAPM is the most commonly used.

¹⁷ The cost of equity, expressed as a rate of return, is the discount rate implicit in the price at which equity can be raised (given the investors' expectations of future cash-flows which they will derive or have claim to). This discount rate cannot be directly observed or calculated because the investors' true expectations cannot be directly observed.

44. The CAPM proposes that the cost of equity can be modelled as comprising a risk-free component and a premium for risk. Under the CAPM, the size of the premium for risk increases in line with increases in the firm's exposure to systematic risk (with a measure of this risk, which is referred to as beta). Systematic risk refers to market-wide risks which affect all risky investments. Non-systematic risk refers to risks which affect an individual company.
45. The Brennan-Lally CAPM (Dr Lally's adaptation for New Zealand circumstances of a CAPM model elaborated by Brennan) was developed to reflect New Zealand's taxation system. Specifically, it recognises the presence of imputation credits and the general absence of taxes on capital gains. There is an extended form of the Brennan-Lally CAPM and a simplified version, but it is the simplified Brennan-Lally CAPM (**SBL-CAPM**) that has become the dominant form of the CAPM used in New Zealand. Indeed, in New Zealand the term SBL-CAPM has become largely synonymous with the generic term CAPM, and the terms are frequently used interchangeably.
46. The market risk premium (**MRP**) represents the additional return, over and above the risk-free rate, that investors look for to compensate them for the risk of holding a portfolio of average risk (more precisely the market portfolio which is the average risk portfolio).
47. Under the SBL-CAPM, the MRP is adjusted for tax faced by the investor on equity returns; therefore the MRP becomes the tax adjusted MRP (**TAMRP**).
48. Beta is a measure of exposure to systematic risk. Systematic risk measures the extent to which the returns on a company fluctuate relative to the equity returns in the stock market as a whole. If an investment had no systematic risk (ie, it would show no correlation with returns on the market), its equity beta would be zero. If an investment in the equity of a company is of average risk, the equity beta will be 1. This means that the premium over the risk-free rate that equity investors expect will be the same as the average for the overall market (the TAMRP).
49. Historic beta is estimated empirically. As the cost of capital is intended to be forward-looking, forward-looking betas are required. As there is no reliable way to forecast betas, we assume that historic beta estimates are indicative of future betas. Historic estimates of average betas are used as beta is expected to be relatively stable over time.

Other WACC parameters

50. Tax situations specific to particular investors do not, in principle, affect the cost of capital. Taxes are borne by the individuals themselves, not by the firms of which they are shareholders. Therefore, the cost of capital IM does not provide for the tax circumstances of individual investors (accumulated tax losses, inability to use imputation credits). We mirror the statutory tax rate for corporate tax and the maximum prescribed investor rate under the Portfolio Investment Entities (**PIE**) regime for investor tax.

51. Leverage refers to the mix of debt and equity capital that is used to fund an investment. Leverage is used in two places in estimating the cost of capital. One use is to re-lever the asset beta into an equity beta (and vice versa). The second use is to derive a WACC from the estimates of the cost of debt and the cost of equity.

How is the term spread credit differential component of the cost of capital IM estimated?

52. The cost of capital IM includes a TCSD allowance to compensate suppliers for the additional debt premium that can be incurred from issuing debt with a longer original tenor than the five-year regulatory period.
53. Although the TCSD is conceptually a component of the cost of capital, it is treated as an adjustment to cash-flows and is only available to suppliers who have issued long-term debt to prudently manage their refinancing risks.
54. The TCSD is calculated by way of a formula that combines:¹⁸
- 54.1 the additional debt premium associated with each issuance of debt that has an original term to maturity in excess of over the five-year debt premium (the 'spread premium');¹⁹ and
 - 54.2 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.²⁰

The role of the cost of capital IM in Part 4 regulation

55. Section 52T(1)(a)(i) requires the IMs relating to particular goods or services to include, to the extent applicable under the relevant type of regulation, an IM for the cost of capital. The cost of capital is the financial return investors require from an investment given its risk.
56. The cost of capital IM plays a significant role in promoting the s 52A purpose.²¹ Because the actual cost of capital of regulated suppliers is not observable, we must make an estimate. The cost of capital IM seeks to estimate a cost of capital that is reasonable and commercially realistic given investors' exposure to risk. This ensures expectations are for a real rate of return consistent with our principle of financial capital maintenance (**FCM**) and s 52A.²²
57. Due to the estimation difficulties described at paragraph 28, determining a cost of capital IM that estimates a cost of capital which is neither too high, nor too low, so

¹⁸ As discussed in Chapter 3, we have modified the methodology of the TCSD as part of this review.

¹⁹ This debt is called 'qualifying' debt.

²⁰ We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

²¹ For a more detailed discussion of the s 52A purpose see: Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

²² The FCM principle is discussed in the framework paper referred to in the footnote above. It is often referred to in this paper, and in Dr Lally's advice, as the 'NPV=0' principle.

that the objectives in s 52A(1)(a) to (d) are balanced appropriately, is a difficult task and one that involves significant amounts of judgement.

58. We consider that where improvements to data or economic or regulatory practice have occurred, with the consequence that we are now better able estimate the cost of capital, making those changes will better promote the s 52A purpose.

Our review of the cost of capital IM

59. As part of the IM review process, through our problem definition paper and cost of capital update paper, and through comments from the High Court, we identified a number of important issues that we prioritised in reviewing the cost of capital IM. In addition to these identified issues, we have also sought to ensure that all the parameters remain fit for purpose given changes in the overall environment faced by suppliers since the IMs were originally set.
60. The High Court considered that the following aspects of the cost of capital IMs should be part of any future IM review:
- 60.1 the appropriateness of using the 75th percentile of the WACC in price-quality regulation;²³
 - 60.2 the suitability of using the SBL-CAPM to estimate the cost of capital given the 'leverage anomaly', and whether alternative approaches could be considered;²⁴
 - 60.3 whether a TCSD is required;²⁵ and
 - 60.4 to consider Major Electricity User's Group (**MEUG**)'s suggestion of a split cost of capital approach whereby a higher WACC is applied to new investment.²⁶
61. We considered the High Court's scepticism about the rationale for the 75th percentile to be the most significant comment. We considered that the judgment led to uncertainty over the future WACC percentile to be used in setting price-quality paths. In our view, the uncertainty it created undermined the rationale for using a percentile higher than the mid-point, although prices were set to reflect use of the 75th percentile.
62. Given this uncertainty, we examined this particular matter urgently under s 52X, rather than waiting for the current s 52Y review. The completion of that review for gas and electricity businesses in October 2014 (the WACC percentile amendment) resulted in a reduction in the percentile used for price-quality regulation in these two

²³ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1486].

²⁴ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1594-1661].

²⁵ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1288].

²⁶ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1486].

sectors from the 75th to 67th percentile.²⁷ The rationale for the amendment and the reasons for the change can be found in the final reasons paper for that amendment.²⁸ We have seen no evidence since the completion of the percentile amendment that indicates that we should change the percentile used.²⁹

63. We also identified an issue regarding the divergence between the revised CPP and the existing DPP WACC, which potentially affected the incentives to apply for a CPP. Our approach, which is discussed in Chapter 6, is to remove the requirement to determine a CPP-specific WACC.
64. We have updated the asset betas for EDBs, GPBs, Transpower and regulated airports by following largely the same approach as in 2010. We updated the comparator samples used, and the time periods considered, to reflect additional data not available in 2010. As discussed in Chapter 4, we have adopted an unadjusted asset beta of 0.35 for EDBs and Transpower, an adjusted asset beta of 0.40 for GPBs, and an adjusted asset beta of 0.60 for airports.
65. We have also reconsidered whether to continue with adjustments to the asset betas to reflect differences in regulatory regimes and systematic risks. As discussed in Chapter 4, we have made no adjustment for regulatory differences for EDBs, GPBs, Transpower and airports. Also discussed in Chapter 4, we have reduced the asset beta uplift for GPBs from 0.10 to 0.05.
66. We have reviewed the efficacy of the TCSD as suggested to us by the High Court, and addressed a number of implementation issues with our approach by making two modifications, which are discussed in Chapter 3.
67. MEUG suggested that we should use Black's simple discounting rule (**BSDR**) as an alternative method to estimate a benchmark return, or as a sense check. We consider that the BSDR is an intuitively appealing method from which to assess the appropriate rate of return for a regulated business. However, there are a number of challenges that would need to be overcome before we could use it to provide material benefit in our regulatory regime. As a result, we will not use BSDR as a cross-check on the WACC until some of the identified issues have been resolved.

²⁷ We reached our decision on the WACC percentile amendment for price-quality regulation in October 2014. Our decision in respect of information disclosure for electricity and gas businesses followed in November 2014.

²⁸ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

²⁹ The October 2014 WACC percentile amendment did not consider the WACC percentile range that was applied to airports. We have therefore reviewed the impact on airports as part of the current IM review and our decisions in this area are provided in Topic paper 6. Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

68. Having conducted our review, we have made the following changes to the cost of debt:
- 68.1 continued to use the prevailing risk-free rate, but use three months of data instead of one month;
 - 68.2 modified the debt premium methodology implementation by:
 - 68.2.1 using a historical approach that uses an average of five years of debt premium estimates;
 - 68.2.2 constraining the government ownership limitation on comparator bonds to those which are 100% government-owned (rather than majority government-owned); and
 - 68.2.3 have regard to the NSS curve as something we will consider when estimating the debt premium.
 - 68.3 changed issuance costs from 35 basis points (0.35%) p.a. to 20 basis points (0.20%) p.a.; and
 - 68.4 removed an allowance for swap costs from the TCSD and included it as part of the debt issuance costs.
69. We have made the following changes to the cost of equity:
- 69.1 changed the asset beta estimate for EDBs and Transpower – from 0.34 to 0.35;³⁰
 - 69.2 changed the asset beta estimate for GPBs – from 0.44 to 0.40 (because we have changed the asset beta adjustment for GPBs – from 0.10 to 0.05);
 - 69.3 changed the leverage estimate for EDBs, Transpower, and GPBs – from 44% to 42%; and
 - 69.4 changed the leverage estimate for airports – from 17% to 19%.
70. We have made the following implementation change to the TCSD:
- 70.1 used a fixed linear relationship to determine the additional debt premium associated with debt issued with an original maturity term of more than five years for electricity and gas companies;
 - 70.2 no longer included an allowance for swap costs as part of the TCSD; and

³⁰ We have also changed the standard error of the asset beta for EDBs and Transpower from 0.13 to 0.12, and the standard error of the asset beta for GPBs from 0.14 to 0.12.

70.3 removed the TCSD for airports.³¹

71. We will no longer publish a 25th and 75th WACC percentile estimate for airports. The change is to calculate a mid-point WACC estimate for the quarters that do not align with WACC estimates currently calculated for ID. We will publish these additional estimates either when requested by an airport, or after an airport's price setting event. This issue is discussed in Topic paper 6.³²
72. Most of our changes are because we consider that they enable us to better estimate a cost of capital that is reasonable and commercially realistic while maintaining consistency with s 52R and not increasing complexity or compliance costs. As discussed, our view is that a better cost of capital estimate promotes the s 52A purpose.
73. We have also made a number of our decisions because we consider that they reduce complexity (eg, the simplification of the TCSD implementation), reduce compliance costs (eg, amendments to the debt premium methodology) or enhance the certainty of an IM (eg, asset beta and leverage) without negatively affecting the promotion of the s 52A purpose.

³¹ The TCSD applied to airports is not defined in the input methodologies. Instead it is defined in the information disclosure determination. The changes to the information disclosure determination published alongside the IM review decision are only ex ante amendments, ex post will be considered as part of a separate process.

³² Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

Chapter 3: Cost of debt

Purpose of this chapter

74. The purpose of this chapter is to explain our decisions on the main issues raised in relation to the cost of debt, including any changes we have made to both:
- 74.1 the pre-review IMs; and
 - 74.2 our proposals in the draft decision and Technical consultation update paper (TCUP).³³

Structure of this chapter

75. This chapter begins with a summary of the main changes to the IMs with respect to the cost of debt, including any changes to our position since the draft.
76. This chapter then discusses the key areas raised in the review of the cost of debt, and explains our decision on each aspect of those key areas. Each section of this chapter begins with the issues for energy businesses and then details any differences for airports.
77. The key areas covered in this chapter are:
- 77.1 consideration of a trailing average approach to estimate the cost of debt;
 - 77.2 other aspects of our debt premium methodology;
 - 77.3 the TCSD;
 - 77.4 debt issuance costs; and
 - 77.5 other matters related to estimating the cost of debt.

Summary of changes to the pre-review IMs

78. Following consideration of submissions to our draft decision, a summary of the changes we have made to the pre-review IMs related to the cost of debt are:
- 78.1 to keep the existing prevailing approach for determining the risk-free rate; but extend the determination window used from one month to three months;

³³ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016); and Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016).

- 78.2 to use a simple historical average approach to determine the debt premium using five years of historical data. Under this historical averaging approach the debt premium estimates used in the five-year average will be obtained:
- 78.2.1 for future years from corporate bond rates of over a 12 month determination window;
 - 78.2.2 for previous years from averaging the relevant debt premium estimates that we have previously determined and published using the methodology in the previous IMs;³⁴
- 78.3 to modify the existing methodology used to estimate the debt premium, including:
- 78.3.1 a change to the restriction on using bonds from government-owned entities – we will now only apply the restriction to 100% government entities; and
 - 78.3.2 to have regard to a secondary methodology, which determines a NSS curve based on the available bond data;
- 78.4 to adapt the calculation of the TCSD so that it provides a more consistent allowance for bonds with an original maturity term longer than five years; and
- 78.5 to reduce the component of the cost of debt that compensates for debt issuance costs from 35 bps (0.35%) p.a. to 20 bps (0.20%) p.a.

Key changes since the draft decision

79. We published our draft decision on the IM review in June 2016. After considering submissions and comments from the WACC workshop, we have made a number of changes to our draft decision on aspects of the IMs related to the cost of debt.
80. Changes made since the draft are as follows.³⁵
- 80.1 A revised methodology for estimating the debt premium so that we use a five-year historical averaging approach, rather than the prevailing rate from one determination window.

³⁴ Further details on our historical average approach are provided in Attachment G.

³⁵ We also proposed a change to the treatment of debt issuance costs in our TCUP, whereby the debt issuance costs would be removed from the WACC and compensation would be provided in regulatory cash-flows. Following submissions we have now reverted to the draft decision to apply an allowance for debt issuance costs in the WACC. For details on the TCUP proposal see: Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016), Attachment A.

- 80.2 A retention of the restriction on using bonds issued by government-owned entities (for those with 100% government ownership). The draft decision was to remove the restriction entirely.
- 80.3 An increase in the 'spread premium' in the TCSD formula from 5.6 bps p.a. to 7.5 bps p.a.³⁶

Consideration of a trailing average approach to estimate the cost of debt

- 81. This section considers whether to apply a trailing average approach to the cost of debt and various related issues. We explain our reasoning on various issues that have been raised that relate to the trailing average, including:
 - 81.1 our reasons for retaining a prevailing approach to estimate the risk-free rate;
 - 81.2 our consideration of issues that have been raised in relation to the use of the interest rate swap market to hedge a supplier's exposure to variability in the risk-free rate;
 - 81.3 our reasons for applying a historical averaging approach to estimate the debt premium; and
 - 81.4 our consideration of the impact of volatility in the risk-free rate from one period to another.
- 82. Our decision on the approach to estimating the cost of debt considers the many submissions received during the IM review on whether a prevailing approach or trailing average should be used. We have considered a number of variants of a trailing approach and also whether issues with the current approach can be mitigated through other means.
- 83. We have also received expert advice from Dr Lally on this issue, including a response to the various concerns raised by stakeholders in response to our draft decision.³⁷
- 84. Following our consideration of these issues, we have decided to determine the cost of debt by:
 - 84.1 using a prevailing approach to estimate the risk-free rate with a three-month determination window;

³⁶ The spread premium is the additional allowance (per year of additional tenor) provided for qualifying debt with a longer original tenor than five years. For more details on the estimate of the spread premium see Attachment E.

³⁷ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016); Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016).

- 84.2 using a five-year historical average to estimate the debt premium, rather than the previous prevailing approach,³⁸
- 84.3 applying no annual updating; and
- 84.4 retaining a five-year estimate for the original term of the risk-free rate and debt premium and by applying a TCSD.

Retention of the prevailing approach for the risk-free rate

- 85. We have retained the prevailing approach to estimate the risk-free rate element of the cost debt. We have maintained our view from 2010 that using prevailing rates enables firms to achieve a normal return on their investment, promotes the potential dynamic efficiency benefits of investment and, therefore, better promotes the Part 4 purpose.³⁹
- 86. We have placed a strong emphasis on the different aspects of the Part 4 purpose in making our decision, including a supplier's incentives to make efficient investments.⁴⁰ Our view is that the relevant consideration for determining whether we are promoting outcomes consistent with those produced in workably competitive markets is whether firms can be expected to achieve a normal return on their investment. A normal return is expected when ex-ante the net present value of the investment and subsequent cash-flows equals zero using the WACC as a discount rate.⁴¹
- 87. Businesses are able to hedge their interest rate exposure for the risk-free rate using the interest rate swap market. Swaps can be used to fix a supplier's interest rate payments such that they broadly match the risk-free rate (which is set by us for the length of a regulatory period). This is despite year-by-year variations in market government bond yields (which we use as a proxy for the risk-free rate).⁴²
- 88. The existence of this swap market, and the ability of suppliers to use it to hedge the majority of their interest rate exposure, means that there will be minimal violations

³⁸ Further details on our historical average methodology are found in para 138-149 and Attachment G.

³⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H.4.1.-H4.13.

⁴⁰ le, incentives to innovate and invest; improvements in efficiency; sharing of efficiency benefits with consumers; and limited ability to extract excessive profits. See: Commerce Act 1986, part 52A (1).

⁴¹ The equivalence of the present value of revenues and present value of costs is often referred to by the term 'NPV=0', which recognises that if this equivalence holds, then the net present value (NPV) of the revenues less the costs is zero. We used the term NPV=0 extensively when originally setting the IMs in 2010.

⁴² Firms will not be able to completely hedge their exposure because the swap rates and the risk-free rate are not exactly the same and, as noted by Frontier, hedging requirements may be uncertain for investment undertaken during the regulatory period. Frontier Economics (report prepared for Transpower) memo on Dr Lally Appendix "Issues arising from Commerce Commission WACC Workshop" (26 October 2016), para 27-28.

of the NPV=0 principle in regard to the risk-free rate under a prevailing regime. The ability to use the swap market meant that this is the case *even* if firms undertake staggered debt issuances over a longer period of time.

89. Some suppliers disagreed with our view that a prevailing approach better promotes efficient investment than a trailing average regime. For example, Frontier (on behalf of Transpower) note that:⁴³

...a regulatory approach such as the TACD approach that aligns the regulatory allowance to efficient debt costs is likely to enhance, rather than deter, efficient investment.

90. However, this is not a unanimous view from suppliers. Despite supporting a trailing average approach, PwC (on behalf of 17 EDBs) note that one of its disadvantages is the effect on investment incentives.⁴⁴

We agree that a disadvantage of the trailing average approach is that it reduces the extent to which the WACC estimate reflects current market conditions, and hence that it alters the incentives for new investment.

91. We disagree with Frontier that a trailing average would enhance efficient investment. The main reasoning for Frontier's conclusion on this point appears to be that the prevailing approach is more volatile and uncertain than using a trailing average and it is this known volatility that deters investment.

92. While we would agree that there is likely to be more volatility under a prevailing approach from one regulatory period to the next, we consider that the expectation of returns provides a better investment signal. We therefore consider that using prevailing rates over historical rates provides more appropriate investment incentives.

93. We consider that a supplier can seek to manage volatility in the risk-free rate by using the interest rate swap market. This weakens the argument that the variability in the risk-free rate is a significant problem for suppliers.⁴⁵

94. The risk-free rate has been lower than its historical average over the last five years, although it remains volatile.⁴⁶ This means some of the problems with a trailing average have been less apparent. In an alternative environment of increasing interest rates we consider that it is likely to be harder for firms to invest without an allowance consistent with the prevailing risk-free rate. If a trailing average was in

⁴³ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 22-23.

⁴⁴ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 268.

⁴⁵ However, we note there is a separate issue on whether how this volatility affects the price paid by consumers. We cover this issue in para 134-137.

⁴⁶ For example, see Figure 2.

place under such circumstances we would expect suppliers to ask for an allowance more consistent with the prevailing market rate for capital and it would be difficult for us to refuse such a request.

95. Frontier and the Electricity Networks Association (**ENA**) suggested following the WACC workshop that using a prevailing approach for the risk-free rate would result in violations of the NPV=0 principle, despite the ability of suppliers to use the interest rate swap market. This is because investment can take place at any time during the regulatory period, but the prevailing rate is set at the start of the period.⁴⁷ As a result suppliers would be unlikely to 'fully' hedge their exposure to movements in the risk-free rate because the timing of investments would be unknown during the determination window.
96. We agree that firms may not be able to 'fully' hedge their exposure to the risk-free rate especially for investments during the period with unknown timing. However, a complete hedging approach is unlikely to be efficient practice in any case, as there may be significant costs associated with 'fully' eliminating interest rate risk.
97. Our view is the interest rate associated with the majority of a firm's issued debt can be hedged using the swap market and we provide a reasonable allowance for the cost of that hedging. We also consider that firms would not be able to fully hedge their exposure to the risk-free rate for new investments under a trailing average; this would especially be true for large investments.
98. As part of its submission, Frontier provided analysis that suggested the trailing average actually resulted in lower NPV=0 violations than the prevailing approach when investment during the period is taken into account.⁴⁸ However, as noted by Dr Lally, this particular result appears to be based on a single artificially constructed scenario based on 'highly implausible' assumptions that has no empirical basis.⁴⁹ As a result we have not put much emphasis on the values provided.
99. The evidence continues to suggest to us that the use of the prevailing rate provides better incentives for efficient investment, and the existence of the interest rate swap market means there is a low likelihood of a significant mismatch between the allowed risk-free rate provided for in the WACC and the interest costs paid by suppliers.
100. Submissions from suppliers also mentioned the movement of the Australian Energy Regulator (**AER**) and some other Australian regulators away from a prevailing (or rate

⁴⁷ Frontier Economics (report prepared for Transpower) memo on Dr Lally Appendix "Issues arising from Commerce Commission WACC Workshop" (26 October 2016), para 28; ENA submission "ENA comments on Frontier memo re Dr Lally Appendix" (26 October 2016), p. 1-2.

⁴⁸ Frontier Economics (report prepared for Transpower) memo on Dr Lally Appendix "Issues arising from Commerce Commission WACC Workshop" (26 October 2016), para 53.

⁴⁹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 36-37.

on-the-day) approach towards a trailing average and noted that we would be 'out-of-step' with overseas regulatory practice if we maintained a prevailing approach.⁵⁰

101. Although we are aware of the developments in Australia, the AER has made it clear that there are trade-offs between the two approaches and that they consider the prevailing approach does have advantages in encouraging efficient investment and promoting outcomes consistent with a workably competitive market:⁵¹

Rather, we consider the on-the-day approach has advantages, including:

- It is consistent with the prevailing market cost of debt as close as possible to the commencement of the regulatory period. As such, it is commensurate with efficient financing costs at the commencement of the regulatory period and can promote efficient investment decisions. It is also internally consistent with how we estimate other components of the allowed rate of return and other building block components.
- It leads to an estimate that is likely to more closely imitate the outcomes of a competitive market near the start of the regulatory period than a trailing average approach.

102. We have therefore considered each option taking into account the advantages and disadvantages of the different approaches. We also note the AER (and other regulators) work under different frameworks to the regulatory regime here in New Zealand. Given the trade-offs between the two different approaches, different frameworks may result in a tendency towards different choices.⁵²

103. A number of submissions from suppliers appeared to imply that our main objective in selecting a WACC should focus less on promoting outcomes consistent with workably competitive markets, but instead we should focus on minimising commercial risk to regulated businesses.⁵³ We agree that we should minimise risks to regulated businesses, however only to the extent that it helps deliver long-term benefits to consumers and consistency with the Part 4 purpose, not as a goal in itself.

⁵⁰ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 1; PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 82-82; Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 31-32

⁵¹ AER "Final decision Jemena distribution determination 2016 to 2020: Attachment 3 – Rate of return" (May 2016), p. 3-292. Available at: <https://www.aer.gov.au/system/files/AER%20-%20Final%20decision%20Jemena%20distribution%20determination%20-%20Attachment%203%20-%20Rate%20of%20return%20-%20May%202016.pdf>

⁵² For example, a framework which has a stronger focus on the financeability of regulated suppliers compared to the investment incentives may result in stronger reasons to apply a trailing average.

⁵³ See for example: Aurora "Submission – Input Methodologies Review: Frontier Economics' report on Lally ROTD Appendix" (31 October 2016), p. 2.

104. Another reason for maintaining the prevailing approach for the risk-free rate is because it is a relatively straightforward mechanism for estimating the cost of debt. It does not require obtaining and collecting data over a longer period of time, annual updates or any issues when considering the best way to transition to a new cost of debt approach.
105. We also consider that frequent changes in the cost of debt methodology can potentially result in stakeholders arguing for the methodology that is most beneficial for them at that any particular point in time (ie, based on historical interest rates or future expectations of interest rates). We realise that this issue is perhaps less relevant under the current process, given the fact the next price reset for most regulated suppliers is a number of years away. However, we consider it provides a rationale for maintaining a consistent cost of debt methodology.
106. We also disagree with the view from Frontier that:⁵⁴
- In our view, the Commission has overstated the one-off administrative switching costs associated with moving from the ROTD approach and the TACD approach. In Australia, these costs have been minimal.
107. The ongoing appeals process on the transition to a trailing average for energy networks in Australia suggests that the overall costs of switching to a trailing average have not been minimal.⁵⁵ In particular, the potential for significant one-off gains to suppliers or consumers from the transition process means that the methodology of any transition is likely to be contentious.
108. As outlined above, we consider that there are strong reasons for maintaining a prevailing risk-free rate. However, we note that there are also legitimate reasons why a trailing average might be favoured. In making the decision we have considered all of the views put forward by the many suppliers who were in favour of moving to a trailing average approach for the risk-free rate.
109. We consider the strongest reasons *against* using prevailing approach for the risk-free rate are:
- 109.1 costs associated with using the interest swap market; and
- 109.2 the potential pricing impact on consumers from a significant change in the risk-free rate.
110. We describe below why we do not consider these issues to be sufficiently material to change from our existing prevailing approach to estimate the risk-free rate.

⁵⁴ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 27-28.

⁵⁵ Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1.

Issues related to the use of the interest rate swap market

111. We consider that suppliers do have the ability to use the interest rate swap market to hedge themselves against the risk-free rate. Hedging by suppliers can also benefit consumers to the extent that hedging activities result in more stable debt-financing for suppliers, which can result in a stronger incentive for suppliers to make investments. We have therefore provided an allowance for some costs associated with undertaking interest rate swap transactions.
112. More specific concerns have been raised by suppliers on the market impact of the hedging activity of regulated suppliers and their ability to use the interest swap market to fully hedge the risk-free rate.
- 112.1 Transpower and Powerco have suggested that a concentration of hedging activities around the determination window can affect the price of interest rate swaps.⁵⁶
- 112.2 Frontier and ENA have outlined the difficulties in hedging the risk-free rate for investments that take place over the period.⁵⁷
- 112.3 Transpower considers that firms are not compensated for the use of forward starting swaps for the length of time between the WACC determination window and the start of the price-quality path.⁵⁸
113. Although we understand the concerns raised by suppliers we consider that there is limited evidence to suggest that these swap market issues result in a significant additional cost to suppliers over and above the allowance for swap costs.⁵⁹ In addition, we do not think that consumers should necessarily pay for suppliers to completely hedge 'all' of their debt such that it is completely matched to the five-year risk-free rate fixed for the regulatory period.
114. We are setting a benchmark cost of debt which does not attempt to fully replicate a particular financing or risk management strategy. We consider any costs associated with hedging have to be considered by a supplier against the benefits to consumers.

⁵⁶ Transpower's attachment to their submission on the cost of capital update paper "Trailing average cost of debt and efficient debt management" (5 February 2016), p. 5; Transpower submission "Input methodologies review – Post WACC workshop documents" (5 October 2016), p. 1-2, Attachment A; Powerco "Explanation of bond to swap spread data analysis" (28 September 2016). It also considered that any impact on swap markets will feed through to government bond rates used to estimate the risk-free rate for the WACC. As a result it considered that ultimately the cost passes through to consumers.

⁵⁷ Frontier Economics (report prepared for Transpower) memo on Dr Lally Appendix "Issues arising from Commerce Commission WACC Workshop" (26 October 2016), para 28; ENA submission "ENA comments on Frontier memo re Dr Lally Appendix" (26 October 2016), p. 1-2.

⁵⁸ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 8.

⁵⁹ We provide an allowance for swap transaction costs as part of the 'debt issuance costs' element of the cost of debt.

115. Of the issues raised above, we consider that there has been limited evidence provided by submissions that suggest the swap market is significantly affected by the actions of the regulated suppliers concentrating hedging in a small determination window.
116. There has been some provision of data on the swap market from Powerco and Transpower.⁶⁰ However, we agree with Contact Energy (**Contact**) and Dr Lally that:⁶¹
- 116.1 there was limited price movement in the swap market during the previous determination window for electricity businesses that could not be explained by normal interest rate movements;⁶² and
- 116.2 suppliers have provided limited evidence (other than assertions) that swap rates would have been affected by the hedging activities of regulated suppliers.
117. Despite the lack of evidence in this area, we consider there is a potential concern (of unknown materiality). As a result we have mitigated the risk of supplier hedging activity affecting the swap market by extending the determination window used to estimate the risk-free rate from one month to three months.
118. In response to our draft decision on this point, submissions agree that this concern has been alleviated to some degree by the extension of the determination window to three months.⁶³
119. We also agree that firms may not be able to exactly hedge the risk-free rate for investments that take place during the regulatory period.⁶⁴ However, this will only be a relatively small element of their total capital requirements and the majority can be hedged at the start of the period.⁶⁵ We also note the ability of firms to use forward

⁶⁰ Transpower submission "Input methodologies review – Post WACC workshop documents" (5 October 2016), Attachment A; Powerco "Bond to swap spread data analysis" (28 September 2016).

⁶¹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016) p. 38-39; Contact Energy "Input methodology review: Cost of capital – Response to recent Transpower submission (dated 5 October 2016)" (26 October 2016), p. 1-2.

⁶² We note that Transpower has suggested that this was due to declining interest rate trends at the time (falling milk prices and US Federal Reserve decisions), the absence of which would have resulted in significant increases to the swap rate. Transpower submission "Input methodologies review – Post WACC workshop documents" (5 October 2016), Attachment A.

⁶³ ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 10; Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 36; Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016) p. 24; Transpower "IM review: Cross submission on suite of draft decision papers" (25 August 2016), p. 3.

⁶⁴ ENA submission "ENA comments on Frontier memo re Dr Lally Appendix" (26 October 2016), p. 1-2.

⁶⁵ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 36.

starting swaps, delay or bring forward investment to help manage this risk – in cases in which it is beneficial for them to do so.^{66, 67}

120. Similarly it *may* be beneficial for firms to use forward starting swaps to manage the risk associated with the fact that there is a delay between the determination window and the start of the price path.⁶⁸
121. However, it is unlikely to be efficient to fully use swaps to precisely hedge all debt associated with planned investment because the ‘cost’ of any mismatch risk may be less than the cost of the swap transaction.
122. After considering all of these issues we do not consider that there are significant problems with the swap market operation that would alter our decision or result in material costs to suppliers that should be passed through to consumers. Although there are some risks to suppliers associated with using the swap market, we do not consider these risks are large, they provide an incentive on suppliers to undertake an efficient financing strategy and minimise costs, and we do not consider that these incremental hedging activities will necessarily provide long-term benefits to consumers.
123. We note that Transpower’s alternative drafting proposal to the TCUP suggests that we should align the determination window for the IPP risk-free rate with the WACC determination for information disclosure. This would have the effect of increasing the period between the determination window and the start of the price-quality path by two months. This suggestion could imply that the length of the time period between the window and start of the path is less significant than other issues.⁶⁹
124. We have maintained our draft decision to extend the determination window to three months, which we considered would help mitigate some of the issues raised by stakeholders on swap market operation. As noted above, a number of submissions agreed with this point.
125. When considering the issues with the swap market, we have also considered how the costs of undertaking swap market transactions compare against the additional costs of using a 10-year trailing average using bonds with a 10-year original term.

⁶⁶ The degree to which a supplier will manage interest rate exposure will depend on the trade-off between the cost of the risk mitigation measure against the residual risk exposure. For example it seems unlikely that ‘all’ interest rate pricing risk would be completely hedged as the costs are likely to be prohibitive.

⁶⁷ Transpower submission "Input methodologies review – Post WACC workshop documents" (5 October 2016), Attachment A; Contact Energy "Input methodology review: Cost of capital – Response to recent Transpower submission (dated 5 October 2016)" (26 October 2016), p. 2-3.

⁶⁸ Consumers may be likely to be willing to pay for hedging costs to the extent that it provides benefit to them (eg, provides a greater incentive for suppliers to invest because they are able to obtain more stable financing costs).

⁶⁹ Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 6.

This form of trailing average methodology has been suggested by a number of suppliers.⁷⁰

126. Debt issued with a longer original tenor tends to be higher priced and so the costs of swap transactions need to be considered in that context.⁷¹ Contact have suggested that the average premium of 10 year government bonds yields over five year government bonds yields has been 27 bps, and an average of 44 bps when the yield curve was positive.⁷²
127. In considering this trade-off we also note that moving to a trailing average would not necessarily negate the need for swap market transactions completely.⁷³ Businesses are still likely to use swaps to some extent (and incur associated costs) because they are unlikely to exactly replicate the perfectly staggered approach to debt issuance assumed under a trailing average and it will be efficient to continue to use swaps to some extent.⁷⁴
128. This is because a supplier's actual debt issuances are likely to be influenced by prevailing debt market conditions and the trade-offs between different types of debt instruments. Although there will be some costs involved under either approach, we agree that swap market costs are likely to be lower under a trailing average, particular for a trailing average which estimates the cost of debt on the basis of a similar original tenor to that issued by suppliers. However, these costs are unlikely to be zero and so need to be considered when weighing up the trade-off between the higher costs of debt with a longer original tenor and the costs of swaps.
129. PwC (on behalf of 17 EDBs) suggested a trailing average for the full cost of debt, but with a five-year average rather than the 10-year average favoured by other submitters.⁷⁵ It suggested that the cost of debt should be estimated with respect to bonds which reflect the average tenor of distributor-issued bonds, or failing that the TCSD allowance should be retained together with a cost of debt estimate that reflects a five-year tenor.
130. This suggestion is likely to result in lower interest rates compared to a 10-year trailing average using a cost of debt estimate for a bond with a 10-year original

⁷⁰ See, for example: Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016), p. 6.

⁷¹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 26.

⁷² Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 3.

⁷³ Some submissions have suggested that suppliers would not need to undertake swap transactions under a trailing average approach. For example: CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 208.

⁷⁴ As Transpower have outlined, suppliers would still use swaps to some extent under a trailing average approach. Commerce Commission "WACC workshop transcript" (September 2016), p. 124.

⁷⁵ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 55.

term.⁷⁶ However, we still do not consider it is an appropriate solution because, as with a 10-year trailing average, the five-year average reduces the incentives for dynamically efficient investment as described in paragraphs 85 to 86.

131. We also note that if a five-year trailing average is used then this implies that there would be:
- 131.1 no reduction in swap costs (assuming firms issue debt with an average original tenor longer than five years and hedge to the regulatory period); or
 - 131.2 an increase in refinancing risk (because firms would issue debt with an original tenor of five years rather than the longer original tenors that submissions from suppliers suggest are more appropriate).
132. Another point made in submissions is that smaller firms should be provided with a higher allowance for debt costs.⁷⁷ We disagree. We do not consider that in workably competitive markets customers would be willing to pay higher prices to firms based on the size of the firm.⁷⁸ Therefore we make no allowance for any type of cost in excess of the benchmark cost of debt.
133. We do not consider that any of the evidence provided in submissions suggests that there are significant issues or costs associated with swap participation that outweigh the incentive benefits of the prevailing approach.

Period to period volatility

134. One of the arguments made in submissions against using the prevailing rate is that it can result in volatility from one period to another for consumers.⁷⁹
135. Although price stability is a key consideration for consumers we are not convinced that the greater potential for volatility in the cost of debt by using a prevailing risk-free rate rather than a trailing average is sufficiently large to justify a change in approach.
136. A price increase of 10% p.a. has previously been the benchmark which we have considered to be a sufficiently large shock to consumers that can merit regulatory

⁷⁶ Assuming an upward sloping yield curve

⁷⁷ ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 56.

⁷⁸ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 6.4.29.

⁷⁹ ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 84; Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 6.

action to mitigate that shock.⁸⁰ However, because WACC is treated as constant for the length of the regulatory period, any price increase will be a one-off increase at the start of the period. Our ability to set alternative rates of change under the DPPs and Transpower's ability to smooth prices over the period means that the impact of any individual annual price increase can be mitigated.

137. Given the existence of these regulatory mechanisms and the limited impact of the cost of debt on total allowable revenues, we do not consider that the impact on consumers is sufficiently large for us to move away from our draft decision to apply a prevailing approach to estimating the cost of debt.

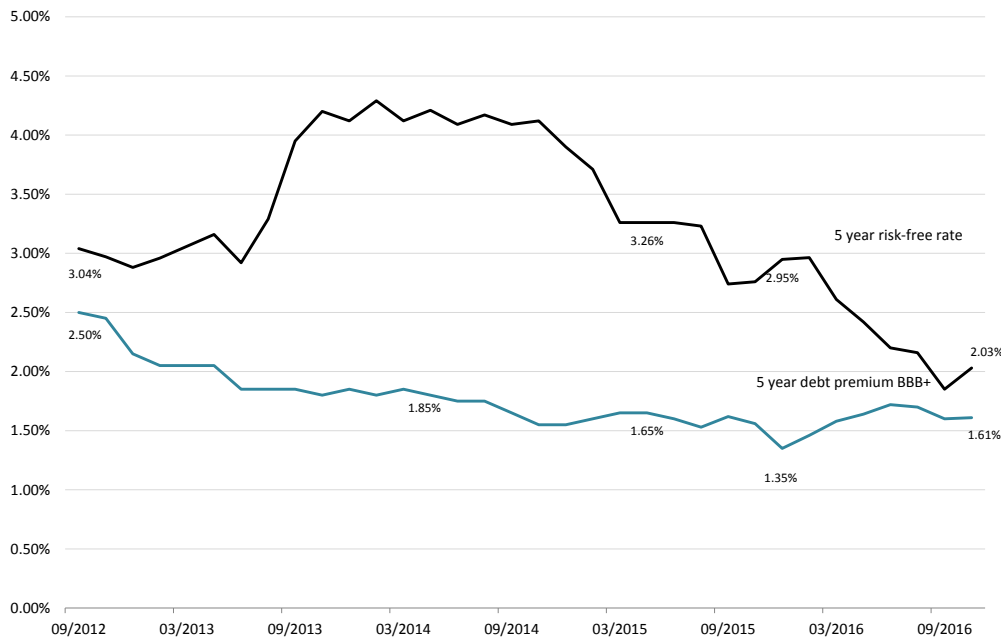
Historical averaging of the debt premium

138. An issue recognised in the draft decision was the potential mismatch between the debt premium incurred by firms who issue debt on a regular rolling basis, and the corresponding compensation allowed for in our estimate of WACC. Firms can be exposed to any difference between the debt premium paid at the time they issue debt and the debt premium determined during the averaging window prior to the setting of the WACC.⁸¹
139. The mismatch arises because there is no practical way to hedge the debt premium in New Zealand (ie, there is no significant credit default swap market). Therefore, unless all debt is refinanced during the determination window, the debt premium allowed for by the Commission would not be perfectly matched by the supplier.
140. We previously considered that the potential for material mismatches (in regard to the debt premium) was minimal due to the relatively stability of the debt premium (particularly compared to the risk-free rate). However, we have now been persuaded that there is a benefit in moving to a historical averaging approach.
141. Figure 2 shows the debt premium as determined by us since 2012. The average over the last five years has been approximately 1.8%.

⁸⁰ For example, we have previously limited price increases for certain EDBs when setting the 2012 DPP. See: Commerce Commission "Resetting the 2010-15 default price-quality paths for 16 Electricity Distributors" (30 November 2012), para 6.3-6.10.

⁸¹ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 103-109; Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 9-10.

Figure 2: Commission estimates of the risk-free rate and debt premium (BBB+)



142. Potential mismatches of the debt premium are a known disadvantage of the prevailing approach. However, for the draft decision we considered that the magnitude of any mismatch would be small and could be managed by suppliers, being mitigated due to the following factors.

142.1 The debt premium is relatively stable, which reduces the chance that any mismatches will have a material impact on supplier revenues.

142.2 Any potential mismatches can take place in both directions. Therefore, mismatches are likely to even out over time. We consider that regulated suppliers should be able to manage this risk.

142.3 Dr Lally has provided evidence that any mismatches in the debt premium are likely to be at least partially offset by mismatches between our estimate of the MRP and its true value.⁸²

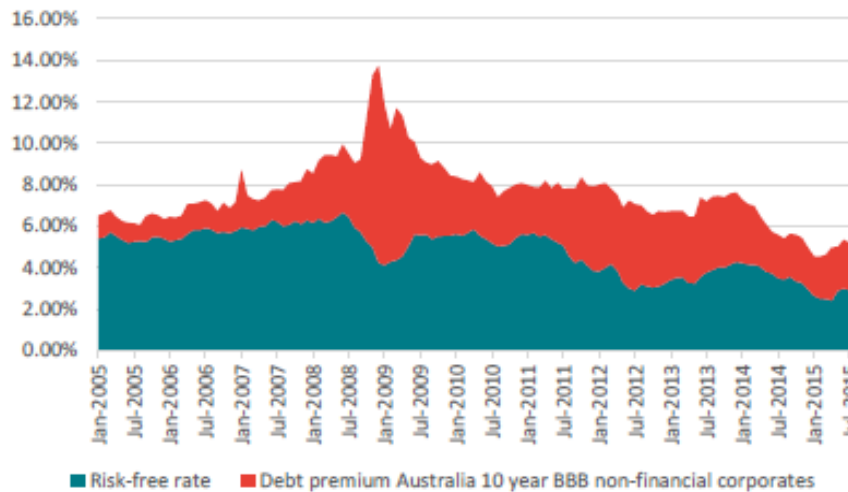
143. In response to the draft decision, Frontier (on behalf of Transpower) submitted that we were overstating the stability of debt premium and pointed out that certain market conditions can cause large changes in the debt premium.⁸³ Figure 3 is

⁸² Dr Lally’s expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 9.

⁸³ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), Section 2.2.1.

provided by Frontier and shows how the debt premium for BBB non-financial corporate bonds spiked in Australia in the aftermath of the financial crisis in 2008-2009.⁸⁴

Figure 3: Debt premium on BBB non-financial corporate bonds – Australia



Source: Data from Reserve Bank of Australia; Frontier analysis

144. On the whole, we continue to consider that suppliers should be able to manage the normal volatility associated with the debt premium. However we recognise that if the determination window happened to coincide with a period of abnormal market conditions, then suppliers could be over or undercompensated in comparison to their incurred debt. We consider that significant one-off movements in the debt premium of this type could have a sufficiently large effect on revenues to suppliers and prices paid to consumers that estimating an ‘average’ debt premium over a longer period of time is a more appropriate solution.

⁸⁴ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), Figure 2.

145. A period of high debt premiums could have a negative impact on both:
- 145.1 suppliers – who are unable to hedge against significant movements in the debt premium and so can be exposed to mismatches between their incurred debt premium (eg, under a staggered debt issuance strategy) and the allowance provided in the WACC;⁸⁵ and
 - 145.2 consumers – who may have to pay for a high debt premium for the length of the regulatory period if a spike in the debt premium coincides with the fixed determination window.
146. Given the above, we have changed our approach to estimating the debt premium compared to the draft decision. We now consider that, on balance it is more appropriate to provide a historical average of the debt premium, rather than retaining the prevailing approach proposed in the draft decision.
147. Our decision is therefore to apply a five-year historical average when estimating the debt premium, rather than a prevailing approach which uses a three month determination window consistent with the risk-free rate.
148. This revised approach should allay some of the concerns that suppliers have outlined in submissions that basing the debt premium on a single determination window once every five years exposes them to the risk that it is lower than the average debt premium incurred from debt issuance over a longer historical period.
149. We consider that this change results in a small negative impact on investment incentives for suppliers, but we consider that the impact of this would be limited, given the generally small movements of the debt premium in normal market conditions. On balance we have decided it is more appropriate to protect consumers against one-off significant changes in the debt premium by applying a historical average.

Transition to a historical average for the debt premium

150. We have decided to apply a historical average without any transition period. We previously outlined how any move to a different cost of debt approach may require a transition to ensure that there is not the potential for windfall gains for suppliers/consumers.⁸⁶ However, we do not consider it is required in this instance.
151. The potential for windfalls arises because immediate changes to the cost of debt approach uses known historical rates. This means we have some knowledge of

⁸⁵ Although we consider that suppliers have some ability to manage their debt issuance practices at times when there is high debt premium (eg, defer capex, issue short-term debt), the lack of a hedging market (eg, like the swap market for the risk-free rate) means that this is more difficult.

⁸⁶ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 135.6.

historical rates at the time of making the decision which can directly affect supplier compensation.

152. As outlined by Contact,⁸⁷ the current circumstances in which interest rates have been falling over the last few years means any immediate change to an approach that uses a historical rates is likely to benefit suppliers over consumers. Despite the move to a historical average for the debt premium, we do not consider any transition period is required because of the following.
- 152.1 The debt premium has been relatively stable over the last five years, with only small movements in relevant corporate bond rates. This means the impact of any gain is limited.
- 152.2 Suppliers are unable to hedge the debt premium, so the actual debt premium incurred by suppliers is likely to more closely resemble a historical average than the existing approach.
153. The decision not to undertake a transition has been taken based on consideration of the current circumstances. Whether a transition would apply to any future change in the cost of debt methodology, will depend on the circumstances at that particular time.
154. The historical averaging approach can be implemented in a number of slightly different ways. Our initial option provided in the Technical Consultation and Update Paper (**TCUP**) aligned the annual debt premium used in the averaging process with the three month determination window used for the annual WACC determination for ID.⁸⁸
155. A number of submissions to the TCUP suggested that we should extend this averaging period to 12 months to ensure that it covers a full year's worth of data.⁸⁹ We agree that this is likely to result in a more representative estimate of the average debt premium over five years and means that abnormal market yields outside the three month window will not be missed. Using 12 months data rather than three does not result in any significant extra effort and so we have updated the methodology for future estimates to be consistent with this suggestion.
156. However, we do not plan to re-estimate debt premium values for previous years. Therefore, in the short term the historical averaging approach will apply values that

⁸⁷ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 4.

⁸⁸ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016), Attachment A, para 93.

⁸⁹ ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), para 34; Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), p. 7; Orion submission on IM review technical consultation and on the ENA letter regarding live-line work "Submission on input methodologies review technical consultation" (3 November 2016), para 12.

use debt premiums estimated previously by the Commission, using the approach detailed in the previous IMs. More detail on how the historical averaging approach will apply in practice is provided in Attachment G.

No annual updating

157. We maintain our view from the draft decision that the introduction of annual updating of the debt premium (or risk-free rate) would not provide sufficiently material long-term benefits to consumers to justify the administrative costs of an annual update process.⁹⁰

Approach for Information Disclosure

158. The advantages of using a trailing average approach for the full cost of debt appear slightly stronger in the context of ID than for a price-quality path. A more stable estimate of WACC may provide benefits to interested parties when assessing supplier profitability using disclosed information.⁹¹
159. However, we do not consider this benefit would be substantial in assessing profitability.
- 159.1 We agree with Dr Lally's view that any assessment of ex-post profitability should take place over number of years.⁹² This ensures that any conclusions are not overly influenced by one-off factors in particular years that may give a false sign of excessive profitability. When assessing profitability over a longer period of time the advantages of a trailing average over a prevailing approach become more limited.
- 159.2 To date our assessments of supplier profitability have been generally undertaken using the WACC set at the start of a price-quality path or price setting event (for airports).⁹³ Under these circumstances, the methodology used to determine the annual WACC for ID is not as significant.
160. We have therefore decided to apply the same WACC methodology for ID as for price-quality paths. Any benefits in applying a trailing average for the full cost of debt

⁹⁰ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 158.

⁹¹ In the event that a prevailing approach is used and a business smooths its prices, excess returns may be observed for a single year, although they would not necessarily be as a result of excessive pricing. See: Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 13-14.

⁹² Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 13-14.

⁹³ For example, our analysis of EDB profitability: Commerce Commission "Profitability of Electricity Distributors Following First Adjustments to Revenue Limits" (8 June 2016).

for ID do not warrant the additional complexity that arises if the approach for ID diverges from the approach for price-quality regulation.⁹⁴

Other issues raised with our debt premium methodology

161. Our decision is to estimate the debt premium using a five-year historical average. This approach requires us to continue to estimate the debt premium each year.
162. The methodology used to estimate this 'annual' debt premium is broadly consistent with our previous prevailing approach.⁹⁵ However, we have decided to make some modifications in the relation to use of government-owned bonds and the NSS curve. Our decision is to:
- 162.1 Change the draft decision to remove the restriction on using government-owned bonds in estimating the debt premium. We have reverted to the previous IM approach, in which a restriction was placed on the use of government-owned bonds. However the restriction only applies to bonds issued by entities which are 100% government-owned.⁹⁶
- 162.2 Have regard to the NSS curve approach when determining the debt premium. The previous approach relies on a certain degree on judgement when estimating the debt premium, which we consider would be reduced by having regard to the NSS curve approach.

Government-owned bonds

163. The draft decision removed the restriction of the use of government-owned bonds in the debt premium estimate. However, our final decision is that the restriction will only apply to 100% government-owned entities.
164. We agree with Competition Economists Group (**CEG**)'s submission that the yields on 100% government-owned bonds are likely to behave differently and have lower debt premiums than other equivalent bonds. We have therefore made a distinction

⁹⁴ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 10-11.

⁹⁵ The main change is that we will now use a full 12 months of data to estimate the debt premium, rather than the one month of data used in the pre-review IMs.

⁹⁶ The restriction to entities which are 100% government owned is a practical step, which means we are able put greater weight on the bonds from majority government-owned gentailers (ie, Meridian, Mighty River Power, Genesis) which we consider show pricing behaviour more consistent with bonds issues by privately-owned companies. However we will still restrict the use of bonds from entities fully owned by the government (eg, Transpower) whose bond prices are less likely to be consistent with privately owned companies, given the existence of an implicit guarantee from the government in the event of financial distress.

between the bonds that are issued by partially privatised firms and those that are issued by firms that are 100% government-owned.⁹⁷

NSS curve

165. The draft decision outlined how we investigated the use of the NSS curve to remove the element of judgement in the debt premium estimate.
166. PwC and Contact supported the use of the NSS curve,⁹⁸ while Transpower thought that although it could be useful in principle, more testing would be required before it was appropriate to use in the debt premium methodology in the IMs.⁹⁹
167. We note the concern from Transpower, however we consider that the current approach is sufficiently robust to be considered when estimating the debt premium. The existing approach already requires judgement in determining the notional five-year BBB+ estimate from bond data that does not exactly match those criteria.
168. As part of the judgement based approach, we consider an estimate from a NSS curve would help us in determining the appropriate value for the debt premium. Further detail on our approach to estimating the NSS curve is provided in Attachment D.
169. Contact also suggested that we should only have regard to bonds which are rated BBB, BBB+ and A-.¹⁰⁰ We do not consider that this is appropriate due to the limited dataset available for New Zealand corporate bonds. Having regard to the widest set of available bonds (taking into account their relevance to the reference credit rating) is likely to result in the most robust estimate of the debt premium.

Issues raised with our approach to the term credit spread differential

170. The cost of capital IM includes a TCSD allowance to compensate suppliers for the additional debt premium that can be incurred from issuing debt with a longer original term than the five-year regulatory period.¹⁰¹
171. Following a review of the appropriateness of the TCSD and how it had been implemented, we proposed in our draft decision to simplify our approach to the TCSD.¹⁰²

⁹⁷ CEG (report prepared for ENA) submission on IM review draft decisions papers "Review of the proposed TCSD calculations" (4 August 2016), para 19-20.

⁹⁸ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 284; Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 32.

⁹⁹ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 12.

¹⁰⁰ Contact Energy [PUBLIC] "Input methodology review: Cost of capital – Response to technical consultation update paper dated 13 October 2016" (3 November 2016), p. 4.

¹⁰¹ Although the TCSD is conceptually a component of the cost of capital, it is treated as an adjustment to cash flows and is only available to suppliers who have issued long-term debt to prudently manage their refinancing risks.

172. We have maintained our draft decision to simplify the TCSD by using a fixed linear relationship to determine the additional debt premium associated with debt issued with an original tenor of more than five years for electricity and gas companies.
173. Following further analysis of bond data, we have revised our estimate of the 'spread premium'¹⁰³ used in the TCSD formula from 5.6 bps p.a. to 7.5 bps p.a. as described below.
174. Submissions from suppliers were generally supportive of the simplification of the TCSD and that it was still required in the absence of an assumed original debt tenor longer than five years.¹⁰⁴
175. Alternatively, Contact submitted that there should be no requirement for a TCSD at all, as it considered that debt funding can be managed effectively with bonds with five-year original terms and that there is no offsetting reduction for shorter-term debt.¹⁰⁵
176. After reviewing submissions, we continue to consider that issuing bonds with an original tenor of longer than five years is likely to be an efficient method to fund assets with long economic lifetimes. There is no method by which the higher debt premiums of these longer-term bonds (ie, compared to the debt premium on a five-year bond) can be hedged to the regulatory period in the same way as for the risk-free rate. Therefore, we maintain our view that the TCSD is a valid element of the efficient cost of debt.¹⁰⁶

¹⁰² Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 184.

¹⁰³ The spread premium coefficient is the additional allowance (per year of additional tenor) provided for qualifying debt with a longer original tenor than five years.

¹⁰⁴ ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 21-23; PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers – Made on behalf of 17 Electricity Distribution Businesses" (4 August 2016), para 277; Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 124.

¹⁰⁵ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 33. Contact also made some suggestions on refining the TCSD as part of their submission to the TCUP. We have reviewed these submissions, but have not made any further changes to the methodology given the late stage of the submission and our consideration that the changes will not have a material impact. See: Contact Energy [PUBLIC] "Input methodology review: Cost of capital – Response to technical consultation update paper dated 13 October 2016" (3 November 2016), p. 5.

¹⁰⁶ See also: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.19-H5.22.

Approach for energy businesses

177. On the whole, suppliers supported the move to simplify the TCSD. However, a submission from CEG (on behalf of the ENA) proposed some improvements to the methodology.¹⁰⁷

In the event the Commission continues with the on-the-day approach, ENA members agree with the Commission's proposal to retain the TCSD but consider that improvements can be made to the new methodology that the Commission proposes for estimating the TCSD. CEG addresses the improvements in its advisory report to the ENA.

178. The suggestions from CEG to improve the estimate of the TCSD were to:
- 178.1 estimate a spread premium coefficient for individual months of data rather than pooling data over the whole historical period;
 - 178.2 exclude bonds that were issued by 100% government-owned companies; and
 - 178.3 exclude bonds that have a Bloomberg Valuation Service (**BVAL**) score below 6.¹⁰⁸
179. We agree with CEG that there are some concerns with pooling across the whole sample. To account for these concerns, we have broken the full dataset into semi-annual periods to estimate spread premiums before calculating the average spread premium over the sample.
180. In analysing CEG's data, we found that some monthly spread premium estimates included large outliers and missing values due to insufficient bond observations in those months. For this reason, we focus on a semi-annual period rather than a monthly period as proposed by CEG.
181. We also agree with CEG that the yields on bonds issued by companies with 100% government ownership appear to behave differently to other bonds and have lower debt premiums than equivalent bonds. Therefore we have excluded bonds from the sample that were issued by 100% government-owned companies.^{109, 110}
182. We do not consider that we need to include the BVAL restriction in our analysis. The BVALs are a third-party assessment on the reliability of bond data, which is

¹⁰⁷ CEG (report prepared for ENA) submission on IM review draft decisions papers "Review of the proposed TCSD calculations" (4 August 2016); CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Review of the proposed TCSD calculations – Update report" (25 August 2016).

¹⁰⁸ BVAL scores are used as a proxy for reliability of data. Bloomberg assigns each bond yield a BVAL score from 1 to 10, with 10 being the most reliable pricing information and 1 being the least reliable.

¹⁰⁹ In practice this has resulted in the removal of bonds issued by CIAL, three gentailers (Meridian, Genesis, Mighty River Power) prior to their part-privatisation

¹¹⁰ We have also made an equivalent change in our methodology to estimate the debt premium. See para 163.

potentially less objective than alternative criteria. In CEG's analysis, it was also found that applying the BVAL score restriction mostly excluded bonds which, at the time, were issued by a 100% government-owned entity. Given that we have excluded this type of bonds anyway, we do not consider that including the BVAL criteria would significantly improve the dataset.

183. Following these changes we estimated the spread premium looking at different data samples, using both CEG's estimates of the five-year debt premium estimate using a NSS curve, and the Commission's historical debt premium estimates. We also analysed samples using only BBB+ bonds and also samples with BBB, BBB+ and A- bonds with rating dummy variables.
184. In determining the spread premium coefficient, we have focussed on the period from 2013-2016 due to some anomalously high estimates of the five-year debt premium, from prior to 2013 – this leads to negative spread premium estimates on bonds with longer original terms than five years.¹¹¹
185. Consideration of both CEG and our spread premium estimates imply a range of between 5 to 10 basis points. After giving most weighting to spread premium estimates using our own methodology and using the most recent time periods, we have decided the most appropriate estimate of the spread premium coefficient is 7.5 basis points.¹¹²
186. Further details on the analysis undertaken to estimate the spread premium is provided in Attachment E.
187. Transpower submitted that a TCSD was not appropriate for Transpower under its IPP. It considers the approach adopted for Chorus in the final UBA/UCLL decision should also be applied to Transpower.¹¹³
188. We consider that our decision not to include a TCSD for Chorus, which was under a different regulatory regime (in which we were estimating the WACC for a hypothetical efficient operator), does not assist us in assessing whether we should remove the TCSD for Transpower.
189. Moreover, as we have explained above, we consider that retaining a TCSD for both Transpower and the other energy businesses is appropriate in order to cover the additional costs of debt issued with a longer original tenor than five years (where that type of debt is shown to be actually issued by a supplier). We also note that, although we did not include a TCSD for Chorus, our decision to estimate a debt

¹¹¹ This is because the 'spread premium' is calculated from the difference between the longer tenor debt premium (eg, 7 years) and the five-year debt premium.

¹¹² This estimate is consistent with the suggestion by Transpower for a value of 8 bps. Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 2.

¹¹³ Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), p. 11.

premium for a term longer than five years was consistent with many of the principles and the effect of a TCSD.¹¹⁴

Approach for airports

190. Our draft decision supported removing the TCSD for airports. This outcome was reached because, under the revised approach, the value of the TCSD allowance would always be zero for airports. This arises as the positive spread premium for airports is more than offset by the lower per annum debt issuance costs from issuing longer-term debt.

191. Our draft decision for the removal of the TCSD for airports has been supported by NZ Airports. NZ Airports stated that:¹¹⁵

NZ Airports is comfortable with the proposal to remove the term credit spread differential from the information disclosure requirements, because it is an example of where the benefits do not outweigh the cost of calculation.

192. Given the support from airports for removing the TCSD, we maintain the draft decision to remove the TCSD for airports.

Compensation for debt issuance costs

193. The previous IMs recognise that fees and costs associated with prudent debt issuance and refinancing costs are legitimate expenses that should be compensated for and provided a 35 bps (0.35%) p.a. allowance as part of the cost of debt.

194. We consider that our previous allowance was generous and reduced it to 20 bps (0.20%) p.a. for the draft decision, including an allowance for swap transactions.¹¹⁶

195. Uncertainty over the level of debt issuance costs meant that we proposed, as part of the TCUP, to remove the debt issuance cost allowance from the WACC. Instead we proposed that debt issuance costs should be recovered through regulatory cash-flows.¹¹⁷

196. We have now returned to the position put forward in the draft decision and will provide an allowance for debt issuance costs of 20 bps (0.20%) p.a. in the cost of debt.

¹¹⁴ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews " (15 December 2015), para 89.

¹¹⁵ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 172.

¹¹⁶ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 219.

¹¹⁷ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016), Attachment A.

TCUP proposal to include debt issuance costs in cash-flow allowances

197. A number of submissions did not agree with the proposal to include debt issuance costs in regulatory cash-flows put forward in the TCUP, because they considered:
- 197.1 it was inconsistent with our notional cost of capital approach and could be prone to manipulation;¹¹⁸
 - 197.2 it was a significant change at a late state of the IM review process;¹¹⁹
 - 197.3 there was an absence of detail in how debt issuance costs will be accommodated in opex allowances;¹²⁰ and
 - 197.4 it would add complexity and uncertainty that is not warranted.¹²¹
198. Transpower did support the suggested change to debt issuance costs. However, it noted that additional changes needed to be made to the definition of operating costs and approach to opex forecasts in the IPP to make it workable.¹²²
199. Following these submissions and a review of the evidence, we have decided to keep an allowance for debt issuance costs in the cost of debt. Although we consider that there remain legitimate advantages of the alternative 'cash-flow' approach, we agree with submissions that note the change has the potential to cause additional complexities that do not necessarily warrant the benefits of a more explicit allowance for debt issuance in regulatory cash-flows.
200. We have maintained the draft decision recommendation that the value of debt issuance costs should be 20 bps (0.20%) p.a.

¹¹⁸ ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), para 27-28; Powerco "Submission on input methodologies review: Technical consultation update paper" (3 November 2016), para 6.

¹¹⁹ ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), para 27; Powerco "Submission on input methodologies review: Technical consultation update paper" (3 November 2016), para 6; Orion submission on IM review technical consultation and on the ENA letter regarding live-line work "Submission on input methodologies review technical consultation" (3 November 2016), para 6.

¹²⁰ Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), para 9.

¹²¹ Contact Energy [PUBLIC] "Input methodology review: Cost of capital – Response to technical consultation update paper dated 13 October 2016" (3 November 2016), p. 1; Wellington Electricity "Input methodologies review: Response to technical consultation update paper" (3 November 2016), p. 4.

¹²² Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 3.

Summary of 20 bps (0.20%) p.a. estimate for debt issuance costs

201. The 20 bps (0.20%) p.a. estimate is our best view of the 'average cost' of a benchmark supplier that issues NZ domestic vanilla bonds on a regular basis consistent with our 'simple approach' to estimating the cost of debt.¹²³
202. Although we recognise that there may be additional costs associated with brokerage and/or a new issue premium ('at certain times'), we do not consider the 'average cost' to the benchmark debt issuance is commensurate with the level of costs suggested by suppliers in submissions. Costs and premiums appear to be relatively variable and dependent on market conditions.
203. Given the variability in costs, we have deliberately not been precise in estimating debt issuance, but the 20 bps we have used broadly represents:
- 203.1 Debt issuance costs – 9-10 bps p.a;
- 203.2 Swap transaction costs – 3-4 bps p.a; and
- 203.3 compensation for 'potential' additional costs, where efficiently-incurred, associated with brokerage, new issue premium, committed facilities/cost of carry, forward starting swaps – 7-9 bps p.a.
204. Further details on how we reached the conclusion on debt issuance costs are provided in the following sections.
205. As described by Transpower, we consider there is some uncertainty over the treatment of costs related to debt issuance with regard to operating costs.¹²⁴ We have therefore adapted the definition of operating cost in the IM determinations to make it clear that the costs of debt issuance and the execution of swap costs should not be included as an operating cost.¹²⁵

Inclusion of swap costs in the debt issuance cost allowance

206. The previous IMs provided an allowance to cover the execution costs of a single interest rate swap as part of the TCSD. This means that the cost of executing an interest rate swap was only provided for debt with an original tenor longer than five years for qualifying suppliers.

¹²³ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), H5.29-H5.32. The 'simple' approach to estimating the cost of debt excludes any costs associated with debt issued in foreign markets or bank debt.

¹²⁴ Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 3.

¹²⁵ For example, *Electricity Distribution Services Input Methodologies Amendments Determination 2016* [2016] NZCC 24.

207. We have changed this restriction and now provide a general allowance for the cost of executing swaps as part of the debt issuance cost allowance. We consider that an efficient supplier may engage in swap transactions when managing its interest pricing risk even if the debt does not have an original tenor that is greater than five years: for example, if a firm issues debt on a rolling five-year basis.
208. This is consistent with a suggestion from Contact:¹²⁶

We note swap costs were not included in the Commission's October 2014 cost of capital determination. These are a component of debt issuance costs incurred by firms and we would see these better as part of issuance costs than recovered through operating costs.

Determining the debt issuance cost allowance

209. The cost of debt allowance is a benchmark estimate based on the cost of issuing publicly traded corporate bonds denominated in New Zealand dollars. Actual debt practices are likely to vary significantly from supplier to supplier depending on their strategy, risk tolerance and efficiency. We do not attempt to replicate exactly all of the costs associated with an individual supplier's hedging or issuance strategy.
210. We consider that the 35 bps (0.35%) debt issuance cost allowance in the previous IMs was generous because it was higher than our finding from the 2010 confidential debt survey that the average debt issuance cost is 0.22% p.a. and was greater than similar costs allowed by overseas regulators.¹²⁷ The High Court judgment on the appeals to the original IMs agreed with the assessment that the debt issuance costs were generous to suppliers.¹²⁸
211. To help review the suitability of our current estimate of issuance costs, we undertook a confidential debt survey of regulated suppliers. From this survey we identified 30 vanilla NZ domestic bonds that are equivalent to the type of bond from which we estimate the debt premium.¹²⁹ The average issuance cost provided in the debt survey of these bonds was 9 bps p.a. when averaged over the original tenor of the bond, and 10 bps p.a. when the costs are assumed to be averaged over a five-year term.¹³⁰

¹²⁶ Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p. 10.

¹²⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 6.3.39.

¹²⁸ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1370].

¹²⁹ This is a slight increase from the draft decision because we identified some additional bonds from the survey that fitted the criteria of a vanilla domestic bond and also we included an allowance for credit rating costs, where it had been provided in a disaggregated form.

¹³⁰ We note that the estimate of debt issuance costs for Transpower did not come directly from the results of the survey but based on separate data that included disaggregated costs from two of their most recent bond issues.

212. In addition to the estimate of the debt issuance costs, the confidential debt survey also provided information from suppliers on the cost of executing an interest rate swap. Data from the survey suggested the average cost of executing an interest rate swap is about 2 bps p.a.

Stakeholder submissions on debt issuance costs

213. Submissions on debt issuance costs varied across different stakeholders and covered a number of different types of costs or premiums that could be associated with individual debt issuances. The main issues on which stakeholders submitted were:

- 213.1 analysis of debt survey results and the costs associated with foreign issued bonds;
- 213.2 use of brokerage and wholesale/retail bonds;
- 213.3 credit rating costs and cost of headroom/standby facilities; and
- 213.4 new issue premium.

Analysis of debt survey and the simple approach

214. As outlined in our draft decision, we use a 'simple' approach to estimating the cost of debt which focusses on one type of debt.¹³¹ An alternative, which considers each option a supplier has for raising debt (eg, issuing bank debt, or issuing bonds overseas) has been called the 'complex approach'.¹³² In 2010 we rejected the use of a complex approach because a lot of the information on other forms of debt is generally not publically available, requires several subjective assumptions, and requires firm-specific data.¹³³
215. Given this approach, we do not take into account other types of debt (eg, bank debt, non-vanilla corporate bonds, foreign issued bonds) that may have different issuance costs. It is particularly important that our assumptions for debt issuance are consistent with our approach to estimating the debt premium because in practice there will be trade-offs between the interest rate paid and debt issuance costs for different forms of debt.

¹³¹ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 228-230.

¹³² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.29.

¹³³ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.42-H5.43.

216. Despite this, we received a number of submissions suggesting that we should include the costs associated with a firm issuing foreign or non-vanilla debt.¹³⁴ Despite the existence of other types of debt, and the fact that we consider it can be efficient for firms to use different types of debt instrument, we continue to consider that the simple approach is more appropriate for the purposes of estimating a benchmark debt issuance allowance. This is supported by Contact, which noted:¹³⁵

We strongly recommend the Commission adheres to its approach of the hypothetical efficient, prudent issuer that funds via issuance of 5 year retail listed bonds in the New Zealand market. It is not appropriate (or fair to consumers) for a cost of funds to be determined for the entire regulated sector based on a selected portion of the funding portfolio from a selected portion of the regulated entities.

217. CEG (on behalf of the ENA) undertook some additional analysis of the debt survey results provided to them by the ENA members in which it obtained an average debt issuance costs of 25-31 bps p.a. compared to our own estimate of 9-10 bps p.a.¹³⁶
218. After analysing the ENA's analysis we are confident that the reason for the higher costs is because it included non-vanilla domestic bonds from the survey data (eg, credit-wrapped, foreign bonds). We have also adjusted some costs provided in the survey following further data requests.

Use of brokerage and retail bonds

219. Brokerage is a cost associated with a retail bond that can significantly increase the price of debt issuance. Powerco suggested that this is legitimate cost that should be included in debt issuance:¹³⁷

The Commission has referenced evidence from Contact regarding debt issuance costs. In our view the costs presented are misleading. Contact submitted data that showed the cost of issuance before and after the cost of brokerage (the fee paid to brokers to distribute a bond to retail investors). The Commission has surprisingly chosen to publish the non-brokerage cost which is estimated by Contact to be 5-7bps per annum. In contrast Contact's estimate of the cost of issuance including the cost of brokerage is 15-25bps per annum. We consider that brokerage costs are legitimate cost incurred in raising debt, and should be compensated for.

¹³⁴ CEG (report prepared for ENA) submission on IM review draft decisions papers "Industry debt statistics" (4 August 2016), para 32; Transpower's attachment to their submission on the cost of capital update paper "Trailing average cost of debt and efficient debt management" (5 February 2016), p. 28.

¹³⁵ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 6.

¹³⁶ CEG (report prepared for ENA) submission on IM review draft decisions papers "Industry debt statistics" (4 August 2016), Table 6-1.

¹³⁷ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 296.4.

220. Although we consider that brokerage costs may be required to issue bonds efficiently, we note that:
- 220.1 issuing wholesale bonds does not require the payment of brokerage, but these type of bonds are included in our dataset for estimating the debt premium;¹³⁸
 - 220.2 issuing retail bonds does not necessarily require the payment of brokerage, dependent on market conditions;¹³⁹ and
 - 220.3 the regulatory reforms made with the enactment of the Financial Markets Conducts Act (**FMCA**) appear to have reduced the costs for repeat issues of retail bonds, which may lower the need for brokerage payments.¹⁴⁰
221. From the available evidence, it appears that in certain circumstances it *may* make sense to pay brokerage, but at other times, particularly for repeat-issue retail bonds, it may not be required. As a result, it is one of that factors that have led us to allowing a debt issuance cost higher than the direct results of the confidential survey.

Credit rating costs and use the use of headroom or cost of carry facilities

222. In the draft decision, we suggested that credit rating costs were not necessarily an efficient component of the cost of debt, as they were not necessarily required to issue a NZ vanilla corporate bond by a NZ entity.¹⁴¹
223. In response Houston Kemp (on behalf of Powerco) submitted that:¹⁴²

In our opinion, it is not reasonable to determine the cost of debt for a supplier under an assumption that it maintains a credit rating of BBB+, but then to set aside efficient costs that it must incur to achieve this. This is not consistent with the efficient debt issuance costs principle, and it is not consistent with maintaining incentives for suppliers to invest – which in turn does not promote the long-term benefit of consumers as set out section 52A of the Commerce Act.

¹³⁸ Wholesale bonds tend to have slightly higher interest rates due to the lower number of available purchasers. However, we note that the majority of corporate bonds used to estimate the debt premium recently are retail bonds. We note that Contact suggested that we should restrict the use of wholesale bonds, however we consider the potential for a larger dataset to use when estimating the debt premium justifies their inclusion. See: Contact Energy [PUBLIC] "Input methodology review: Cost of capital – Response to technical consultation update paper dated 13 October 2016" (3 November 2016), p. 3.

¹³⁹ Contact have provided an example of when it issued a retail bond without paying brokerage. Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 6.

¹⁴⁰ Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p. 10.

¹⁴¹ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 232.

¹⁴² Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission's draft decision on cost of capital" (4 August 2016), p. 6.

224. We now agree that, given our approach to estimating the debt premium, it is consistent to assume that a supplier is likely to maintain a credit rating and there may be costs associated with maintaining a credit rating (for example credit rating agency fees). However, we disagree with the magnitude of costs suggested by Houston Kemp (on behalf of Powerco). We maintain our view that standby facilities are a prudent aspect of debt management, but that these facilities are generally associated with the use of shorter-term debt.
225. We do not consider that under our simple approach, that there would be a requirement for both standby facilities and cost of carry, for regular refinancing of domestic bonds. We also consider that the costs suggested could be lowered by an efficient supplier, as described by Contact:¹⁴³
- Houston Kemp calculations state that cost of carry is 2.4-2.6% p.a. being the difference between the cost of debt and the three month bank bill / Treasury bill rate. Contact considers this to be overly conservative – for example, Contact could currently (and this has been the case for many years now) invest for three months at a spread of 0.5-0.6% above the current bank bill rate, implying that the cost of carry is overstated by 0.5-0.6%.
 - However, discussion of the spread between borrowing and investing is somewhat academic - given short term bank facility costs of about 0.3% p.a. (based on Contact's experience, adjusted for tenor and rating), then the most efficient approach is to cover 3 month refinancing risk with an additional short term bank facility instead of incurring a much higher cost of carry.
 - In any case, there are also other additional ways of avoiding or minimising prefunding costs: forward start (available in USPP), early repayment (available in USPP up to 3 months), using funds to repay other outstanding short term bank debt or commercial paper or bridging the maturity with additional short term bank facilities (which means the borrower actually enjoys a benefit from the temporarily lower cost of funds).
226. Although we consider that the costs provided by Houston Kemp are overstated, we consider that there may be a small cost associated with maintaining liquidity under our simple approach. As a result, it is another factor that has led us to allowing a debt issuance cost higher than the direct results of the confidential survey.

New issue premium

227. The 'new issue premium' is a potential discount that firms may have to apply to enable them to offer new debt into the bond markets.¹⁴⁴ Houston Kemp (on behalf of Powerco) submitted a report estimating the new issue premium in NZ to be 10-12 bps p.a.¹⁴⁵

¹⁴³ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 8.

¹⁴⁴ CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016) para 248-249.

¹⁴⁵ Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission's draft decision on cost of capital" (4 August 2016), p. 8-12, 25-34.

Contrary to the Commission's findings, we consider that there is evidence of an existing new issue premium for New Zealand denominated bonds. To this end, HoustonKemp analysed the available evidence and reached the following conclusion:

The results of our analysis suggest that a new issue premium... exists for these bonds, and that its value is approximately 10 to 12 basis points, based on information sourced from a large number of bonds issued in New Zealand dollars, issued by companies domiciled in New Zealand.

228. Contact on the other hand submitted that its comparison of the margin on a new retail bond against its existing bonds, found no evidence of a discernible new issue premium.¹⁴⁶
229. Although we agree that there is a potential for new issue premiums to be observed in New Zealand, we consider the level suggested by Powerco is overstated. We note the submission from Contact outlining some of the reasons why Houston Kemp's analysis may overstate this premium, including the fact that the sample set used was dominated by banks; used data from 2009/10 (post GFC); and includes a wide variety of debt instruments.¹⁴⁷
230. We also note the emphasis in Houston Kemp's analysis on an eight week period after issuance, which appears relatively arbitrary and the use of swap rates rather than interest rates consistent with the relevant corporate bond rating.¹⁴⁸ This could mean other factors that affect the difference between swap rates and corporate bond rates would influence the results obtained by Houston Kemp.
231. In considering the evidence on the new issue premium, we also undertook further analysis of Houston Kemp's data and observed that:
- 231.1 using different time periods tends to reduce the implied new issue premium towards 8 bps p.a. rather than 10-12 bps p.a.; and
- 231.2 removing bank bonds, and bonds issued around the GFC from the Powerco data set further results in new issue premium of 5-8 bps p.a.
232. The evidence from Contact and Houston Kemp differs in their estimate of whether is a new issue premium in the NZ corporate bond market and the magnitude of any premium. It is difficult for us to determine what the correct level should be and so it is another factor that has led us to adopting a debt issuance cost higher than the direct results of the confidential survey.

¹⁴⁶ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 29-30.

¹⁴⁷ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 6-7.

¹⁴⁸ As noted by Houston Kemp, the use of swap rates is because of a lack of data availability in New Zealand. Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission's draft decision on cost of capital" (4 August 2016) p. 9.

233. We also note that our use of bid rates rather than mid rates provides a small benefit to the supplier which would provide some compensation for any costs incurred as a result of the new issue premium.¹⁴⁹

Swap costs

234. The current IMs define the cost of executing a swap transaction as:

half of the New Zealand dollar wholesale bid and offer spread for a vanilla interest rate swap determined at the time of pricing the qualifying debt

235. Based on this definition, we estimated a swap cost of 4 bps when estimating the cost of capital for the unbundled copper local loop (**UCLL**)/unbundled bitstream access (**UBA**) pricing review.¹⁵⁰ However, this estimate was based on the observed data value from a single day.¹⁵¹ Subsequent analysis of the data over a longer period (2013-2015) showed that the average swap cost over that time was 1-2 bps. This value appears to be consistent with the values used by suppliers in their disclosed TCSD calculations. Average supplier estimates for swap costs as for the TCSD calculation ranged from 0.7 bps p.a. to 3.5 bps p.a.
236. The majority of bonds in the 2016 confidential debt survey used to estimate the average issuance costs, estimated the cost of a swap transaction as 2 bps p.a.
237. Contact submitted that swap execution costs are approximately 2 bps p.a. and suggested that on average the equivalent of 1.3 swaps (ie, equivalent to 2.6 bps p.a. in total) would be needed because it could be assumed that at least some of the debt would be issued using floating rates (which would only require one swap to hedge to the regulatory period) and some would be issued during the determination window (requiring no swaps).¹⁵²
238. Aurora submitted that we should include an allowance for the cost of two swaps with an allowance for each of 4 bps p.a. (8 bps in total), based on our decision in the UCLL/UBA pricing review.¹⁵³ However, it suggested that these costs should be reviewed. Houston Kemp suggested we should estimate the costs of swaps from the confidential debt survey.¹⁵⁴
239. Some submissions argued we should provide compensation for the costs of cross-currency swaps. However, as noted previously this is inconsistent with our simple

¹⁴⁹ This issue is considered in para 248-249.

¹⁵⁰ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews " (15 December 2015), para 112-122.

¹⁵¹ This date was 1 August 2014.

¹⁵² Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), Appendix 6.

¹⁵³ Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016) p. 13.

¹⁵⁴ Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p. 14.

approach to estimating the cost of debt because cross-currency swaps are not required by suppliers when issuing domestic vanilla bonds.¹⁵⁵

240. We maintain our view that the evidence suggests that an appropriate estimate of the cost of executing a swap transaction in NZ is approximately 2 bps p.a.

Amortisation of upfront costs

241. CEG submitted that upfront debt costs need to be amortised over time using a cost of capital to take into account the time value of money.¹⁵⁶
242. We disagree with this conclusion because suppliers typically issue some debt each year to manage refinancing risk. They therefore incur some debt issuance costs each year. Assuming that firms issue a consistent amount each year with similar costs, there is no need for a present value adjustment in respect of a portfolio of debt.

Debt issuance costs conclusion

243. Evidence from the 2010 and 2016 debt surveys suggests that the existing assumption of 0.35% p.a. for issuance costs is likely to be generous in terms of issuing NZ domestic corporate bonds. We noted this generosity in 2010.¹⁵⁷
244. Information received from the 2016 debt survey and submissions suggest that these costs are more likely to be in the region of 9-10 bps p.a. for debt issued with a five-year original maturity term. Swap costs appear to be in the region of 2 bps per swap.
245. Given the uncertainty of these costs we do not consider we should be too precise in trying to replicate costs using a bottom-up approach. Instead we consider, on the basis of the available evidence, that the allowance for debt issuance costs should be no higher than 20 bps p.a. for debt with a five-year term.
246. We consider this is sufficient to cover the costs of issuing NZ domestic corporate bonds (9-10 bps) and costs of any required swaps (3-4 bps). As noted above, given the uncertainty and variability of the various costs, we consider it is prudent to include an additional allowance to cover other issues related to debt issuance.¹⁵⁸

¹⁵⁵ See para 216.

¹⁵⁶ CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 243.

¹⁵⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.85.

¹⁵⁸ See para 203.3.

Other matters related to estimating the cost of debt

247. This section summarises other matters concerning the cost of debt. This includes:

247.1 our decision to maintain the used of bid rates rather and mid rates when estimating yields on government and corporate bonds; and

247.2 our decision to maintain a credit rating of BBB+ for EDBs, GPBs and Transpower; and A- for airports.

Use of bid rates

248. Contact considered that our current approach of taking the 'bid' rates rather than 'mid' rates for bond yields provided an advantage for suppliers.¹⁵⁹

249. Although we have some sympathy with Contact's suggestion that we should use 'mid' rates rather than 'bid' rates, we have decided not to change the approach. The reason is that bid rates provide a small benefit to suppliers which are likely to offset (although to an unknown extent) the potential impact from 'new issue premiums' that has been described in paragraphs 227-233. We took this effect into account as part of our decision to provide an allowance of 20 bps (0.20%) for debt issuance costs.¹⁶⁰

Credit rating

250. We have maintained Standard and Poors (**S&P**) (or equivalent from another recognised agency) long-term credit ratings of:

250.1 BBB+ for EDBs, GPBs and Transpower; and

250.2 A- for airports.

251. Credit ratings are an indication of a borrower's creditworthiness. The higher the rating, the less the likelihood of default.

252. We have specified notional long-term credit ratings, which are used when estimating the debt premium. If suppliers' actual credit ratings were used, there may be an incentive for them to increase leverage, leading to adverse implications for consumers.

253. We consider that an efficient operator would seek to maintain an appropriate investment grade credit rating to ensure satisfactory access to debt capital markets at reasonable costs. S&P's minimum long-term credit rating considered to be investment grade is BBB-.

¹⁵⁹ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 31.

¹⁶⁰ See para 194.

254. Under the current IMs we use S&P long-term credit ratings of BBB+ (for EDBs, Transpower, and GPBs) and A- (for airports) because this provides an adequate safety margin above the minimum investment grade.¹⁶¹ This margin protects against the possibility that economic downturns or shocks can lead to financial distress, but also provides suppliers with flexibility over the level of leverage and the choice of debt instruments.
255. We consider that S&P long-term credit ratings of BBB+ (for EDBs, Transpower, and GPBs) and A- (for airports) remain appropriate, and note that submissions have not suggested using different notional credit ratings. In its submission on our cost of capital update paper, PwC (on behalf of 19 EDBs) stated that there is little evidence to support a change from BBB+ and suggested that "...the rationale for the choice of BBB+, remain relevant".¹⁶²
256. We note that BBB+ is the most common long-term credit rating of the companies in our comparator sample for EDBs, Transpower and GPBs. However, Bloomberg only reports long-term credit ratings for three of the airports in our comparator sample.
257. It is difficult to accurately estimate the debt premium specific to a BBB+ (or A-) rated regulated supplier, because New Zealand still only has a limited number of corporate bonds that are publicly traded. Therefore, the IM allows us to consider a wider range of credit ratings and issuers when estimating the debt premium.¹⁶³

¹⁶¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H5.46-H5.59; Commerce Commission "Input methodologies (airport services): Reasons paper" (December 2010), para E5.44-E5.57.

¹⁶² PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), p. 12.

¹⁶³ While there is a range of credit ratings held by the companies in our comparator sample for EDBs, GPBs and Transpower, more of the companies have a long-term credit rating of BBB+ than any other rating.

Chapter 4: Cost of equity

Purpose of this chapter

258. The purpose of this chapter is to explain our decisions regarding the cost of equity, including any changes we have made, resulting from our review of:

258.1 the main issues raised in relation to the cost of equity; and

258.2 each of the parameters that make up the cost of equity.

Structure of this chapter

259. This chapter begins by explaining our findings in respect of asset beta, including:

259.1 how we estimated the asset beta for EDBs and Transpower, GPBs, and airports using a similar approach to 2010 (with updated data); and

259.2 whether we have made any adjustments to asset beta for regulatory differences or differences in exposure to systematic risk.

260. We then explain our findings in respect of our review of the other parameters that make up the cost of equity: TAMRP and the risk-free rate.

261. The discussion of TAMRP and risk-free rate applies to all regulated sectors. The asset beta section of this chapter first discusses asset beta as it relates to EDBs, Transpower and GPBs, and then as it relates to airports.

Asset beta

262. This section describes our approach to reviewing the asset beta estimates for EDBs, Transpower, GPBs, and airports.

263. As a result of this review, we have made the following changes to the asset beta values we originally specified in December 2010.

263.1 We have increased the asset beta for EDBs and Transpower from 0.34 to 0.35, after updating the comparator sample analysis.

263.2 We have reduced the asset beta for GPBs from 0.44 to 0.40. This represents a 0.05 upwards adjustment to the (revised) electricity asset beta, compared with 0.10 in the 2010 IMs.

263.3 We have maintained an asset beta of 0.60 for specified airport services.

264. When combined with the updated notional leverage values we have determined, the revised asset betas lead to the following changes to the equity beta values specified in the cost of capital IMs.¹⁶⁴

264.1 The equity beta for EDBs and Transpower has decreased from 0.61 to 0.60.

264.2 The equity beta for GPBs has decreased from 0.79 to 0.69.

264.3 The equity beta for specified airport services has increased from 0.72 to 0.74.

Summary of changes since the draft IM review decision

265. Between the draft IM review decision (published on 16 June 2016) and this final IM review decision, we have:

265.1 increased the asset beta for EDBs/Transpower from 0.34 to 0.35. This reflects updated comparator sample analysis, including correction of spreadsheet errors for weekly estimates, and minor refinements to the comparator sample in response to submissions;

265.2 increased the asset beta for GPBs from 0.34 to 0.40, which is based on a 0.05 uplift from the revised asset beta for EDBs and Transpower of 0.35. The draft decision proposed no gas asset beta uplift. However, based on additional evidence provided in submissions, we now consider an uplift is appropriate (but not as high as the 0.10 used previously); and

265.3 increased the asset beta for airports from 0.58 to 0.60, after correcting the spreadsheet errors affecting weekly asset beta estimates.

Approach to estimating asset beta

We have followed a six-step process when determining asset beta estimates

266. Our approach to estimating asset (and equity) betas is largely unchanged from 2010.¹⁶⁵ We have followed the same six-step process for estimating beta, which is summarised below.¹⁶⁶

266.1 *Step 1:* identify a sample of relevant comparator firms.

266.2 *Step 2:* estimate the equity beta for each firm in the sample.

¹⁶⁴ As discussed in paragraphs 546 to 572, we have determined notional leverage of 42% for EDBs, Transpower and GPBs, and 19% for airports. This is compared with notional leverage of 44% and 17% in the 2010 IMs.

¹⁶⁵ As noted in paragraphs 269 and 288-291 below, we have used weekly and four-weekly asset beta estimates (averaged across each possible reference day) in this review. This is opposed to using weekly and monthly estimates based on data for the last trading day of the week or month, as we did in 2010.

¹⁶⁶ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.14.

- 266.3 *Step 3*: de-lever each equity beta estimate to get an estimated asset beta for each firm in the sample.
- 266.4 *Step 4*: calculate an average asset beta for the sample.
- 266.5 *Step 5*: apply any adjustments for regulatory differences or differences in systematic risk across services to the average asset beta for the sample.
- 266.6 *Step 6*: re-lever the average asset beta for the sample to an equity beta estimate using the Commission's assumed notional leverage.
267. Although we have updated the comparator samples used and time periods considered, we have estimated very similar (unadjusted) asset betas to our 2010 decision.
268. In reaching our estimates, we focussed on asset betas for the two most recent five-year periods (2006-2011 and 2011-2016), based on weekly and four-weekly observation frequencies. However, we have also had regard to earlier periods (1996-2001 and 2001-2006) and daily estimates.
269. We calculated weekly and four-weekly betas, averaged across each trading day, in response to submissions on the cost of capital update paper. This is in contrast to the weekly and monthly betas (reported by Bloomberg) that we used in 2010, which were calculated based on the last trading day of each period only.

Beta measures exposure to systematic risk

270. Equity beta is a measure of exposure to systematic risk.¹⁶⁷ Systematic risk measures the extent to which the returns on a company fluctuate relative to the equity returns in the stock market as a whole. For example:
- 270.1 if an investment had no systematic risk (ie, it showed no correlation with returns on the market), its equity beta would be zero; and
- 270.2 if an investment in the equity of a company is of average risk, the equity beta will be one. This means that the premium over the risk-free rate that equity investors expect will be the same as the average for the overall market (the TAMRP).
271. An asset beta removes the effect of the firm's capital structure, by estimating the equity beta for an unlevered (zero debt) firm. Therefore, asset beta is a measure of systematic risk that can be compared across firms, without being affected by their specific financing strategies. Under the simplified beta leveraging formula for the simplified Brennan-Lally CAPM (ie, assuming a debt beta of zero), *equity beta = asset beta / (1 - leverage)*.

¹⁶⁷ Systematic risk is assessed from the perspective of an investor with a fully diversified portfolio.

272. Beta is not directly observable so we estimate it empirically. We use historic estimates of average betas because beta is expected to be relatively stable over time and historic betas are indicative of future betas.
273. For firms with traded stocks, the beta for the firm can be estimated directly from the historical returns on those stocks, relative to the market's return. However, there are practical difficulties when reliably estimating betas. For example, Vector owns the only publicly listed EDB/GPB in New Zealand. Therefore, we use a sample of international comparator firms when estimating beta.

We have determined an asset beta of 0.35 for EDBs and Transpower

274. The discussion below explains why we consider an asset beta of 0.35 should be used for EDBs and Transpower, based on the updated analysis we have undertaken.

Identifying a sample of relevant comparator firms

275. The first step in our process is to identify relevant comparable firms for inclusion in our sample.
276. We have continued using the large energy comparator sample (of approximately 70 companies) as our primary approach to determining asset beta. This is as opposed to making significant refinements to the comparator sample (as suggested by TDB, for Contact) or using separate electricity and gas samples (as suggested by Oxera, for First Gas).
277. We consider that using the large energy sample has several benefits over the alternative approaches suggested in submissions. For example, this approach:
- 277.1 limits the need to make subjective judgement calls regarding whether each of the 74 companies from the draft comparator sample should be included, as required under TDB's approach to refining the comparator sample. In particular, we consider there is a lack of clarity regarding the thresholds, evidence, and judgement calls TDB made when excluding companies from the sample;¹⁶⁸
 - 277.2 ensures that integrated electricity and gas businesses remain in the sample. In contrast, using separate electricity and gas sub-samples (as suggested by First Gas and Oxera) would exclude potentially useful data. For example, the only New Zealand based company in the sample (Vector) would be excluded; and
 - 277.3 maintains consistency and stability with the approach used when setting the original IMs in 2010. Therefore, this reduces the risk of large swings between

¹⁶⁸ Our concerns with TDB's approach to refining the comparator sample are explained in more detail in paragraphs 309 to 320 below.

reviews based on a change in approach, rather than a change in asset beta data.

278. We have considered alternative approaches to sample composition as a cross-check, as discussed in more detail in paragraphs 309 to 320 below. We consider these alternative approaches lead to broadly similar outcomes to our large energy sample. Therefore, given the limitations of the alternative approaches, we consider there is limited justification for adopting them over our large energy sample.
279. We have included New Zealand, Australian, UK, and US-based electricity and gas utilities when determining our energy comparator sample. In practice, it is difficult to find a sufficient number of comparable New Zealand based businesses in most industries, so we cannot rely solely on domestic data. Therefore, we have included firms from overseas jurisdictions to ensure our sample is sufficiently large to reach a reliable estimate.
280. As there are few 'pure-play' electricity lines and gas pipelines comparators available, we have included vertically integrated utilities (ie, including generation and retail) when estimating beta. We have also only included companies that had at least five years of trading data, and a market value of equity of at least US\$100m. This is consistent with our approach in 2010.
281. To identify relevant comparable firms for inclusion in the sample, we used Industry Classification Benchmarks (ICB) reported by Bloomberg. Specifically, we used the 'Electricity', 'Gas Distribution', 'Pipelines, and 'Multiutilities' classifications when identifying firms to be included in our comparator sample. The classifications we have used differ slightly from 2010, reflecting changes in the ICBs.¹⁶⁹
282. We then used Bloomberg company descriptions and 'Segment Analysis' information to assess the nature and extent of each company's business, and excluded any firms from the sample that we did not consider were sufficiently comparable. Where a parent and subsidiary company were both captured, we only included the company we considered to be most relevant.¹⁷⁰
283. This approach resulted in a sample of 74 firms for the draft decision. Further details regarding these 74 companies, including changes from the 2010 comparator sample, company descriptions, and asset beta results, are included in Attachment A.

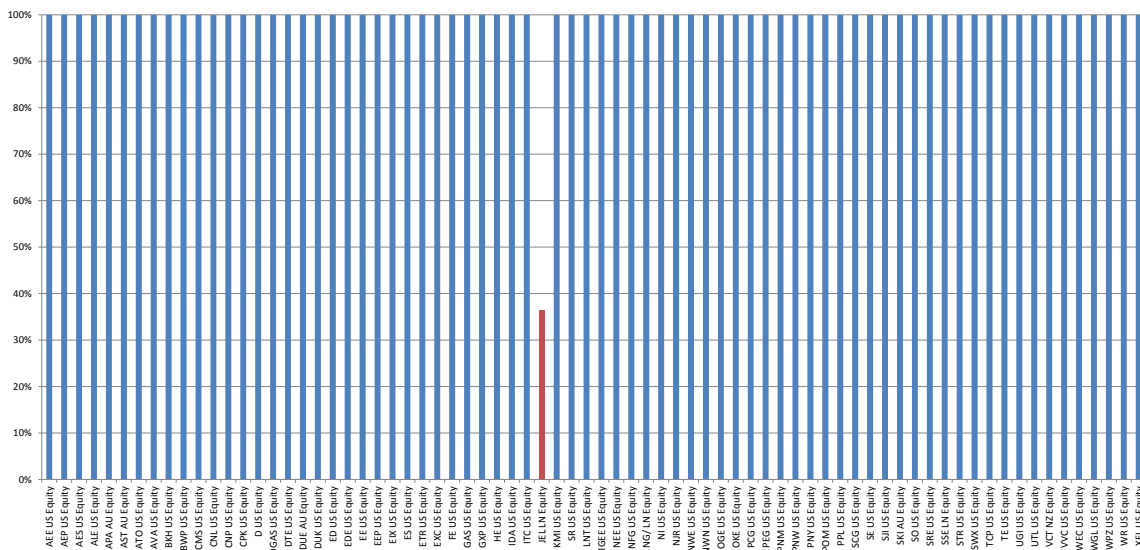
¹⁶⁹ In the 2010 IMs decision we used the following classifications: 'Electric – Distribution', 'Electric – Integrated', 'Electric – Transmission', Gas - Distribution' and 'Pipelines'. Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.44.

¹⁷⁰ Specifically, OKS US Equity, SEP US Equity, and WMB US Equity were excluded from the sample. OKE US Equity and SE US Equity (which are related companies of OKS US Equity and SEP US Equity, respectively), were previously included in our 2010 comparator sample, so we have retained these companies in our revised sample. We have included WPZ US Equity in our revised sample, which is a subsidiary of WMB US Equity.

284. We have excluded two companies from the energy sample since the draft, in response to submissions we received. Therefore, our final energy sample comprises 72 companies.

284.1 Jersey Electricity (JEL LN Equity) has been removed due to illiquidity.¹⁷¹ In particular, Oxera submitted that Jersey Electricity should be excluded from the sample due to a low percentage of days traded.¹⁷² We agree. As shown in Figure 4 below, Jersey Electricity was only traded on approximately 36% of the possible trading days for the 2011 to 2016 period.¹⁷³

Figure 4: Percentage of days traded for companies in energy sample (2011-2016)



284.2 National Fuel Gas Company (NFG US Equity) has been excluded because CEG provided specific evidence that this company “has exploration and production activities that, in terms of their contribution to EBITDA over the period 2012 to 2015, exceeded gas pipeline activities (gathering, transmission

¹⁷¹ Our draft decision also discussed an earlier submission from Frontier Economics regarding Amihud’s liquidity metric. Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 277 to 280.

¹⁷² Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 14.

¹⁷³ Submissions from TDB and CEG also supported excluding Jersey Electricity. CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission’s sample" (25 August 2016), p. 28; and TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" (4 August 2016), p. 18.

and storage)".¹⁷⁴ TDB also identified NFG as an outlier, and excluded this company from the sample in step 1 of its refinement process.¹⁷⁵

285. Oxera also suggested several other liquidity and gearing filters, which we have not applied for the reasons below.¹⁷⁶

285.1 Average free float percentage. We consider this has limited value as a liquidity measure. As Contact noted: "A company's shares could still be liquid if it has a high absolute number and value of shares traded, even if the percentage of its shares in free float is small".¹⁷⁷ For example, the current value of Vector's publicly traded shares is approximately \$800m, even though it has a relatively low average free float percentage (approximately 25%).

285.2 Average bid-ask spread percentage. Although we consider an average bid-ask spread filter may have some merit, we have not used this filter. We note that using the bid-ask spread filter to exclude Delta Natural Gas (as suggested by Oxera) would have no impact on the average asset beta and leverage results for our comparator sample. Further, if we were to apply this filter, we would need to determine a subjective threshold to apply across both the energy and airports samples.¹⁷⁸

285.3 Average gearing. Oxera proposed removing AES Corp from the sample based on its high average gearing level.¹⁷⁹ We have not applied Oxera's gearing filter because, in our view, none of the companies in the sample are sufficiently highly geared to be problematic when undertaking our beta analysis.¹⁸⁰ Specifically, for the 2011-2016 period, the highest leverage in the sample is 67% (for both AES and DUE).¹⁸¹ This is close to the notional gearing range

¹⁷⁴ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), p. 27.

¹⁷⁵ TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" (4 August 2016), p. 21-23 and 44.

¹⁷⁶ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 13-17.

¹⁷⁷ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 11.

¹⁷⁸ For consistency, we consider the approach to liquidity filters should be applied across the energy and airports samples. The issue regarding the appropriate threshold for the average bid-ask spread percentage becomes more apparent when considering the airports comparator sample. See footnote 358 below for further discussion.

¹⁷⁹ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 17.

¹⁸⁰ To the extent that relatively high leverage affects the equity beta for a firm, this is adjusted for in the de-levering process.

¹⁸¹ In response to Oxera's submission, Contact Energy noted that AES could be removed from the sample because it has a sub-investment grade credit rating (Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 11). However, we note that removing AES Corp would have no impact on the average asset beta for the comparator sample. Further, requiring companies to have an

within which Ofgem uses a zero debt beta (55%-65%, as referred to in Oxera's submission).

Estimating the equity beta for each firm in the sample

286. We have used a similar process to 2010 when estimating the historical equity beta for each of the firms in our sample. In 2010 we used weekly and monthly equity betas reported by Bloomberg. However, this time we have undertaken the regression analysis ourselves. This enabled us to calculate weekly and four-weekly betas, averaged across each trading day, as explained in paragraphs 288 to 291.
287. We calculated equity beta and leverage estimates using source data (obtained from Bloomberg) on share prices, market indices, market capitalisation and net debt for each firm in the sample. The time periods and observation frequencies considered are:¹⁸²
- 287.1 the five-year period to 31 March 2001 using daily, weekly and four-weekly observations;
- 287.2 the five-year period to 31 March 2006 using daily, weekly and four-weekly observations;
- 287.3 the five-year period to 31 March 2011 using daily, weekly and four-weekly observations; and
- 287.4 the five-year period to 31 March 2016 using daily, weekly and four-weekly observations.
288. In our 2010 decision, we used weekly and monthly equity beta estimates reported by Bloomberg. These weekly and monthly estimates were calculated based on data for the last trading day of the week or month, respectively.
289. In its submission on our cost of capital update paper, Frontier suggested that there is a "risk of estimation error due to choice of reference day" and "the allowed return could be $\pm 0.35\%$ merely due to the arbitrary selection of the reference day used to compute weekly returns".¹⁸³ Frontier also indicated that the risk is magnified when moving from weekly to monthly estimates.

investment grade credit rating could potentially exclude a significant number of companies from the energy and airports samples, given that many of them are not rated.

¹⁸² We used daily equity beta estimate reported by Bloomberg. We calculated the weekly and four-weekly beta estimates ourselves, as noted in para 286.

¹⁸³ Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016), p. 41 and 45.

290. Similarly, CEG noted the risk of estimation error from using a single monthly asset beta estimate:¹⁸⁴

...the Commission's use of a single 'monthly' asset beta estimate (measured based on the return from the first to last day of each month) is likely to lead to error. This is because there are actually 20 or so different estimates of a monthly asset beta (e.g. from the 2nd of one month to the 2nd of the next etc.). These different measures can result in very different monthly betas – even when averaged across a large sample.

291. We agree that there may be a small risk of estimation error based on the choice of reference day. Therefore, we have no longer used the weekly and monthly equity betas reported by Bloomberg. Instead, we have calculated:

291.1 four-weekly equity betas, by estimating equity betas for each of the 20 possible trading/reference days and then averaging the results; and

291.2 weekly equity betas, by estimating equity betas for each of the five possible trading days/reference days and then averaging the results.¹⁸⁵

292. Since the draft decision, we have corrected several errors in our asset beta spreadsheet. Overall, correcting these errors has increased the weekly asset beta estimates.

292.1 CEG noted that there was an error in the calculation of the weekly stock returns, resulting from incorrect cell referencing.¹⁸⁶ We agree, and have corrected this error.

292.2 We also identified two further spreadsheet errors as part of our review process, which we have now corrected.¹⁸⁷

¹⁸⁴ CEG "Asset beta" (report prepared for ENA, February 2016), para 25.

¹⁸⁵ Submissions generally supported this approach. For example, see: Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 126; ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 76; PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 246; Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), section 4.5; and Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 46.

¹⁸⁶ CEG noted that the percentage return was calculated as $(P_2 - P_1)/P_3$, where P_3 is the stock's ending price 21 days prior to the date of P_1 . However, the percentage return should have been calculated as $(P_2 - P_1)/P_2$. CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), p. 29.

¹⁸⁷ The formula for calculating "x bar" in the "Weekly Be calculations" sheet incorrectly referred to the "4-weekly Be calculations" sheet (for example, cells H12:H2031). Further, cell B88 of the "4-weekly Be calculations" sheet incorrectly contained a hardcoded number (1), resulting in an incorrect reference date.

293. We have also excluded two companies, Kinder Morgan (KMI) and Williams Partners (WPZ), for the 2006-2011 period. CEG's cross submission noted that it appears "...the Commission has inadvertently included gearing data for KMI and WPZ despite Bloomberg not having stock data for these firms in 2006-11".¹⁸⁸ Given that less than one year of share price data was available for each of these firms, we have excluded these companies when calculating the average asset beta (and leverage) for 2006-2011.

De-levering the equity beta estimates and calculating the average asset beta across the sample

294. The next step in the process is to convert the equity betas for each comparator firm (across each time period and frequency interval) into asset betas.
295. We have applied the same approach to de-levering equity betas into asset betas that we used in 2010. In 2010 we removed the effect of each firm's leverage on its equity beta by de-levering using the tax-neutral formula.
- 295.1 Expressed in terms of estimating an asset beta (ie, in a form suitable for de-levering an equity beta estimate), the tax-neutral formula takes the form:

$$\beta_a = \beta_e(1-L) + \beta_d L$$

where β_a is the firm's asset beta, β_e is the firm's equity beta, β_d is the firm's debt beta, and L is the firm's leverage.

- 295.2 Expressed in terms of estimating an equity beta (ie, in a form suitable for re-levering an asset beta estimate), the tax-neutral formula takes the form:¹⁸⁹

$$\beta_e = \beta_a + (\beta_a - \beta_d)L/(1-L)$$

296. To estimate a service-wide asset beta, we averaged the individual asset beta estimates across our comparator sample (giving each estimate equal weighting). This produced the results shown in Table 1. Further details regarding the results for the comparator sample are included in Attachment A.

¹⁸⁸ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), p. 31.

¹⁸⁹ As discussed in paragraphs 546 to 572, we have used the average asset beta and average leverage of our comparator sample to address the leverage anomaly. In this case, the equation in paragraph 295.1 is used to calculate the asset beta for each individual firm in the sample (by de-levering each equity beta), and the average asset beta (and leverage) of each individual firm is calculated. The equation in paragraph 295.2 is then used to re-lever the average asset beta into an equity beta, using the average leverage of the comparator sample. Assuming that all firms have the same debt beta, this approach produces the same result regardless of whether a zero or non-zero debt beta is assumed.

Table 1: Summary of energy asset beta comparator sample results

	1996-2001	2001-2006	2006-2011	2011-2016
Daily asset beta	0.16	0.31	0.40	0.39
Weekly asset beta	0.11	0.29	0.38	0.36
Four-weekly asset beta	0.07	0.31	0.35	0.30
Average leverage	41%	46%	43%	41%
# of companies with data available	61	67	70	72

297. When determining the average asset beta estimate for our energy comparator sample, we have considered the weight that should be given to different observation intervals and estimation frequencies. Our view is that greater weight should be given to:

297.1 the two most recent five-year periods (ie 2006-2011 and 2011-2016), for the reasons explained in paragraphs 299 to 302; and

297.2 weekly and four-weekly asset beta estimates (rather than daily estimates), for the reasons given in paragraphs 303 to 307.

298. The average asset beta across weekly and four-weekly estimates, for the 2006-2011 and 2011-2016 periods is 0.35.

299. Aswath Damodaran, Professor of finance at the Stern School of Business at New York University, suggests that a trade-off exists when choosing a time period for beta estimation:¹⁹⁰

By going back further in time, we get the advantage of having more observations in the regression, but this could be offset by the fact that the firm itself might have changed its characteristics, in terms of business mix and leverage, over that period. Our objective is not to estimate the best beta we can over the last period but to obtain the best beta we can for the future.

300. We recognise this trade-off, and in this context we consider that placing greater weight on the two most recent five-year periods provides an appropriate balance between the number of observations and the best reflection of beta for the future.

301. However, we note that using the two most recent five-year periods may not always provide this balance, given that asset beta estimates can vary significantly across periods. For example, the asset betas for the 1996-2001 period appear particularly low, consistent with our findings for 1995-2000 in the 2010 IMs reasons paper.¹⁹¹

¹⁹⁰ Estimating Risk Parameters, Aswath Damodaran. Available at: (<http://people.stern.nyu.edu/adamodar/pdfiles/papers/beta.pdf>).

¹⁹¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), figure H9, p 524.

302. In the original IMs, we first looked at the most recent five-year period in our draft decision. For the final decision, published in December 2010, we analysed a broader range of time periods, but noted that this did not materially change our original asset beta estimate (based on the most recent five-year period, as contained in the draft decision). Therefore, we maintained the unadjusted asset beta of 0.34 for EDBs, Transpower and GPBs.¹⁹²
303. We have given equal weight to four-weekly and weekly asset beta estimates. Although we have had regard to daily asset beta estimates, we have not given them significant weight when estimating our average asset beta. This is consistent with the approach we took in the draft decision.
304. Several submissions on the draft decision supported giving daily asset beta estimates the same weight as weekly and four-weekly estimates.¹⁹³ For example, Oxera (for First Gas) submitted that:¹⁹⁴
- 304.1 while daily betas could produce imprecise estimates in the presence of illiquid stocks, they provide a useful estimate of the asset beta due to an increase in the number of observations in the beta regression;
 - 304.2 it is consistent with good regulatory practice to use daily beta estimates, as well as other frequencies;
 - 304.3 the standard errors of daily asset betas are in line with standard errors from weekly and four-weekly regressions; and
 - 304.4 there is no academic consensus for selecting the optimal frequency of observations for beta estimation.
305. Contact agreed that there does not seem to be any accepted best practice regarding use of daily, weekly or four-weekly asset betas, but noted that it is important that the Commission is transparent and consistent in its approach. Contact suggested that "...a pragmatic and transparent way forward is for the Commission to consistently take an average of the weekly and four-weekly betas to minimise estimation error due to the choice of reference period".¹⁹⁵
306. We note that there is a trade-off between problems of weekly/monthly betas and daily betas.

¹⁹² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.62-H8.72.

¹⁹³ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 47-52; and PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 247.

¹⁹⁴ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 20-21.

¹⁹⁵ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 12.

- 306.1 Daily asset beta estimates can be distorted by low liquidity stocks. To calculate an accurate asset beta estimate, it is important to measure *contemporaneous* changes in the individual firm's share price and the relevant market index. The shorter the estimation interval used (eg daily), the more difficult it is to capture a contemporaneous link, particularly where shares are infrequently traded.¹⁹⁶
- 306.2 Weekly and monthly asset beta estimates, on the other hand, lead to fewer observations being available when undertaking the regression analysis. This can affect the statistical significance of the results.
307. In reaching our decision to give primary weight to weekly and four-weekly betas, we note that:
- 307.1 our approach of averaging weekly and four-weekly betas across all possible reference days significantly reduces any concerns about a lack of observations for weekly and monthly estimates;
- 307.2 although international evidence based on regulatory precedent and academic papers is ambiguous, a recent study of evidence from Australia, Germany and the UK concluded that "...longer frequency betas have superior characteristics for regulatory purposes in these countries" and that its findings "...imply that low frequency beta estimates should always be preferred to high frequency beta estimates";¹⁹⁷ and
- 307.3 our past approach in the 2010 IMs decision was to focus on weekly and monthly asset beta estimates.
308. We note that giving more weight to daily asset betas would increase our estimate, but having regard to earlier periods would decrease our estimate. This suggests that giving weight to additional time periods and frequencies would not provide strong support for departing from our estimate of 0.35. Therefore, we consider the average weekly/four-weekly estimate for 2006-2011 and 2011-2016 of 0.35 is appropriate.

¹⁹⁶ Frontier Economics submitted that any of the main statistical problems that may arise with daily betas (including serial correlation, heteroscedasticity, and non-synchronous trading) can be addressed relatively easily as part of the estimation process. However, Frontier Economics did not indicate whether these problems are present in our asset beta data set, or provide any corrected daily beta estimates. Given we are satisfied with the robustness of our approach of averaging weekly and four-weekly estimates, we have not conducted further analysis of daily estimates, as referred to by Frontier. Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 50-51.

¹⁹⁷ Alan Gregory, Shan Hua and Rajesh Tharyan "In search of beta" (April 2015).

We have also considered alternative approaches to comparator sample

309. We have also considered several other approaches to determining the comparator sample for energy businesses. In particular, we have considered:
- 309.1 TDB's three step approach to refining the energy sample;¹⁹⁸
 - 309.2 splitting the energy comparator sample into separate electricity and gas sub-samples, as suggested by Oxera (for First Gas);¹⁹⁹
 - 309.3 Oxera's refined sample, after applying all of its suggested liquidity and gearing filters; and
 - 309.4 using Thomson Reuters Business Classifications (**TRBC**) as a cross-check, as suggested in First Gas' cross submission.²⁰⁰
310. Figure 5 below presents the asset beta under each of these approaches, averaged across weekly and four-weekly estimates over 2006-2011 and 2011-2016.²⁰¹ Results for the sample used in our draft decision, and our refined sample used in this final decision are also included.²⁰²

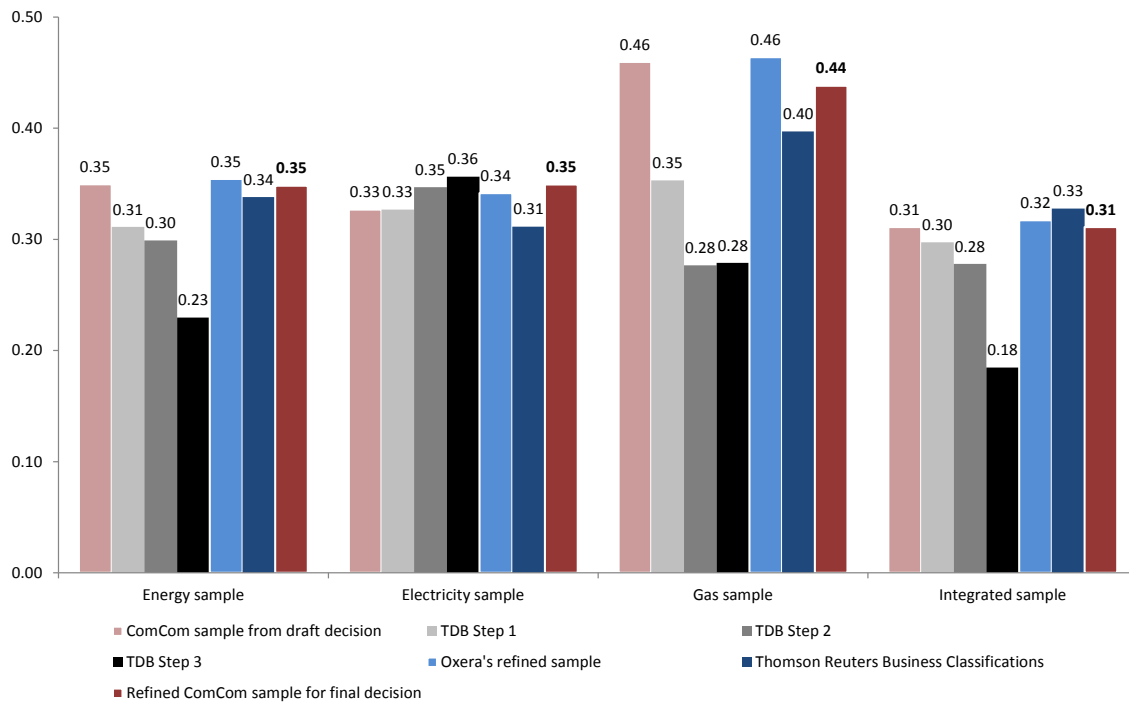
¹⁹⁸ TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" (4 August 2016), p. 36. Step 1: Remove firms with unregulated gathering, processing, liquids and commodity exposures; Step 2: Remove firms with other large unrelated/unregulated business segments. Step 3: Remove firms with significant business segments that are not related to transmission or distribution.

¹⁹⁹ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 2.
²⁰⁰ [PUBLIC] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), p. 5-7.

²⁰¹ The results presented differ slightly from those in the Oxera, First Gas and TDB submissions, due to differences in frequencies and time periods used when averaging the results. The results in Figure 5 are presented on a like-for-like basis, using the asset betas we calculated for each company as set out in Attachment A.

²⁰² The values in Figure 5 were calculated assuming a zero debt beta. As noted by Dr Lally, if debt betas are set at a sensible level, incorporating them has very little effect on the results, so it is not worth the trouble (see paragraph 385.4 below).

Figure 5: Asset beta estimates for alternative approaches to comparator sample



311. Although TDB’s refined *energy* sample leads to lower asset betas, we have several concerns with this approach.

311.1 TDB’s approach to considering excluding each of the companies in our draft comparator sample is subjective, as acknowledged in TDB’s own submission. TDB stated “It is important to note that through this process we have used our best judgment when classifying each firm. There are areas where the firms and the regulations they are subject to is unclear and where firms’ business segments are highly complicated”.²⁰³

311.2 TDB appear to have used a binary approach, where companies are excluded from the sample as soon as they have any gas gathering/exploration. We consider a threshold approach may be better (for example, where a company with a significant percentage of relevant activities would remain in the sample). However, insufficient data is available at this time to apply this approach.²⁰⁴

²⁰³ TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" (4 August 2016), p. 35.

²⁰⁴ Contact Energy suggested that a detailed review of each comparator company should include data on: (1) "Proportion of company’s revenues, profitability and assets (where data is available) that are similar to those services being regulated", (2) "Proportion of revenues that are protected by regulation, as opposed to subject to commercial negotiation (fee based) or competitive markets", (3) "Description of type of regulation for regulated assets if possible to obtain (e.g. form of control, protection with demand/other

- 311.3 Applying all three of TDBs filters would result in a relatively small energy sample of eight companies. Only one of these eight companies is an electricity company (and two are gas companies), based on the classifications used in our draft decision.
- 311.4 TDB themselves suggested an independent expert review of the sample set (post submissions on the draft decision).²⁰⁵ Similarly, Contact and Pat Duignan suggested obtaining additional expert advice regarding the companies in the comparator sample.²⁰⁶ However, we consider that an additional independent expert review would be of limited benefit, given the results of the alternative approaches suggest there is generally little evidence to support moving significantly from our comparator sample average of 0.35.²⁰⁷
312. Significantly, the 'electricity' sub-sample results under TDB Steps 1-3 support a relatively tight asset beta range between 0.33 and 0.36. Using TRBC also leads to similar results, with an energy sample average of 0.34 and an electricity sample average of 0.31.
313. Cross submissions from First Gas, CEG (for the ENA) and Frontier Economics (for Transpower) also raised several concerns regarding TDB's approach. For example, Frontier Economics argued that TDB's analysis has three main shortcomings.²⁰⁸
- 313.1 "*Sensitivity to time periods.* TDB's analysis of the distribution of beta estimates and outliers was restricted to just the most recent five-year estimation period considered by the Commission (i.e., 2011-2016), and TDB's conclusions are driven entirely by the time period analysed. As the Commission's own analysis shows, its beta estimates are highly volatile over time. The recommendations that come from a TDB-style analysis change materially from time period to time period. For example, the firms that TDB identifies as 'outliers' in the current time period were not outliers in previous periods. Moreover, firms that were outliers in previous time periods are not outliers in the most recent period. TDB has simply shown that in any time

changes)", and (4) "Financial data verification – Bloomberg data should be cross checked with company accounts and trading information for verification". Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 34.

²⁰⁵ Commerce Commission "WACC workshop transcript" (September 2016), p. 83.

²⁰⁶ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 35; and Pat Duignan's submission on the IM review draft decisions papers "Gas pipeline and electricity lines businesses beta analysis" (30 June 2016).

²⁰⁷ We consider that if a further independent review of the sample were to occur, this would benefit from a full consultation process (rather than occurring after submissions on our draft decision have already been received).

²⁰⁸ Frontier Economics (report prepared for Transpower) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Comment on TDB Advisory's analysis of beta comparators" (25 August 2016), p. 1-2.

period some firms will appear to be outliers. But there is nothing systematic about this over time. This simply reinforces the Commission's current approach of considering a large sample of comparators so that this sort of random variation cancels out over time".

313.2 *"Subjective and opaque judgements.* When implementing its three-step filtering process, TDB appears to have applied a series of qualitative judgments about the companies that should be excluded at each step. Whilst these judgments are critical to which companies are included or excluded from the sample, none of the judgments that TDB has made are articulated transparently. As such, there is no way for any other stakeholder to replicate independently the choices made by TDB when constructing the subsamples it proposes, or to verify that TDB's judgments have been applied in a consistent manner to all companies, or to analyse how the TDB approach would have affected beta estimates in previous periods".

313.3 *"Spurious identification of outliers.* TDB seems to have concluded that certain companies are outliers simply on the basis that their estimated betas are 'high' in a particular period. TDB suggests that these companies share common characteristics that lead them to be outliers. However, by way of example, TC Pipelines, which TDB flags as an outlier, does not share these characteristics and thus fails to fit TDB's narrative about the inclusion of companies that would distort the Commission's beta estimate. TDB then argues that 20 companies that are involved in similar activities to the 'outliers' it has identified should be excluded on the basis that they are likely to skew the overall beta estimate. In fact, that contention is not supported by the empirical evidence. The result is that firms are removed from the sample simply because their beta estimates happened to turn out to be relatively high in the most recent period".

314. CEG submitted that TDB's statistical analysis is unreliable given it is based on:²⁰⁹

314.1 an invalid comparison across firms/sub-samples without the appropriate adjustment for gearing and debt beta; and

314.2 only the most recent five year period.

²⁰⁹ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), p. 1.

315. CEG also stated that:²¹⁰

TDB has not consistently applied the same logic to its sample selection process and the effect of these internal inconsistencies happens to be that the average asset beta in TDB's final sample is understated. Moreover, had TDB applied the same criteria universally its final sample would be an empty set (i.e., no comparators).

316. First Gas submitted that the approach used to ensure comparability needs to be objective, verifiable, and needs to accord with conceptual logic. However, First Gas stated that TDB's approach fails on all three of these grounds as it involves subjective judgement, is not transparent or verifiable²¹¹, and ignores demonstrated differences between electricity networks and gas pipelines.²¹²

317. TDB subsequently clarified its approach to refining the comparator sample at the cost of capital workshop, in response to comments from Frontier Economics and CEG regarding its treatment of outliers. TDB stated:²¹³

...perhaps our report wasn't clear enough but the first part of our report did exactly what Frontier and CEG said, we looked at distribution of the betas, just to get a bit of an understanding of what we were dealing with.

But when it came to the heart of our analysis, the three step process that we used to filter the companies that the Commission could use for its comparator set, we totally disregarded the betas. We went back to first principles and applied a standard commercial approach. We asked the question, what is the risk profile of the companies that we're trying to regulate, i.e. the transporters of gas and energy? And we said, well, what companies have similar characteristics to that in terms of their risk profile?

So, no priors about which companies were in and which companies were out.

318. Although reviewing the composition of the comparator sample (as suggested by TDB) has merit in principle, and is something we will explore again (and in further detail) in subsequent reviews, we consider that the benefits are not sufficient given our concerns regarding the overall robustness (relative to alternative approaches) to change our approach for this review. Our analysis suggests there is no strong evidence to adopt a lower asset beta for EDBs/Transpower at this stage.

²¹⁰ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), p. 1.

²¹¹ First Gas noted that TDB's sampling approach suffers from both type one (false positive) and type two (false negative) errors, referring to the examples of Unital and Atmos Energy Corp respectively.

²¹² [CONFIDENTIAL] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), p. 4-5.

²¹³ Commerce Commission "WACC workshop transcript" (September 2016), p. 18-19.

319. We intend to monitor the asset beta comparator sample over time, and re-look at the composition of the sample in the next IM review. In particular, we intend to focus on:²¹⁴
- 319.1 the refinements suggested by TDB, with the aim of collecting more detailed data on each of the companies, so that we can further refine our decisions on whether they should be included/excluded; and
- 319.2 whether separate electricity/gas samples should be used (as suggested by Oxera). For example, if differences in asset betas between the electricity and gas sub-samples persist over time, the case for using separate samples may be strengthened.
320. The alternative approaches to comparator sample selection are discussed in more detail in Attachment B.

We have not adjusted our asset beta for difference in systematic risk due to regulatory differences

321. In principle, we consider that there may be grounds for making an adjustment to our asset beta estimate to reflect regulatory differences in New Zealand, relative to other countries included in the comparator sample.²¹⁵
322. In 2010 we acknowledged that regulatory regimes can allocate risks differently and expose regulated suppliers to different systematic risks. For example, we noted that in theory:²¹⁶
- 322.1 extreme forms of cost-of-service or rate of return regulation will result in the regulated supplier bearing minimal systematic risk, given that any cost increase is not borne by the supplier (and instead is immediately passed through to the consumer); and
- 322.2 pure forms of price cap regulation (also known as CPI-X or RPI-X regulation) will generate outcomes where the regulated supplier will bear the risk of any unforecast changes in cost/volumes, while the consumer price remains unaffected.
323. However, we were not aware of any empirical evidence that demonstrated what adjustment should be made for regulatory differences, or of any overseas regulators

²¹⁴ As noted in paragraph 671, we also intend to carefully examine the evidence of whether a WACC percentile uplift has delivered benefits to consumers in both the electricity and gas sectors in the next IM review.

²¹⁵ Form of control is discussed in more detail in topic paper 1. Commerce Commission "Input methodologies review decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (20 December 2016).

²¹⁶ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.87–H8.97.

making an adjustment. Therefore, we decided against making any adjustment to asset beta for regulatory differences.²¹⁷

324. Submissions on our cost of capital update paper generally agreed that we should continue to not make an adjustment to asset beta for regulatory differences. For example:

324.1 Houston Kemp (for Powerco) suggested that "...there are compelling reasons to believe that there are no material differences in systematic risk between these forms of control...";²¹⁸ and

324.2 CEG (for the ENA) noted that "it is very hard to find an effect of the form of regulation on measured asset betas".²¹⁹

325. Following these submissions, we requested advice from Dr Lally on whether any adjustments should be made due to regulatory differences. Dr Lally disagreed with Houston Kemp's conclusion, and stated that "price caps should give rise to higher betas than revenue caps (and hybrid price/revenue caps) because price caps expose firms to volume risk and this is at least partly systematic".²²⁰

326. However, after reviewing a number of empirical studies, Dr Lally concluded that "there is no empirical study that provides a clear conclusion on the effect of regulation on beta".²²¹ Dr Lally noted that:²²²

...the best empirical evidence on the impact of regulatory regimes on beta is that of Alexander et al (1996), which suggests that price capping yields higher betas than ROR regulation. Furthermore, as discussed above, this conclusion survives even the concerns raised by Buckland and Fraser (2001). However, the study is now 20 years old and the period examined was only five years. So, there is room for doubt about the validity of the conclusion (a possibility acknowledged even by the authors) and its application to the present time.

327. Submissions generally agreed with Dr Lally's conclusion. For example:

327.1 Wellington Electricity submitted that "Dr Lally's conclusion that there is no empirical evidence to support different asset betas for different price control

²¹⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.85–H8.162.

²¹⁸ Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p. 7.

²¹⁹ CEG "Asset beta" (report prepared for ENA, February 2016), para 64.

²²⁰ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 10.

²²¹ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 24.

²²² Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 19-20.

regimes provides further support for no adjustment to the asset beta for form of control",²²³ and

327.2 Transpower submitted that "We agree with Dr Lally that while theoretically price-capped businesses may have higher asset betas than both ROR regulated and revenue-capped businesses, there is no empirical study that provides a clear conclusion on the effect of regulation on beta".²²⁴

328. Contact, on the other hand, submitted that consumers should see offsetting benefits from the movement to a revenue cap, given that this is expected to reduce systematic cash-flow risk of EDBs.²²⁵
329. However, it is difficult to discern the form of regulation that each of the companies in our comparator sample is subject to. There are many variations of economic regulation, and as many of our comparator companies operate in the US, they may be subject to different types of regulation in different States.
330. Further, given beta estimates are noisy, it would be difficult to determine whether any differences in asset beta were solely due to the differences in the form of regulation applied. We consider that this would likely be the case even if it were possible to accurately assess what form of regulation each comparator company was subject to, for what time period, and whether those forms of regulation were comparable.
331. In addition, we consider that it is not clear that differences between revenue caps and weighted average price caps have a material impact on exposure to systematic risk. This is discussed in paragraphs 407 to 410.
332. As a result of these difficulties, and Dr Lally's advice, we have not made an adjustment to our asset beta estimate of 0.35 due to regulatory differences.²²⁶ Although in principle regulatory differences could potentially have an effect on asset beta, we consider that there is insufficient evidence to support making an adjustment.

²²³ Wellington Electricity "Input methodologies review – Commission emerging views" (24 March 2016), p. 7.

²²⁴ Transpower "Asset beta adjustments and Black's SDR" (24 March 2016), p. 1.

²²⁵ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 27.

²²⁶ Submissions on our draft decision generally supported this approach. For example, see: ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 78; PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 80; Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 7; Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 42; Transpower "IM review: Submission on suite of draft decision papers" (4 August 2016), section 4.4; and Vector "Submission to Commerce Commission on the IM review draft decision and IM report" (4 August 2016), para 128.

We have applied the same asset beta for electricity distribution and transmission

333. Ireland, Wallace & Associates (**IWA**) (for MEUG) submitted that the asset beta for Transpower should be reduced below the draft decision of 0.34. IWA submitted that the terms of the Transpower Works Agreement (**TWA**) allocate a substantial component of systematic risk to the customer, without adjusting Transpower's asset beta accordingly.²²⁷ IWA stated:²²⁸

Transpower proposes to transfer to customers any potential adverse changes in regulatory laws, changes in tax rates and rates for depreciation, change in government stock rate affecting WACC, etc.

As a result, Transpower bears potentially minimal systematic risk yet it has based charges on an asset beta 0.34. As an example, assuming a zero asset beta the midpoint WACC of 4.81% reduces by 2.39% to 2.42%. Given the risk passing to customers, the asset beta should be somewhere between an asset beta of 0.34 and zero. It certainly should not be not left at 0.34.

334. We have decided to continue to apply the same asset beta estimate of 0.35 for both EDBs and Transpower. We note that:

334.1 The TWA referenced in IWA's submission is in draft form, and contracts under the TWA are not subject to price control regulation.²²⁹ Consequently the value of these contracts are not subject to the allowed regulatory WACC.²³⁰

334.2 The new investment contracts covered by the terms of the draft TWA only represent a small proportion of Transpower's overall capital expenditure. For example, for the disclosure year ended 30 June 2016, the total estimated build cost of new investment contracts was approximately \$1.5m, compared to total base capex commissioned of \$172.2m.²³¹

²²⁷ IWA indicated that the two main systematic risks transferred to consumers under the TWA would be "...the shocks from increases in term interest rates and tax rates..." noting that "...[t]hese two factors are the drivers of changes in the 'regulatory WACC' and hence utility type investments generally". IWA (report prepared for MEUG) "Input methodologies review draft decisions – Risk allocation between suppliers and customers" (4 August 2016), para 3.11.

²²⁸ IWA (report prepared for MEUG) "Input methodologies review draft decisions – Risk allocation between suppliers and customers" (4 August 2016), Appendix B, para 8-10.

²²⁹ IWA (report prepared for MEUG) "Input methodologies review draft decisions – Risk allocation between suppliers and customers" (4 August 2016), para 3.8 and Appendix B, para 1.

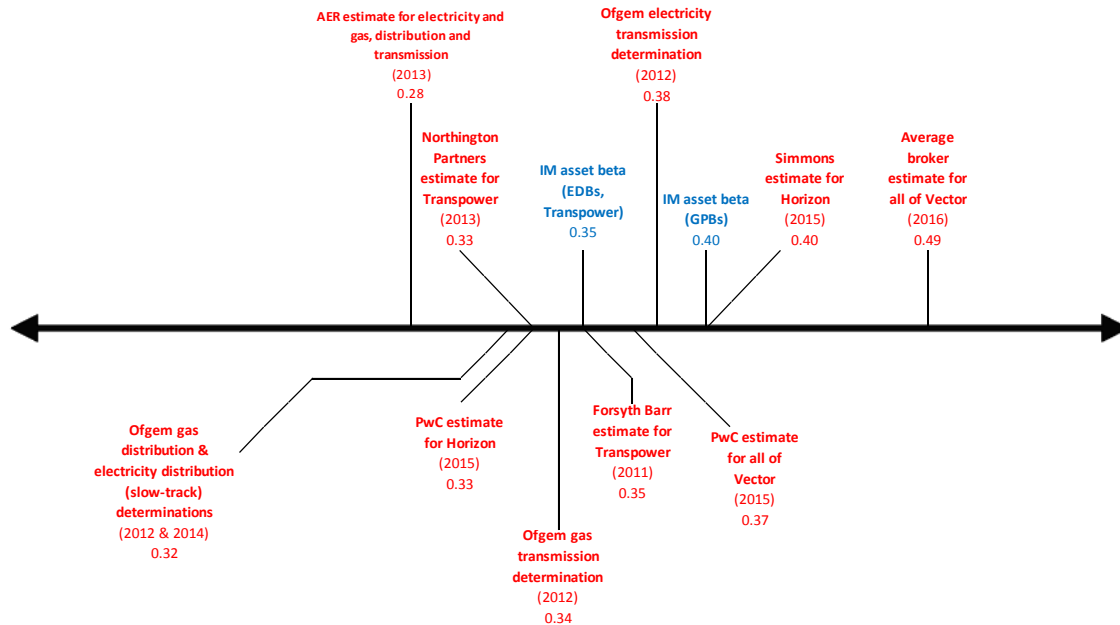
²³⁰ IWA noted that the TWA is referenced as a "new investment contract" in the Transpower IM determination. Under the IMs, the value of assets created under new investment contracts is excluded from the RAB. *Transpower Input Methodologies Determination 2012* [2012] NZCC 17, clause 2.2.7(1)(d).

²³¹ Transpower Information Disclosure Schedules F1-6, G1-8, SO1 (with additional schedules added by Transpower), for the disclosure year ended 30 June 2016.

Reasonableness of our asset beta estimate of 0.35 for EDBs and Transpower

335. We have compared our unadjusted asset beta estimate of 0.35 against a range of estimates from other sources, as shown in Figure 6 below.

Figure 6: Reasonableness checks on our asset beta estimate for EDBs and Transpower



336. Contact submitted that comparisons with asset betas from other jurisdictions are incorrect, because the effective asset beta for New Zealand is higher due to use of the 67th percentile.²³² Contact submitted:²³³

Given the overseas jurisdictions do not use a 67th percentile methodology, the final beta of other jurisdictions should be compared to NZ final beta before adjusting for the 67th percentile movement.

337. However, we disagree with Contact’s submission. In our view, use of the 67th percentile should not affect our underlying asset beta estimate, given:

337.1 0.35 is our best estimate of asset beta, and the available comparative information suggests this is reasonable;²³⁴

²³² We also note that Oxera stated at the WACC workshop that "...you are setting a WACC percentile which is above your central estimate, so that will be part of the value that will be institutionalised within the regulated revenue building blocks...". Commerce Commission "WACC workshop transcript" (September 2016), p. 147.

²³³ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 26.

²³⁴ MEUG submitted that changes in asset beta can result in material changes in charges to consumers, noting that it estimates a 0.01 change in asset beta changes consumer payments by \$18m per annum. We agree that changes in asset beta can have a material impact on the allowed WACC, and therefore,

337.2 the 67th percentile adjustment is a separate decision, which involved trading off the likely costs and benefits arising from a WACC that is too low compared to a WACC that is too high;²³⁵

337.3 the 67th percentile adjustment was widely consulted on in 2014, and we explained in that decision why we considered the percentile adjustment could be reviewed separately from other aspects of the cost of capital IMs;²³⁶ and

337.4 we have undertaken separate reasonableness checks on our overall WACC estimates, including the 67th percentile adjustment, as discussed in Chapter 7.

Re-levering the average asset beta into an equity beta

338. For the reasons explained above, we have determined an asset beta of 0.35 for EDBs and Transpower. Combining this with a notional leverage estimate of 42% (as explained in paragraphs 546 to 572), results in an equity beta of 0.60.²³⁷

We have determined an asset beta of 0.40 for GPBs

339. When determining the asset beta for GPBs, we have made a 0.05 upwards adjustment relative to the asset beta for EDBs and Transpower. This leads to an asset beta for GPBs of 0.40.

340. As described above, our primary approach to estimating asset beta is to calculate the average of our comparator sample of 72 energy businesses. The average asset beta of our comparator sample is 0.35, which reflects an average across both electricity and gas businesses.

payments by consumers. However, we note that: (1) 0.35 is our best estimate of asset beta for EDBs and Transpower, based on the comparator sample analysis we have undertaken; and (2) although our asset beta estimate for EDBs and Transpower has increased from 0.34 to 0.35, the equity beta has decreased from 0.61 to 0.60 (due to the decrease in leverage from 44% to 42%). MEUG cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Second cross submission on input methodologies draft review decisions" (25 August 2016), para 9(a).

²³⁵ We noted that "the main reason to set a WACC percentile above the mid-point is to mitigate against the risk of under-investment relating to service quality generally, and contributing to major supply outages in particular". Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para X18.

²³⁶ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 4.18-4.41.

²³⁷ We have calculated the equity beta using the re-levering formula in paragraph 295.2:

$$\beta_e = \beta_a + (\beta_a - \beta_d)L/(1-L)$$

where β_a is the average asset beta of 0.35, β_d is the debt beta (which we have assumed to be 0), and L is the average leverage of 42%.

341. In the 2010 IMs decision, we concluded that the asset beta for gas pipeline services was likely higher than for electricity lines services. We made an upwards adjustment of 0.10 to the asset beta for GPBs, but left the asset beta for EDBs and Transpower at the average of the comparator sample. When reaching our decision in the 2010 IMs, we weighed both theoretical evidence (which tended to support making an uplift) and other empirical evidence (which generally did not support an uplift). On balance, we decided to set an asset beta for GPBs that was 0.10 higher than for EDBs and Transpower.

342. In contrast, our draft decision was that the same asset beta should apply to EDBs, Transpower and GPBs. We stated that:²³⁸

...we currently consider that there is no strong case for applying different asset betas for electricity lines and gas pipeline services. We have weighed the pros and cons of applying an asset beta uplift for GPBs and consider that, on balance, not including an uplift will better promote the s 52A purpose.

343. After examining the available evidence, we now consider that an asset beta for gas pipelines that is 0.05 higher than for electricity lines is appropriate. Although we now consider the case for a gas asset beta adjustment is weaker than we did in 2010, several factors provide support for a small upwards adjustment.

344. When reaching our final decision to apply an upwards adjustment for GPBs we have given most weight to the following two factors. Although neither of these factors are sufficient to support an uplift in isolation, when combined, we consider they support making an upwards adjustment of 0.05.

344.1 Gas has a higher income elasticity of demand than electricity, which would typically be expected to lead to a higher asset beta (however, the magnitude of the effect is unclear). Although we consider that the presence of price/revenue cap regulation is likely to dampen this effect, it still provides some support for a gas asset beta uplift.²³⁹

344.2 A low proportion of New Zealand households are connected to gas, relative to other countries in our comparator sample. This potentially increases the risk of economic network stranding for GPBs (which is likely to be at least partly systematic in nature) relative to EDBs/Transpower,²⁴⁰ and suggests that greater growth options will exist (although the value of these growth options

²³⁸ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 333.

²³⁹ The impact of regulation on the relationship between income elasticity of demand and asset beta is discussed further in paragraphs 407 to 416 below.

²⁴⁰ However, it is not clear to us whether this risk has materially increased for GDBs since we set the IMs in 2010, as discussed in the emerging technology topic paper. Commerce Commission "Input methodologies review decisions, Topic paper 3: The future impact of emerging technologies in the energy sector" (20 December 2016).

will be significantly limited by regulation, once prices are reset for the following regulatory period).²⁴¹

345. The results of our asset beta comparator sample also provide limited support for an upwards adjustment to the gas asset beta. In particular, focussing on the difference between the results for the gas sub-sample relative to the whole energy sample, data for the most recent 10 years suggests a gas asset beta uplift is appropriate. However, data for the previous 10 years does not.
346. The rest of this section discusses:
- 346.1 why we considered it important to re-assess the evidence for a gas asset beta uplift as part of this review;
 - 346.2 why we have determined the gas asset beta by considering adjustments to the energy comparator sample, rather than focussing on the gas sub-sample (as suggested by First Gas and Oxera);
 - 346.3 the results for the gas asset beta sub-sample, relative to energy and electricity samples;
 - 346.4 income elasticity of demand for gas (relative to electricity), and the potential impact on asset beta in the context of price/revenue cap regulation;
 - 346.5 the relatively low penetration of gas networks in New Zealand, including why this is likely to lead to higher asset stranding risk (and greater growth options, although the value of these will be significantly limited by regulation);
 - 346.6 overseas regulatory precedent, which generally supports using the same (or a very similar) asset beta for electricity lines and gas pipelines; and
 - 346.7 Dr Lally's reasons for no longer recommending using a higher asset beta for gas pipeline businesses.

²⁴¹ As noted in paragraph 426 below, the relatively low penetration of gas in New Zealand means that gas pipelines are closer to the 'death spiral' tipping point, where gas networks could lose enough customers to make getting the remainder to pay infeasible. This suggests investors' perception of stranding risk may be more correlated with the market for gas than electricity, leading to a higher asset beta.

We are required to re-assess the evidence for a gas asset beta uplift

347. In 2010 we applied an asset beta for GPBs that was 0.10 higher than for EDBs and Transpower, based on:²⁴²
- 347.1 evidence we had, including submissions and advice from Dr Lally (provided in 2008) recommending a 0.10 uplift for GPBs, due to differences in customer types, the nature of the product, and more valuable growth options; and
 - 347.2 a view that gas is higher risk than electricity, given that it is a more discretionary fuel (although we did not examine this point in any detail).
348. At the time, we noted that other evidence suggested that "...the IM may be considered favourable to GPBs". In particular, we noted that:²⁴³
- 348.1 the AER and Ofgem generally used the same, or very similar, asset beta/WACC estimates for electricity and gas;
 - 348.2 empirical estimates from our comparator sample produced an asset beta for gas companies that was lower than for electricity companies; and
 - 348.3 NERA had noted that the regulated equity premium for US electricity utilities was identical to that for US gas utilities over 1996-2010.
349. We concluded, on balance, that "...there are good reasons in theory to consider that New Zealand GPBs face greater systematic risks than EDBs, and this justifies a higher beta, and therefore a higher WACC".²⁴⁴ We also stated (emphasis added):²⁴⁵

The Commission nevertheless accepts that in New Zealand, GPBs may face higher systematic risk than EDBs, due to the considerations highlighted in previous advice provided to the Commission by Dr Lally (and summarised above) in relation to the differences between New Zealand GPBs and EDBs. **At present, there is no evidence in New Zealand to suggest that this situation has changed.** Therefore, the Commission considers that it is appropriate to apply the upward adjustment of 0.1 used in past decisions to the asset beta estimate, after any other adjustments have been made.

²⁴² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.167-H8.179.

²⁴³ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H13.71-H13.74.

²⁴⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H13.74.

²⁴⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.179.

350. In response to our draft decision proposing to remove the 0.10 asset beta uplift for GPBs, First Gas submitted:²⁴⁶

...the Commission has clearly stated that it will only make changes to IMs where there is a clear need to do so – in essence, where the current IMs are not fit for purpose.

We do not consider that reducing the asset beta for gas pipelines as part of the IMs review would be faithfully applying this approach given that:

- No party has suggested that the current gas asset beta is not fit for purpose. [...]
- The empirical evidence supports the current gas asset beta. [...]

351. Similarly, First State Investments submitted:²⁴⁷

We are interested to better understand the Commission's views on how changing the gas asset beta as part of this IMs review would fit with its own decision-making framework.

...we firmly believe that a reduction in the gas asset beta would be contrary to the decision-making framework for the IMs review.

352. Powerco also submitted that.²⁴⁸

The development of the cost of capital topic up to this point created a legitimate expectation on the part of suppliers that the Commission, having canvassed the issues, had identified a limited scope to take forward in the review. It also created a legitimate expectation that the Commission would have regard to its decision-making framework, and its stated intention to preserve regulatory certainty, in deciding what aspects of the cost of capital estimate required amendment.

...if the Commission properly applies the decision-making framework it has established for this review, it will conclude that revisiting these issues will not better serve the Part 4 purpose in s 52A, or the IMs purpose in s 52R. We therefore invite the Commission to stand back from the detailed methodological debate that Dr Lally, Contact and First Gas are trying to initiate, and instead consider whether their comments provide a sufficient basis to displace regulatory certainty.

353. We note the following points, which are also articulated in the framework paper, in response to these submissions.²⁴⁹

353.1 The s 52R purpose of the IMs is not to promote certainty simpliciter, but to promote certainty in the rules which will be applied throughout the

²⁴⁶ First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 8-9.

²⁴⁷ First State Investments submission "Input methodologies review: Cost of capital" (4 August 2016), p. 11.

²⁴⁸ Powerco "Cross submission on the Commerce Commission's topic paper 4 – Cost of capital issues" (25 August 2016), para 9 and 14.

²⁴⁹ Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

subsequent regulatory periods. If the promotion of s 52A requires an amendment to the GPB asset beta, s 52R does not constrain this.

353.2 Section 52Y(1) of the Act requires us to “review *each input methodology* no later than 7 years after its date of publication”, and as such seven years is the maximum amount of certainty as to the rules the regime provides. Further, we identified in our June 2015 problem definition paper that we would be re-evaluating key WACC parameters (including asset beta), based on more recent data, to ensure they remain fit for purpose.²⁵⁰ Our November 2015 cost of capital update paper noted that we intended to “evaluate evidence on the rationale” for the upward adjustment relative to the asset beta for GPBs.²⁵¹

353.3 Changing an IM may affect conditional regulatory predictability which may, in turn, affect incentives to invest. The effect on incentives to invest, to the extent it impacts on the long-term benefit of consumers, is a factor we weigh, alongside the impact on other s 52A outcomes, when considering the pros and cons of changing an IM.

354. In its cross submission, Powerco noted that we explained our intention to re-estimate beta in the 30 November 2015 update paper. However, Powerco stated that:²⁵²

...we understood that the Commission’s proposal did not signal an intent to revisit the methodology, but rather to simply update externally observed parameter values using the existing methodology. That was a sensible approach. There is no compelling reason to revisit the underlying methodology given the extensive debate over this issue in the past, and conversely there is value in demonstrating the Commission’s commitment to regulatory certainty.

...

In our view, the revisiting of the uplift for gas beta by Dr Lally is an example of the type of tinkering, in the absence of compelling new information, that detracts from regulatory certainty. More concerning are the proposals from TDB (on behalf of Contact) and Oxera (on behalf of First Gas) to fundamentally revisit the methodology that the Commission uses to estimate beta. These are criticisms that could equally have been raised when the IMs were first promulgated, which suggests they should not constitute a basis for revisiting the methodology now. Certainly, they do not constitute the type of new information or analysis that would warrant re-opening the methodology.

355. We disagree with Powerco’s assessment of the November 2015 update paper. That paper clearly signalled that we would be re-estimating asset beta “...using updated

²⁵⁰ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 253.

²⁵¹ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 2.14.

²⁵² Powerco "Cross submission on the Commerce Commission’s topic paper 4 – Cost of capital issues" (25 August 2016), para 11 and 14.

data and re-assessing the comparator companies using a similar six-step process as outlined in the Initial IMs reasons paper". The November 2015 paper also highlighted three main issues that we intended to take into account as part of the review.²⁵³

- 355.1 "the difference in asset betas estimated using different sampling frequencies and over different time periods";
 - 355.2 "the justification for any adjustments applied to the asset betas across different sectors"; and
 - 355.3 "the extent to which the form of control should impact our assessment of the asset beta".
356. Significant new evidence regarding asset beta (that was not before us in 2010) is now available. For example, new evidence regarding asset beta collected during this review includes:
- 356.1 updated comparator sample analysis, reflecting additional data through to 31 March 2016;
 - 356.2 evidence regarding the link between income elasticity of demand and asset beta for GPBs, including Houston Kemp's income elasticity modelling;
 - 356.3 evidence regarding differences in gas pipeline services in New Zealand relative to other countries in the comparator sample (including low gas penetration in New Zealand);
 - 356.4 discussion at the workshop, and other additional information provided in submissions, which have enhanced our understanding of the impact of weighted average price cap and revenue cap regulation on asset beta; and
 - 356.5 Dr Lally no longer supports a 0.10 adjustment to the gas asset beta, which he previously recommended in his 2008 advice.

²⁵³ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 2.7-2.10.

357. First Gas submitted that it is “deeply concerned about the impacts of substantially reducing the asset beta on investment in New Zealand’s regulatory industries – not just by our shareholders (First State Investments), but by all investors in regulated assets”.²⁵⁴ First Gas stated:²⁵⁵

To face an unsignalled regulatory decision that substantially reduces the equity value of a company within months of significant transactions provides an undesirable indication of the risks that investors are expected to bear in New Zealand’s regulated industries. This also has potentially significant adverse impacts on the cost and availability of capital, and will not help to meet gas industry objectives. The Commission has an opportunity reconsider the analysis, approach, conclusions and broader implications of the draft decision based on the evidence provided in submissions.

358. First State Investments submitted that the purpose of Part 4 would not be achieved by reducing the gas asset beta, noting that:²⁵⁶

358.1 a material reduction in the gas asset beta would weaken incentives to invest in regulated industries (section 52A(1)(a));

358.2 a material reduction in the gas asset beta would weaken incentives to seek out efficiency gains, particularly through the merger of regulated businesses (section 52A(1)(b)); and

358.3 there is no evidence pointing to excessive profits being earned by gas pipeline businesses at the current regulated WACC (section 52A(1)(d)).

359. Similarly, Oxera submitted that the 0.10 reduction in asset beta proposed in the draft decision would have been an abrupt and significant change brought on by a revised approach (rather than being underpinned or supported by a movement in capital market data). Oxera stated that “...it is desirable to have stable, predictable and consistent tariff-setting policies, by avoiding abrupt changes in regulatory allowed parameters, including the beta”.²⁵⁷

²⁵⁴ First State Investments submitted that “[a]ssuming a Regulatory Asset Base for First Gas of \$1 billion, the reduction in asset beta amounts to a fall in annual revenue of \$7.3 million”, and “[a]t the current WACC, such a change would reduce the value of equity in First Gas by around \$100 million (or 18% of shareholder funds assuming the rate of leverage historically applied by the Commission of 44%)”. First State Investments submission “Input methodologies review: Cost of capital” (4 August 2016), p. 1.

²⁵⁵ First Gas “Submission on input methodologies review draft decisions: cost of capital issues” (4 August 2016), p. 11-12.

²⁵⁶ First State Investments submission “Input methodologies review: Cost of capital” (4 August 2016), p. 10-11.

²⁵⁷ Oxera (report prepared for First Gas) “Asset beta for gas pipelines in New Zealand” (3 August 2016), p. 3. Oxera also noted that “...the Commission’s own experts have, in the past, explicitly endorsed a need for regulatory stability and consistency”, referring to a 2008 recommendation from Professor Franks. Oxera (report prepared for First Gas) “Asset beta for gas pipelines in New Zealand” (3 August 2016), p. 3.

360. We acknowledge the importance of stability and predictability in regulatory settings, particularly for material components such as WACC. However, we are not persuaded that the 0.10 asset beta uplift for GPBs has such status that it should not be re-assessed in this review.
- 360.1 We are obliged as part of this s 52Y review to re-assess the evidence and rationale for applying an asset beta uplift for GPBs. Re-assessing the case for an uplift is particularly important, given the evidence was mixed in 2010. As noted in paragraph 348, there was evidence suggesting our approach may be considered favourable to GPBs.
- 360.2 Given this is a 7-year review, it is important to avoid 'locking in' a value that is too high (or too low) for, potentially, another two five-year regulatory periods.
- 360.3 Reaching our best estimate of each of the WACC parameters (including asset beta), will help ensure the objectives in the Part 4 purpose statement (s 52A(1)(a) to (d)) are balanced appropriately.²⁵⁸ This will provide firms an expectation of earning a normal return, consistent with FCM.
- 360.4 Retaining the 0.10 uplift for GPBs, without sufficient supporting evidence, would conflict with the more fundamental precedent of aiming to determine our best estimate of WACC under the IMs.
- 360.5 The High Court has previously noted that "...it is far from obvious that higher than normal expected returns would stimulate greater efficiency of any kind" and "[p]roviding a revenue cushion is not the way to create the right incentives".²⁵⁹
- 360.6 The reasonableness checks we have undertaken indicate the regulatory settings are more than sufficient to compensate investors for putting their capital at risk.²⁶⁰
- 360.7 We do not accept this was an "unsignalled regulatory decision", as suggested by First Gas. As discussed in paragraphs 353.2 and 355 above, we clearly signalled our intention to re-estimate asset beta (including the gas adjustment) as part of this review.
361. Further, we explicitly recognise the potential for estimation error (given the uncertainty in estimating WACC) by using the 67th percentile WACC for price-quality

²⁵⁸ As discussed in Chapter 2.

²⁵⁹ Wellington Airport & others v Commerce Commission [2013] NZHC 3289, para 1473.

²⁶⁰ See Chapter 7 for further details. Figure 6 above also indicates that our asset beta estimate for GPBs of 0.40 is reasonable compared to other estimates.

path regulation. The practical effect of this approach is to adopt a WACC that is higher than our best estimate.

362. Aurora submitted that reducing the gas asset beta has parallels with the WACC percentile, and that “[t]he Commission may want to err on the side of providing or retaining a higher gas beta, even if the evidence on the matter is limited, in order to provide greater surety that gas pipeline businesses will be able to fully recover the cost of their prudent and efficient investment”.²⁶¹ We disagree. We consider that setting an asset beta that is above our best estimate, combined with the 67th percentile, would overestimate WACC by more than can be justified in terms of net benefits to consumers.²⁶²
363. We also note that the 0.10 asset beta uplift for GPBs is not a standalone component of beta. Rather, it resulted from applying our six-step process, as outlined in paragraph 266. The 0.10 uplift was introduced as we considered that GPBs may face significantly different exposure to systematic risk than the average of our sample of comparator companies.
364. As part of this review we have retaken each step of the six-step process for estimating beta – including reconsidering whether adjustments are required to address differences between the characteristics of the comparator companies and the services we regulate under Part 4 of the Commerce Act.^{263, 264}

We have determined the gas asset beta by considering adjustments to the energy sample

365. When determining the asset beta for GPBs, we have considered adjustments to the results for the energy sample to allow for differences in exposure to *systematic* risk between services. In estimating asset beta we are only concerned about exposure to systematic risk, rather than non-systematic risk. Systematic risk affects all investments in a market (to greater or lesser extent), not just a particular firm or industry.
366. As noted above, First Gas and Oxera suggested using separate electricity and gas sub-samples to determine asset beta. This is as opposed to determining the gas asset beta by considering adjustments to the energy sample results. Similarly, GasNet

²⁶¹ Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 12.

²⁶² Our reasons for using the 67th percentile WACC estimate for price-quality path regulation are explained in our 2014 decision on this topic. Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services - Reasons paper" (30 October 2014). As noted in paragraph 671, we intend to carefully examine the evidence of whether a WACC percentile uplift has delivered benefits to consumers in both the electricity and gas sectors in the next IM review.

²⁶³ Our six stage process is discussed in further detail in para 266.

²⁶⁴ As discussed in paragraphs 475 to 486, we also considered whether an adjustment is required the airports asset beta, to reflect differences between regulated airport services in New Zealand and the average asset beta for our international comparator sample.

submitted that “[i]f the 0.1 uplift to the gas asset beta is removed, we support calculating separate asset betas for gas pipeline services and electricity lines services as this would more closely reflect the actual cost of capital for the relevant services”.²⁶⁵

367. Although we have considered results for the gas sub-sample, we have not used this as our primary approach for determining asset beta for GPBs. We note that:

367.1 the gas sub-sample is relatively small (17 firms), is comprised entirely of US gas companies, and has a greater level of statistical uncertainty than the whole energy sample.²⁶⁶ The standard error of the asset beta for our gas sub-sample is 0.18, compared with 0.12 for the energy sample (across weekly and four-weekly estimates, over the 2006-2011 and 2011-2016 periods); and

367.2 as shown in Figure 5, the results for the gas sub-sample vary significantly depending on the approach to sample selection. For example, Oxera’s refined sample leads to a gas asset beta of 0.46, TRBC leads to 0.40, and applying steps 2 and 3 of TDB’s refinements would lead to 0.28. Similar analysis led TDB to caution against the use of the gas sub-sample in isolation, without first reviewing the underlying comparators.²⁶⁷

368. At the cost of capital workshop, Pat Duignan and First Gas indicated that the Commission regulates gas pipelines and electricity networks separately, not the energy sector, suggesting that this should frame our approach to estimating asset beta.²⁶⁸ Pat Duignan noted that the Act has separate subparts for each industry. First Gas stated:²⁶⁹

The Commission does not regulate the energy sector. It regulates gas pipelines and it regulates electricity networks and so, I think that's an entirely appropriate way to frame up the regulatory task that the Commission has and I think a lot of the approach and the decisions that the Commission takes flow from the way that that regulatory task is framed.

²⁶⁵ GasNet "Submission on input methodologies review draft decisions papers" (1 August 2016), para 11.

²⁶⁶ First Gas’ submission noted that gas pipelines in the US have broad characteristics that are generally comparable with pipelines in New Zealand (particularly relative to the UK, where gas networks reach nearly all households). First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 7. However, although US gas penetration rates may be more comparable to NZ on average, there is likely to be significant variation between states, and the UK is likely to be more comparable in other respects (such as the regulatory regime). Houston Kemp noted that "there are many factors that may influence the comparability of United States firms with those operating in New Zealand, including the operating environment, the financial environment, the nature of consumer preference and the approach to regulation". Houston Kemp (report prepared for Powerco) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Comments on issues raised in submissions" (25 August 2015), p. 10.

²⁶⁷ TDB Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" (4 August 2016), p. 7.

²⁶⁸ Commerce Commission "WACC workshop transcript" (September 2016), p. 28-29.

²⁶⁹ Commerce Commission "WACC workshop transcript" (September 2016), p. 29.

369. We acknowledge that we regulate electricity lines and gas pipeline services separately, and that these services are contained in separate subparts in Part 4. Consistent with this, we have determined separate asset betas for electricity and gas.
370. We consider that the betas of international energy businesses are a useful indicator of the beta of New Zealand gas pipeline services, and note that it has proved difficult to identify a good comparator set for each separate category of services we regulate.²⁷⁰ Consequently, we consider that the most robust approach to determining the asset beta for gas pipelines is to start with a sample of comparator businesses that operate in the energy sector. We have then considered whether an adjustment is required to reflect differences in exposure to systematic risk between services.
371. In particular, we have considered four main potential reasons for applying an upwards adjustment for gas, which are discussed in more detail below:
- 371.1 results for the gas asset beta sub-sample, relative to the electricity sample and the full energy sample;
- 371.2 gas generally has a higher income elasticity of demand than electricity, and is likely to be more discretionary in New Zealand than some other countries (such as the UK);
- 371.3 gas penetration is relatively low in New Zealand relative to other countries included in the comparator sample analysis, potentially leading to greater economic stranding risk than electricity (which could have a systematic component) and greater growth options; and
- 371.4 international regulatory precedent regarding the relativity between gas and electricity asset betas.

Results for the gas asset beta sub-sample, relative to energy and electricity

372. In its submission on the draft decision, Oxera stated that asset betas for gas companies in our comparator sample have remained consistently higher than asset betas for electricity companies since publication of the 2010 IMs decision. Therefore, Oxera submitted that removing "...the existing uplift of 0.10 on the asset betas for gas pipeline businesses runs counter to how the market evidence on asset betas have evolved".²⁷¹
373. Although Houston Kemp (for Powerco) considers that gas network businesses are likely to experience higher systematic risks than electricity businesses in

²⁷⁰ As noted in paragraph 367, we have concerns regarding the small size and variability of using a gas only sample.

²⁷¹ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 1.

New Zealand, it raised concerns about relying on a sample of overseas businesses dominated by United States firms to reach this conclusion. Houston Kemp stated:²⁷²

There is considerable evidence pointing towards there being little difference in systematic risks between electricity and gas businesses in the United States. This evidence includes:

- CEG's 2013 survey, which found that for mostly regulated businesses, there was little difference in asset beta between electricity and gas network businesses. Similarly, TDB notes that much of the higher gas betas in the United States may be explained by significant unregulated activities, such as exploration; and
- results of surveys of income elasticity of demand for electricity and gas in the United States, including those conducted by the Commission, which suggest that one should not expect there to be much difference in systematic risks between suppliers of electricity and gas services.

374. Methanex supported the draft decision to align the asset beta for GPBs to the electricity asset beta, given a lack of compelling empirical evidence to justify the uplift. Methanex noted that "...variations in the difference between electricity and gas asset betas over time are more likely to reflect measurement error than any fundamental, identifiable and systematic difference between the services provided".²⁷³

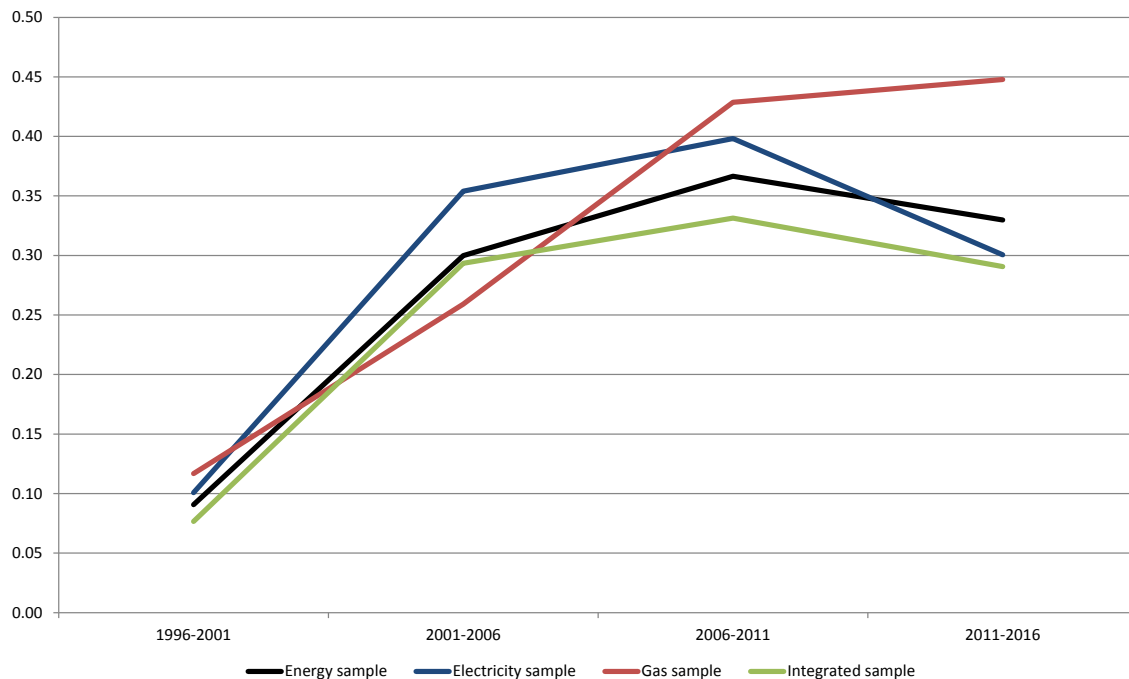
375. We have compared asset betas for electricity and gas sub-sets of our updated comparator sample, across the most recent 20 year period (1996-2016). We have classified the companies included in the comparator sample as either electricity, gas or integrated based on Bloomberg company descriptions.

376. Figure 7 below compares average asset betas for the full energy sample with the electricity, gas and integrated sub-samples, calculated assuming a zero debt beta. Although this analysis suggests a higher asset beta for gas companies in the most recent 10 years (2006-2016), the data for the 1996-2006 period does not.

²⁷² Houston Kemp (report prepared for Powerco) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Comments on issues raised in submissions" (25 August 2015), p. 11.

²⁷³ Methanex "Input methodologies review and gas DPP consultation submission by Methanex New Zealand Limited" (4 August 2016), p. 3-4.

Figure 7: Comparison of sub-samples over time (assuming zero debt beta)



377. First Gas submitted that “[f]rom the time since the IMs were first determined in December 2010, observed asset betas for gas pipelines have remained at or above 0.44”, noting that:²⁷⁴

Empirical beta estimates based on observed asset betas for gas pipelines (i.e. excluding electricity comparators) are statistically sound and have been remarkably stable over the past 8 years, providing confidence when setting a forward-looking beta estimate. A materially better approach to beta estimation given this evidence would be to rely on the more relevant comparator set of gas pipelines and leave the gas asset beta unchanged.

378. While we agree that the average asset beta for the gas sub-sample has been higher than the electricity sub-sample (and the whole energy sample) in recent years, the relationship flips over time (for no obvious reason).²⁷⁵ Further, given that the average standard error of the asset beta for the gas sample is approximately 0.18 over the most recent 10 years (as noted in paragraph 367.1 above), it is not clear that there is a statistically significant difference between the results of gas sub-sample and the whole energy sample.

²⁷⁴ First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 1.

²⁷⁵ The ENA noted that "No submitter has provided a credible basis for believing that gas businesses in the sample set have only recently, in the last five years, experienced an increase in risk relative to electricity businesses". ENA "Input methodologies review draft decisions – Cross submission on cost of capital" (25 August 2016), para 44.

379. In its submission, First Gas stated that “the standard errors using the gas and electricity sub-samples are comparable to those resulting from the larger dataset”, and suggested that the gas sub-sample results in a standard error that is “much lower than the standard error of asset beta estimates for airports information disclosure”.²⁷⁶ However, we note that the standard error of the asset beta for our gas sub-sample of 0.18 is higher than the standard error of the asset beta we use for airports (0.16), and the standard error of the asset beta for our refined energy sample (0.12).²⁷⁷
380. First Gas also noted that adding the standard error of the electricity sub-sample to the average asset beta of the electricity sub-sample would give an upper bound that is much lower than the average asset beta for the gas sub-sample.²⁷⁸ However, we note that First Gas’ conclusion does not hold if the analysis is undertaken in reverse. Using our refined sample for this final decision, and averaging across weekly and four-weekly estimates over the 2006-2011 and 2011-2016 periods:
- 380.1 Subtracting the standard error of the asset beta for the gas sub-sample (0.18) from the average asset beta of the gas sub-sample (0.44) results in 0.26.
- 380.2 This is significantly below the average asset beta for the electricity sub-sample of 0.35.
381. Further, CEG and Major Gas Users Group (**MGUG**) submitted that there is no statistically significant difference between the average asset betas for electricity and gas.²⁷⁹ CEG submitted that:²⁸⁰
- 381.1 comparisons of the Commission’s asset beta made by TDB (across individual firms) and Oxera (across sub-samples of firms) cannot meaningfully be done unless the firms/sub-samples have the same gearing;
- 381.2 in order for it to proceed without error, debt betas must be estimated for individual firms;

²⁷⁶ First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 3-5. First Gas also submitted that Australian regulatory experience suggests that the Commission should "refine its sample to a shorter list of comparators in similar markets and with broadly similar regulatory controls" (p. 10-11). However, we have not based on asset beta estimate for GPBs on the gas sub-sample, for the reasons in paragraphs 367 to 370 above.

²⁷⁷ The standard error of the asset beta for airports is discussed in more detail in paragraphs 589 to 595.

²⁷⁸ First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 4-5.

²⁷⁹ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission’s sample" (25 August 2016), para 56-71.

²⁸⁰ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission’s sample" (25 August 2016), para 10-13.

- 381.3 when plausible estimates of debt beta are used much of the apparent variation relied on by TDB and Oxera to reach their conclusions disappears;
- 381.4 the apparent differences in gas and electricity betas identified by Oxera is largely a function of the use of zero debt betas and the use of the most recent five-year period; and
- 381.5 there is no statistically significant difference between gas and electricity betas when a longer time-horizon is examined.
382. CEG applied a series of two-sample t-tests to compare the average asset betas for gas and electricity businesses. Using the average of weekly and 4 weekly estimates, across three time periods (2001-2006, 2006-2011, and 2011-2016) CEG found that:²⁸¹
- 382.1 the 2011-16 period has statistically significantly higher gas asset betas using a zero debt beta but not if positive debt betas are used;
- 382.2 in 2001-06 gas asset betas are statistically significantly lower than electricity asset betas – even when no debt beta adjustment is applied;
- 382.3 in the middle period (2006-11) there is no statistically significant difference between gas and electricity assets betas – irrespective of whether a debt beta adjustment is applied; and
- 382.4 combining these periods in a number of different ways, all estimates using a positive debt beta find no statistically significant difference, and three out of four tests with a zero debt beta find no statistically significant difference.
383. We agree with CEG that assuming non-zero debt betas will allow more valid comparisons across individual firms. Using non-zero debt betas helps ensure comparability among individual firms with different levels of gearing.
384. However, we disagree with CEG's assumption that "...for each individual firm, its debt beta is zero if the gearing is less than 30%, and increases with gearing above 30% to a maximum of 0.3".²⁸²

²⁸¹ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), para 57-63.

²⁸² CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), para 29.

385. At the cost of capital workshop Dr Lally noted that:²⁸³
- 385.1 a model that recognises a debt beta is, in principle, a better one than one that does not;
 - 385.2 relatively high debt betas, such as 0.3, are likely to reflect contamination from the risk-free rate. Debt betas are about the debt risk premium component, not the risk-free rate component because the risk-free rate is, by definition, free risk;²⁸⁴
 - 385.3 a sensible estimate, after removing contamination from the risk-free rate, is between 0 and 0.1; and
 - 385.4 once debt beta estimates are at a sensible level, incorporating them into the model has very little effect on the results, so it is not worth the trouble of incorporating them.
386. Oxera (for First Gas) provided a response to CEG's cross submission, following the cost of capital workshop. Oxera submitted that:²⁸⁵
- 386.1 the maximum level of debt beta that CEG assumes (0.30) is implausibly high for electricity networks and gas pipeline businesses in New Zealand;
 - 386.2 CEG assumes an implausibly steep increase in debt betas for firms with gearing levels of 30-50%, noting that under CEG's assumption, increasing gearing from 50% to 90% would not increase the debt beta of a firm;
 - 386.3 academic evidence and regulatory precedents support much lower debt betas than those assumed by CEG;
 - 386.4 if more realistic assumptions of debt beta were adopted, this would not materially affect the overall conclusions that the gas asset beta is higher than the electricity beta; and
 - 386.5 for the purpose of illustration, Oxera used an "aggressive (i.e. high)" assumption that debt beta varies linearly between 0 and 0.2 for firms with gearing between 0% and 90%.
387. We consider Oxera's illustrative debt beta assumption is more realistic than CEG's, so have used this assumption when comparing sub-samples in Figure 8 below.²⁸⁶

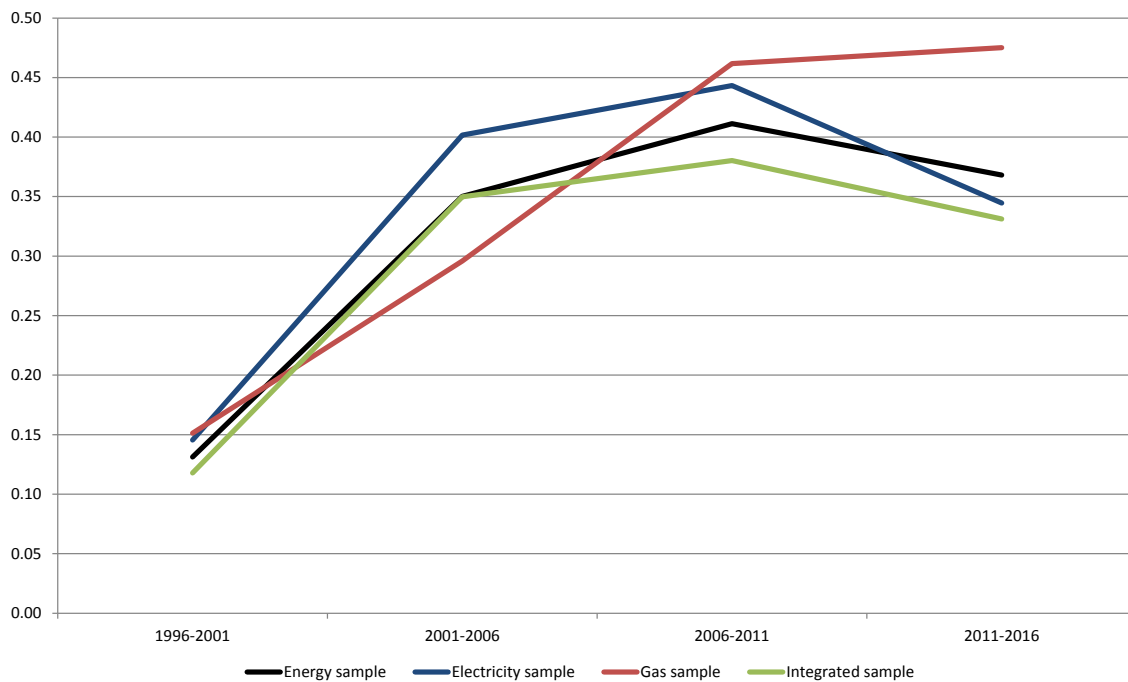
²⁸³ Commerce Commission "WACC workshop transcript" (September 2016), p. 34-35.

²⁸⁴ Dr Lally referred to a paper from Schaefer and Strebulaev as an example of empirical debt beta estimates which remove the interest rate risk component. Schaefer and Strebulaev "Structural models of credit risk are useful: Evidence from hedge ratios on corporate bonds", *Journal of Financial Economics* 90 (2008) 1-19. Table 4 shows a debt beta estimate of four basis points for a BBB rated business.

²⁸⁵ Oxera (report prepared for First Gas) "Oxera response to CEG's cross submission: The debt beta for gas pipeline businesses" (19 September 2016), p. 2-3.

However, we consider that Oxera’s approach leads to relatively high debt betas, given it results in an average debt beta across our full comparator sample of 0.09 (which is near the top end of the range of 0 to 0.10 referred to by Dr Lally as noted in paragraph 385.3 above, and more than double Schaefer and Strebulaev’s estimate of 0.04 for a BBB rated business as noted in footnote 284).²⁸⁷

Figure 8: Comparison of sub-samples over time (assuming non-zero debt beta)

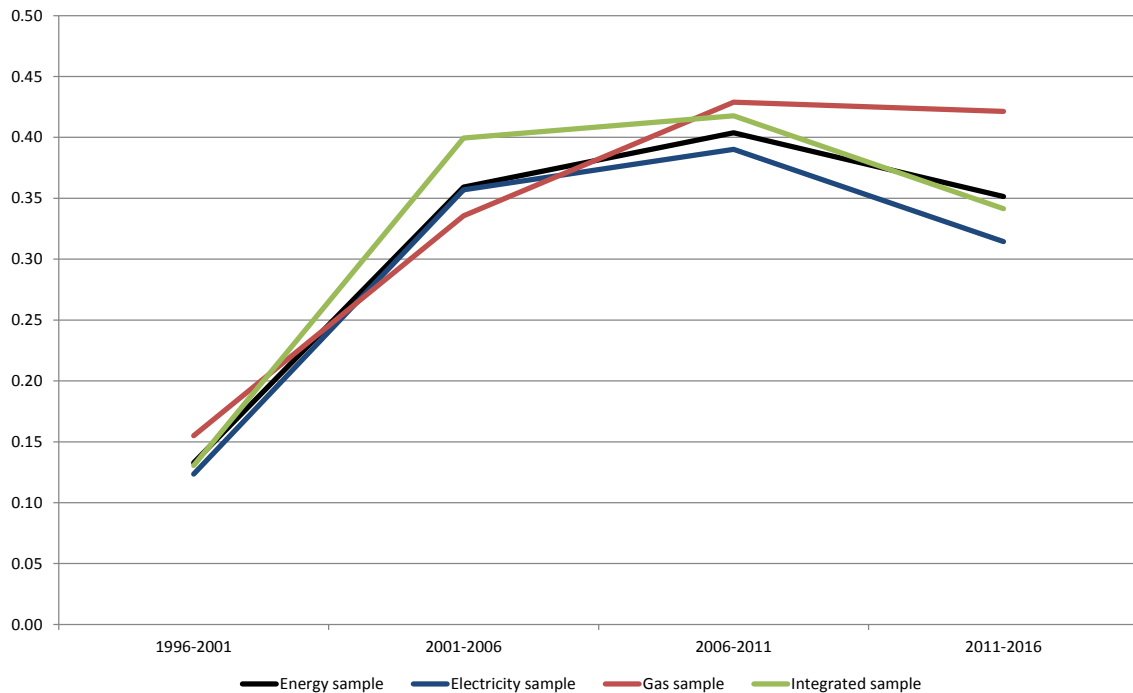


388. Using the TRBC, in combination with Oxera’s debt beta assumption, further dampens the differential between the gas and energy samples. This is shown in Figure 9 below.

²⁸⁶ Conceptually, from an equity shareholder’s point of view, a company having debt is like the shareholders having a put option of the company to the debt providers. Therefore, viewed in terms of optionality, we would expect a non-linear relationship between leverage and debt beta, where debt beta would remain low at relatively low levels of leverage, but then increase significantly as leverage approaches levels where bankruptcy or debt default becomes a realistic prospect.

²⁸⁷ CEG subsequently considered sensitivities regarding several other possible debt beta assumptions. However, we consider these additional sensitivities also lead to relatively high debt betas (given CEG assumes higher debt betas than Oxera). CEG (report prepared for ENA) responding to Oxera debt beta note "Review of Oxera debt beta analysis" (October 2016).

Figure 9: Comparison of sub-samples over time using TRBC (assuming non-zero debt beta)



389. Overall, we consider that the comparator sample analysis provides some limited support for an upwards adjustment to the gas asset beta. However, this is primarily because we have focussed our analysis on the most recent 10 years (2006-2016). When weight is given to the previous 10 year period (1996-2006), in addition to the 2006-2016 period, the case for using a higher asset beta for GPBs is relatively weak.

390. We note that in its analysis of CEG’s cross submission regarding debt betas, Oxera concluded that “[e]ven under the assumptions of non-zero debt betas, the results support a regulatory allowed asset beta of at least 0.40 for gas pipeline businesses”.²⁸⁸

Gas has a higher income elasticity of demand than electricity

391. Our 2010 IMs reasons paper implied that a higher price elasticity of demand for gas (relative to electricity) was one of our reasons for using a higher asset beta for GPBs. In particular, we noted that:²⁸⁹

GPBs do have substitutes for their services and their services are not as essential to most users as electricity is. Accordingly the cost of equity for GPBs is likely to be more affected by market-wide factors than for EDBs and Transpower, but still below the market average.

²⁸⁸ Oxera (report prepared for First Gas) "Oxera response to CEG's cross submission: The debt beta for gas pipeline businesses" (19 September 2016), p. 7.

²⁸⁹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 6.4.3.

392. We continue to acknowledge that there is greater discretion for consumers when deciding whether to use gas. In particular, we agree that for most consumers the decision to purchase reticulated gas (both initially and at discrete points in time) is somewhat more discretionary than for electricity.²⁹⁰ Suppliers of gas pipeline services recognise the possible loss of volumes if consumers were to switch energy demand to other fuel types.²⁹¹

393. However, it is not clear that gas having a higher price elasticity of demand than electricity suggests a higher asset beta (and therefore, a higher WACC) should apply for GPBs. In estimating asset beta we are only concerned about exposure to systematic risk, rather than non-systematic risk. Some aspects of the demand risks faced by GPBs are non-systematic in nature, and can be mitigated through diversification. For example:

393.1 If the cost to consumers of reticulated gas were to increase, this might cause some consumers to switch to alternative fuels (such as bottled gas, coal or electricity). In this event, the GPB would experience lower volumes.²⁹² The tendency of gas demand to drop in response to increases in price (and vice versa), is measured by the price elasticity of demand for gas.²⁹³

393.2 However, the risk of switching to alternative fuels is non-systematic, given that it will not matter to a diversified investor. A diversified investor will be indifferent to consumers' choice of fuel – switching from gas to an alternative fuel will carry downside risk for gas, but upside risk for the alternative fuel.

394. GPBs recognise that this diversification occurs, including by gas retailers (but less so by GPBs themselves). For example, Powerco explained in its 2015 gas distribution pricing methodology that:²⁹⁴

For the major gas retailers in New Zealand (Nova Energy and Genesis Energy on Powerco's networks), gas represents only a relatively small portion of their retail portfolios; electricity retailing tends to be their primary focus. In addition, some gas retailers may also offer liquefied petroleum gas (LPG) services to their customers. Gas retailers are therefore able to

²⁹⁰ Vector "Pricing Methodology for Gas Distribution Services" (effective from 1 October 2015), p. 11.

²⁹¹ Vector "Pricing Methodology for Gas Distribution Services" (effective from 1 October 2015); and Powerco "Gas Distribution Pricing Methodology" (24 September 2015).

²⁹² Vector "Pricing Methodology for Gas Distribution Services" (effective from 1 October 2015), p. 11-12.

²⁹³ The 2004 study of energy demand elasticities for OECD countries referred to in paragraph 399 below includes the following *price elasticity* estimates for electricity and natural gas. Gang Liu "Estimating Energy Demand Elasticities for OECD Countries - A Dynamic Panel Data Approach" (March 2004), p. 12-13.

	Residential sector		Industrial sector	
	Short-run	Long-run	Short-run	Long-run
Electricity	-0.030	-0.157	-0.013	-0.044
Natural gas	-0.102	-0.364	-0.067	-0.243

²⁹⁴ Powerco "Gas Distribution Pricing Methodology" (24 September 2015), p. 22.

offer their customers a range of competing energy options, while Powerco can only provide reticulated natural gas services with its gas pipelines.

...energy retailers may be relatively indifferent as to the type of energy they supply to customers. A customer's decision to install natural gas appliances in an existing household will lead to a decrease in the electricity consumed by that household, and the switch may represent no net benefit to the retailer. Equally, a decision by a customer to disconnect from reticulated gas will result in an increase in that household's electricity usage or a switch to bottled gas, and again the retailer may be indifferent between these outcomes.

395. Investors can also diversify the risks associated with consumers switching between alternative fuels, by investing in companies supplying a range of services.
396. Therefore, although the availability of substitutes may suggest a higher price elasticity of demand for gas, this will not necessarily lead to a higher beta.²⁹⁵ Although there is a risk to the volume of gas transported by gas pipelines, this risk can be mitigated through diversification (to the extent it is non-systematic).
397. On the other hand, there are aspects of consumers' choices regarding whether to purchase reticulated gas which may be affected by market-wide (systematic) factors. For example, GPBs may face greater exposure to systematic risk if the income elasticity of demand for gas is higher than for electricity.
398. The tendency of consumers to change the quantity of gas demanded in response to changes in their income, which is measured by the income elasticity of demand, is relevant to systematic risk.²⁹⁶ Market-wide factors (for example, an economic shock) may affect consumers' aggregate income, and as a result their demand for reticulated gas (along with other goods and services).
399. Gas typically has a higher income elasticity of demand than electricity. For example, a 2004 study of energy demand elasticities for OECD countries found the short-run and long-run income elasticities shown in Table 2.²⁹⁷ This study was referenced in our draft decision, and in the March 2016 submission from First State Investments.²⁹⁸

²⁹⁵ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 8.

²⁹⁶ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 8; and Houston Kemp "Asset beta for gas pipeline businesses" (report prepared for Powerco, May 2016), p. 5.

²⁹⁷ Gang Liu "Estimating Energy Demand Elasticities for OECD Countries - A Dynamic Panel Data Approach" (March 2004), p. 12-13. This study was referenced in the March 2016 submission from First State Investments: First State Investments "Comments on Professor Lally's review of WACC issues" (24 March 2016), p. 10.

²⁹⁸ First State Investments "Comments on Professor Lally's review of WACC issues" (24 March 2016), Table 4.1, p. 10.

Table 2: Income elasticities of demand for electricity and natural gas

	Residential sector		Industrial sector	
	Short-run	Long-run	Short-run	Long-run
Electricity	0.058	0.303	0.300	1.035
Natural gas	0.137	0.490	0.376	1.363

400. In general, a higher income elasticity of demand is expected to lead to a higher asset beta. At the cost of capital workshop, Dr Lally stated “[w]ithout getting into debates on the size of the effect, the direction is uncontroversial”.²⁹⁹ Dr Lally has also previously noted that:³⁰⁰

Firms producing products with low income elasticity of demand (necessities) should have lower sensitivity to real GNP shocks than firms producing products with high income elasticity of demand (luxuries), because demand for their product will be less sensitive to real GNP shocks.

401. Importantly, we have estimated asset beta by reference to a large selection of comparator companies which includes both gas pipeline and electricity lines networks. The asset beta estimates for these companies will reflect, among other things, consumers’ income elasticity of demand for these services. It is only if the income elasticity of demand for New Zealand reticulated gas is significantly different to the comparator companies (such that it materially affects beta), that we should provide an uplift to our estimate of asset beta (0.35).

402. Houston Kemp previously estimated income elasticities of demand of 3.6-3.8 for residential gas and 1.4-1.2 for commercial gas, which are considerably higher than the estimates for OECD countries contained in Table 2 above. However, in our view limited weight should be placed on Houston Kemp’s estimates given the following.

402.1 These values seem very high for a service that is likely to be more of a necessity than a luxury. An income elasticity for residential gas of 3.6-3.8 implies that a 10% increase in income would lead to a 36-38% increase in quantity demanded.

402.2 In several cases, Houston Kemp’s results are counter-intuitive. For example, their model suggests that in long-run equilibrium a 1% increase in the price of electricity is associated with a 1.54% decrease in residential gas demand.³⁰¹ This is inconsistent with expectations, given that electricity and gas are substitutes.

²⁹⁹ Commerce Commission "WACC workshop transcript" (September 2016), p. 94.

³⁰⁰ Martin Lally "The weighted average cost of capital for gas pipeline businesses" (28 October 2008), p. 49.

³⁰¹ Houston Kemp "Asset beta for gas pipeline businesses" (report prepared for Powerco, May 2016), Table 11, p. 19.

402.3 Houston Kemp noted that the Akmal and Stern paper, which it appears to have based its modelling approach on, "...is now relatively old and was not published in a peer-reviewed journal".³⁰² The Akmal and Stern paper noted similar issues regarding counter-intuitive results, referring to this as a "significant problem".

403. Specifically, the Akmal and Stern paper referred to by Houston Kemp states:³⁰³

There is, however, one significant problem with this set of results. Gas demand is estimated to decline with an increase in the price of the residual fuels, holding other factors constant – a finding that is contrary to theoretical expectations. It is generally believed that gas is a very close substitute for wood and heating oil in the area, at least, of space heating, though the residual fuels would rarely be used for cooking or water heating in Australia. It also is a generally held belief that the share of gas in residential energy use has been increasing, primarily at the expense of residual fuels (AGA, 1992).

404. We note that Houston Kemp was careful to acknowledge some of the limitations of its analysis regarding income elasticity of demand. Houston Kemp used quarterly New Zealand data for consumption and prices of electricity and natural gas services, as well as annual and quarterly data on GDP per capita (which it used as a proxy for income). However, it noted that "there are difficulties with performing analysis with these data", including:³⁰⁴

404.1 the relative lack of availability of some consumption data on a quarterly basis; and

404.2 the length of the time series for annual data, which are only available consistently since 1991.

405. Although we consider limited weight should be placed on the Houston Kemp income elasticity estimates, the fact that Houston Kemp estimates a higher income elasticity of demand for gas than electricity is consistent with expectations.³⁰⁵ Oxera submitted that "[e]ven if the Commission considers that Houston Kemp's point estimates for the income elasticity of demand for gas in New Zealand are high, the

³⁰² Houston Kemp "Asset beta for gas pipeline businesses" (report prepared for Powerco, May 2016), Table 11, p. 19.

³⁰³ Akmal, A., and Stern. D. "Residential energy demand in Australia – An application of dynamic OLS" (October 2001), p. 15-16.

³⁰⁴ Houston Kemp "Asset beta for gas pipeline businesses" (report prepared for Powerco, May 2016), p. 6.

³⁰⁵ Houston Kemp noted that it does not utilise the absolute level of income elasticity of gas demand from its econometric analysis, but ratios of income elasticities estimated from this analysis. Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission's draft decision on cost of capital" (4 August 2016), p. 16.

results indicate that the income elasticity of demand for gas is significantly higher than that for electricity".³⁰⁶

406. Other things being equal, the higher income elasticity of demand for gas would be expected to lead to a higher asset beta for gas pipelines than electricity lines. However, the magnitude of this effect is unclear, given limited quantitative evidence available.
407. Further, our view in the draft decision was that it is not clear income elasticity of demand will have a material impact on exposure to systematic risk for regulated electricity lines and gas pipeline businesses. This was due to the specific nature of the risks that regulated businesses are exposed to under revenue caps and weighted average price caps, respectively.
408. Under a revenue cap, regulated businesses receive their revenue allowance each year, independent of changes to GDP or incomes. For example:
- 408.1 gas may have a higher income elasticity of demand than electricity, so that as incomes increase the quantity of gas demanded increases by more than the quantity of electricity;
- 408.2 under a revenue cap, this will not translate into higher revenues for the regulated business. The regulated business will need to reduce the price for the service as demand increases, to remain within the revenue cap; and
- 408.3 although there will be a correlation between quantity demanded and market returns, there will not be a correlation between the regulated business' revenue and market returns.
409. Under a weighted average price cap, regulated businesses are exposed to forecast risk, which may dampen their exposure to systematic risk. A business' returns will be higher or lower depending on how actual demand compares to our forecast of demand, rather than necessarily being correlated to the market returns. For example:
- 409.1 if actual demand equals the regulator's forecast, the regulated business earns a normal return irrespective of whether the market returns have increased or decreased; and
- 409.2 if actual demand is greater than the regulator's forecast, the regulated business will earn an above normal return. However, this will be the case regardless of whether the regulator forecast an increase or decrease in

³⁰⁶ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 32. Oxera also noted that Houston Kemp's estimates are within the range of income elasticities estimated by Asche et al. (2008) for other countries (see pages 31-32).

demand. If the regulator forecast a decrease in demand, but the outcome was a smaller decrease, then the regulated business will earn above normal returns, even though the market returns would have decreased.

410. In particular, regulatory forecasts will remove the effect of *expected* correlations with the market. If both the market and regulated businesses are expected to face good economic conditions, the regulator will factor this into its forecasts, so that the regulated businesses will earn a normal return (while the market will outperform). Therefore, we consider that regulatory forecasts are likely to scale down the overall correlation between returns to regulated businesses and the market.³⁰⁷

411. In its February 2016 submission, Houston Kemp concluded that "...there are compelling reasons to believe that there are no material differences in systematic risk between these forms of control".³⁰⁸ This conclusion was based on similar analysis to paragraph 409. Specifically, Houston Kemp submitted:³⁰⁹

...there is no reason to expect that the risk of error in forecasting the various quantity dimensions (ie, customer connection, capacity and volumes distributed) of electricity and gas distribution services – irrespective of their sensitivity to macroeconomic cycles – over a five year period has systematic properties. For this to be the case, it would need to be established that regulatory forecasts – as the basis on which forward-looking allowed revenues were set – systematically under-estimated demand in macro-economic up cycles, and over-estimated demand in down cycles. In our experience, wider industry-specific trends – such as the uptake of demand-side or energy efficiency measures, and the rates of penetration of domestic gas connections – are likely to be much more important sources of forecast uncertainty.

412. In response to our draft decision, Houston Kemp stated that our view regarding the impact of income elasticity of demand in the context of price and revenue cap regulation is "an extraordinary conclusion to draw", noting that:³¹⁰

There are other interpretations of that empirical evidence that would lead to different conclusions. Further, the notion that systematic cash flows do not affect asset beta does not appear consistent with empirical evidence that the Commission uses to determine different asset betas across various sectors, including for airports and telecommunications.

³⁰⁷ To the extent that the regulatory forecast is correct, it removes the expected or forecast correlation between the business' returns and the market. However, any *unexpected* correlation remains, and so would be expected to affect asset beta.

³⁰⁸ Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p. 7.

³⁰⁹ Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p. 7.

³¹⁰ Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission's draft decision on cost of capital" (3 August 2016), p. 18.

413. Several possible arguments regarding the link between income elasticity and asset beta under price and revenue cap regulation were raised at the workshop. For example:
- 413.1 Oxera noted that “investors have an extremely long time horizon and investors recognise that regulation does not provide a revenue guarantee”.³¹¹ Similarly, Houston Kemp noted that “the long-term fortunes of that business are not insulated by the regulatory arrangements”.³¹²
- 413.2 Oxera also noted that “investor perceptions around the risk of political interference in situations where prices might otherwise go up is not trivial”, referring to French electricity price resets as an example of how this can potentially affect asset beta.³¹³
- 413.3 CEG noted that regulated businesses might be unwilling to pass on price increases allowed by the regulator in a recession, due to the risk of customers “deserting their gas connection to save money”.³¹⁴
414. We note that the number of residential customers switching off their gas connections in a recession is likely to be significantly limited by the cost of replacing their appliances. As Concept Consulting notes:³¹⁵
- ...appliance capital costs are significant components of the lifetime costs of energy for space, water and process heating. This means that any defection away from gas is likely to be relatively slow, driven by the replacement cycle of capital appliances which can have lifetimes of 15 to 20 years. However, the corollary of this is that once a space or water heating customer has switched to another fuel, it becomes much harder to win them back.
415. However, Oxera submitted that “high income elasticity of demand for residential consumers could be explained by the fact that consumers in New Zealand have the choice of temporarily disconnecting from the network by turning off the gas valve while remaining physically connected to the network, which is a feature unique to the NZ market”. Oxera noted that around 9-11% of total gas connections were temporarily inactive over 2010-2016.³¹⁶
416. Overall, we consider the higher income elasticity of demand for gas provides limited support for an upwards adjustment to the gas asset beta. Although a higher income elasticity of demand is generally expected to lead to a higher asset beta, we consider

³¹¹ Commerce Commission "WACC workshop transcript" (September 2016), p. 78.

³¹² Commerce Commission "WACC workshop transcript" (September 2016), p. 86.

³¹³ Commerce Commission "WACC workshop transcript" (September 2016), p. 89.

³¹⁴ Commerce Commission "WACC workshop transcript" (September 2016), p. 91.

³¹⁵ Concept Consulting's submission on the gas pipeline stakeholder meeting "Relative long-term demand risk between electricity and gas networks" (report prepared for Powerco, 27 January 2016), p. 7.

³¹⁶ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 33.

that the strength of this relationship is likely to be significantly diminished in the context of economic regulation (for the reasons in paragraphs 407 to 410 above).

417. However, although we consider that the presence of regulation will dampen the relationship between income elasticity of demand and asset beta, we agree that it is unlikely to completely remove this effect.

Gas penetration is relatively low in New Zealand, relative to other countries in the comparator sample

418. A smaller proportion of households are connected to gas in New Zealand, relative to other countries in our comparator sample. For example:

418.1 First Gas noted that gas reaches around 21% of households in the North Island of New Zealand, compared with 56% in the US;³¹⁷ and

418.2 Oxera noted that in 2010 approximately 56% of households in Australia, and 86% in the UK, had gas connections.³¹⁸

419. Low gas penetration in New Zealand suggests that greater growth options are available for gas pipelines, relative to electricity lines services. This is because there is greater potential for expansion when the economy is growing (relative to electricity). Other things being equal, this would be expected to lead to a higher asset beta for gas, relative to electricity.
420. However, Dr Lally notes that regulation weakens the value of expansion options, given that expansion is only valuable to the extent it produces revenues in excess of costs).³¹⁹ Dr Lally elaborated on this in his most recent response to submissions, stating:³²⁰

In the event of a very favourable demand shock, gas businesses may expand their networks, thereby increasing gas consumption indefinitely. Absent regulation, the consumption increment for an indefinite period boosts the net cash flows of the businesses for an indefinite period. By contrast, in the presence of a price cap, the net cash flow boost is curtailed once the current regulatory period expires (in 2.5 years on average), because the price cap would be reduced at that point to neutralize the benefit from the increased demand. So, price cap regulation curtails the value of the growth options, and hence the beta increment for gas over electricity businesses.

³¹⁷ First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 6-7.

³¹⁸ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 33.

³¹⁹ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 6.

³²⁰ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 9.

421. In its submission on the draft decision, Oxera noted that “an expectation or presumption of growth exists in gas pipeline businesses in New Zealand despite the businesses being subject to regulation” given:³²¹
- 421.1 the gas market in New Zealand has low maturity compared with the electricity market;
 - 421.2 gas distribution is subject to a price cap, presumably so that it has an incentive to grow the network;
 - 421.3 it is likely that gas networks in other jurisdictions are more mature than in New Zealand; and
 - 421.4 betas estimated based on comparators from more mature markets may underestimate the betas of gas pipeline businesses in New Zealand, as the volatility faced by gas companies in New Zealand from growth options would not be captured within the comparator sample.
422. We consider that, in isolation, the expansion options are not valuable enough to justify an upwards adjustment to the gas asset beta. When considering the value of expansion options, it is the difference between the regulator’s demand forecast and outturns that matters. Even if a business subject to price cap regulation outperforms regulatory demand forecasts, the regulatory settings will be reset within the next five years (further curtailing the value of expansion options).
423. We also note that low gas penetration in New Zealand potentially increases risk of economic network stranding for gas pipelines, relative to electricity lines.
424. As noted in the draft decision, competitive stranding risk is generally non-systematic in nature, and so is not relevant to WACC.³²² The risk of competitive stranding associated with technological developments such as solar PV panels and battery storage is largely specific to the energy industry (rather than the entire market).
- 424.1 A decrease in gas demand is offset by increase in demand for alternative technologies, so a diversified investor can manage this risk (to the extent it is non-systematic). This is consistent with October 2015 AER decision for SA Power Networks, which concluded that: “[w]e do not consider the risk arising from disruptive technologies can be reasonably classified as systematic risk”.³²³

³²¹ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 35-37.

³²² Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 359.2.

³²³ AER "Final decision – SA Power Networks determination 2015–16 to 2019–20, Attachment 3 – Rate of return" (October 2015), D.1.4.

424.2 The possibility of asset stranding for GPBs is discussed further in the emerging technologies topic paper.³²⁴ We note that an asset life adjustment to reflect competitive stranding risk was an option available to GPBs, but there was little support for this in submissions.

425. However, CEG submitted that “the fact that gas distribution has lower penetration and can be expected to be on the steeper part of the average cost curve...” means that “...the likelihood that a reduction in the number of connections to gas transport networks will result in competitive stranding is greater”. CEG also noted that:³²⁵

We would generally not expect the observed differentials in asset beta to reflect the true cost of competitive stranding. However, when investors’ assessment of the likelihood or cost of standing occurring is correlated with the market, firms with greater risk of asset stranding will report a higher beta than firms with lower risk of stranding.

426. We agree that the relatively low penetration of gas in New Zealand means that gas pipelines are closer to the ‘death spiral’ tipping point, where gas networks could lose enough customers to make getting the remainder to pay infeasible. This suggests investors’ perception of stranding risk may be more correlated with the market for gas than electricity, leading to a higher asset beta.

427. Similarly, Oxera submitted that “greenfield network expansion by gas pipeline businesses is expected to be risky, compared with maintenance activities undertaken by mature electricity networks”. Oxera stated that there are precedents where regulators have considered uplifting the WACC for greenfield networks, in order to account for risks with uptake.³²⁶

428. Oxera also noted that the GPB RAB per connection is \$7,720, compared with \$4,384 for electricity networks, suggesting that:³²⁷

An increase in gas tariffs might deter future connections growth and/or hamper gas networks’ ability to price up to their cap if customers perceive the tariff increase to be untenable and switch off their gas connection.

429. Dr Lally agreed that “[s]ince such stranding risk is partly systematic, the betas of regulated gas businesses must be higher than regulated electricity businesses”. However, Dr Lally considered that the stranding risk is not sufficient to warrant an uplift of 0.10.³²⁸

³²⁴ Commerce Commission "Input methodologies review draft decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (16 June 2016).

³²⁵ CEG "Relative risk of gas transport services" (report prepared for Vector, March 2016), para 2-3.

³²⁶ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 37.

³²⁷ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 37-38.

³²⁸ Dr Lally’s expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 9.

- 430. Asset beta should only compensate for stranding risk to the extent it is correlated with the market. However, it is difficult to distinguish between systematic and non-systematic stranding risk.
- 431. Table 3 below shows what a gas asset beta uplift of either 0.05 or 0.10 would imply in terms of the probability that a gas network is completely stranded in *T* years.³²⁹

Table 3: Probability a gas pipeline network is completely stranded in T years, implied by asset beta uplift of 0.05 or 0.10

Years (T)	Gas βa uplift = 0.05	Gas βa uplift = 0.10
5	2%	4%
10	4%	7%
15	6%	11%
20	7%	14%
25	9%	17%

- 432. We note that a 0.10 gas asset beta uplift would suggest relatively high stranding risk (ie, a 17% chance of network being completely stranded in the next 25 years).
- 433. Overall, we consider that stranding risk for gas is potentially higher than for electricity and some of this is likely to be related to the market (and therefore is systematic risk). We consider this provides support for a small asset beta uplift, but not as large as 0.10.

Overseas regulatory precedent does not provide clear support for a gas uplift

- 434. Overseas regulatory decisions continue to provide no clear support for applying a higher asset beta for gas pipeline services, relative to electricity lines services. As noted in the draft decision:
 - 434.1 the AER and Ofgem use the same, or very similar, asset betas for electricity and gas; and
 - 434.2 the Council of European Energy Regulators (CEER) report referred to in submissions from NERA and CEG found that gas and electricity betas determined by European regulators are generally very similar.
- 435. The AER’s December 2013 rate of return guideline proposes the same equity beta estimate of 0.7 for electricity transmission, electricity distribution, gas transmission,

³²⁹ The values in Table 3 are calculated as $1 - \text{EXP}(-\Delta\text{WACC} * T)$. This is similar to analysis we undertook in the pricing reviews for the UCLL and UBA services. Commerce Commission "Further draft pricing review determination for Chorus’ unbundled copper local loop service" (2 July 2015), para 1362.

and gas distribution.³³⁰ When combined with the AER's proposed gearing of 60%, this implies an asset beta of 0.28. Recent AER rate of return determinations for electricity distribution, electricity transmission, and gas distribution services are consistent with this guideline.³³¹

436. The explanatory statement for the AER's rate of return guideline states:³³²

We propose to adopt the same point estimate and range for equity beta across each of the energy sectors we regulate (electricity transmission, electricity distribution, gas transmission and gas distribution). This is because our conceptual analysis suggests systematic risks are similar between the different sectors of the energy market. Further, the results of our empirical analysis are not sufficiently precise to distinguish a measurable difference between the gas and electricity sectors.

437. Similarly, in recent price control determinations, Ofgem has used the same equity beta for electricity and gas distribution, and similar equity betas for electricity and gas transmission.

437.1 For both gas distribution (RIIO-GD1) and electricity distribution (RIIO-ED1), Ofgem used an equity beta of 0.9 and gearing of 65%.³³³ This implies an asset beta of 0.32.

437.2 For RIIO-T1, a lower equity beta was used for gas transmission than electricity transmission. Ofgem used an equity beta of 0.95 and gearing of 60% for National Grid Electricity Transmission (**NGET**), implying an asset beta of 0.38. An equity beta of 0.91 and gearing of 62.5% was used for National Grid Gas Transmission (**NGGT**), implying a lower asset beta of 0.34.³³⁴

438. NERA (for First State Investments) and CEG (for Vector) referred to a 2016 CEER report, which reviewed asset betas for electricity and gas from 22 recent European regulatory decisions.³³⁵

438.1 Based on data for 14 of the countries in the CEER report, NERA concluded that the average asset beta for gas is 0.04 higher than for electricity.³³⁶

³³⁰ AER "Better Regulation - Rate of Return Guideline" (December 2013), p 113.

³³¹ For example, AER "Final decision - Ausgrid distribution determination 2015-16 to 2018-19, Attachment 3 - Rate of return" (April 2015); AER "Final decision - Jemena Gas Networks (NSW) Ltd Access Arrangement 2015-20, Attachment 3 - Rate of return" (June 2015); and AER "Final decision - Directlink Transmission determination 2015-16 to 2019-20, Attachment 3 - Rate of return" (April 2015).

³³² AER "Better Regulation Explanatory Statement Rate of Return Guideline" (December 2013), p. 83.

³³³ Ofgem "RIIO-GD1: Final Proposals - Finance and uncertainty supporting document" (17 December 2012); and Ofgem "Decision on our methodology for assessing the equity market return for the purpose of setting RIIO-ED1 price controls" (17 February 2014).

³³⁴ Ofgem "RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas - Finance Supporting document" (17 December 2012).

³³⁵ The CEER report presents asset betas using two formulas: the Hamada formula, which accounts for tax, and the Brealey, Myers and Allen formula, which does not. CEER "CEER Report on Investment Conditions in European Countries" Ref: C15-IRB-28-03 (14 March 2016).

- 438.2 CEG calculated the average difference between gas and electricity asset betas as a median of 0.04 (or a mean of 0.02) using the Hamada de-leveraging formula. Using the Brealey, Myers and Allen de-leveraging formula resulted in a lower difference of 0 (based on the median) or 0.01 (based on the mean).³³⁷
439. We note that while this European evidence suggests a zero to small positive difference between the gas and electricity betas, more than half of the European regulators in question either use the same asset beta for electricity and gas, or have a lower asset beta for gas.
440. Overall, the evidence above regarding overseas regulatory decisions is generally consistent with our findings in 2010. Specifically, we noted in the 2010 IMs reasons paper that:³³⁸
- 440.1 "the AER uses the same approach and equity beta for gas distribution companies as for electricity distribution businesses and uses WACC estimates that are very close for electricity and gas"; and
- 440.2 "Ofgem's estimate of the WACC for gas distribution companies is very similar to that for electricity distribution companies".
441. Submissions on the draft decision questioned the relevance of overseas regulatory decisions, given country-specific differences (including different approaches taken by regulators when determining beta). For example:
- 441.1 First Gas submitted that the UK gas sector has fundamentally different characteristics from New Zealand (with gas networks reaching nearly every premise). First Gas and Australian regulators adopt a different approach to beta analysis, believing that estimates based on a small sample of Australian comparators will be more reliable than a large sample of international comparators.³³⁹
- 441.2 Houston Kemp noted that the type of empirical evidence regarding income elasticities that it has provided as part of this process has not previously been submitted in Australia. Houston Kemp also noted that the context is different in Australia, where the AER has historically set the same equity beta for

³³⁶ NERA "The beta differential between gas and electricity networks – A review of the international regulatory precedent" (report prepared for Colonial First State, 22 March 2016), p. 7-8. NERA notes in its report that "[a]ll betas are reported using the Modigliani-Miller formula, aside from GB, for which the Miller formula is used, in line with the regulator's approach"

³³⁷ CEG "Relative risk of gas transport services" (report prepared for Vector, March 2016), p. 7-10.

³³⁸ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H13.73.

³³⁹ First Gas "Submission on input methodologies review draft decisions: cost of capital issues" (4 August 2016), p. 9-10.

electricity and gas networks (as opposed to NZ, where the Commerce Commission has determined a higher asset beta for gas networks since 2004).³⁴⁰

442. We agree that comparisons with international regulatory decisions are of limited benefit, given the different contexts within those decisions are made (relative to New Zealand). However, we still consider that international comparisons are worthwhile, primarily as a cross-check on the results of our own findings specific to the New Zealand context.

Dr Lally no longer supports using a higher asset beta for gas pipeline businesses

443. As part of this review, we asked Dr Lally to consider whether the 0.10 upwards adjustment relative to the asset beta for GPBs continues to be appropriate. As set out in his advice, Dr Lally no longer considers that the 0.10 upwards adjustment relative to the asset beta for GPBs is warranted.³⁴¹
444. Dr Lally had previously considered that, compared to electricity businesses, gas businesses had greater options to expand their networks and that this would support a higher beta for gas businesses. He now notes that the value of expansion options is relatively insignificant for businesses that are now regulated, reducing the relevance of this argument.³⁴²
445. Dr Lally also concluded, based on his empirical analysis, that differences in customer mix do not warrant a higher beta for GPBs.
- 445.1 Dr Lally's May 2016 advice was based on analysis using revenue weightings and income elasticity of demand estimates for residential and commercial customers (in response to a submission from Houston Kemp). This led to him estimating an asset beta for gas that was 0.08 higher than for electricity (assuming 'theta' of 0.5), or 0.04 higher (assuming 'theta' of 0.25).³⁴³ 'Theta' captures the extent to which income elasticity explains changes in asset beta.

³⁴⁰ Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission's draft decision on cost of capital" (4 August 2016), p. 19-20.

³⁴¹ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), para 6; and Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016).

³⁴² Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 3.

³⁴³ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 51-52.

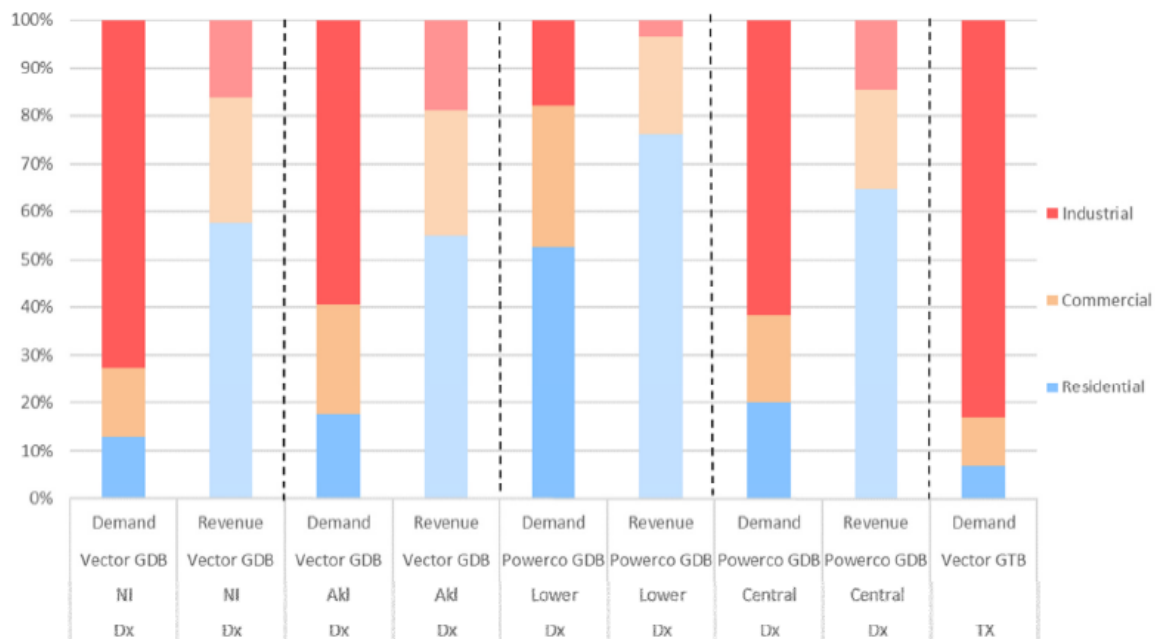
- 445.2 However, Dr Lally also noted betas are affected by many other factors.³⁴⁴ In particular, he advised that "...it is impossible to reliably estimate the difference in the betas of gas and electricity businesses purely on the basis of the two factors considered by Houston Kemp, and the effect of these two factors will be significantly diluted by other factors".³⁴⁵
- 445.3 We note that while other factors would dilute the effect of customer mix on consumers, the analysis by Dr Lally and Houston Kemp would in theory suggest a small difference between the electricity and gas betas. However, as discussed above, we have some additional concerns about Houston Kemp's analysis which further calls into question the magnitude of the estimated difference.
446. Regarding differences in customer mix between electricity and gas, we note that Concept previously submitted evidence of the split between volumes and revenues across New Zealand gas pipelines.³⁴⁶ Figure 10 below indicates that the majority of gas volumes are consumed by industrial users, the majority of revenues are collected from residential consumers.

³⁴⁴ In advice on the asset beta for the Gas Control Inquiry and Gas Authorisation, Dr Lally outlined several factors that would influence the level of systematic risk—the nature of the product or service; nature of customers; pricing structure; duration of contract prices with suppliers and customers; presence of regulation; degree of monopoly power; presence of growth options; operating leverage; and market weight of the industry on the market proxy. Martin Lally "The weighted average cost of capital for gas pipeline businesses" (28 October 2008), section 5.1, p. 49-53.

³⁴⁵ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 54-55.

³⁴⁶ Concept Consulting's submission on the gas pipeline stakeholder meeting "Relative long-term demand risk between electricity and gas networks" (report prepared for Powerco, 27 January 2016), p. 8.

Figure 10: Demand and revenue split across consumer segments for gas pipelines



Source: Concept Consulting Group

447. Further, analysis from Houston Kemp (as shown in Table 4 below) indicates that a similar proportion of revenues are from small customers across both gas and electricity distribution networks (62% and 63%, respectively).³⁴⁷ This is despite only 21% of volumes on gas distribution networks being driven by small customers, compared with 48% for electricity distribution.

Table 4: Comparison of volume weights and revenue weights

	Percent volumes from small customers	Percent revenues from small customers
GasNet	21%	74%
Powerco	33%	71%
Vector	16%	56%
Average gas distribution	21%	62%
Average electricity distribution	48%	63%

448. In his review of submissions on the draft decision, Dr Lally noted that he accepts Houston Kemp’s submission that their earlier analysis intentionally used data from electricity and gas distribution businesses, rather than the entire electricity and gas sectors. However, in response to Houston Kemp’s submission that their analysis

³⁴⁷ Houston Kemp "Asset beta for gas pipeline businesses" (report prepared for Powerco, May 2016), p. 11.

supports an asset beta differential of at least 0.10, Dr Lally noted that the following contrary considerations exist.³⁴⁸

448.1 Income elasticities of demand (adjusted for the proportion of revenues arising from variable charges) are part of a large set of factors that affect the sensitivity of returns on an asset to real GDP shocks, and returns are also influenced by several other shocks. There are no clear grounds to consider that the differences in income elasticities of demand (adjusted for the proportion of revenues arising from variable charges) would induce a beta increment of at least 0.10.

448.2 Price cap regulation (which distribution businesses are subject to) would dilute the effect of a higher income elasticity of demand upon beta, ie, price cap regulation reduces the value of theta and, the shorter the regulatory cycle, the greater the reduction.

448.3 The Commission is required to estimate the betas for gas transmission, electricity transmission, gas distribution and electricity distribution. Houston Kemp's analysis provides beta estimates for only two of the four types of businesses (electricity distribution and gas distribution). A consistent approach would require estimating the income elasticity of demand for the electricity/gas transmission businesses and using this to estimate their beta relative to electricity and gas distribution businesses, however this analysis has not been done.

448.4 The Commission has elected not to apply a beta increment for businesses subject to price cap regulation relative to those subject to revenue cap regulation, despite theoretical grounds for such an increment, because the empirical literature does not provide any clear evidence of a differential. Consistency requires the same approach to the question of a beta differential for gas over electricity businesses.

449. Dr Lally concluded that:³⁴⁹

Collectively, these four points lead me to conclude that a beta uplift of 0.10 for gas over electricity distribution businesses should not be allowed. Furthermore, I consider that 0.10 is the lowest level at which estimation of this parameter is possible.

450. Houston Kemp submitted that the "original rationale for applying an asset beta uplift for GPBs has not significantly changed because the evidence relied upon by Dr Lally in support of the asset beta uplift has not significantly changed".³⁵⁰

³⁴⁸ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 5-7.

³⁴⁹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 7.

451. In response, Dr Lally noted that “the underlying evidence has changed from a situation in which the gas businesses were not subject to formal control (at which point I favoured the differential of 0.10) to the present situation in which they are subject to formal control”. He also noted that “the effect of this change is to weaken the impact of growth options on beta, and also to weaken the impact of the income elasticity of demand upon beta through the periodic resetting of prices to reflect demand shocks”.³⁵¹

Conclusion on gas asset beta adjustment

452. On balance, we have decided to make a 0.05 upwards adjustment to the gas asset beta.

453. We consider that none of the reasons for an uplift are very strong in isolation. However, when combined, the higher income elasticity of demand for gas, and relatively low gas penetration in New Zealand support an upwards adjustment to the gas asset beta (but not as high as the 0.10 adjustment we made in 2010). We also consider that the comparator sample results provide some limited support for an upwards adjustment to the gas asset beta. In our judgement, 0.05 is appropriate.

454. In reaching this view, we note that we disagree with Dr Lally’s rounding of asset beta to the nearest 0.10. Rounding to the nearest 0.10 could lead to big swings in allowed rate of return, given that a 0.10 change in asset beta leads to approximately a 75 basis point change in the 67th percentile WACC. Our view is that 0.05 is more appropriate.

455. Applying an upwards adjustment of 0.05 to reflect the greater exposure to systematic risk faced by gas pipelines leads to an asset beta for GPBs of 0.40.

456. In the draft decision we noted that, in some circumstances, an upwards adjustment relative to the asset beta for GPBs could suggest a corresponding downwards adjustment should be made to the asset beta for EDBs and Transpower.³⁵² However, given that our decision to apply a 0.05 uplift for GPBs largely reflects differences between New Zealand GPBs and our sample of international comparator companies, we have not made a downwards adjustment relative to the asset beta for EDBs and Transpower.³⁵³

³⁵⁰ Houston Kemp (report prepared for Powerco) submission on IM review draft decisions papers "Issues raised by the Commerce Commission’s draft decision on cost of capital" (4 August 2016), p. 19.

³⁵¹ Dr Lally’s expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 7.

³⁵² This is because we have derived our unadjusted asset beta estimate of 0.35 from a sample of both electricity and gas businesses. Increasing our gas estimate to 0.40 potentially suggests that the electricity estimate should be decreased, to ensure the weighted average remains 0.35.

³⁵³ For further discussion see: Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 386-387.

Re-levering the average asset beta into an equity beta

457. For the reasons explained above, we have determined an asset beta of 0.40 for GPBs. Combining this with a notional leverage estimate of 42% (as explained in paragraphs 546 to 572), results in an equity beta of 0.69.³⁵⁴

We have determined an asset beta of 0.60 for airports

458. We have determined an asset beta of 0.60 for specified airport services, which is the same as the value we set in 2010. The asset beta of 0.60 reflects updated data for our revised airports comparator sample.

459. In reaching this view we followed the same six-step process used in 2010, as outlined in paragraph 266. This is consistent with the process used for updating our asset beta estimates for EDBs, Transpower, and GPBs, as explained above.

Identifying a sample of relevant comparator firms

460. The first step in our process is to identify relevant comparable firms for inclusion in our sample. We have followed largely the same approach to identifying the comparators for our sample as we did for the 2010 IMs.

461. To identify relevant comparable firms for inclusion in the sample, we used Bloomberg's security finder to search for firms with 'Airport' in the description. In 2010, on the other hand, we used the 'Airport Development/Maintenance' and 'Transport – Services' ICBs to identify airports for our sample – however these classifications appear to no longer exist.

462. We then used Bloomberg company descriptions and 'Segment Analysis' information to assess the nature and extent of each company's business, and excluded any firms from the sample that we did not consider were sufficiently comparable. Consistent with our 2010 decision, we have also only included companies that had at least five years of trading data, and a market value of equity of at least US\$100m.

463. This resulted in a sample of 26 firms. Further details regarding these 26 companies, including changes from the 2010 comparator sample, company descriptions, and asset beta results, are included in Attachment C.

464. In its submission on the draft decision, NZ Airports stated that "[i]t is appropriate for the Commission to update its asset beta comparator sample, given the passage of time since the 2010 IMs were determined" and "[w]e also agree with the

³⁵⁴ We have calculated the equity beta using the re-levering formula in paragraph 295.2:

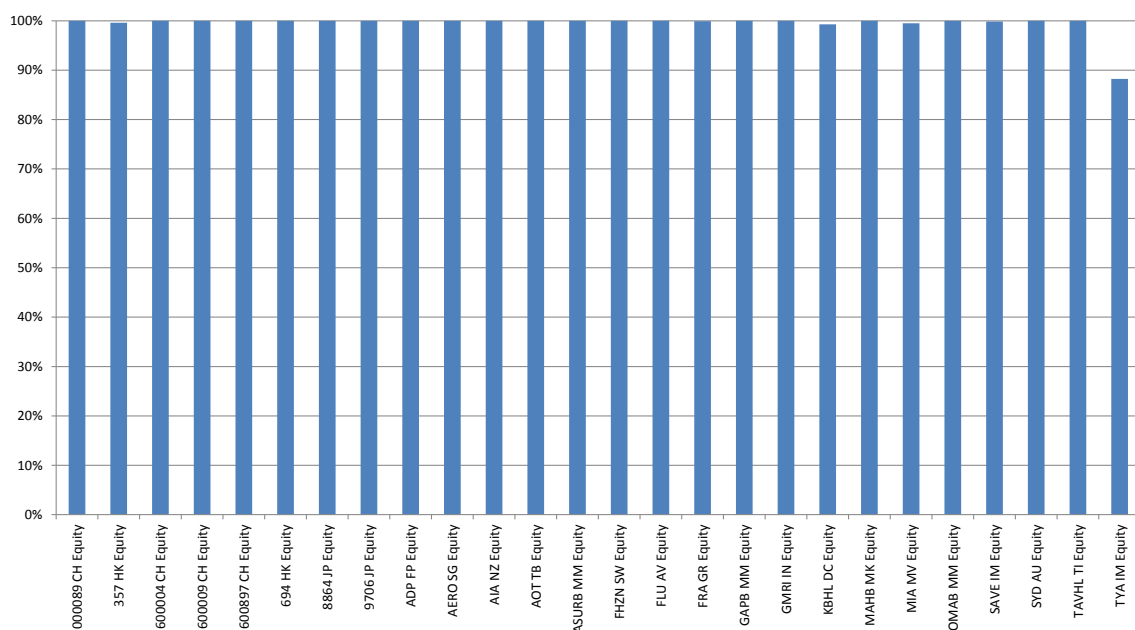
$$\beta_e = \beta_a + (\beta_a - \beta_d)L/(1-L)$$

where β_a is the asset beta for GPBs of 0.40, β_d is the debt beta (which we have assumed to be 0), and L is the average leverage of 42%.

Commission following the same approach to sampling (eg a broad sample set) to the extent possible".³⁵⁵

- 465. We have retained the same comparator sample as the draft decision, given we received no submissions suggesting companies be added or excluded.³⁵⁶
- 466. We also considered applying a percentage of days traded liquidity filter, consistent with our approach to the energy comparator sample.³⁵⁷ Data on the percentage of days traded for the companies in the airports sample, for the 2011-2016 period, is shown in Figure 11 below.

Figure 11: Percentage of days traded for companies in airports sample (2011-2016)



- 467. We have not excluded any companies from the airports sample, based on the percentage of days traded. Toscana Aeroporti (TYA IM Equity) had the lowest percentage of days traded over the 2011-2016 period, at 88%. We consider that this is not an obvious outlier which should be removed from the sample (unlike Jersey Electricity in the energy sample, which was only traded on 36% of days over the sample period).³⁵⁸

³⁵⁵ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 155.

³⁵⁶ We note that the two Japanese companies in the sample – Airport Facilities and Japan Airport Terminal – are not airport owners, but rather provide services to airports. Although we have retained these companies in the sample, we intend to consider this again in the next IM review. Excluding these two companies would not have affected the sample average asset beta of 0.65.

³⁵⁷ See paragraph 284.1 above.

³⁵⁸ As noted in footnote 178 above, we also considered applying an average bid-ask spread liquidity filter. However, we did not receive any submissions on the appropriate threshold (or any submissions on

Estimating the equity beta for each firm in the sample

468. We have followed the same approach used for EDBs, Transpower, and GPBs when estimating the equity beta for each firm in the airports comparator sample. This approach is described in paragraphs 286 to 291.
469. Specifically, we calculated equity beta and leverage estimates using source data (obtained from Bloomberg) on share prices, market indices, market capitalisation and net debt for each firm in the sample. The time periods and observation frequencies considered are:
- 469.1 the five-year period to 31 March 2001 using daily, weekly and four-weekly observations;
 - 469.2 the five-year period to 31 March 2006 using daily, weekly and four-weekly observations;
 - 469.3 the five-year period to 31 March 2011 using daily, weekly and four-weekly observations; and
 - 469.4 the five-year period to 31 March 2016 using daily, weekly and four-weekly observations.
470. Consistent with the approach to the energy sample, we have corrected several errors in our asset beta spreadsheet since the draft decision.³⁵⁹

De-levering the equity beta estimates and calculating the average asset beta across the sample

471. We converted the equity betas for each comparator (across each time period and frequency interval) into asset betas using the same de-levering approach as the energy sample.
472. To estimate a service-wide asset beta, we averaged the individual asset beta estimates across our comparator sample (giving each estimate equal weighting). This produced the results shown in Table 5. Further details regarding the results for the comparator sample are included in Attachment C.

applying liquidity filters to the airports sample more generally). Further: (i) given the small size of the airports sample, we are reluctant to unnecessarily exclude companies, and (ii) even if we did exclude airports with a relatively high average bid-ask spread percentage, the impact on the results would be relatively immaterial.

³⁵⁹ See paragraph 292 for further details.

Table 5: Airport comparator sample asset beta results

	1996-2001	2001-2006	2006-2011	2011-2016
Daily asset beta	0.48	0.66	0.60	0.59
Weekly asset beta	0.18	0.53	0.62	0.62
Four-weekly asset beta	0.24	0.58	0.69	0.66
Average leverage	17%	12%	18%	20%
# of companies with data available	6	19	25	26

473. When determining our asset beta estimate for airports, we have given greater weight to weekly and four-weekly estimates over the two most recent five-year periods (2006-2011 and 2011-2016), for the reasons explained in paragraphs 297 to 307. This results in an average asset beta for the airports comparator sample of 0.65.

474. The average asset beta for the airports comparator sample has increased from 0.63 to 0.65 since the draft decision, after correcting errors affecting weekly asset betas (as referred to in paragraph 470 above).

We have made a 0.05 downwards adjustment to the airports sample average

475. We consider that the average asset beta from the comparator sample (0.65) is likely to overstate beta for regulated aeronautical activities, because it relates to airports' overall (multi-divisional) businesses.

476. The average of the comparator sample gives us an asset beta estimate for an airport's total operations, rather than regulated activities only.³⁶⁰ This raises the question of whether an adjustment is required to generate an asset beta estimate for regulated aeronautical activities.

477. When determining our asset beta estimate for specified airport services, we are interested in the level of systematic risk relevant to aeronautical activities. This is because, under Part 4 of the Commerce Act, only aeronautical activities are subject to regulation.

478. However, the firms in our comparator sample are generally not pure plays – they have a mix of regulated and unregulated activities. Unregulated services (such as retail shopping) are generally considered more risky than regulated services (such as provision of airfields), for example there is greater demand uncertainty.

479. In both the draft decision and the 2010 IMs we made a downwards adjustment of 0.05 (from 0.65 to 0.60). We considered the average asset beta for the 2010

³⁶⁰ A company's overall beta is a weighted average of the betas of all its component businesses. However, estimating betas for component businesses is complicated by the fact that there are no traded returns for individual business units.

comparator sample (0.65) to be an upper bound, as it included both regulated and unregulated activities.

480. Submissions from NZ Airports, Auckland Airport, and UniServices (for Auckland Airport) argued that the 0.05 downwards adjustment we made in the draft decision is not warranted.³⁶¹ For example, in response to the analysis contained in our draft decision, UniServices submitted that:³⁶²
- 480.1 it was unable to replicate Figure 8, and its own analysis suggested a weak (not significant) positive relationship between asset beta and the percentage of aeronautical revenue for airports;
 - 480.2 in the absence of a more detailed understanding of how Deutsche Bank estimated parameters such as the asset beta and leverage, any inferences and conclusions from Deutsche Bank's estimates of Auckland Airport's aeronautical asset beta (and any difference between Auckland Airport's overall beta and aeronautical beta) must be treated with caution;
 - 480.3 based upon the assumptions adopted in his paper, Dr Lally should have recommended a base case downward adjustment for the aeronautical assets of airports of less than 0.03;
 - 480.4 if Auckland Airport has a higher than average weighting to non-aeronautical activities in the comparator sample of airports, it would be expected to have an overall asset beta higher than the sample average of 0.63. This suggests that the Commission's calculation of a 0.08 downwards adjustment using value weightings is overstated;
 - 480.5 the PwC report on Queenstown Airport recommended an asset beta of 0.60 for the aeronautical business, which was only 0.03 less than the asset beta of 0.63 in the draft IM review decision; and
 - 480.6 if the Commission decides to make a downwards adjustment to its industry-wide asset beta for airports, any such downward adjustment to the asset beta should be no greater than 0.03.

³⁶¹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 157-168; and Auckland Airport "Input methodologies review: Cross submission on draft decision – Cost of capital parameters" (25 August 2016), para 9-13.

³⁶² Auckland UniServices Ltd (report prepared for Auckland Airport "Input methodologies review draft decisions – Asset beta and TAMRP for airports." (25 August 2016), p. 5-6.

481. Covec (for BARNZ), on the other hand, submitted that “there are sound reasons to expect the asset beta of an airport to decrease with the proportion of its revenues that are aeronautical”, noting that:³⁶³
- 481.1 it is generally true that regulated firms have more stable earnings than unregulated firms, referring to a 1992 paper from Riddick;
- 481.2 in the case of a dual till regulated airport, it would be reasonable to expect that consumer decisions over retail spending on food and clothing inside an airport would be more discretionary than choices over whether or not to travel;
- 481.3 airports are well placed to test these arguments empirically, since they hold information on the volatility of demand by for passenger travel and retail spending as it affects their own business; and
- 481.4 such evidence would be rather more compelling than debates over the interpretation of benchmarking sample, but in the absence of such evidence it is difficult to see a reason to change the Commission’s existing practice.
482. We agree with NZ Airports and UniServices that there was an error in Figure 8 of the draft decision, and that when corrected, the revised graph does not support making a downwards adjustment to the sample average. In his review of submissions, Dr Lally noted that “...the most important point here is that the estimated relationship between asset beta and aeronautical revenue is not statistically significant”, and that “regardless of whether the Commission has erred over data, this evidence does not warrant any material weight in either direction”.³⁶⁴
483. However, we consider that other factors support maintaining the 0.05 adjustment applied in both the 2010 IMs and our draft decision. In particular:
- 483.1 Auckland Airport has previously acknowledged that its unregulated services would be expected to have a higher WACC than its regulated aeronautical services. This suggests a downwards adjustment should be made to the comparator sample average.³⁶⁵
- 483.2 Deutsche Bank reports separate equity beta estimates for AIAL’s business segments (0.78 for ‘AIA Group’, 0.71 for ‘Regulated’, 0.85 for ‘Dual Till’, and 0.60 for ‘Property’).³⁶⁶ De-levering using the “standard textbook” formula (as

³⁶³ Covec (report prepared for BARNZ) "Economic commentary on airport WACC submissions" (18 August 2016), para 43-46.

³⁶⁴ Dr Lally’s expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 10.

³⁶⁵ Auckland International Airport Limited "Airport regulation and pricing - Issues Brief" (November 2006), p. 5.

³⁶⁶ Deutsche Bank "Auckland Int. Airport – Excellent 1H16, regulatory red light" (19 February 2016), p. 13.

suggested by UniServices) rather than the Brennan-Lally formula, and assuming 35% leverage, leads to an asset beta of 0.51 for AIAL's regulated business, which is still 0.05 lower than the asset beta for AIA Group (0.56).³⁶⁷

- 483.3 PwC uses an asset beta of 0.60 for Queenstown Airport's aeronautical business, and 0.60-0.80 for its commercial activities.³⁶⁸ PwC also estimates the value weight on unregulated activities at 53-55%. Using mid-point values suggests an average asset beta for all of Queenstown Airport's activities of 0.65 (ie 0.05 downwards adjustment).³⁶⁹
- 483.4 The CAA estimated asset betas of 0.50 and 0.56 for Heathrow and Gatwick, significantly below our sample average of 0.65.³⁷⁰
- 483.5 We used an asset beta of 0.50 for the 2002 Airports Inquiry, based on advice from Dr Lally.³⁷¹
484. After reviewing the UniServices submission, Dr Lally considered that across the five points discussed "...four support the Commission's position whilst the fifth is essentially neutral". However, he concluded that "the Commission's proposed deduction of 0.05 is below the minimum deduction of 0.10 that I would apply to beta issues" and therefore "...my view is that the deduction (if one is to be made) should be 0.10 or some multiple of it".³⁷²
485. We disagree with Dr Lally's approach of rounding asset beta to the nearest 0.10, for the reasons discussed in paragraph 454 above. On balance, we consider that the available evidence supports a downwards adjustment to the airports asset beta of 0.05, but there is limited evidence to support a 0.10 adjustment.
486. For the above reasons, we consider that a 0.05 downwards adjustment from the sample average is appropriate. Applying the 0.05 adjustment leads to an asset beta for specified airports services of 0.60, consistent with the 2010 IMs.

³⁶⁷ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 10.

³⁶⁸ PwC "Queenstown Lakes District Council – Issue of shares in Queenstown Airport Corporation Limited to Auckland International Airport Limited – Detailed report on fairness opinion" (15 March 2011), p. 74.

³⁶⁹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 10-12.

³⁷⁰ Civil Aviation Authority "Estimating the cost of capital: technical appendix for the economic regulation of Heathrow and Gatwick from April 2014: Notices granting the licences" (February 2014), Figure 7.1, para 6.53.

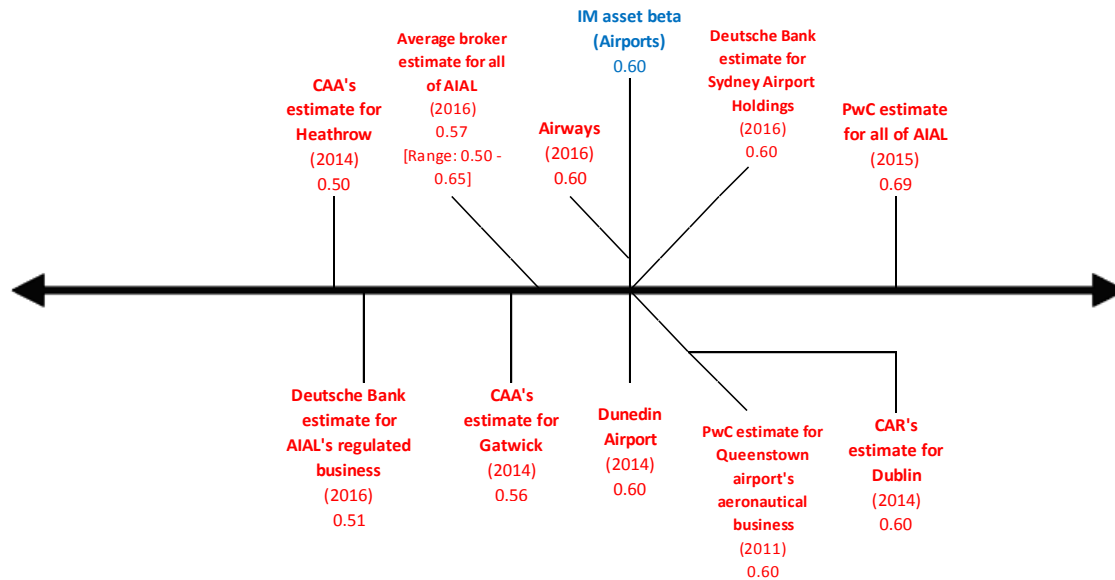
³⁷¹ Commerce Commission "Final Report Part IV Inquiry into Airfield Activities at Auckland, Wellington, and Christchurch International Airports" (1 August 2002); Martin Lally "The cost of capital for the airfield activities of New Zealand's international airports" (November 2001).

³⁷² Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 12.

Reasonableness of our asset beta estimate for airports of 0.60

487. We have assessed the reasonableness of our asset beta estimate of 0.60 based on available comparative information, as shown in Figure 12.³⁷³

Figure 12: Reasonableness checks on our asset beta estimate for airports



488. The above diagram shows that our asset beta estimate for airport services of 0.60 falls within the range of comparable information. We consider that this supports the reasonableness of our estimate.

Re-levering the average asset beta into an equity beta

489. For the reasons explained above, we have determined an asset beta of 0.60 for specified airport services. Combining this with a notional leverage estimate of 19% (as explained in paragraphs 546 to 572), results in an equity beta of 0.74.³⁷⁴

Tax adjusted market risk premium

490. We have maintained a TAMRP of 7%, which is the estimate used in the previous IMs.³⁷⁵ The TAMRP is a market-wide parameter, so we use a consistent approach across sectors.³⁷⁶

³⁷³ Since the draft decision, we have changed the Deutsche Bank estimate for AIAL's regulated business from 0.46 to 0.51 in response to UniServices' submission. Auckland UniServices Ltd (report prepared for Auckland Airport "Input methodologies review draft decisions – Asset beta and TAMRP for airports." (25 August 2016), p. 11-14.

³⁷⁴ We have calculated the equity beta using the re-levering formula in paragraph 295.2:

$$\beta_e = \beta_a + (\beta_a - \beta_d)L / (1 - L)$$

Where β_a is the asset beta for airports of 0.60, β_d is the debt beta (which we have assumed to be 0), and L is the average leverage of 19%.

491. After reviewing submissions on the estimators that we use for the TAMRP (detailed in paragraphs 501 to 528), we continue to consider that the evidence from these estimators, suggests that 7% remains an appropriate estimate of the TAMRP for the IMs.
492. The MRP represents the additional return, over and above the risk-free rate, that investors look for to compensate them for the risk of holding a portfolio of risky assets (more precisely the market portfolio, which is the average risk portfolio). Under the simplified Brennan-Lally CAPM, the MRP is adjusted for tax faced by the investor on equity returns (hence, tax adjusted MRP, or TAMRP).
493. The TAMRP is a forward-looking concept which cannot be directly observed. A number of approaches can be used to estimate the TAMRP. These approaches include:
- 493.1 studies of historic returns on shares relative to the risk-free rate;
 - 493.2 surveys of investors that ask them to state their expected rate of return for the overall market; and
 - 493.3 empirical estimates of the MRP from share prices and expected dividends.
494. In the previous IMs we estimated a TAMRP of 7% by considering a range of information sources, including both forecast and historic estimates of the TAMRP.³⁷⁷ We noted that a TAMRP of 7%:
- 494.1 best reflected the range of evidence available, including both historical returns and expected future returns;
 - 494.2 was considered reasonable by the Cost of Capital Expert Panel (which included Dr Lally); and
 - 494.3 was consistent with the range of TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.
495. We recently considered the TAMRP as part of our pricing determination for two regulated telecommunications services – Chorus' UCLL and UBA services.³⁷⁸ In those determinations we also used a TAMRP of 7%, after considering updated analysis

³⁷⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para 6.5.18.

³⁷⁶ As noted in paragraph 495, we most recently considered the TAMRP as part of our pricing determination for two telecommunications services.

³⁷⁷ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para 6.5.4-6.5.15.

³⁷⁸ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews – Final decision" (15 December 2015), p. 41-47.

from Dr Lally. Dr Lally recommended a TAMRP of 7% based on the median of five different methods, rounded to the nearest 0.5%, as shown in Table 6.³⁷⁹

Table 6: Estimates of the TAMRP with a five-year risk-free rate

	New Zealand	Other markets
Ibbotson estimate	7.1%	7.0%
Siegel estimate: version 1	5.9%	5.9%
Siegel estimate: version 2	8.0%	7.5%
DGM estimate	7.4%	9.0%
Surveys	6.8%	6.3%
Median	7.1%	7.0%

496. Submissions in response to our November 2015 IM review cost of capital update paper raised several concerns regarding our approach to estimating the TAMRP in the UCLL and UBA pricing determinations. Our November 2015 paper encouraged stakeholders to consider and comment on our final decision for UCLL and UBA, given that it was our most recent decision on how the TAMRP should be estimated.³⁸⁰

497. In particular, CEG (for the ENA) submitted that:³⁸¹

497.1 Dr Lally's methodology risks permanently depressing the allowed cost of equity, given that the TAMRP under his approach has not increased as the risk-free rate has decreased;

497.2 Dr Lally has introduced three new methods to estimate the New Zealand MRP (Siegel version 1, Siegel version 2, and surveys);

497.3 Dr Lally changed his approach to estimating the TAMRP during the UCLL and UBA pricing determinations (between advice provided in 2014 and 2015), by excluding the value of imputation credits from the dividend growth model (**DGM**) estimate, and using the median (rather than the mean) of the survey estimates; and

497.4 of Dr Lally's five methodologies for estimating the TAMRP, the focus should be on Ibbotson, DGM and Siegel version 2 approaches. Less weight should be given to survey estimates, and no weight should be given to the Siegel version 1 estimate.

³⁷⁹ Dr Martin Lally "Review of submissions on the risk-free rate and the TAMRP for UCLL and UBA services" 13 October 2015, Table 4, p. 35.

³⁸⁰ Commerce Commission "Input methodologies review – Update paper on the cost of capital topic" (30 November 2015), para 2.23-2.27.

³⁸¹ CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), p. 22-43.

498. Frontier Economics (for Transpower) submitted that:³⁸²

498.1 the TAMRP should vary over time, but remains relatively static under our current method because most of the approaches considered produce estimates that move very slowly over time;

498.2 there is no economic or regulatory rationale for rounding the TAMRP estimate to the nearest 0.5%, noting that this has had entrenched the value of 7%;

498.3 different weight should be placed on different methods of estimating the TAMRP, based on their relative strengths and prevailing market conditions (in particular, the Siegel version 1 method should be discarded, and minimal weighting placed on survey evidence); and

498.4 the TAMRP figure should not be locked into the IMs, but instead a methodology should be specified that enables the TAMRP to be re-estimated as required (which would increase the chances of the TAMRP estimate reflecting prevailing market conditions).

499. Dr Lally considered these submissions in his report and continued to recommend a TAMRP of 7%. He stated that:³⁸³

...although I agree with some of the points raised in these submissions, I do not agree that the TAMRP estimate should be higher or that a different approach to estimating this parameter should be adopted. The most significant point of difference between me and both CEG and Frontier is that they favour exclusive or primary weight on the results from the DGM whilst I favour equal weighting over the results of five methodologies including the DGM. The result of equal weighting on these five methodologies will be an estimate of the TAMRP that is likely to have significantly smaller estimation errors than that from exclusive or primary weight on the DGM. A policy of exclusive or primary weight on the DGM would only be applicable if this methodology was significantly superior to all alternatives, and I do not think that this is the case.

³⁸² Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016).

³⁸³ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 77.

500. Dr Lally also made the following points in response to the submissions from CEG and Frontier Economics.³⁸⁴
- 500.1 All the estimators are imperfect, but they all attempt to estimate the current value of the TAMRP. Therefore, the results from all estimators should continue to be considered.
- 500.2 Dr Lally shares Frontier Economics' view that the TAMRP has probably moved over time by more than the Commission's estimate, but he does not consider that this additional movement can be reliably estimated.
- 500.3 Of the three approaches to changing the weightings on estimators discussed by Frontier Economics, only one is sufficiently detailed to be assessed on its own merits. However, this approach will almost always result in a simple average across the DGM and Ibbotson estimators, so is likely to produce an inferior result (higher mean squared error) to using five equally-weighted estimators.
- 500.4 The TAMRP estimate based on Dr Lally's approach has increased corresponding with the recent fall in the risk-free rate, with the median rising from 6.9% in 2014 to 7.1% in 2015. However, the rounding process leaves the estimate unchanged at 7.0%.
- 500.5 The advantages of rounding to at least 0.5% outweigh a very small increase in the mean squared error. Rounding saves regulators from the need (and hence the cost) to estimate the TAMRP to a very high degree of precision, and this is desirable because high levels of precision in this area are spurious. Rounding also helps limit lobbying over small variations in the TAMRP estimate.
- 500.6 Siegel version 2 is the only new method used in Dr Lally's recent advice, and he has consistently used this approach when estimating the MRP since 2013 (in response to submissions from experts commissioned by regulated businesses in Australia).³⁸⁵ When advising us on TAMRP he has consistently used the results of surveys since 2001, and Siegel version 1 since 2003.
- 500.7 Dr Lally excluded imputation credits from dividends when reporting the DGM estimate in his 2015 report, because this is consistent with the simplified Brennan-Lally version of the CAPM used by the Commission. CEG's inclusion

³⁸⁴ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016).

³⁸⁵ Dr Martin Lally "Review of the AER's Methodology for the Risk-Free Rate and the Market Risk Premium" (4 March 2013).

of imputation credits in its DGM estimate was incorrect, and Dr Lally mistakenly overlooked this error when including it in his 2014 report.³⁸⁶

500.8 Dr Lally now uses the median of survey responses to help mitigate the potential impact of “frivolous responses or responses calculated to affect the result in a particular direction”.³⁸⁷

Submissions on our draft decision

501. The two main submissions on our draft TAMRP decision were that of Frontier (on behalf of Transpower) and UniServices (on behalf of AIAL). Frontier’s comments focussed on the weighting of historical and forward-looking data in our estimate, with a preference for estimators that use forward-looking data. UniServices focussed more specifically on the calculations within the estimators.
502. Frontier restated its view that the estimators we use for the TAMRP, and the equal weightings that we apply, will consistently produce the same result. It continues to consider that this is problematic because the TAMRP should vary with financial market conditions.³⁸⁸
503. Frontier’s submission went on to propose different weightings that we should apply to each of our estimators to obtain a more accurate estimate of the TAMRP. It suggests that we should continue to give equal weighting to New Zealand and international data.³⁸⁹
504. We do this by taking the average of the median New Zealand result of the five estimators and the median international result. UniServices appeared to agree with our weighting of New Zealand and international data, because it applied the same weighting to its own results.³⁹⁰
505. For the same reasons as in its previous submissions on our cost of capital update paper, Frontier continues to suggest that we should give no weighting to either the survey estimator or the Siegel 1 estimator. As a result Frontier proposed that we give equal weighting to the Ibbotson and Siegel 1 estimators, and then double weighting

³⁸⁶ Dr Lally’s expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP “Review of further WACC issues” (report to the Commerce Commission, 22 May 2016), p. 57.

³⁸⁷ Dr Lally’s expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP “Review of further WACC issues” (report to the Commerce Commission, 22 May 2016), p. 58.

³⁸⁸ Frontier Economics (report prepared for Transpower) “Response to cost of capital issues raised in draft input methodologies” (4 August 2016), p. 36.

³⁸⁹ Frontier Economics (report prepared for Transpower) “Response to cost of capital issues raised in draft input methodologies” (4 August 2016), p. 37.

³⁹⁰ Auckland UniServices Ltd (report prepared for Auckland Airport “Input methodologies review draft decisions – Asset beta and TAMRP for airports.” (25 August 2016), p. 28.

to the DGM estimator.³⁹¹ Frontier noted that if we adopted these weightings, we would arrive at a TAMRP estimate of 7.8%.³⁹²

506. In Dr Lally's latest report, in which he responds to submissions we received on our draft TAMRP decision, he refers to his previous comments regarding Frontier's suggestion to give no weight to the survey estimator.³⁹³ Dr Lally has previously asserted that Frontier's suggestion to give no weight to the survey estimator is:³⁹⁴

purely on the basis that they have moved slowly in recent years rather than because they are bound to do so, which is not the case. So, Frontier are essentially criticising an estimator (surveys) on the basis of its outcome rather than its inherent properties,

507. We have not received new arguments or evidence as to why we should give no weighting to the survey estimator. Our view remains that it provides a useful data point among a series of imperfect estimators and we have continued to give its results equal weighting.
508. Frontier's submission on our draft TAMRP decision reiterated its view that we should not use the Siegel 1 estimator when estimating the TAMRP. This view is, in part, because it considers that it is "not appropriate to consider the Ibbotson and Siegel 1 approaches to be separate techniques".³⁹⁵ It, therefore, considers that we are putting too much weight on historical average excess returns. Dr Lally has previously responded to this view, noting that:³⁹⁶

Despite this significant commonality in data, they each have produced significantly different estimates of the TAMRP. There are only two completely distinct estimators: Ibbotson and the DGM. Thus, if one seeks a larger set of estimators, which is desirable in my view, the rest will have to be variants of one or both of the Ibbotson and DGM estimators.

³⁹¹ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 37-38.

³⁹² Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 39.

³⁹³ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 15.

³⁹⁴ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 65.

³⁹⁵ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 38.

³⁹⁶ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 66.

509. Frontier's appendix to its submission responded to Dr Lally's previous advice on why we should continue to use the Siegel 1 estimator. Frontier focussed on three main points:

509.1 "there is no longer any reason to think that real yields on government bonds over most of the 20th century were 'too low' and require any form of upward adjustment",³⁹⁷

509.2 there are explanations other than pronounced unanticipated inflation for the low level of real bond yields between 1926 and 1990, and ignoring these factors "distorts the picture of the full range of market conditions that investors can expect to face over the long-run";³⁹⁸ and

509.3 the 'bias' in the Ibbotson estimate cannot be reliably corrected, and it does not need to be corrected because a historical estimator "must reflect a full range of market conditions that investors can expect to face over the long-run".³⁹⁹

510. In his latest advice, Dr Lally responds to these points from Frontier. He notes that he "never asserted that the low real bond yields in the late 20th century were due exclusively to unanticipated inflation".⁴⁰⁰ However, he argues that some of Frontier's alternative explanations could have only added to the unanticipated inflation's negative yields on bonds, rather than caused the effect. He also considers that some of Frontier's other explanations for the effect were only temporary and, therefore, support a downwards adjustment to the Ibbotson estimator.⁴⁰¹

511. Dr Lally also reinforces his previous assessment of why a downward adjustment to the Ibbotson estimator should be made, notably that:⁴⁰²

the impact of unanticipated inflation is one of a large set of phenomena giving rise to overestimation of the MRP from the Ibbotson methodology, no phenomena operating in the opposite direction are apparent, the downward adjustment to the Ibbotson MRP to reflect only unanticipated inflation is the only one of these phenomena that can be estimated to an acceptable degree of precision, and this supports the case for doing so.

³⁹⁷ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 57.

³⁹⁸ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 58-59.

³⁹⁹ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 60-63.

⁴⁰⁰ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 19.

⁴⁰¹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 19-20.

⁴⁰² Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 20.

512. In response to Frontier's argument that the bias in the Ibbotson estimate cannot be reliably corrected, Dr Lally notes that using any point in the range of estimates for the expected real yield on nominal government bonds would cause the Siegel 1 estimator to produce estimates of 5.9% to 6.8%, which would not affect the median estimate of all the TAMRP estimators. As such, Dr Lally does not recommend removing the Siegel 1 estimator from our range of evidence.⁴⁰³
513. We consider that our approach gives us the best estimate of the TAMRP. We note that all of the estimators that we use have flaws, as mentioned above, but we are aware of criticisms that could result in higher, or lower, TAMRP estimates not all of which have attracted submissions. For example, the DGM estimator is sensitive to the view taken on long-term real GDP growth.
514. However, we are not convinced by evidence that suggests that we should remove some estimators, or add weight to others. We continue to agree with Dr Lally that giving an equal weighting to the five imperfect estimators that we use gives us the best estimate of the TAMRP for this IM review.
515. UniServices' submission provided an adjusted estimate of the TAMRP which gave equal weighting to each of the five estimators. However, UniServices did propose some amendments to these estimates. UniServices concluded that, based on its recommended changes to the estimators, an appropriate estimate of the TAMRP would be 7.25%.⁴⁰⁴
516. UniServices disagreed with Dr Lally's method for adjusting the survey results using the risk-free rate. Uniservices suggested that the adjustment "should be estimated based on a risk-free rate at the time the survey was undertaken", rather than the time that the TAMRP was estimated.⁴⁰⁵
517. Dr Lally does not disagree with UniServices' proposed amendment to the survey estimator. However, he notes that the results are "inconsequential" and does not recommend that we make the change.⁴⁰⁶
518. UniServices' proposed amendment to the survey estimator adjustment would result in a New Zealand estimate of 6.9% instead of 6.8% and an international estimate of 6.5% instead of 6.3%. We, therefore, agree with Dr Lally that these changes are not material and note that they would have no effect on the median result of our TAMRP estimators.

⁴⁰³ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 21.

⁴⁰⁴ Auckland UniServices Ltd (report prepared for Auckland Airport "Input methodologies review draft decisions – Asset beta and TAMRP for airports." (25 August 2016), p. 28.

⁴⁰⁵ Auckland UniServices Ltd (report prepared for Auckland Airport "Input methodologies review draft decisions – Asset beta and TAMRP for airports." (25 August 2016), p. 27.

⁴⁰⁶ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 15.

519. UniServices also proposed an amendment to the Siegel 1 and Ibbotson international estimate. It suggested that a more appropriate adjustment to the international version would be to:⁴⁰⁷
- 519.1 start with the Ibbotson (foreign) measure of the TAMRP (as per our adjusted estimate);
- 519.2 add back the historical average real yield on NZ bonds (net of the tax effect); and
- 519.3 deduct a proxy for the historical average of the market's expected real yield on NZ bonds (net of the tax effect).
520. Dr Lally responds to these points in his latest advice and generally does not agree with UniServices' approach because there is a "lack of data on the tax regimes and parameters applicable in each of those countries over the relevant historical period (since 1990)."⁴⁰⁸
521. Dr Lally acknowledges that UniServices' suggestion has its merits, but does not consider that historical New Zealand data is the best available proxy because the "tax regime in New Zealand over this period (1931-2014) is likely to have been quite different to most of these other countries".⁴⁰⁹ He considers that other countries may not have operated dividend imputation, for example, which suggests that UniServices' adjustment is not warranted. Ultimately, Dr Lally concedes that neither his nor UniServices' approach to the Ibbotson and Siegel 1 international adjustments are perfect, but he maintains a preference for his approach. Dr Lally also examined the impact on the adjustment of a tax regime with no imputation and dividends and interest fully taxable over the historic period. Under this assumption, the result is closer to the original calculation.
522. The submission highlights a data difficulty with these estimates. There is a lack of data on the tax regimes and parameters in each of the countries as noted by Dr Lally. We do not consider the adjustment submitted by UniServices will add to the accuracy of the estimate.
523. PwC (on behalf of 17 EDBs) also suggested more precise rounding, submitting that "the estimates are sufficiently robust that the mean values can be rounded to the nearest 0.1%."⁴¹⁰ Frontier have expressed concern about the use of median values

⁴⁰⁷ Auckland UniServices Ltd (report prepared for Auckland Airport "Input methodologies review draft decisions – Asset beta and TAMRP for airports." (25 August 2016), p. 24.

⁴⁰⁸ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 13.

⁴⁰⁹ Dr Lally's expert advice "Review of further WACC submissions" (report to the Commerce Commission, 23 November 2016), p. 14.

⁴¹⁰ PwC "Submission to the Commerce Commission on input methodologies review: Draft decisions papers" (4 August 2016), para 250.

and rounding as forcing rigidity into the TAMRP estimates and has pointed to the monetary impact of this rounding on customers and suppliers.⁴¹¹ UniServices submitted that we should move to rounding to the nearest 0.25%.⁴¹²

524. We have previously accepted Dr Lally's recommendation to round our TAMRP estimate to the nearest 0.5% because it avoids the need (and the cost) of estimating the TAMRP to a very high degree of precision, which is desirable because high levels of precision in this area are spurious.
525. The estimation of TAMRP is inherently uncertain and we continue to agree with the views expressed about rounding by Dr Lally, in particular where rounding has little impact on the standard error of the estimate.⁴¹³ We note moving to rounding to 0.25% would not change our estimate of the TAMRP.
526. We are setting a TAMRP for the IMs, so the value we determine will apply to all WACC determinations until the next review of the IMs (in up to seven years' time). Therefore, we consider it inappropriate to give significant weight to short term movements in TAMRP, as these movements may not reflect the value expected to prevail over the period until the IMs are next reviewed.
527. To support our draft decision, we considered it was important to review alternative evidence as a cross-check. Based on discussions with analysts at the time, we understood that a TAMRP of 7% is generally consistent with estimates used by New Zealand investment banks. Table 7 summarises recent TAMRP estimates from investment banks, which range from 6.5% to 8%.

Table 7: TAMRP estimates used by major New Zealand investment banks

Investment bank	TAMRP estimate
Craigs Investment Partners	6.5%
Macquarie	7.0%
First NZ Capital	7.0%
UBS	7.0%
Forsyth Barr	8.0%

⁴¹¹ Frontier Economics "Cost of equity issues related to Input Methodologies Review" (February 2016), p. 15-16

⁴¹² UniServices, "Input Methodologies Review Draft Decisions – Asset Beta and TAMRP for Airports" (25 August 2016), p. 28.

⁴¹³ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 66.

528. Frontier criticised our use of this evidence:⁴¹⁴

the Commission would need to undertake much more comprehensive and complete analysis of New Zealand investment banks' estimates of the cost of capital before concluding that 7.0% is consistent with those banks' actual view of the TAMRP.

529. We agree that this evidence may have limitations, but still consider that it acts as a useful cross-check and is the best evidence before us we can use as a cross-check.

530. We have continued to use a TAMRP estimate of 7.0% for the reasons listed below.

530.1 Given that the various approaches to estimating TAMRP produce significantly different estimates, and that no approach to estimating TAMRP is generally accepted as superior or free from methodological criticisms, we prefer to place weight on a wide range of estimates (as Dr Lally does), rather than preferring one approach (such as the DGM) over others.

530.2 We consider historic estimates of equity returns are useful indicators of a prevailing TAMRP, and understand that such methods are widely used by other analysts to estimate TAMRP (who continue to place weight on estimates of TAMRP derived from such approaches).

530.3 Using a range of estimates is our long-standing approach, and this approach has produced a stable and predictable estimate of TAMRP. This has advantages for investors and consumers of regulated services, and is appropriate when specifying IMs which will apply to WACC determinations for up to seven years.

530.4 We understand that an estimate of TAMRP of 7.0% remains generally consistent with the estimates used by New Zealand investment banks, as noted in paragraph 527 above.

531. We note that our estimate of the TAMRP over time has been very stable. This would also appear to be consistent with the estimates from New Zealand investment banks. In 2010 we conducted a similar survey of investment banks and, in general, the estimates were the same as those in Table 7 above.⁴¹⁵

532. However, our estimate of the TAMRP is not immovable over time and we have previously increased it when there was evidence that the TAMRP had changed.

⁴¹⁴ Frontier Economics (report prepared for Transpower) "Response to cost of capital issues raised in draft input methodologies" (4 August 2016), p. 42.

⁴¹⁵ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), Table H11, p. 492.

For example, in 2010 we increased our estimate to 7.5%, due to the impact of the GFC on the premium for owning risky assets.⁴¹⁶

533. As discussed in Chapter 7, we have conducted reasonableness checks to assess whether, based on the decisions set out in this paper (including our TAMRP estimate), our estimates are reasonable compared to other WACC estimates. We conclude that our WACC estimates are reasonable based on the comparative information we have assessed.

Risk-free rate

534. Consistent with the 2010 cost of capital IMs, we have decided to apply the same approach to estimating the risk-free rate for the cost of equity as that applied in the cost of debt. As noted in paragraph 78.1, we have decided to maintain the current prevailing approach to estimating the risk-free rate, but extend the determination window from one month to three months.
535. Wellington Electricity submitted that “there is a strong case for extending the risk-free rate from five years to 10 years when determining the cost of equity as it better aligns with expert valuation practices and the long lived nature of EDB investments”.⁴¹⁷
536. We disagree, and have adopted a five-year term of the risk-free rate for both the cost of equity that was used, and for the cost of debt. This ensures consistency in estimating the cost of equity and the cost of debt. It also ensures the overall cost of capital is estimated on a basis consistent with the regulatory period to which it will be applied. We also note that:
- 536.1 Estimates of the risk-free rate used for expert valuations are used in a different context to regulatory WACC estimates, where prices are reset every five years. We have previously explained the reasons why the term of the risk-free rate should match the term of the regulatory period.⁴¹⁸ In the IMs merits appeals judgment, the High Court agreed with the principle that “...the term of the risk-free rate should be aligned to the regulatory term to avoid over and under compensation”.⁴¹⁹

⁴¹⁶ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), p. 477.

⁴¹⁷ Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016), p. 7. Wellington Electricity also submitted that we should consider adopting a one year averaging period when determining the risk-free rate for the cost of equity. Our reasons for using a three month averaging period when estimating the risk-free rate are explained in Chapter 3.

⁴¹⁸ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H4.29-H4.59.

⁴¹⁹ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1287.

536.2 A number of suppliers, with the power to set prices as they see fit and which set their own cost of capital when pricing their services, adopt a term of the risk-free rate of five years (the same as the pricing period).⁴²⁰

Equity issuance costs

537. Wellington Electricity submitted that the cost of capital IMs should include an allowance for equity raising costs, consistent with the approach taken by the AER. Wellington Electricity stated:⁴²¹

Equity raising costs are paid by an entity when it raises equity from new or existing shareholders. These costs include legal and investment banking fees (e.g. brokerage, due diligence and underwriting fees). New equity is needed to maintain a given capital structure (in the case of benchmark operator, a 44 per cent gearing ratio) and credit rating (BBB+). Equity raisings are especially required when capital expenditure grows faster than revenues.

...

WELL recommends the Commission consider the AER's methodology for estimating equity raising costs, and provide an allowance for these efficiently incurred costs.

538. The ENA's cross submission supported including an allowance for equity issuance costs.⁴²²

539. We disagree with these submissions, and consider that an allowance for equity issuance costs is not required. We note that:

539.1 Equity capital is normally available into perpetuity and does not need regular refinancing.⁴²³

539.2 Each company chooses what proportion of its profits it will retain in the businesses. Retaining profits can be used to finance growth in the asset base without incurring issuance costs.

539.3 In general, given the characteristics of New Zealand EDBs, their ownership, and their capacity to contribute additional equity, there is no evidence of a material issue regarding equity raising costs.

540. Consequently, we have not included an equity issuance cost allowance as part of the cost of capital IMs.

⁴²⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H4.51; and Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para E4.50.

⁴²¹ Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016), p. 7-8.

⁴²² ENA "Input methodologies review draft decisions – Cross submission on cost of capital" (25 August 2016), para 57; and Vector "Vector cross submission on the weighted average cost of capital IM" (25 August 2016), para 14.

⁴²³ In contrast, debt capital normally has a finite period to maturity, so debt capital needs to be re-financed regularly.

541. We also note that the AER does not include an allowance for equity raising costs in the WACC, but rather in the capex forecast. In a recent determination for the Jemena distribution network, the AER noted that “we include equity raising costs in the capex forecast because these costs are only incurred once and would be associated with funding the particular capital investments”.⁴²⁴

⁴²⁴ AER "FINAL DECISION Jemena distribution determination 2016 to 2020: Attachment 3 – Rate of return" (May 2016), p. 3-367.

Chapter 5: Other WACC parameters

Purpose of this chapter

542. This chapter discusses our findings for the parameters that do not comfortably sit in either the cost of debt or cost of equity chapters.

Structure of this chapter

543. This chapter begins by explaining why we have maintained our current approach to estimating a notional leverage, which includes a discussion of the leverage anomaly associated with the use of the SBL-CAPM.
544. We then discuss the tax rates we have used in our WACC estimates.
545. Finally, we discuss our approach to determining updated estimates of the standard error of the WACC.

Leverage

546. We have maintained our 2010 approach to estimating notional leverage, which is to use the average leverage of our asset beta comparator samples. This results in updated leverage of 42% for EDBs, Transpower and GPBs, and 19% for airports.⁴²⁵ In comparison, in the 2010 IMs we determined notional leverage of 44% for EDBs, Transpower and GPBs, and 17% for airports.
547. Leverage refers to the mix of debt and equity capital that is used to fund an investment. It is used in two places when estimating the cost of capital. The first is to re-lever the asset beta into an equity beta (and vice versa). The second is to derive a WACC from the estimates of the cost of debt and the cost of equity.

We address the leverage anomaly by using the average leverage of the asset beta comparator samples

548. It is generally understood that leverage does not affect a firm's WACC in a tax-neutral environment because the cost of capital reflects the riskiness of cash-flows, rather than how these are divided between equity and debt investors.
549. Interest costs are tax deductible, but dividends are not, so when corporate tax is considered, the WACC is generally understood to decline as leverage increases.⁴²⁶ This is because interest costs are tax deductible to the firm, but dividends are not.

⁴²⁵ The average leverage for EDBs, Transpower and GPBs has increased from 41% to 42% since the draft decision. This reflects the refinements to the comparator sample described in Chapter 4.

⁴²⁶ This is the context normally set out in textbooks when discussing the use of the classical CAPM to estimate the cost of equity.

550. When personal tax is considered, some of the tax advantages of debt are reduced. The New Zealand dividend imputation credit regime allows firms to pass on to their shareholders a credit for the tax the company has already paid.
551. However, a well-known 'leverage anomaly' exists when using the simplified Brennan-Lally CAPM.⁴²⁷ When the simplified Brennan-Lally CAPM is used to estimate the cost of equity (in conjunction with the simplified beta leveraging formula), and the cost of debt includes a positive debt premium, the resulting WACC estimate increases with leverage.
552. This positive relationship between leverage and WACC is inconsistent with the behaviour of firms in workably competitive markets. Firms in those markets issue debt, providing debt levels are prudent, and are considered to be acting rationally when doing so.
553. In 2010 we identified two main options to overcome this anomaly: use the average leverage of the sample of comparator companies used to estimate asset beta, or use non-zero debt betas.⁴²⁸ We noted that the use of non-zero debt betas is theoretically better than using notional leverage, but there are practical difficulties in accurately estimating debt betas. We also noted that most regulators do not use non-zero debt betas and that we had not used them in the past.
554. Debt beta measures a firm's systematic risk associated with borrowing, and is measured by the sensitivity of the returns on corporate debt to movements in returns on the market portfolio of all assets. In 2010 PwC submitted that:⁴²⁹

If debt betas are to be excluded from the WACC analysis (which we concur with), then to be consistent the notional leverage used in the WACC estimation should be close to the average leverage of the comparator companies used to derive the (average) beta estimate. This is a fundamental requirement in order to be able to justify application of a "short cut" approach and thus ignore debt betas.

⁴²⁷ For further discussion see: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), para 6.6.1-6.6.16, and Appendix H3.

⁴²⁸ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H3.20-H3.64.

⁴²⁹ Electricity Networks Association "Submission on the Draft Input Methodologies Cost of Capital (Electricity Distribution Businesses and Gas Pipeline Businesses) Determinations and Draft Reasons Papers", Attachment: PwC "Submission on the Cost of Capital parameter estimates in the Commerce Commission's Draft Electricity Distribution Services Input Methodology Determination: a report prepared for Electricity Networks Association" 13 August 2010, p. 8; Telecom Limited "Submission on the Draft Input Methodologies Cost of Capital (Electricity Distribution Businesses and Gas Pipeline Businesses) Determinations and Draft Reasons Papers", Attachment: PwC "Submission on Cost of Capital Material In the Commerce Commission's Draft Input Methodologies Determination and Reasons Paper: A report prepared for Telecom New Zealand Limited" 13 August 2010, p. 10.

555. We recognise that the greater the riskiness of debt, the more it resembles equity. Therefore, the greater the systematic risk of debt due to market conditions, the greater the debt beta.
556. Consequently, in principle, debt betas should be included in the cost of capital calculation. The use of non-zero debt betas is theoretically sounder than using notional leverage as the use of non-zero debt betas would reduce the extent to which the post-tax WACC estimate for each service varies with leverage.
557. However, we noted in 2010 that most submissions preferred the use of zero debt betas, that most regulators do not use debt betas (though a minority do), and that we had not used non-zero debt betas in the past. Further, there are practical difficulties in accurately estimating debt betas. Those challenges to the use of non-zero debt betas remain.⁴³⁰
558. Transpower successfully challenged the process for determining the leverage parameter of the cost of capital IM in the High Court on the basis that Transpower had not been properly consulted on the approach to leverage. It then submitted, in April 2012, that because its forecast leverage was above that of the comparator firms, leverage in the cost of capital IM should use:⁴³¹
- 558.1 Transpower's average forward-looking actual leverage for the value of leverage without further adjustments to the cost of capital IM; or
- 558.2 Transpower's average forward-looking actual leverage for the regulatory period for the value of leverage together with a non-zero debt beta; or
- 558.3 a notional leverage for the value of leverage that is a weighted average of Transpower's average forward-looking actual leverage for the regulatory period and the average leverage of the comparator firms sample used to derive the asset beta estimate.
559. We did not agree with Transpower's submission for a number of reasons, including the fact that we did not consider that variations in a supplier's actual leverage (within prudent levels), in practice, alter its actual cost of capital or its regulatory cost of capital. Further, we argued that the use of actual leverage was inconsistent with how we estimated the value of other parameters in the cost of capital (especially asset beta), and this may have biased the resulting estimate of WACC (unless a debt beta was incorporated).⁴³²

⁴³⁰ Non-zero debt betas are discussed in more detail in paragraphs 383 to 387 above.

⁴³¹ Transpower "Submission on Leverage Value in the Cost of Capital Input Methodology for Transpower" (2012).

⁴³² Commerce Commission "Input Methodologies (Transpower) Supplementary Reasons Paper for Leverage in Cost of Capital" (29 June 2012), para 1.1.7-1.1.18.

560. The High Court's merits appeals judgment dismissed the challenges from Transpower and MEUG regarding leverage, noting that "...none of the proposed alternatives to the Commission's leverage decision would lead to a materially better IM for either the Energy Appellants or Transpower."⁴³³
561. The High Court also noted that Auckland Airport conceded that setting leverage using the average of the comparator sample was correct and found that "the Airports' proposed alternative values of leverage would not lead to a materially better cost of capital IM."⁴³⁴
562. We continue to consider that using the average leverage of the asset beta comparator samples is the best way of dealing with the anomaly. As we have estimated a notional leverage in line with the companies in our asset beta comparator samples, the resulting WACC will be the same for those services regardless of the value assumed for the debt beta.
563. In its cross submission, CEG stated that our "standard approach of calculating asset betas assuming zero debt premium [*sic*] and re-levering to the sample average gearing ensures that most of the errors associated with assuming a zero debt beta cancel out in the de-levering and re-levering process". CEG also noted that:⁴³⁵
- This approach would be perfect (the errors would cancel out perfectly) if all firms had the same debt beta. However, if debt betas increase with gearing, as they must, then the underestimate of asset beta in the de-levering process will be less than fully cancelled out by a re-levering of asset beta to the sample average gearing.
- ...
- We estimate, based on the Commission's sample and our assumptions about debt beta, that that this source of bias causes the re-levered equity beta to be underestimated by around 0.02. Once more, this is a relatively small effect.
564. We consider that our assumption of zero debt beta does not lead to any material bias in our re-levered equity beta estimate. In particular, we note that when a more realistic debt beta assumption than CEG's is used, there is no clear bias demonstrated in our re-levered equity beta estimate of 0.60 for EDBs and Transpower.⁴³⁶

564.1 We have replicated CEG's analysis by de-levering each individual firm's equity beta using Oxera's assumption that debt beta is 0 at 0% leverage, and increases linearly to 0.20 at 90% leverage. As noted in paragraph 387 above,

⁴³³ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, p. 540.

⁴³⁴ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, p. 541.

⁴³⁵ CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Asset betas for gas versus electricity businesses in the Commission's sample" (25 August 2016), para 100-104.

⁴³⁶ As noted in paragraph 387 above, although we consider that Oxera's approach to debt beta is more realistic than CEG's, it still leads to relatively high debt betas, and the assumption of a linear relationship between debt beta and leverage is unlikely to be observed in practice.

although we consider that Oxera's approach to debt beta is more realistic than CEG's, it still leads to relatively high debt betas (and the assumption of a linear relationship between debt beta and leverage is unlikely to be observed in practice).⁴³⁷

564.2 Using Oxera's debt beta assumption (and averaging across weekly and four-weekly estimates for 2006-2011 and 2011-2016) leads to an average asset beta for the energy sample of 0.39, an average debt beta of 0.09, and average leverage of 42%. This leads to a re-levered equity beta of 0.60.⁴³⁸

Submissions have not changed our view that leverage should be updated

565. Submissions from the ENA, Powerco, and Wellington Electricity did not support updating our leverage estimate. For example, the ENA submitted that leverage should be left at 44% because:⁴³⁹

565.1 "the gearing is not very different to 44% and therefore leaving it at 44% is consistent with the Commission's own approach to estimating beta";⁴⁴⁰ and

565.2 "the use of average gearing across a sample is only appropriate if debt beta is zero which, in the Commission's sample, is unlikely to be true".

566. Similarly, Powerco submitted that it was "disappointed with the Commission's proposal to revisit the notional leverage", noting that:⁴⁴¹

566.1 its understanding was that we would not revisit elements of the IMs without clear evidence that the current settings were failing to achieve the legislative purpose (ie, the Commission would refrain from 'tinkering' and that suppliers were invited to exercise similar restraint);

566.2 refreshing the estimate gives a false sense of precision given the acknowledged flaws in the methodology for estimating WACC; and

566.3 the Commission did not adequately signal this change.

567. Methanex and Contact, on the other hand, supported updating notional leverage to reflect the revised asset beta comparator sample analysis.⁴⁴²

⁴³⁷ CEG assumed that for each individual firm, its debt beta is zero if the gearing is less than 30%, and increases with gearing above 30% to a maximum of 0.3.

⁴³⁸ $\beta_e = \beta_a + (\beta_a - \beta_d)L/(1-L) = 0.39 + (0.39 - 0.09) \times 0.42/(1 - 0.42) = 0.60$.

⁴³⁹ ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 95.

⁴⁴⁰ Wellington Electricity also submitted that we should "leave the gearing level unchanged, as this is consistent with the approach the Commission applied in determining the values of asset beta and TAMRP". Wellington Electricity "Input methodologies review: Response to draft decisions" (4 August 2016), p. 7.

⁴⁴¹ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 331-333.

568. We disagree with the submissions which argued that leverage should not be updated, for the reasons set out below.
- 568.1 Updating leverage to reflect updated comparator sample data is consistent with our approach to updating asset beta (contrary to the submissions from Powerco and Wellington Electricity). Both the draft decision and this final decision calculated revised asset beta and leverage values using the updated comparator sample data. However, in the case of the draft decision, the updated asset beta of 0.34 happened to match the value determined in 2010.
- 568.2 It is important that both asset beta and leverage are set using data from the same comparator sample, across the same time periods, given our approach to addressing the leverage anomaly (as discussed in paragraphs 548 to 564 above). We disagree with Powerco's view that updating leverage is 'tinkering' – we consider that updating leverage to be consistent with our revised asset beta comparator sample is a necessary consequential change (in light of our treatment of the leverage anomaly).
- 568.3 We disagree with the ENA's statement that "the use of average gearing across a sample is only appropriate if debt beta is zero which, in the Commission's sample, is unlikely to be true". As noted in paragraph 563 to 564 above, our analysis results in the same re-levered equity beta regardless of whether a zero or non-zero debt beta is assumed.
- 568.4 We signalled in the November 2015 cost of capital update paper that we intended to "use a similar approach as undertaken in 2010 to estimate the other parameters for the cost of capital" and that this included "obtaining a notional leverage from an average of the comparator sample used to determine asset beta".⁴⁴³ Earlier in that paper we also noted that we intended to re-estimate asset beta values "using updated data and re-assessing the comparator companies".⁴⁴⁴
569. Auckland Airport submitted that data for the airports comparator sample suggests that companies with a lower asset beta typically have a higher leverage. Therefore, Auckland Airport stated that "if the Commission continues to reduce the asset beta estimate from its comparator sample to estimate the asset beta of aeronautical

⁴⁴² Methanex "Input methodologies review and Gas DPP consultation" (4 August 2016), p. 4; and Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 26.

⁴⁴³ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 2.45.

⁴⁴⁴ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 2.9.

services, it should make a corresponding upwards adjustment to the leverage estimate from its comparator sample”.⁴⁴⁵

570. We disagree that an upwards adjustment should be made to the sample average leverage for airports of 19%. In response to Auckland Airport’s submission we note that:

570.1 It is not clear that the regulated airport services would support higher leverage than unregulated activities, as implied by Auckland Airport’s submission. The High Court dismissed a similar argument from Auckland Airport in the 2013 IMs judgment noting that there was “no evidence on the record that regulated airport services would likely attract higher leverage than unregulated airport activities”.⁴⁴⁶

570.2 Assuming a higher leverage estimate (ie higher than average leverage of the comparator firms) when re-levering than that used in de-levering would bias upwards the resulting estimate of WACC, under the simplified Brennan-Lally CAPM (when debt betas are not used).

570.3 It is not clear what Auckland Airport considers an appropriate alternative to 19% would be, given that it has not suggested a specific adjustment to leverage for airports.

Updated leverage for comparator samples

571. Leverage figures for our asset beta comparator samples are included below. Table 8 shows leverage figures for the EDB, Transpower and GPB comparator sample, and Table 9 shows leverage figures for the airports comparator sample.

Table 8: EDB, GPB and Transpower comparator sample average leverage results

	1996-2001	2001-2006	2006-2011	2011-2016
Number of firms in the sample	61	67	70	72
Average leverage	41%	46%	43%	41%

Table 9: Airport comparator sample average leverage results

	1996-2001	2001-2006	2006-2011	2011-2016
Number of firms in the sample	6	19	25	26
Average leverage	17%	12%	18%	20%

⁴⁴⁵ Auckland Airport "Input Methodologies Review: Cross-submission on Draft Decision - Cost of Capital Parameters" (25 August 2016), para 14-18. In an earlier submission, NZ Airports stated that "airports have previously advanced the case that a downwards adjustment to asset beta should result in a corresponding increase in leverage" and that it was "further considering whether the Commission's sample set provides empirical support for that position". NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 175.

⁴⁴⁶ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1557.

572. Consistent with the approach to estimating asset beta, we have used the average of the two most recent five-year periods (ie, 2006-2011 and 2011-2016) when determining our leverage estimates. Averaging over these periods leads to leverage of 42% for EDBs, Transpower and GPBs, and 19% for airports.

Tax

573. This section explains that we have not changed our approach to the corporate and investor tax rates used in estimating WACC.

Corporate tax rate

574. We have maintained the approach of using the statutory corporate tax rate when estimating the WACC. The current statutory corporate tax rate is 28%.
575. By linking to the statutory corporate tax rate, the IMs continue to allow any future changes in tax rates to flow through to the calculation of the WACC.

Investor tax rate

576. We have maintained the approach of using an investor tax rate that reflects the maximum prescribed investor rate under the PIE regime, which is currently 28%. The investor tax rate is the average personal tax rate across all investors in the economy.
577. Under the PIE regime, individuals are able to limit their tax liability on interest earned to a maximum of the corporate tax rate. We acknowledge that there is a range of statutory tax rates for interest earned by individuals depending on their total taxable income. Using the maximum prescribed PIE rate is a useful proxy for estimating the average investor tax, which we note has little effect on the final allowed rate of return.
578. The IM does not provide for the tax circumstances of individual investors.⁴⁴⁷ We consider that using tax rates in the IM that are reflective of those actually used by suppliers is consistent with achieving an appropriate estimate of WACC.

⁴⁴⁷ Tax situations specific to particular investors do not, in principle, affect the cost of capital. Taxes are ultimately borne by the individuals themselves, not by the firms of which they are shareholders.

Standard error of the WACC

579. This section discusses our approach to determining updated estimates of the standard error of the WACC. The standard error of the WACC is used to calculate different WACC percentile estimates, for example:⁴⁴⁸
- 579.1 for EDBs, Transpower, and GPBs, the standard error is used to calculate the 67th percentile WACC estimates used for price-quality path regulation; and
- 579.2 for airports, we have decided to publish the standard error of the WACC, enabling interested parties to generate a distribution for our WACC estimates.⁴⁴⁹
580. We have determined that the standard error of the WACC should be 0.0101 for EDBs and Transpower, 0.0105 for GPBs, and 0.0146 for airports. This involves two key changes to our 2010 estimates of the standard error of the WACC.
- 580.1 We have revised our estimates of the standard error of the asset beta, based on updated data for the comparator samples used when determining asset beta and leverage.
- 580.2 We have removed the formula for calculating the standard error of the debt premium, given that there has not been sufficient data available for this to be applied throughout the history of the IMs. Removing the formula means that a fixed value of the standard error of the debt premium is applied, and therefore a fixed value for the overall standard error of the WACC can be set.
581. Apart from the two changes listed above, we have continued using the approach (and input values) explained in the 2010 IMs reasons paper when estimating the standard error of the WACC.⁴⁵⁰ Our approach to estimating both the standard error of the asset beta and the standard error of the overall WACC is based on Dr Lally's 2008 advice.⁴⁵¹

Approach to estimating the standard error of the WACC under the 2010 IMs

582. Under the 2010 IMs, we combined standard errors for the asset beta, debt premium and TAMRP to determine an overall standard error of the WACC. We used the

⁴⁴⁸ We assume that the WACC is normally distributed. Therefore, different WACC percentiles can be estimated using the relevant z-scores, our mid-point WACC estimate, and the standard error of the WACC.

⁴⁴⁹ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

⁴⁵⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), para H11.1-H11.67.

⁴⁵¹ Martin Lally "The weighted average cost of capital for gas pipeline businesses" (28 October 2008), see equation 14 and Appendix 3.

'complex analytical approach' described in the 2010 IMs reasons paper to calculate the standard error of the WACC.⁴⁵²

583. The standard errors we determined in the 2010 IMs are shown in Table 10.

Table 10: Standard errors of the WACC under the current IMs

Parameter	Standard error		
	EDBs/Transpower	GPBs	Airports
TAMRP	0.015	0.015	0.015
Debt premium ⁴⁵³	0.0015	0.0015	0.0015
Asset beta	0.13	0.14	0.16
Overall WACC ⁴⁵⁴	0.0106	0.0120	0.0146

584. Only the standard error of the asset beta differs by sector. All parameters other than the TAMRP, debt premium, and asset beta are assumed to have a standard error of zero.

Updated standard error of the asset beta

585. We have undertaken updated analysis of the standard error of the asset beta, based on the comparator samples used to estimate asset beta and leverage.⁴⁵⁵ Based on this analysis, we have determined that:

585.1 an updated standard error of the asset beta of 0.12 should apply to EDBs, Transpower, and GPBs; and

585.2 a standard error of the asset beta of 0.16 should continue to apply to airports.

586. Data on the standard error of the asset beta for the energy comparator sample is summarised in Table 11.

⁴⁵² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), para H11.19.

⁴⁵³ 0.0015 is the minimum standard error of the debt premium under the IMs, but in practice this value has been used in all of our WACC determinations. This is because there have not been enough bonds available to implement the formula specified in the IMs for estimating the standard error of the debt premium. See paragraphs 596 to 599 for further details.

⁴⁵⁴ The standard error of the overall post-tax WACC estimate is calculated using the equation at paragraph H11.19 of the 2010 Input Methodologies reasons paper for EDBs and GPBs. The standard error of the WACC values in this table are based on a fixed value for the standard error of the debt premium of 0.0015.

⁴⁵⁵ We followed the approach set out in Lally (2008) to estimate the standard error of the asset beta. Martin Lally "The weighted average cost of capital for gas pipeline businesses" 28 October 2008, Appendix 3, p. 170-178.

Table 11: Standard error of the asset beta for updated energy comparator sample

	2006-2011	2011-2016	Average
Daily	0.1388	0.1052	0.1220
Weekly	0.1329	0.1226	0.1277
Four-weekly	0.1202	0.1134	0.1168

587. Consistent with our approach to estimating asset beta, we have placed most weight on the weekly and four-weekly estimates for the two most recent five-year periods. Averaging over these estimation frequencies and time periods leads to a standard error of the asset beta of 0.12 (rounded to two decimal places).
588. We have determined that the updated standard error of the asset beta of 0.12 should apply to EDBs, Transpower and GPBs. This results in a decrease in the standard error of the asset beta for EDBs and Transpower from 0.13 to 0.12, and a decrease in the standard error of the asset beta for GPBs from 0.14 to 0.12.⁴⁵⁶
589. We also assessed updated data on the standard error of the asset beta for the airports comparator sample, as summarised in Table 12. Averaging across the weekly and four-weekly estimates for the two most recent five-year periods would result in a standard error of the asset beta for airports of 0.25.

Table 12: Standard error of the asset beta for updated airports comparator sample

	2006-2011	2011-2016	Average
Daily	0.2394	0.3064	0.2729
Weekly	0.2145	0.3033	0.2589
Four-weekly	0.1859	0.3053	0.2456

590. However, in the original airports IMs decision we adopted a standard error of the asset beta of 0.16 by applying judgement.⁴⁵⁷ We noted that averaging over all the time periods considered would have resulted in an average standard error of the asset beta of approximately 0.24. We considered that this was "too high" and "would provide an implausible result".

⁴⁵⁶ In the 2010 IMs, we set a standard error of the asset beta for GPBs that was slightly above that for EDBs/Transpower (0.14 compared with 0.13), reflecting the "greater perceived riskiness of New Zealand gas pipeline businesses". Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), para H8.206. Given that we have now halved the asset beta uplift for GPBs from 0.10 to 0.05 (as discussed in paragraphs 339 to 457), we consider that the case for making an adjustment to the standard error of the asset beta for GPBs is significantly reduced. Therefore, we have decided to use the empirical estimate of 0.12 for GPBs, as well as EDBs and Transpower.

⁴⁵⁷ Commerce Commission "Input methodologies (airport services) Reasons paper" (December 2010), para E8.107-E8.114.

591. In 2010 we adopted a standard error of the asset beta for airports of 0.16 having regard to the available quantitative estimates, the purpose of ID, and submissions from airports.⁴⁵⁸ In particular, NZ Airports' expert at the time (Alistair Marsden, from UniServices) submitted that the standard error of the asset beta for airports should be at least 0.15, in response to our 2010 draft view based on a standard error of 0.04.⁴⁵⁹

592. We are faced with a very similar situation now. The updated data suggests a standard error of the asset beta of 0.25, which is very similar to the value of 0.24 which we considered to be an implausible result when setting the original IMs.

593. NZ Airports submitted that it is concerned the existing standard error of the asset beta "may not sufficiently reflect the wide margin of variation across different airports", and that it would:⁴⁶⁰

...value the opportunity to explore with the Commission the proposition that a much higher standard error should be applied to the asset beta for airports than that applied for the energy sector, and the interrelationship with the WACC range.

594. NZ Airports highlighted certain characteristics of airports that suggest we may not have made sufficient allowance for margin of error (as explained in more detail in the expert report from Bush and Earwaker):⁴⁶¹

594.1 airports exhibit less homogeneity than gas and electricity businesses, which makes it difficult to identify any commonalities in the risk profiles (eg, there is significant variation in traffic mix, the degree of competition faced from other airports, and the breakdowns of aeronautical versus retail revenues);

594.2 the Commission's comparator sample of asset betas for gas and electricity is much larger and shows far greater uniformity than the airport comparators, so it is surprising that the standard errors are broadly similar; and

594.3 the asymmetry of risks that airports face around costs, volumes and revenues over a long-term horizon (eg, airports are more susceptible to macroeconomic shocks than regulated energy businesses, since air travel is more of a discretionary product than an essential service).

⁴⁵⁸ Commerce Commission "Input methodologies (airport services) Reasons paper" (December 2010), para E8.114.

⁴⁵⁹ Uniservices "Comments on the Commerce Commission's Approach to estimate the Cost of Capital in its Input Methodologies Draft Reasons Paper" (12 July 2010), p. 13 and 46.

⁴⁶⁰ NZ Airports "Submission on Commerce Commission's Input Methodologies Review: Invitation to Contribute to Problem Definition" (21 August 2015), para 76 and 80.

⁴⁶¹ NZ Airports "Submission on Commerce Commission's Input Methodologies Review: Invitation to Contribute to Problem Definition" (21 August 2015), para 78. Bush and Earwaker "Evidence relating to the assessment of the WACC percentile for airports" (August 2015), Section 2.

595. We have determined that a standard error of the asset beta of 0.16 should continue to apply for airports, for the reasons contained in the original airports IM reasons paper.⁴⁶² In addition, we note that:
- 595.1 an asset beta of 0.60 combined with a standard error of 0.25 would lead to a very wide asset beta range (plus and minus two standard deviations would generate a range from 0.10 to 1.10);
 - 595.2 there appears to be significant variation in the standard error of the asset beta for airports between periods (for example, based on weekly and four-weekly observations, the standard error of the asset beta for 2006-2011 is approximately 0.20, but for 2011-2016 it is approximately 0.30);
 - 595.3 although New Zealand Airports Association (**NZAA**) (and the Bush/Earwaker report) suggested that the current standard error of the asset beta of 0.16 may be too low, no alternative estimate (or data to better inform our judgement) was presented;
 - 595.4 while there appears to be less homogeneity in the comparator sample for airports than the comparator sample for EDBs/Transpower/GPB, this will (at least in part) reflect differences in the composition and extent of unregulated activities undertaken by the comparator companies. However, we are estimating the WACC for the regulated activities only, and would expect significantly less variation in asset beta in respect of those activities;
 - 595.5 our estimate of the standard error of the asset beta for airports of 0.16 is greater than for EDBs, Transpower and GPBs, which reflects potentially less homogeneity in regulated airport activities (for example, due to variations in traffic mix, degree of competition);
 - 595.6 a standard error of the asset beta for airports of 0.16 is consistent with advice from NZAA's expert in 2010 (Uniservices); and
 - 595.7 we decided to no longer publish specific WACC percentile estimates for airports ID, diminishing the importance of our standard error estimate.⁴⁶³

Standard error of the debt premium

596. Under the 2010 IMs we used an estimate of the standard error of the debt premium that was the greater value of:
- 596.1 0.0015; or

⁴⁶² Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010).
⁴⁶³ Instead we have decided to only publish a mid-point WACC estimate and standard error of the WACC. Under this approach, the standard error of the WACC is only one factor when considering airports' targeted rates of return.

596.2 the result of Equation 1 (which is based on cost of capital IMs for EDB ID, as an example).⁴⁶⁴

Equation 1: Standard error of the debt premium for EDB ID

$$\sqrt{\frac{1}{N-1} \sum_{i=1}^N (p_i - \bar{p})^2}$$

Where:

N is the number of qualifying issuers issuing bonds of the type described in the subparagraphs of clause 2.4.4(3)(d);

p_i is each qualifying issuer's arithmetic average spread for its bonds of the type described in the subparagraphs of clause 2.4.4(3)(d); and

p is the debt premium,

provided that for the purposes of determining N and p_i , no regard may be had to any bonds of the types described in clauses 2.4.4(4)(b) to 2.4.4(4)(e).

597. Although 0.0015 was the minimum standard error of the debt premium specified under the IMs, in practice this value has been used in all of our WACC determinations. This is because there have not been enough bonds of the type described in subparagraphs of clause 2.4.4(3)(d) (or equivalent clauses for other sectors/forms of regulation) available for the formula specified in the IMs to be applied.⁴⁶⁵
598. Given that the equation for estimating the standard error of the debt premium has never been able to be applied, we proposed in the draft decision that it should be removed from the IMs. Instead, we suggested that a fixed standard error of the debt premium of 0.0015 should apply.
599. However, submissions from the ENA and Contact suggested that we should revise our estimate of the standard error of the debt premium.

⁴⁶⁴ *Electricity Distribution Services Input Methodologies Determination 2012* [2015] NZCC 32, clause 2.4.5. The same formula was used for other forms of regulation and other sectors (but different clause references applied).

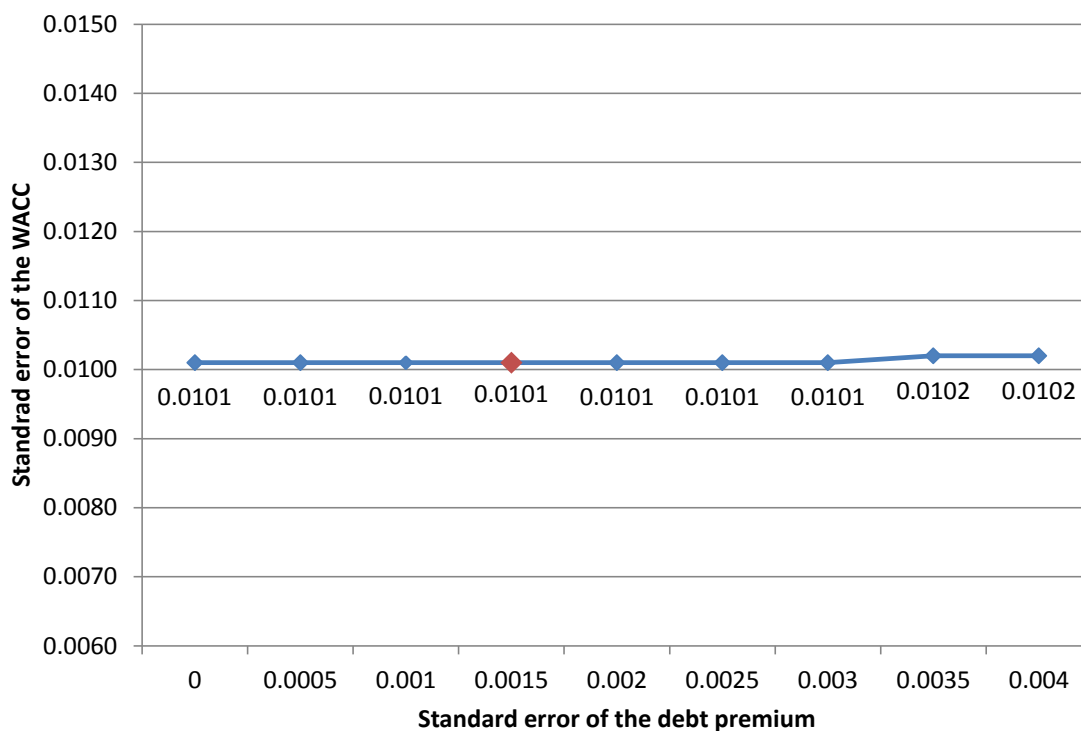
⁴⁶⁵ We note that this would have still been the case if majority government owned bonds were given the same weighting as non-majority government owned bonds.

- 599.1 The ENA submitted that the “continued use of a standard error of 0.0015 for DRP does not make sense” and suggested that “the Commission derive a standard error from the NSS regressions”.⁴⁶⁶
- 599.2 Contact submitted that using the NSS regressions to derive a standard error would “distort the standard deviation higher due to the data set including bonds rated higher and lower than BBB+, as well as the skew (and greater variation) seen for tenors much shorter or longer than the Commission’s 5 year benchmark”. Rather, Contact stated that “the standard error should be formulated from the same data set used to determine the debt premium using the typical standard error formula, for reasons of transparency, simplicity and accuracy”.⁴⁶⁷
600. Although we acknowledge that our estimate of the standard error of the debt premium of 0.0015 could potentially be refined, this parameter has very little impact on the standard error of the overall WACC (as shown in Figure 13 below). For example, the standard error of the debt premium needs to more than double to have any impact on the standard error of the WACC (when rounded to four decimal places).

⁴⁶⁶ ENA "Input methodologies review – Topic paper 4 cost of capital issues – Submission to the Commerce Commission" (4 August 2016), para 97.

⁴⁶⁷ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 10.

Figure 13: Impact of changes in standard error of the debt premium on standard error of the WACC for EDBs/Transpower



- 601. Given the very limited materiality of changes in the standard error of the debt premium, we consider there is little benefit in undertaking additional analysis of this parameter. We note that there is no obvious alternative method that could be implemented easily.⁴⁶⁸
- 602. Therefore, we have determined that a fixed standard error of the debt premium of 0.0015 should apply. This simplifies the IMs, by enabling a fixed value for the standard error of the WACC to be determined, removing the need to re-calculate the standard error on an ongoing basis.

⁴⁶⁸ As noted by Contact Energy, using the NSS regressions to derive a standard error is likely to distort the estimate due to inclusion of: (1) bonds rated higher and lower than BBB+; and (2) bonds with tenors significantly shorter or longer than five years. However, we consider that calculating the standard error using "the same data set used to determine the debt premium using the typical standard error formula" (as suggested by Contact Energy), will not overcome this problem. As noted in paragraph 597, there have not been enough BBB+ rated bonds issued by EDBs or GPBs for the standard error formula in Equation 1 to be applied. Extending the data set to include bonds with different credit ratings and issuers would also raise concerns regarding distortion of the standard error estimate.

Final decisions regarding overall standard error of the WACC

603. Based on the analysis described above, we have determined that the standard errors in Table 13 should apply.⁴⁶⁹

Table 13: Updated standard errors of the WACC under this determination⁴⁷⁰

Parameter	Standard error		
	EDBs/Transpower	GPBs	Airports
TAMRP	0.015	0.015	0.015
Debt premium	0.0015	0.0015	0.0015
Asset beta	0.12	0.12	0.16
Overall WACC ⁴⁷¹	0.0101	0.0105	0.0146

604. The application of the standard error of the WACC for airports is described in more detail in Topic paper 6.⁴⁷²

⁴⁶⁹ Given the relatively minor change in standard error of the WACC for EDBs/Transpower and GPBs, we consider this should not materially affect the use of the 67th percentile WACC for price-quality path regulation of these sectors.

⁴⁷⁰ The standard error of the overall post-tax WACC estimate is calculated using the equation at para H11.19 of the 2010 Input Methodologies reasons paper for EDBs and GPBs. While the formula for calculating the standard error of the overall WACC differs slightly for vanilla and post-tax WACC estimates, in both cases the values are 0.0101 (for EDBs/Transpower), 0.0105 (for GPBs) and 0.0144 (for airports) when rounded to four decimal places.

⁴⁷¹ The standard error of the overall WACC differs slightly between EDBs/Transpower and GPBs, due to the higher asset beta for GPBs of 0.40. See the equation at para H11.19 of the 2010 Input Methodologies reasons paper for details of how the standard error of the WACC is calculated.

⁴⁷² Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

Chapter 6: Additional cost of capital issues

Purpose of this chapter

605. This chapter explains our decisions in respect of the main identified cost of capital issues for the review that do not fit neatly into the cost of debt or the cost of equity chapters above. This includes:

605.1 incentives to apply for a CPP; and

605.2 issues raised by the High Court in its judgment on the merits appeal to the setting of the original IMs, including:⁴⁷³

605.2.1 the choice of the SBL-CAPM to estimate the cost of capital;

605.2.2 the appropriate WACC percentile; and

605.2.3 the implementation of a split cost of capital.

Incentives to apply for a CPP

606. The previous IMs apply a prevailing approach to estimating the cost of capital. We determined a new WACC each year that applied to any supplier making a CPP application. The CPP WACC applied to both sunk assets that make up the opening RAB and also the capex that is forecast to take place during the CPP.

Issues with the previous approach

607. We outlined the potential issue with the current approach to setting a CPP WACC in the problem definition paper.⁴⁷⁴ Divergence between the revised WACC that applied to CPPs and a supplier's WACC under a DPP may create perverse incentives for a supplier to either apply or not apply, for a customised price-quality path.

608. This may not be to the long-term benefit of consumers, because a supplier may not apply for a CPP when it is in the interests of consumers for it to do so (eg, because it requires a step-change in investment that will benefit consumers). Similarly, it may apply for a CPP when it is not beneficial to consumers (eg, to achieve an allowance based on a higher WACC, even if its costs have not changed).

609. If the CPP WACC is lower than the DPP WACC, then a supplier potentially had an incentive not to apply for a CPP.⁴⁷⁵ Given the much larger size of the RAB compared to potential new capex over the CPP period, the difference between the CPP and DPP WACC was likely to be a significant driver of whether to apply for a CPP or not.

⁴⁷³ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289.

⁴⁷⁴ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), Topic 3.

⁴⁷⁵ Particularly if it has undertaken steps to manage its debt financing risk on the expectation that the WACC will be fixed for five years.

610. This issue was originally intended to be fast-tracked under the IM review because it was considered a critical factor for any CPP applications in 2016. However, following our understanding that no potential applicants were intending to apply for a customised price-quality in 2016, the urgency of considering the issue prior to 2016 was diminished and it was subsequently folded into the main review.⁴⁷⁶
611. To help decide whether the incentive problem was significant enough to warrant resolving, and to seek advice on options for doing so, we commissioned a report from Dr Lally.⁴⁷⁷
612. In his report, Dr Lally identified four broad solutions to the WACC alignment incentive issue:
- 612.1 annual updating of the cost of debt – indexing the price path to the cost of debt (Option 1);
 - 612.2 using a long-term trailing average cost of debt when setting the WACC (Option 2);
 - 612.3 applying the DPP WACC to any CPP application (Option 3); and
 - 612.4 implementing a split (or dual) WACC in which the DPP WACC is applied to existing assets and the DPP capex allowance, while the CPP WACC is applied to additional capex provided for under a CPP (Option 4).⁴⁷⁸
613. Dr Lally's conclusion was that the approach that best dealt with the identified incentive problem is the implementation of a dual WACC approach (Option 4). He also considered that if a single WACC is required then the DPP WACC should be applied, because the incentive problems are much larger in relation to existing assets compared to additional capex allowed under a CPP.

Decision on the approach to the WACC alignment issue

614. We have decided to remove the requirement to determine a CPP-specific WACC from the cost of capital IM. The WACC determined for the DPP will now apply for a fixed term of five years, even for suppliers that move onto a CPP. If a new DPP WACC is determined part way through a CPP, we will reopen the CPP and adjust prices for the remainder of the CPP to reflect that new DPP WACC. The adjusted prices will be consistent with the allowed return on capital over the remainder of the period being equivalent to the new DPP WACC.

⁴⁷⁶ For further information on these decisions, see: Commerce Commission: "IM review second process update paper CPP fast track amendments" (9 October 2015).

⁴⁷⁷ Dr Martin Lally "Complications arising from the option to seek a CPP" (18 September 2015).

⁴⁷⁸ We have classed the approach in which we apply a different WACC to incremental capex under a CPP as the 'dual WACC approach' rather than the split WACC which is described in Dr Lally's report. This ensures that there is no confusion with a more general consideration of a split cost of capital that is described in para 674-688.

615. Forecast revaluation gains under a DPP or CPP are based on forecast CPI. For consistency we would therefore need to ensure that these forecasts are consistent with the time at which the WACC is determined. For example, when determining a forecast of revaluation gains for a CPP, we will use CPI forecasts made at the time the DPP WACC was determined. This earlier CPI forecast could be a number of years prior to the start of the CPP but it ensures consistency with our economic principle of ex-ante FCM.⁴⁷⁹ Similarly, when the DPP WACC is updated and we reopen the CPP, we will use an updated forecast of CPI to update the forecast of revaluations for the remainder of the CPP.

616. We consider that applying the DPP WACC to CPPs significantly limits the incentive problems that can occur when application of a CPP coincides with significant differences between the CPP and DPP WACC rate.⁴⁸⁰ Fluctuations in interest rates will, therefore, no longer be a significant consideration in whether a supplier applies for a CPP or not.

617. We received a number of submissions both in response to the WACC update paper and draft decision supporting this approach.⁴⁸¹ For example, Orion suggested that:

We support the view that CPP WACC should be fully-aligned with DPP WACCs. This would eliminate perverse incentives and disincentives for CPPs. It would also reduce uncertainty. Full alignment is the only method to fully eliminate these effects. This could require (depending on the regulatory period of the CPP) a technical price reset part way through a CPP regulatory period to account for any change to the prevailing DPP WACC, by way of a recoverable cost.

618. Powerco also noted that:⁴⁸²

Powerco agrees with the Commission's analysis of the problems arising from having a CPP-specific WACC, and the Commission's proposed solution. As the Commission is aware, this is an issue that has particularly impacted Powerco in recent years. We appreciate the time and care the Commission has given to defining and solving this issue.

⁴⁷⁹ Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016). Other forecasts of inflation used in the setting of the CPP (eg, those used to set the starting price) would not need to be consistent with the setting of the DPP WACC.

⁴⁸⁰ In terms of the potential incentive problems resulting from a difference between the DPP and CPP WACCs, we note that it is only changes in the real WACC that matter because changes in inflation are addressed through the indexation of RAB by actual inflation.

⁴⁸¹ Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 7; PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016); ENA "Submission on IM review: Cost of capital" (9 February 2016), para 23; Powerco's submission on cost of capital update paper "Scope and process for fast track amendments to the CPP input methodology requirements" (5 February 2016), p. 2; Wellington Electricity "Input methodologies review – Cost of capital" (9 February 2016), p. 1.

⁴⁸² Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 322.

619. We consider that the application of the DPP WACC for CPPs is a practical approach that would significantly reduce the overall potential for suppliers to be subject to perverse incentives regarding whether to apply for a CPP that would not provide long-term benefits to consumers.
620. Aurora provided a submission questioning the validity of the approach when the CPP WACC is above the DPP WACC.⁴⁸³
- The proposal to simply set the CPP WACC equal to the DPP WACC is, in many ways, a pragmatic solution to a prevailing problem, but is only valid in circumstances where the CPP WACC would otherwise be lower than the DPP WACC. The solution fails in circumstances where the opposite is the case.
621. We disagree that the solution fails in circumstances in which the CPP WACC would be higher than the DPP WACC. If an alternative higher 'CPP WACC' was available, there would remain a risk that suppliers could be incentivised to apply for a CPP when it was not in the long-term interests of consumers (ie, to achieve an allowance based on a higher WACC, even if its costs have not changed).
622. We consider the most practical approach that minimises the risk of applications that are not in the long-term interests of consumers is to apply DPP WACCs to CPPs. The approach has the added benefit of removing the need to determine a separate CPP WACC each year for EDBs and GPBs.
623. We also consider the most appropriate way to apply a new DPP WACC to the CPP would be through a reopener that updates the allowance for the return on capital at the time a new DPP WACC is determined.
624. We have therefore introduced a WACC reopener to allow us to reconsider a CPP following a WACC change.⁴⁸⁴ When reconsidering the path in this context, we will use the new WACC to update the building blocks model that is used to determine a supplier's allowable revenue.⁴⁸⁵ We will also update the forecast CPI used to determine the forecast revaluations to ensure that we maintain the provision of a real return on regulated assets.⁴⁸⁶
625. We aim to minimise the administrative procedure associated with the WACC reopener and therefore plan to limit any changes to material effects on the revenue

⁴⁸³ Aurora "Submission – Input methodologies review: Draft decision and determination papers" (4 August 2016), p. 11.

⁴⁸⁴ For example see: *Electricity Distribution Services Input Methodologies Amendments Determination 2016* [2016] NZCC 24, clause 5.6.7.

⁴⁸⁵ We will not update the TCSD allowance as part of the WACC change because the TCSD is a separate allowance that would be unaffected by any change in the DPP WACC.

⁴⁸⁶ Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

allowance. In the draft decision we restricted revenue changes to the return on capital and forecast of CPI.⁴⁸⁷

626. Following submissions from the ENA and Orion we have extended this to include an update to the forecast regulatory tax allowance due to a change in notional deductible interest.⁴⁸⁸ We consider that a change in the cost of debt will have a sufficiently material impact on allowable revenue through the regulatory tax building block, that this will outweigh the administrative costs of undertaking the update process.
627. When setting the revenue allowance for a CPP, we will use the existing DPP WACC to forecast the return on capital allowance for the whole of the CPP period (up to five years). This is because we are required to set a price-path for the whole of the CPP period, even though the path will be reconsidered (and the revenue allowance revised) when a new DPP WACC value is available.
628. Powerco submitted in response to the TCUP that for the part of the CPP that is beyond the next DPP reset we should use a more up-to-date forecast of WACC (ie, estimated at the time a CPP is set), rather than the existing DPP WACC (which may have been estimated a number of years previously).⁴⁸⁹
629. Powerco considered that using a more up-to-date WACC estimate for the latter years of the CPP would mean:
- 629.1 a more realistic estimate of the price impact to consumers from a CPP at the time the CPP application is made and consulted on; and
- 629.2 a more accurate forecast of revenue, delivering a smaller path adjustment following the WACC reopener.
630. Using a more up-to-date WACC forecast may provide some benefits. However, we consider that these benefits are likely to be small, given the forecast does not affect the actual revenue available under the price path. We also note that, in terms of signalling price changes to consumers, suppliers are able to provide alternative scenarios as part of their customer consultation. This may include a forecast of prices which uses an alternative WACC forecast.
631. We have therefore decided to use the existing DPP WACC when setting the initial CPP revenue allowance for the whole of the CPP period. This is because using

⁴⁸⁷ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 500.

⁴⁸⁸ ENA "Input methodologies review – Topic paper 2, CPP requirements – Submission to the Commerce Commission" (4 August 2016), para 34; Orion "Submission on input methodologies review – draft decisions" (4 August 2016), para 35.

⁴⁸⁹ Powerco "Submission on input methodologies review: Technical consultation update paper" (3 November 2016), para 22.2.

separate WACCs to determine the initial CPP revenue allowance results in additional complexity but with limited benefit. As noted by Powerco it has no impact in NPV revenue terms.⁴⁹⁰

Alternative option 1 – Application of a dual WACC approach

632. One of the issues with applying the DPP WACC to existing assets is that it can cause problems with significant new investment under a CPP, if the prevailing (market) WACC at the time of a CPP application is higher than the older DPP WACC. Specifically, as noted by Dr Lally:⁴⁹¹

... the old WACC would also apply to any capex that was a consequence of the CPP, and an incentive problem therefore applies to this capex. In particular, if the old WACC is applied to the CPP capex [capex in a CPP above what was allowed for under the DPP], any increase in WACC after the old WACC is set reduces the net cash flows on the CPP capex (by raising their cost of capital but not the allowed revenues), and thus the incentives to adopt a CPP are reduced. Similarly, any subsequent decrease in WACC raises the net cash flows on the CPP capex (by reducing their cost of capital but not the allowed revenues), and thus the incentives to adopt a CPP are increased.

633. An alternative approach, as suggested by Dr Lally, is to apply a dual WACC approach.⁴⁹² Under this approach, for a CPP:

633.1 the DPP WACC would be applied to existing assets and capex that was originally allowed for under the DPP; and

633.2 the CPP WACC would be applied to additional (incremental) capex provided for under a CPP that was not allowed under the DPP.

634. Applying a different WACC to different types of capex further reduces the identified incentive problem. Although we consider it is possible to implement an option of this type, there are some complexities in applying this approach. As shown in Attachment F the potential impact on the price path is likely to be less than 1% of total revenue because the incremental capex affected is likely to be a small proportion of capex.

635. Applying a dual WACC option would require us to calculate a CPP WACC based on debt terms that are consistent with the time period to the next DPP reset. This is likely to be shorter, and potentially considerably shorter, than the standard five-year regulatory pricing period. For example, we may need to apply WACC based on a 1-year risk-free rate/debt premium if the DPP reset is only one year after the start of

⁴⁹⁰ Powerco "Submission on input methodologies review: Technical consultation update paper" (3 November 2016), para 25.3.

⁴⁹¹ Dr Martin Lally "Complications arising from the option to apply for a CPP" (18 September 2015), p. 4.

⁴⁹² We have classed the approach in which we apply a different WACC to incremental capex under a CPP as the 'dual WACC approach'. This ensures that there is no confusion with a more general consideration of a split cost of capital that is described in para 674-688.

the CPP. This would increase the number variants of the CPP WACC (based on different time periods) we would need to determine annually for each sector.

636. Submissions from suppliers did not favour a dual WACC approach, suggesting that there are number of difficulties in implementing such an approach. These difficulties include:
- 636.1 identifying CPP and DPP capex;⁴⁹³
 - 636.2 the use of single WACC values as inputs to price-quality path calculations (eg, in the IRIS mechanism, timing factors);⁴⁹⁴ and
 - 636.3 consideration of how subsequent changes to the WACC would take place once assets were subject to different WACCs.⁴⁹⁵
637. Contact and MEUG suggested that we should at least explore the dual WACC approach.⁴⁹⁶
638. We do not consider the issues identified by suppliers provide insurmountable barriers to implementing a dual WACC approach.⁴⁹⁷ However, there is no doubt it would add complexity to the regime. This complexity would result in administrative costs to us and suppliers that are likely to be more significant than the incentive benefits, given that it would only affect a small element of capex.
639. We received limited submissions on the dual WACC approach following the draft decision. However, Powerco reiterated their opposition to the dual WACC approach and we received no further submissions in support.⁴⁹⁸

We also agree with the reasons given by the Commission for not adopting the alternative solution of a dual WACC. While the Commission is correct to observe that in theory such an approach could be written into regulation and applied, we continue to believe that it would give rise to significant, compounding complexities (and, as with any complex regulation, introduce other unforeseen perverse incentives).

⁴⁹³ PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 117; Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p. 22.

⁴⁹⁴ Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 58.

⁴⁹⁵ Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p. 22.

⁴⁹⁶ Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p. 12; MEUG's submission on input methodologies review process paper – update on fast track amendments "Comments on CPP fast track" (10 July 2015), para 7.

⁴⁹⁷ For example, we could assume that only the Regulated Investment Value (RIV) for a CPP over and above the DPP RIV would be subject to the CPP WACC, use just the DPP WACC for some of the regulatory calculations, and predefined rules for future scenarios.

⁴⁹⁸ Powerco "Submission on input methodologies review – Draft decisions" (4 August 2016), para 328.

Alternative option 2 – Update the WACC annually

640. Dr Lally considered two other options that required a change to the way that we estimate WACC more generally, which may have a benefit in reducing the potential for perverse incentives for firms applying for a CPP.
641. These options were to:
- 641.1 update the WACC annually; and
 - 641.2 apply a trailing average approach.
642. These options could potentially have helped to reduce the CPP incentive issues. However both options:
- 642.1 would have still resulted in at least some difference between the CPP and DDP WACC, given that we would not be updating the cost of equity, such that perverse incentives could still exist to some extent; and
 - 642.2 have already been rejected as a change to the cost of debt for other reasons.
643. A number of submissions suggested that the impact on CPP incentives should only be a secondary consideration when determining the most appropriate cost of debt methodology.⁴⁹⁹ We agree, and under these circumstances have not considered applying either annual updating or applying a trailing average approach to mitigate the CPP incentive problem.

The SBL-CAPM model for calculating the cost of equity

644. The current IMs use the SBL-CAPM to estimate the WACC. Use of a CAPM is the most commonly used method by finance practitioners around the world to estimate the cost of equity and the SBL-CAPM is a version that best fits the particular features of the New Zealand taxation system.
645. The problem definition paper identified that the High Court questioned the suitability of the SBL-CAPM, particularly with regard to the 'leverage anomaly'.⁵⁰⁰
646. Submissions to the problem definition paper and the subsequent WACC update paper generally considered that we should continue to use the SBL-CAPM. The ubiquity of the SBL-CAPM in New Zealand and the limited development of

⁴⁹⁹ ENA "Submission on IM review: Cost of capital" (9 February 2016), para 22; Vector "Input methodologies review – Update paper on the cost of capital topic" (5 February 2016), para 3.

⁵⁰⁰ The 'leverage anomaly' is the inherent characteristic of the SBL CAPM that results in the WACC increasing with the level of leverage. This is contrary to what is observed in the real world whereby firms typically borrow to some extent. See: Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 255.2. We consider that we address this anomaly by adopting the average leverage of the comparator samples that we use to estimate asset beta, as discussed in Chapter 5.

alternatives to the SBL-CAPM were the main reasons given for this view. For example PwC suggested that:⁵⁰¹

We agree with the Paper that there is limited value in undertaking substantive analysis of alternatives to the SBL-CAPM, and submit that there is little evidence, of a substantial nature, which suggests that the rationale for the 2010 decision to use the SBL-CAPM no longer applies.

Both the Fama-French model and the Black CAPM were rejected when the IMs were determined for a relative lack of use amongst practitioners and regulators. In addition, Fama-French was rejected due its extra complexity and requirement for additional input data; and Black because of a lack of evidence for any superiority to the SBL-CAPM. As the Paper points out, no evidence has arisen in the interim to counter those conclusions, and importantly the Australian Energy Regulator (AER) also rejected the use of the Black CAPM in 2013.

647. Other support for retaining the SBL-CAPM as the model to estimate the cost of equity was received from Contact, Orion, Transpower, and Wellington Electricity.⁵⁰²
648. Some suppliers qualified their support for the SBL-CAPM by suggesting that we should make adjustments for “known bias” in the model. The most commonly cited bias was that we should make an adjustment for low beta stocks. For example, Transpower suggested that:⁵⁰³

The SBL-CAPM should be retained, but the accuracy of cost of equity estimates derived using this model may be improved by using the Black-CAPM to correct the well-known low-beta bias in the SBL-CAPM (placing some weight on both the adjusted and unadjusted SBL-CAPMs).

649. MGUG submitted more strongly that we should consider alternative models.⁵⁰⁴

MGUG submits that reliance on a single theoretical model for determining cost of equity is inferior to use of a number of models to arrive at a better judgment.

650. MGUG also suggested that if we were to continue using a CAPM we should consider using non-local settings, given that a number of the owners of New Zealand

⁵⁰¹ PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 10.

⁵⁰² Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p. 2; Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 14.2; Transpower's submission "Update paper on the cost of capital" (5 February 2016), p. 1; Wellington Electricity "Input methodologies review – Cost of capital" (9 February 2016), p. 2.

⁵⁰³ Transpower's submission "Update paper on the cost of capital" (5 February 2016), p. 1.

⁵⁰⁴ MGUG "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), para 9.

regulated business are based overseas and we use overseas firms in the comparator sample to determine some parameter inputs.⁵⁰⁵

651. MEUG submitted that although it agreed with the decision to use SBL-CAPM, it considered that its flaws were costing consumers between \$62m and \$132m p.a and we should to work on rectifying issues with the current model.⁵⁰⁶

Our agreement to retain the status quo does not mean we have to change our long standing view that the SBL-CAPM has material flaws. Those flaws should not be waived away or forgotten, and the Commerce Commission should continue to work on possible solutions given the materiality of the flaws.

652. Wellington airport also showed scepticism in the ability of the SBL-CAPM to estimate an appropriate cost of capital. However they provided no alternative suggestion to estimate the WACC.⁵⁰⁷

A CAPM derived WACC for the New Zealand airport sector is unlikely to reflect the returns airports would target in a competitive market. Parameter error is inevitable given the distortions in the government bond market, and the small group of listed comparator airports. More generally, the assumptions underpinning the CAPM have been discredited.

653. We made clear in 2010 that the SBL-CAPM is not without its limitations and it has performed relatively poorly in empirical tests. Despite this we maintain our view from 2010 that we do not consider that any of the alternative model suggestions are likely to provide more robust estimates than the SBL-CAPM. Our previous reasons for rejecting these models were:

- 653.1 Black CAPM because there was no clear evidence of its superiority to SBL-CAPM and the fact it has not been widely used elsewhere.⁵⁰⁸ We also noted that the use of a five-year risk-free rate (rather than shorter-term risk-free rates often used in academic studies) is likely to flatten the securities

⁵⁰⁵ MGUG suggest we local (New Zealand) estimates of the risk free rate, debt premium, debt issue costs, and investor tax rates may not be appropriate. MGUG "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), para 20.

⁵⁰⁶ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 30-32.

⁵⁰⁷ Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 24 28.

⁵⁰⁸ We note that the AER has provided some weight to the theories of the Black CAPM when determining equity betas. However it has rejected the use of specific parameters directly estimated from a Black CAPM. See: AER "Better regulation: Rate of return guideline" (December 2013), appendices, A.3.1. Available at: <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-guideline/final-decision>; and, for example, AER "Final decision: SA power networks determination 2015–16 to 2019–20: Attachment 3 – Rate of return" (October 2015), section A.3.3. Available at: <https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/sa-power-networks-determination-2015-2020/final-decision>.

market line (due to the higher price of longer-term debt) mitigating the impact of any low beta bias.⁵⁰⁹

653.2 Fama/French model because of difficulties in obtaining data and ongoing debate on its theoretical merits.⁵¹⁰

653.3 International CAPM because of difficulties in estimating data inputs and because the WACC should be independent from the ownership of a firm (ie, whether they are based overseas or not).

654. As noted above, the SBL-CAPM does not provide a precise estimate of the WACC and there appear to be reasons why it could be both over or underestimating the required return to New Zealand regulated businesses.

655. On the whole we consider there is a greater chance that the SBL-CAPM overestimates the WACC than underestimates the WACC. This because we are using domestic parameter inputs, even though a significant amount of investment in regulated suppliers in New Zealand is capital raised overseas.

656. We consider that, if the data was available, using an International CAPM would be likely to result in a lower WACC than the SBL-CAPM. This is due to the potential for overseas firms, depending on their individual arrangements, to pay lower tax on equity, achieve lower debt raising costs and have a greater ability to diversify investments.⁵¹¹

657. Although there is some evidence to suggest that the WACC may be generous to suppliers, we consider that the SBL-CAPM provides a reasonable estimate of the cost of capital for regulated suppliers. Its wide-ranging use by New Zealand finance practitioners means that we consider it is the most suitable model for estimating a benchmark WACC.

658. We do not consider that using an alternative model would lead to a better estimate of WACC. We particularly note that other regulators generally prefer the CAPM and have often rejected alternatives.⁵¹² The simplicity and intuition of the SBL-CAPM also works to its advantage.

⁵⁰⁹ Franks, Lally and Myers "Recommendations to the New Zealand Commerce Commission on an Appropriate Cost of Capital Methodology" (report to the Commerce Commission, 18 December 2008), para 44.

⁵¹⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H2.26.

⁵¹¹ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 6.4.35.

⁵¹² We note the AER rejected the use of Fama/French and Black CAPM other than in very limited circumstances. See: AER "Better regulation: Rate of return guideline" (December 2013), appendices, Section A. Available at: <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-guideline/final-decision>.

659. We have therefore not changed, as part of this review, the choice of model used to estimate the cost of equity when determining the WACC. We do however remain open to moving to alternative models to estimate the cost of equity in future if there are good reasons for doing so.

Black's simple discounting rule

660. An issue related to the choice of model is the potential to use BSDR as a cross-check on the WACC determined using the SBL-CAPM. We discuss the potential for this in Chapter 7.

WACC percentile

661. The WACC we determine is an estimate of the returns required by investors. The uncertainty of the estimate compared to the true WACC means that we estimate a standard error of the WACC from which can define a probability distribution.
662. When setting the original IMs we used the 75th percentile of this distribution to determine the WACC used for setting price-quality paths for electricity and gas businesses. As part of the judgment on the merits appeal to the original IMs the High Court outlined scepticism on the need for a WACC uplift. The resulting uncertainty led to us bringing forward an assessment of this particular issue in 2014 and resulted in a WACC percentile amendment.⁵¹³ This amendment reduced the percentile used for price-quality regulation in the electricity and gas sectors from the 75th to 67th percentile.⁵¹⁴
663. Submissions from suppliers agreed with our view that this should not be a topic of focus for the review. For example Orion noted that:⁵¹⁵

The Commission, in response to the High Court, decided to reduce the percentile used for price setting from the 75th to the 67th. This change was made by the Commission following a significant amount of evidence and debate. We do not support any further reconsideration of the WACC percentile.

664. Contact and MEUG both considered that we should re-evaluate the use of the 67th percentile and both recommend a move to the 50th percentile. MEUG submitted

⁵¹³ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

⁵¹⁴ A summary of the WACC percentile amendment process is provided in the problem definition paper. See: Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 256-258.

⁵¹⁵ Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 14.1; PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 30; Transpower's submission "Update paper on the cost of capital" (5 February 2016), p. 11; Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016), p. 2.

evidence from recent transactions of regulated businesses to support a lower WACC.⁵¹⁶

665. Contact also submitted that it was concerned that the decision not to review the use of the 67th percentile was taken too lightly.⁵¹⁷ In particular it submitted that:

- New technologies and related new business models were not considered in the dynamic efficiency arguments for the 2014 decision. As new technologies and business models provide alternates to network investment this dynamic efficiency analysis should be revisited;
- RAB multiples have continued to trend well above 1.0;
- There has been no observable trend towards under-investment since the Commission's decision to move from 75th to 67th percentile, rather evidence is that these businesses have continued to undertake significant capital expenditure; and
- There is now a refined reliability incentive scheme in place (which was only 'proposed' at the time of the 2014 review).

666. We have considered the Contact submission and remain of the view that there is no evidence before us that currently convinces us we should change the WACC percentile as part of the current IM review.

667. The review of the percentile took place in 2014 and involved a substantial amount of analysis and extensive consultation. To revisit this work so soon would undermine one of the key benefits of the WACC percentile given the following.

667.1 Frequent reviews will devalue investor confidence in the percentile.

667.2 It is too early to reach any view on the impact of the percentile. We disagree with Contact's comment that any conclusions can be drawn from the nature of investments in the two years since the percentile was changed, many of which may have been planned prior to the percentile change.

667.3 No actual evidence has been presented as a case for change during this review which would suggest that, notwithstanding the points made above, further consideration should be given to revisiting the WACC percentile.

⁵¹⁶ RAB multiples are discussed in more detail in Chapter 7.

⁵¹⁷ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 35.

668. We recognise the importance of dynamic efficiency and the greater potential that emerging technologies bring. However, we do not currently consider that the impact of these technologies would affect the analysis we undertook in 2014 in a meaningful way, given that:
- 668.1 it still very unclear how emerging technologies will impact the electricity sector and therefore it would be premature to make changes to the percentile at this time;⁵¹⁸ and
- 668.2 we note the 2014 review considered innovation more generally and ruled it out as a benefit of a higher WACC percentile.
669. While we have put in place a refined reliability incentive scheme, this was taken into account in our original analysis in 2014.⁵¹⁹
670. Contact suggested that a further review of the WACC percentile should take place within the next two years.⁵²⁰ We disagree because:
- 670.1 a sufficient length of time is required before re-assessment, given the points raised above; and
- 670.2 at that time, we should also have a much fuller picture of the impact of emerging technologies on network investment.
671. However, we consider that ongoing evaluation of RAB multiples and investment outcomes is useful and we will continue to monitor such issues to provide an evidence base for the next review. At the time of the next review we intend to carefully examine the evidence of whether a WACC percentile uplift has delivered benefits to consumers in both the electricity and gas sectors.
672. We therefore do not propose to make any change to our use of the 67th percentile for electricity and gas businesses for price-quality paths, given the significant amount of analysis that was undertaken in this area in 2014 and the lack of new evidence to justify a further detailed review at this stage.
673. We have, however, considered the WACC percentile range in relation to airports, because the airport sector was not part of the final 2014 analysis. Our assessment of

⁵¹⁸ Further details of our views on the impact of emerging technologies are provided in Topic paper 3: Commerce Commission "Input methodologies review decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (20 December 2016).

⁵¹⁹ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), para 5.61.2.

⁵²⁰ Contact Energy submission on IM review draft decisions papers "Input methodology review" (4 August 2016), p. 38.

the relevance of the WACC percentile range for airports is considered in Topic paper 6.⁵²¹

Split cost of capital

674. The High Court (in its judgment on the merits appeal to the original IMs) outlined that it expected us to consider a split cost of capital approach, given its scepticism about the original IMs using a WACC substantially higher than the mid-point (ie, the 75th percentile).⁵²²
675. The comments from the Court were in relation to a proposal outlined by MEUG which suggested that different estimates of the WACC should be applied to the existing RAB and capital reflecting newly installed assets.
676. MEUG suggested that the WACC estimate used for already committed or approved capital should be equivalent to the 50th percentile and the WACC estimate used for new capital should be the 75th percentile. When making our decision to amend the WACC percentile that applies to the single estimate currently specified in the IMs, we outlined that we would consider a split cost of capital approach as part of the IM review.⁵²³
677. Applying a split cost of capital approach in a similar manner to that proposed by MEUG is a not a new idea for regulators. A number of UK regulators considered the issue in response to proposals by Professor Dieter Helm in a number of academic papers.⁵²⁴ A more recent study has been undertaken by the Queensland Competition Authority (QCA) in 2014. We evaluated how a number of other regulators have considered this issue as part of the WACC update paper.⁵²⁵
678. The proposal by MEUG has some differences compared to Helm's original proposal. In particular, Helm's proposal suggests that existing assets should only be compensated at the cost of debt, whereas MEUG has suggested that the 50th percentile of the WACC is more appropriate. Also, Helm indicated that a lower WACC should be applied to assets as soon as they enter the RAB, whereas MEUG's proposal appears to indicate that it would expect an asset to receive the higher WACC for a longer period of time.

⁵²¹ Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

⁵²² The split cost of capital approach was described in the High Court judgment as the 'two-tier proposal'. See: *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1486].

⁵²³ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), para 4.46-4.47.

⁵²⁴ For example: Dieter Helm, "Ownership, utility regulation and financial structures: an emerging model" (14 January 2006). Available at: www.dieterhelm.co.uk/node/632.

⁵²⁵ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 4.33-4.44.

679. Despite these differences, the fundamental element of both proposals is the same, ie, that two separate WACCs are applied to a regulated firm's assets. Most of the issues assessed by other regulators, and considered by us here, relate to the splitting of the cost of capital per se, without reference to the level of compensation. Estimates of the appropriate compensation for different categories of capital would need to be determined as a separate exercise following a conclusion that splitting the cost of capital itself was appropriate.

Our assessment of a split cost of capital

680. It appears that an appropriately implemented split cost of capital could potentially be a useful method to understand the differences in risk between sunk assets in the RAB and new investments and consequently determine a separate (and thus more accurate) return.
681. The main benefits would accrue from:
- 681.1 an overall return more consistent with the risks faced by the business - to the extent that the current single WACC misprices overall risks and it can be improved by moving to the a split cost of capital approach; and
 - 681.2 improved efficiency incentives for new investment - to the extent that a revised WACC for new investment is more consistent with the actual cost of capital for new investment.
682. However, a number of issues need to be overcome before a split cost of capital could be implemented. As noted by other regulators, the main disadvantages appear to be:
- 682.1 Significant complexity in application, particularly in determining the WACC for different types of capital. Although the QCA suggested that this problem is not insurmountable, it did not outline how robust estimates of the appropriate split WACCs could be achieved in practice. A split cost of capital approach will only be able to more accurately price risks to the specific types of capital if we are able to robustly determine the relevant WACCs.
 - 682.2 Potential for a regulatory shock from a change in approach to estimating the cost of capital. Although the QCA has identified this as a potential issue, at least in the short term, it considered that the benefits outweigh any costs of this shock. This conclusion appears to be based on a view that its existing 'single WACC' methodology for determining the cost of capital results in significant 'economic rent' to suppliers which would be removed under a split cost of capital approach.
683. In assessing this trade-off we consider it is significant that the potential costs (ie, implementation difficulties and increased regulatory risk) are evident and real, but the potential benefits are less clear cut and more ambiguous.
684. Given the potential for these disadvantages to be significant, we have decided not to apply a split cost of capital approach when setting the cost of capital for regulated

suppliers. In taking that position we consider the following factors are particularly relevant.

- 684.1 The potential to improve the overall pricing of risk is likely to have been significantly reduced since the High Court judgment in 2013. Since then we have amended the WACC percentile following substantial analysis of the costs and benefits to consumers of using particular WACC percentiles.⁵²⁶
- 684.2 It will be difficult to predict whether investment incentives will be improved. The incentive to invest depends on an investor's expectation of a return over the lifetime of an asset. This will in turn depend on implementation of any split cost of capital approach and the confidence with which investors expect the arrangements to endure.
- 684.3 A number of submissions from suppliers during the IM review period have strongly urged us not to spend further time and resource assessing this issue, unless some of the implementation issues are addressed, and no further submissions on its practical application have been received.
- 684.4 A number of international regulators have considered this issue and rejected its implementation. As far as we are aware, no recent evidence has been made available that would be likely to make other regulators reconsider their conclusions on this issue.
- 684.5 The High Court noted that it was not presented with a clear means of implementing a split cost of capital approach. We are not aware of any new material that would change that view.

685. Submissions to the WACC update paper from suppliers reiterated their view that the split cost of capital approach should not be implemented or even further considered. For example PwC suggests that:⁵²⁷

We support the Paper's stated intention that further work will not be undertaken on the 'split cost of capital' approach proposed by the Major Electricity Users Group (MEUG). We consider that this is a reasonable conclusion given the evidence set out in the Paper. We agree that the disadvantages of such an approach – namely, the additional practical complexity, and the potential to reduce incentives for investment – are likely to be significant. We also agree that any potential benefits are uncertain.

686. Other submissions from suppliers also agreed with our proposal not to undertake further work in this area.⁵²⁸

⁵²⁶ Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015).

⁵²⁷ PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 11.

687. MEUG submitted that it still considered that ongoing evaluation of the split cost of capital would be useful but it provided no specific information on how this might be undertaken or how it envisaged a split cost of capital might be implemented.⁵²⁹
688. Submissions on the split cost of capital have not changed our view that was expressed in the WACC update paper that, on balance, there is unlikely to be any long-term benefit to consumers from introducing a split cost of capital. As a result we have not introduced a split cost of capital approach in the IMs.

⁵²⁸ Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 14.3; Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016), p .2; PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 29 ; Transpower's submission "Update paper on the cost of capital" (5 February 2016), p. 10.

⁵²⁹ MEUG "Submission on cost of capital update paper" (5 February 2016), para 13-17.

Chapter 7: Reasonableness checks

Purpose of our this chapter

689. This chapter discusses whether our WACC estimates, based on the decisions set out in this paper, are reasonable compared to other WACC estimates. We have separately considered the reasonableness of our WACC estimates for EDBs/Transpower, GPBs, and airports.
690. The purpose of the reasonableness checks is to test whether application of the IMs will produce commercially realistic estimates of the cost of capital. The reasonableness checks are intended to help identify any potential oddities in our estimates, which would suggest modifications should be made to the cost of capital IMs. The reasonableness checks we have undertaken are very similar to those used in the 2010 IMs reasons paper, and the 2014 WACC percentile reasons paper.⁵³⁰
691. Unless otherwise indicated, all relevant calculations and reasonableness checks discussed in this chapter were conducted using the revised cost of capital IMs, updated to reflect changes discussed in this paper (which we refer to in this chapter as the 'amended cost of capital IM').
692. Based on the analysis we have undertaken, we consider that our WACC estimates based on the amended cost of capital IMs are reasonable.⁵³¹ In particular:⁵³²
- 692.1 Our 67th percentile post-tax WACC estimate for EDBs and Transpower of 5.37% is within the range of independent post-tax WACC estimates for regulated energy businesses in New Zealand, similar to regulatory WACC estimates from Australia and above regulatory WACC estimates from the UK (after normalising for differences in risk-free rates).
- 692.2 Although limited evidence is available to test the reasonableness of our 67th percentile post-tax WACC estimate for GPBs of 5.76%, the observed RAB multiples for the recent sales of Vector and Maui's gas businesses to First State Funds suggest that the current regulatory settings are more than sufficient to compensate investors for putting their capital at risk (even after allowing for the expected impact of reducing the beta for GPBs).

⁵³⁰ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), Appendix H13; and Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), Attachment D.

⁵³¹ Our WACC estimates referred to in this chapter were calculated using a risk-free rate estimated as at 1 April 2016.

⁵³² Our reasonableness checks analysis focusses on the 67th percentile WACC estimates for EDBs, Transpower, and GPBs, given that this is the percentile used for price-quality path regulation of these businesses. However, we note that our mid-point post-tax WACC estimates of 4.92% and 5.30% respectively, are also within the range of comparative information considered.

692.3 Our mid-point post-tax WACC for airports of 6.29% is within the range of alternative New Zealand sourced post-tax WACC estimates for airports, and within the range of overseas WACC estimates from the UK and Ireland (after normalising for differences in risk-free rates).

693. The rest of this chapter:

693.1 explains our approach to undertaking reasonableness checks of our WACC estimates, and the adjustments we have made to help make alternative WACC estimates more comparable to our estimates;

693.2 summarises why we consider our WACC estimates for EDBs/Transpower, GPBs and airports (as at 1 April 2016) are reasonable based on the information assessed;

693.3 describes in detail the comparative information used when undertaking reasonableness checks for EDBs/Transpower, GPBs, and airports, respectively;

693.4 outlines the RAB multiples analysis we have undertaken, as an additional reasonableness check; and

693.5 discusses BSDR, as a possible alternative method to consider the appropriate return applied to a regulated business.

Approach to undertaking reasonableness checks of our WACC estimates

694. This section explains the approach we have used when undertaking reasonableness checks of our WACC estimates, including:

694.1 the publicly available comparative information we have considered;

694.2 the weight placed on WACC estimates from different sources; and

694.3 our approach to adjusting WACC estimates from other sources, to ensure they are comparable with our estimates.

We have used publicly available post-tax WACC estimates

695. When undertaking our reasonableness checks, we have used publicly available information on:

695.1 the current New Zealand post-tax risk-free rate and the post-tax cost of corporate debt;

695.2 historic and forecast estimates of the returns achieved on New Zealand investments of average risk;

695.3 independent estimates of the post-tax WACC for suppliers of regulated services in New Zealand (and similar businesses), including estimates from PwC and New Zealand investment banks; and

695.4 estimates of the post-tax WACC from other regulatory contexts, particularly Australia and the United Kingdom.

696. Our WACC estimates for EDBs/Transpower/GPBs and airports, as at 1 April 2016, are compared to the publicly available information listed above.⁵³³ Our WACC estimates are calculated based on the amended cost of capital IMs set out in this paper. If the IMs produce reasonable WACC estimates as at 1 April 2016, we consider they will also produce reasonable estimates at other dates since the risk-free rate will be linked to prevailing market rates.

697. We have compared our post-tax WACC estimate with independent estimates, as the comparative information is generally available on a post-tax basis only. All references to WACC in this section should be read as references to post-tax WACC.

We have placed most weight on NZ-sourced WACC estimates for regulated services

698. We have used a hierarchy of publicly available comparative information when assessing the reasonableness of our WACC estimates. In particular, we consider the available information should be considered in the following order of importance.

698.1 *The plausible range:* Our WACC estimates are compared with a plausible range of returns on the New Zealand market bounded at the upper end by the historical and expected future returns on the New Zealand market for a firm of average risk (using estimates from brokers and practitioners). The plausible range is bounded at the lower end by five-year government bond rates (that is the returns on investment with no default risk) and the returns on BBB+/A- rated corporate bonds (ie, investments with some default risk but still comfortably considered investment grade).⁵³⁴

698.2 *NZ-sourced estimates of the cost of capital for regulated suppliers and similar businesses:* Our estimates are compared with available information on the cost of capital for New Zealand suppliers of regulated services sourced from brokers and practitioners, and unregulated businesses with significant market power.

⁵³³ Although we have used a risk-free rate estimated as at 1 April 2016, for simplicity, we have used the debt premium values set out in Attachment G. The five-year historical debt premium values incorporate some data beyond April 2016.

⁵³⁴ The upper limit of the range is based on the fact that regulated businesses are typically low risk, so equity investors would expect to earn a lower return for these businesses than when investing in a New Zealand company of average risk. For the lower limit of the range, the returns on BBB+ rated corporate bonds are used for EDBs/Transpower/GPBs, and the returns on A- rated corporate bonds are used for airports, reflecting the benchmark long-term credit ratings we have used when estimating the cost of debt.

698.3 *Overseas estimates of the regulated cost of capital:* Our estimates are compared with cost of capital estimates from overseas regulatory decisions (primarily from Australia and the UK) for electricity lines services, gas pipeline services, and airports.

699. We consider that New Zealand sourced WACC estimates should be given more weight than overseas estimates. International WACC estimates can be affected by a number of country-specific factors such as differences in tax regimes, monetary conditions, regulatory regimes, and investors' relative risk aversion. In its judgment on the IMs merits appeals, the High Court agreed that "...the most helpful comparative material for cross-checking purposes comprises independent assessments of WACC in the New Zealand context".⁵³⁵

We have normalised for differences in risk-free rates

700. We have normalised the comparator WACC estimates for differences in risk-free rates.⁵³⁶ This is because our analysis is intended to assess the overall reasonableness of our WACC estimates, rather than highlighting differences resulting simply from adopting an alternative approach to estimating the risk-free rate, or estimating the risk-free rate at a different date.

701. Under the amended cost of capital IM, we use prevailing interest rates when determining the risk-free rate.⁵³⁷ In contrast, some other analysts and regulatory authorities use long-term averages when estimating the risk-free rate.

702. During periods where domestic interest rates are relatively low in New Zealand, our WACC estimates are likely to appear low compared to other estimates. Conversely, during periods where New Zealand interest rates are high, our WACC estimate will appear relatively high. Over time, these approaches should tend to balance out, but in the short term the comparability of the WACC estimates is affected.⁵³⁸

703. To normalise for the difference between prevailing risk-free rates and long-term averages of the risk-free rate, we have adjusted comparator WACC estimates to reflect our estimate of the risk-free rate as at 1 April 2016 (which is 2.60%).⁵³⁹

⁵³⁵ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1213].

⁵³⁶ We have not standardised WACC estimates for differences in the debt premium. The amounts involved are significantly smaller and have a limited effect on the analysis.

⁵³⁷ Using prevailing interest rates when determining the risk-free rate is consistent with our approach in the 2010 IMs.

⁵³⁸ Similarly, our current WACC estimates for EDBs, Transpower, GPBs, and airports, as outlined in this paper, appear relatively low compared to those presented in our 2010 IMs reasons papers. This largely reflects a reduction in the risk-free rate over this period. Our estimate of the risk-free rate as at 1 September 2010 was 4.64%, while our current estimate of the risk-free rate (as at 1 April 2016) is 2.60%.

⁵³⁹ Specifically, our standardisation adjusts independent WACC estimates for the difference between the risk-free rate we use, and the risk-free rate used by independent analysts.

We have considered RAB multiples, as an additional reasonableness check

704. As part of our reasonableness checks, we have considered RAB multiples for regulated energy and airports businesses in New Zealand. The RAB multiple of a regulated business is the ratio of its enterprise value to its RAB. RAB multiples can provide a useful secondary indicator of whether the allowed rate of return has been set at a sufficient level to adequately compensate investors for putting their capital at risk.⁵⁴⁰
705. In particular, RAB multiples for the recent sales of Vector and Maui's gas businesses to First State Funds provide useful evidence to assess the reasonableness of our approach for GPBs. There is a lack of independent New Zealand sourced WACC estimates available for GPBs – for example, we have not identified any recent GPB-specific WACC estimates from brokers or practitioners. Given the lack of alternative information to assess the reasonableness of our WACC estimate for GPBs, we consider RAB multiples evidence to be helpful for this sector.

Summary of why we consider our WACC estimates are reasonable

706. We consider that our WACC estimates are reasonable based on the comparative information we have assessed. Our findings for EDBs/Transpower/GPBs and airports are summarised in Figure 14 and Figure 15, respectively.
707. Our analysis for EDBs and Transpower focusses on the 67th percentile WACC estimate, given that this is the percentile used for price-quality path regulation of these businesses. We consider that our 67th percentile post-tax WACC estimate of 5.37% (as at 1 April 2016) is reasonable given it is:
- 707.1 below the long-term historical return (8.72%) and the forecast return on New Zealand investments of average risk (7.21%-7.39%), but well above the post-tax returns on five-year government stock (1.87%) and five-year BBB+ bonds (3.20%). This is consistent with expectations as businesses such as EDBs, Transpower and GPBs face lower risks than the average New Zealand firm, but greater risks relative to corporate bonds and government stock;
- 707.2 within the range of independent post-tax WACC estimates for regulated energy businesses in New Zealand, after normalising for differences in risk-free rates. For example, our estimate is above Simmons' estimate for Horizon (5.19%), above PwC's estimates for Vector and Horizon (4.99% and 5.19%), and above Forsyth Barr's estimate for Transpower (4.79%), but below Northington Partner's and First NZ Capital's estimates for Transpower (5.45% and 5.69%) and below broker estimates for Vector's entire business including

⁵⁴⁰ See paragraphs 744 to 771 for further discussion on RAB multiples.

unregulated activities (ranging from 5.56% to 7.15%, with an average of 6.19%);⁵⁴¹ and

707.3 similar to recent regulatory WACC decisions made by the AER in Australia (with averages of 5.17% for electricity distribution, 5.26% for electricity transmission, 5.21% for gas distribution, and 5.44% for gas transmission, after normalising for differences in risk-free rates), and above recent decisions made by Ofgem in the UK (4.41% for electricity distribution, 4.72% for electricity transmission, 4.39% for gas distribution, and 4.53% for gas transmission, after normalising for differences in risk-free rates).⁵⁴²

708. We have assessed the reasonableness of our airports WACC estimate based on our mid-point estimate. This reflects our proposal to publish only a mid-point WACC estimate for airports (along with the standard error of the WACC). We consider that the mid-point post-tax WACC estimate for airports of 6.29% (as at 1 April 2016) is reasonable given it is:

708.1 below the long-term historical (8.72%) and the forecast return on New Zealand investments of average risk (7.21%-7.39%), but well above the post-tax returns on five-year government stock (1.87%) and five-year A- bonds (2.92%). This is consistent with expectations regulated airport services face lower risks than the average New Zealand firm, but greater risks relative to corporate bonds and government stock;

708.2 similar to alternative New Zealand sourced post-tax WACC estimates for airports, after normalising for differences in risk-free rates. For example, our estimate is above Deutsche Bank's estimate for the regulated segment of Auckland International Airport's (AIAL) business (6.17%) and the post-tax WACC of 6.28% that Dunedin International Airport used for its 2014 disclosure year, within the range of broker estimates for AIAL's entire business (ranging from 5.71% to 6.67%, with an average of 6.33%), but below below PwC's estimate for Queenstown Airport's aeronautical business of 6.86%, and below PwC's estimate for AIAL's entire business (including unregulated activities) of 6.99%;⁵⁴³ and

708.3 within the range of recent overseas regulatory WACC decisions for airports (after normalising for differences in risk-free rates), made by the CAA in the

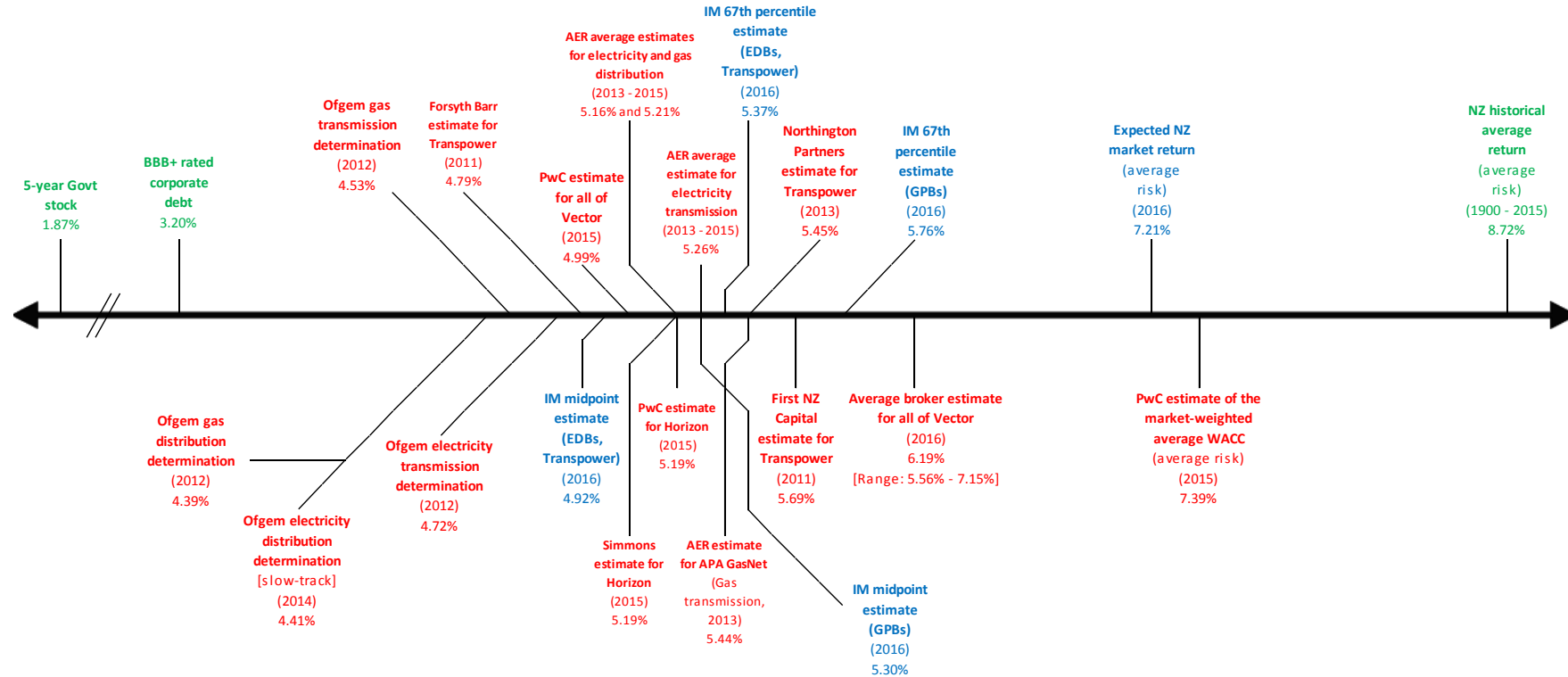
⁵⁴¹ As explained in paragraph 721, the post-tax WACC for regulated electricity distribution and gas pipeline services is expected to be lower than for the other services provided by Vector.

⁵⁴² The UK WACCs from Ofgem were presented as real vanilla estimates, so we have converted these to post-tax nominal estimates to make them comparable with the other estimates presented. This required making several assumptions, so we consider that the UK WACC estimates (and overseas estimates in general) should be given less weight when undertaking reasonableness checks.

⁵⁴³ Auckland Airport has previously acknowledged that its unregulated services would be expected to have a higher post-tax WACC than its regulated services. Auckland International Airport Limited "Airport regulation and pricing - Issues Brief" (November 2006), p. 5.

UK (6.11% for Heathrow and 6.42% for Gatwick) and the Commission for Aviation Regulation (**CAR**) in Ireland (6.09% for Dublin Airport).

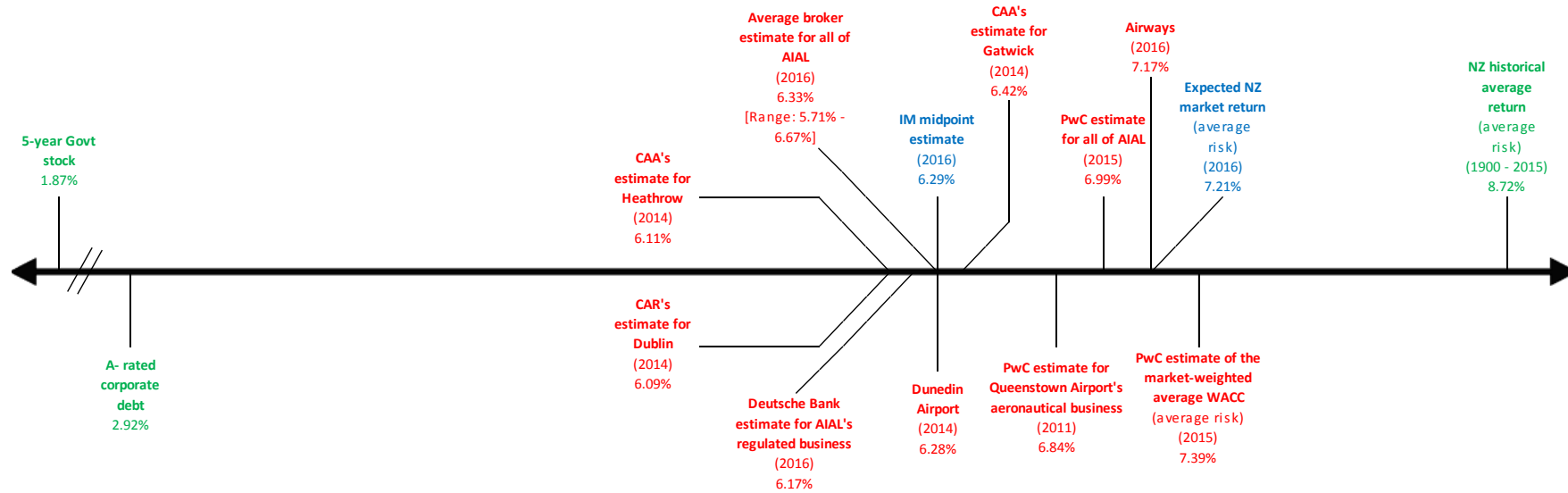
Figure 14: Summary of WACC reasonableness checks for EDBs, Transpower, and GPBs (using normalised risk-free rates)



Estimates made by the Commission are shown in blue, market information is shown in green, and estimates made by other parties (normalised to reflect our estimate of the risk-free rate) are shown in red.

As noted in paragraph 699, we consider that New Zealand sourced WACC estimates should be given more weight than overseas estimates, given that international WACC estimates can be affected by a number of country-specific factors (such as differences in tax regimes, monetary conditions, regulatory regimes, and investors' relative risk aversion).

Figure 15: Summary of WACC reasonableness checks for airports (using normalised risk-free rates)



Estimates made by the Commission are shown in blue, market information is shown in green, and estimates made by other parties (normalised to reflect our estimate of the risk-free rate) are shown in red.

As noted in paragraph 699 above, we consider that New Zealand sourced WACC estimates should be given more weight than overseas estimates, given that international WACC estimates can be affected by a number of country-specific factors (such as differences in tax regimes, monetary conditions, regulatory regimes, and investors' relative risk aversion).

709. We have given particular attention to the reasonableness of our 67th percentile WACC estimate for gas pipeline services of 5.76%, given our decision to reduce the asset beta uplift from 0.10 to 0.05. Although limited evidence is available to test the reasonableness of our WACC estimate for GPBs, we note that:

709.1 the AER and Ofgem generally use the same, or very similar, asset beta and WACC estimates for electricity lines and gas pipeline businesses. This is consistent with our findings in 2010, where we noted that the available evidence suggested a similar WACC would normally be assumed for GPBs and EDBs (and therefore, our previous approach of applying a 0.10 asset beta uplift for gas “may be considered favourable to GPBs”);⁵⁴⁴ and

709.2 the observed RAB multiples for the recent sales of Vector and Maui’s gas businesses to First State Funds suggest that the current regulatory settings are more than sufficient to compensate investors for putting their capital at risk.⁵⁴⁵ Specifically, the RAB multiples reported for the Vector sale range from 1.33x to 1.50x (or 1.25x to 1.41x, after adjusting for the expected impact of reducing the asset beta for GPBs from 0.44 to 0.40, and leverage from 44% to 42%). We have estimated a RAB multiple for the Maui sale of 1.17x (or 1.10x, after adjusting for the expected impact of reducing the asset beta and leverage).

710. More details on the reasonableness checks we have undertaken for EDBs/Transpower/GPBs and airports (respectively) are included below.

Further detail on reasonableness checks for EDBs, Transpower, and GPBs

711. This section explains the comparative information used when assessing the reasonableness of our WACC estimates for EDBs/Transpower and GPBs in more detail. A summary of the information considered is contained in Figure 14.

Our WACC estimate for EDBs/Transpower and GPBs as at 1 April 2016

712. Our WACC estimates for EDBs, Transpower and GPBs calculated using the amended cost of capital IM are shown in Table 14 and Table 15. The figures are based on the amended cost of capital IMs contained in this decision. The risk-free rate is calculated as at 1 April 2016.

⁵⁴⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H13.71-H13.74.

⁵⁴⁵ See para 744 to 771 for further discussion on RAB multiples.

Table 14: WACC estimate for EDBs and Transpower as at 1 April 2016

Parameter	Estimate	Standard error
Risk-free rate	2.60%	
Debt premium ⁵⁴⁶	1.84%	0.0015
Leverage	42%	
Asset beta	0.35	0.12
Debt beta	0.00	
TAMRP	7.0%	0.015
Corporate tax rate	28.0%	
Investor tax rate	28.0%	
Debt issuance costs	0.20%	
Equity beta	0.60	
Cost of equity	6.07%	
Cost of debt	4.64%	
Vanilla WACC (mid-point)	5.47%	0.0101
Vanilla WACC (67th percentile)	5.91%	
Post-tax WACC (mid-point)	4.92%	0.0101
Post-tax WACC (67th percentile)	5.37%	

Table 15: WACC estimate for GPBs as at 1 April 2016

Parameter	Estimate	Standard error
Risk-free rate	2.60%	
Debt premium ⁵⁴⁷	1.86%	0.0015
Leverage	42%	
Asset beta	0.40	0.12
Debt beta	0.00	
TAMRP	7.0%	0.015
Corporate tax rate	28.0%	
Investor tax rate	28.0%	
Debt issuance costs	0.20%	
Equity beta	0.69	
Cost of equity	6.70%	
Cost of debt	4.66%	
Vanilla WACC (mid-point)	5.84%	0.0105
Vanilla WACC (67th percentile)	6.31%	
Post-tax WACC (mid-point)	5.30%	0.0105
Post-tax WACC (67th percentile)	5.76%	

⁵⁴⁶ See Attachment G for details of how the debt premium estimate of 1.84% was calculated.

⁵⁴⁷ See Attachment G for details of how the debt premium estimate of 1.86% was calculated.

713. As noted in paragraph 707 above, our reasonableness checks analysis focusses on our 67th percentile post-tax WACC estimates for EDBs/Transpower and GPBs of 5.37% and 5.76%, respectively. We consider it appropriate to focus on the 67th percentile estimate, given that this is the WACC estimate used when setting price-quality paths for EDBs, Transpower and GPBs.

The plausible range

714. Our 67th percentile post-tax WACC estimate for EDBs and Transpower of 5.37% is comfortably within the plausible range we have considered, which is bounded:

714.1 at the lower end, by post-tax yields on five-year Government stock of 1.87% and five-year BBB+ rated corporate debt of 3.20%; and

714.2 at the upper end, by the future return expected from the New Zealand market for a firm of average risk of 7.21% (which we have estimated using the CAPM), the market average WACC for New Zealand reported by PwC (normalised to reflect our risk-free rate) of 7.39%, and historical average returns on the New Zealand market of 8.72% (as reported by Dimson, Marsh, and Staunton).

715. Our WACC estimate for EDBs and Transpower is below estimates of the post-tax WACC for a New Zealand firm of average risk, which is consistent with our expectations. Suppliers of essential services, such as EDBs and Transpower, are quintessential low risk businesses. Therefore, equity investors would expect to earn a lower return on these businesses than a New Zealand company of average risk.

716. We have estimated a future return expected from the market (using the simplified Brennan-Lally CAPM) of 7.21%, as at 1 April 2016. By definition, the market has an average equity beta of 1. Our analysis also assumes a TAMRP of 7%, market-wide leverage of 30%, a risk-free rate of 2.60%, a debt premium of 1.84%, debt issuance costs of 0.20% per annum and a corporate and investor tax rate of 28%.⁵⁴⁸

717. PwC's most recent estimate of the market-weighted average post-tax WACC for around 100 New Zealand listed companies is 8.4%.⁵⁴⁹ This results in a market average WACC of 7.39%, when adjusting for our risk-free rate of 2.60% (instead of PwC's risk-free rate of 4.00%).

718. We have estimated the historical average return for the New Zealand market from 1900-2015 as 8.72%, based on data from Dimson, Marsh and Staunton.⁵⁵⁰ Dimson,

⁵⁴⁸ For simplicity, we have used our BBB+ debt premium estimate for EDBs and Transpower of 1.84% when estimating the future return expected from the market.

⁵⁴⁹ PwC "Appreciating Value New Zealand" (Edition six, March 2015).

⁵⁵⁰ Dimson, Marsh and Staunton estimate an average real (pre-tax) return to New Zealand equity investors of 6.2%, and a return on Government bonds of 2.1%, over the period from 1900-2015. The return on corporate debt is not calculated by Dimson, Marsh and Staunton, but for the purposes of this analysis we have assumed it falls midway between the return on government debt and the average for NZ equities

Marsh and Staunton are generally regarded as having produced the most authoritative source of historical returns to investors, and their data for New Zealand covers over 100 years.⁵⁵¹ The advantage of looking at historic returns is that they can be calculated without the need for an analytical tool such as CAPM.

NZ-sourced estimates of the cost of capital for regulated suppliers

719. As part of our reasonableness checks, we have considered independent post-tax WACC estimates for New Zealand electricity lines and gas pipeline businesses. The estimates, which are summarised in Table 16, have been sourced from:

719.1 Simmons;⁵⁵²

719.2 Northington Partners;⁵⁵³

719.3 Forsyth Barr;⁵⁵⁴

719.4 First NZ Capital;⁵⁵⁵

719.5 PwC;⁵⁵⁶ and

719.6 research analysis employed by New Zealand investment banks.⁵⁵⁷

(4.15%). Assuming an average inflation rate of 3.6%, a corporate tax rate of 28%, market-wide leverage of 30%, and no investor taxes on equity returns, this implies a post-tax WACC estimate of around 8.72% for an investment of average risk.

⁵⁵¹ Dimson, Marsh and Staunton, "Credit Suisse Global Investment Returns Yearbook 2016".

⁵⁵² Simmons Corporate Finance "Horizon Energy Distribution Limited Independent Adviser's Report In Respect of the Full Takeover Offer by Eastern Bay Energy Trust" (June 2015).

⁵⁵³ Northington Partners "Transpower New Zealand – Valuation Assessment" (15 November 2013).

⁵⁵⁴ Forsyth Barr "Transpower – Capex coming to fruition" (8 November 2011).

⁵⁵⁵ First NZ Capital "Transpower – A valuation perspective" (31 October 2011).

⁵⁵⁶ PwC "Appreciating Value New Zealand" (Edition six, March 2015).

⁵⁵⁷ Craigs Investment Partners, First NZ Capital, Forsyth Barr, Macquarie and UBS were all surveyed in early 2016 regarding their WACC estimates for Vector, and the risk-free rates used in their analysis.

**Table 16: New Zealand sourced WACC estimates for regulated energy businesses
(normalised for differences in risk-free rates)**

	Original WACC estimate	Risk-free rate used	Normalised WACC estimate*
Simmons, 2015 (Horizon)	6.20%	4.00%	5.19%
PwC, 2015 (Horizon)	6.20%	4.00%	5.19%
Northington Partners, 2013 (Transpower)	7.00%	4.75%	5.45%
Forsyth Barr, 2011 (Transpower)	7.24%	6.00%	4.79%
First NZ Capital, 2011 (Transpower)	7.60%	5.25%	5.69%
PwC, 2015 (Vector)	6.00%	4.00%	4.99%
Broker estimates, 2016 (Vector)	6.65% to 7.80%	3.00% to 5.00%	5.56% to 7.15%

Note: * The normalised WACC estimates have been calculated by substituting in our risk-free rate estimate (as at 1 April 2016) of 2.60%.

720. After normalising for differences in risk-free rates, our 67th percentile post-tax WACC estimate for EDBs and Transpower of 5.37% is within the range of independent estimates. Specifically, our 67th percentile estimate is:

720.1 above the Simmons WACC estimate for Horizon of 5.19%;

720.2 above the PwC WACC estimates for all of Vector and Horizon of 4.99% and 5.19% respectively;

720.3 above the Forsyth Barr WACC estimate for Transpower of 4.79%;

720.4 below the Northington Partners and First NZ Capital estimates for Transpower of 5.45% and 5.69%, respectively; and

720.5 below the range of WACC estimates for all of Vector made by research analysts employed by New Zealand investment banks (5.56% to 7.15%, with an average of 6.19%).

721. As explained in our 2010 IM reasons paper, we would generally expect estimates of Vector's WACC to be above our IM-based WACC estimate for EDBs.⁵⁵⁸ This is because estimates of Vector's post-tax WACC cover all of Vector's businesses (including gas, electricity, telecommunications, gas wholesaling, and metering), but the IM focusses solely on regulated services (electricity distribution and gas pipeline services). The post-tax WACC for regulated electricity distribution and gas pipeline services is expected to be lower than for the other services provided by Vector, and lower than for the overall company.

⁵⁵⁸ Commerce Commission "Input methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper" (December 2010), para H13.54.

Overseas estimates of the regulated cost of capital

722. We have also considered recent regulatory decisions regarding the cost of capital made by the AER in Australia, and Ofgem in the UK. To enable comparison with our 67th percentile post-tax WACC estimate, we have converted:
- 722.1 the AER's nominal vanilla WACC estimates to post-tax WACC estimates (assuming a tax rate of 30%), and then substituted in our risk-free rate estimate of 2.60%;⁵⁵⁹ and
 - 722.2 Ofgem's real vanilla WACC estimates to nominal post-tax WACC estimates (assuming an inflation rate of 2.0% and a tax rate of 20%), and then substituted in our risk-free rate estimate of 2.60%.⁵⁶⁰
723. The AER WACC estimates we have considered are very similar to our 67th percentile estimate for EDBs and Transpower of 5.37%, after normalising for differences in the risk-free rate. Based on the AER WACC estimates listed in Table 17, the average WACC for:
- 723.1 electricity distribution is 5.17%;
 - 723.2 electricity transmission is 5.26%;
 - 723.3 gas distribution is 5.21%; and
 - 723.4 gas transmission is 5.44% (noting that the only estimate included is from the 2013 determination for APA GasNet Australia).

⁵⁵⁹ The tax rate of 30% is based on the statutory corporate tax rate.

⁵⁶⁰ The tax rate of 20% is based on the statutory corporate tax rate. We have assumed an inflation rate of 2%, based on the Bank of England's inflation target (see <http://www.bankofengland.co.uk/monetarypolicy/Pages/framework/framework.aspx>).

Table 17: Recent AER WACC determinations (2013-today)

Determination	Year	State	Normalised WACC estimate
Electricity distribution			
Ausgrid	2015	NSW	5.48%
Endeavour Energy	2015	NSW	5.48%
Essential Energy	2015	NSW	5.48%
ActewAGL	2015	ACT	5.27%
Energex	2015	Queensland	4.90%
Ergon	2015	Queensland	4.72%
SA Power Networks	2015	South Australia	4.83%
<i>Average</i>			5.17%
Electricity transmission			
ElectraNet	2013	South Australia	5.49%
Murraylink	2013	Interconnector (V-SA)	5.48%
SP AusNet	2014	Victoria	5.19%
Directlink	2015	Interconnector (Q-NSW)	4.61%
TransGrid	2014	NSW	5.52%
<i>Average</i>			5.26%
Gas distribution			
SP AusNet	2013	Victoria	5.40%
Envestra (Victoria)	2013	Victoria	5.35%
Multinet Gas	2013	Victoria	5.38%
Envestra (Albury)	2013	Victoria	5.35%
Jemena	2015	NSW	4.59%
<i>Average</i>			5.21%
Gas transmission			
APA GasNet Australia (Operations)	2013	Victoria	5.44%

724. As shown in Table 18, recent Ofgem WACC estimates for electricity distribution, electricity transmission, gas distribution, and gas transmission, are below our 67th percentile WACC estimates for EDBs and Transpower of 5.37% (after normalising for difference in risk-free rates).⁵⁶¹

Table 18: Recent Ofgem WACC determinations

Determination	Year	Normalised WACC estimate
RIIO-ED1 - electricity distribution (slow-track)	2014	4.41%
RIIO-T1 - electricity transmission	2012	4.72%
RIIO-GD1 - gas distribution	2012	4.39%
RIIO-T1 - gas transmission	2012	4.53%

Reasonableness of GPB WACC estimate

725. In the 2010 IMs, we adopted an asset beta for GPBs that was 0.10 higher than for EDBs and Transpower, leading to a higher post-tax WACC estimate for gas pipeline services. This reflected our view that New Zealand GPBs were likely to face greater exposure to systematic risk than suppliers of electricity lines services.⁵⁶²
726. As explained in the asset beta section above, we have determined that the asset beta uplift for GPBs should decrease from 0.10 to 0.05.⁵⁶³ This reflects updated analysis suggesting that the upwards adjustment we made to the asset beta for GPBs in 2010 should be reduced.
727. The reasonableness checks we have undertaken support our lower WACC estimate for GPBs, reflecting the reduced asset beta. In particular, we note that:
- 727.1 the AER and Ofgem generally use the same, or very similar, asset beta and WACC estimates for electricity lines and gas pipeline businesses. This is consistent with our findings in 2010, where we noted that the available evidence suggested a similar WACC would normally be assumed for GPBs and EDBs,⁵⁶⁴ and

⁵⁶¹ Ofgem "RIIO-ED1: Final determinations for the slowtrack electricity distribution companies - Overview - Final decision" (28 November 2014); Ofgem "RIIO-GD1: Final Proposals - Finance and uncertainty supporting document" (17 December 2012); and Ofgem "RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas – Finance Supporting document" (17 December 2012).

⁵⁶² Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H13.72.

⁵⁶³ See para 339 to 457.

⁵⁶⁴ Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H13.72.

727.2 the observed RAB multiples for the recent sales of Vector and Maui's gas businesses to First State Funds suggest that the current regulatory settings are more than sufficient to compensate investors for putting their capital at risk. In particular, RAB multiples for the Vector sale are significantly above one, even after adjusting for the expected impact of reducing the asset beta for GPBs from 0.44 to 0.40 and leverage from 44% to 42%.⁵⁶⁵

Further details on reasonableness checks for airports

728. This section explains the comparative information used when assessing the reasonableness of our WACC estimate for airports in more detail. A summary of the information considered is contained in Figure 15.

Our WACC estimate for specified airport services as at 1 April 2016

729. Our WACC estimate for airports is shown in Table 19. The figures are based on the amended cost of capital IMs contained in this decision. The risk-free rate is calculated as at 1 April 2016.

Table 19: WACC estimate for airports as at 1 April 2016

Parameter	Estimate	Standard error
Risk-free rate	2.60%	
Debt premium ⁵⁶⁶	1.45%	0.0015
Leverage	19%	
Asset beta	0.60	0.16
Debt beta	0.00	
TAMRP	7.0%	0.015
Corporate tax rate	28.0%	
Investor tax rate	28.0%	
Debt issuance costs	0.20%	
Equity beta	0.74	
Cost of equity	7.05%	
Cost of debt	4.25%	
Vanilla WACC (mid-point)	6.52%	0.0146
Post-tax WACC (mid-point)	6.29%	0.0146

730. As noted in paragraph 707.1 above, our reasonableness checks analysis focusses on our mid-point post-tax WACC estimate for airports of 6.29%. This reflects our decision to only publish mid-point WACC estimates for airports (along with the

⁵⁶⁵ Specifically, the RAB multiples reported for the Vector sale range from 1.33x to 1.50x (or 1.25x to 1.41x, after adjusting for the expected impact of reducing the asset beta and leverage for GPBs). We have estimated a RAB multiple for the Maui sale of 1.17x (or 1.10x, after adjusting for the expected impact of reducing the asset beta and leverage). See paragraphs 744 to 771 for further details.

⁵⁶⁶ See Attachment G for details of how the debt premium estimate of 1.45% was calculated.

standard error of the WACC, which can be used to calculate different percentile estimates).

The plausible range

731. Our mid-point post-tax WACC estimate for airports of 6.29% is comfortably within the plausible range we have considered, which is bounded:
- 731.1 at the lower end, by post-tax yields on five-year Government stock of 1.87% and five-year A- rated corporate debt of 2.92%; and
- 731.2 at the upper end, by the future return expected from the New Zealand market for a firm of average risk of 7.21% (which we have estimated using the CAPM), the market average WACC for New Zealand reported by PwC (normalised to reflect our risk-free rate) of 7.39%, and historical average returns on the New Zealand market of 8.72% (as reported by Dimson, Marsh, and Staunton).
732. Our WACC estimate for airports is below estimates of the post-tax WACC for a New Zealand firm of average risk, which is consistent with our expectations. Regulated airport services have below average risk, given that they have considerable pricing power, and have users with limited alternatives (although we also note they are exposed to a number of demand risks which are a function of systematic factors).⁵⁶⁷
733. We have estimated a future return expected from the market (using the simplified Brennan-Lally CAPM) of 7.21%, as at 1 April 2016. By definition, the market has an average equity beta of 1. Our analysis also assumes a TAMRP of 7%, market-wide leverage of 30%, a risk-free rate of 2.60%, a debt premium of 1.84%, debt issuance costs of 0.20% per annum and a corporate and investor tax rate of 28%.⁵⁶⁸
734. PwC's most recent estimate of the market-weighted average post-tax WACC for around 100 New Zealand listed companies is 8.4%.⁵⁶⁹ This results in a market average WACC of 7.39%, when adjusting for our risk-free rate of 2.60% (instead of PwC's risk-free rate of 4.00%).
735. We have estimated the historical average return for the New Zealand market from 1900-2015 as 8.72%, based on data from Dimson, Marsh and Staunton.⁵⁷⁰ Dimson,

⁵⁶⁷ The High Court appeared to agree with this assessment in the IMs merits appeals judgement, noting that "...it is the aeronautical aspects of AIAL's business that are regulated services, being ones provided in markets regulated under Part 4. It is something of a truism to observe that investors' risks in such markets are generally considered to be lower than in more competitive markets". *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1218].

⁵⁶⁸ For simplicity, we have used our BBB+ debt premium estimate for EDBs and Transpower of 1.84% when estimating the future return expected from the market.

⁵⁶⁹ PwC "Appreciating Value New Zealand" (Edition six, March 2015).

⁵⁷⁰ Dimson, Marsh and Staunton estimate an average real (pre-tax) return to New Zealand equity investors of 6.2%, and a return on Government bonds of 2.1%, over the period from 1900-2015. The return on corporate debt is not calculated by Dimson, Marsh and Staunton, but for the purposes of this analysis we

Marsh and Staunton are generally regarded as having produced the most authoritative source of historical returns to investors, and their data for New Zealand covers over 100 years.⁵⁷¹ The advantage of looking at historic returns is that they can be calculated without the need for an analytical tool such as CAPM.

NZ-sourced estimates of the cost of capital for regulated suppliers and similar businesses

736. As part of our reasonableness checks, we have considered alternative post-tax WACC estimates for New Zealand airports and similar businesses. The estimates, which are summarised in Table 20, have been sourced from:

736.1 Deutsche Bank;⁵⁷²

736.2 Dunedin Airport;⁵⁷³

736.3 PwC;⁵⁷⁴

736.4 research analysts employed by New Zealand investment banks;⁵⁷⁵ and

736.5 Airways NZ.⁵⁷⁶

have assumed it falls midway between the return on government debt and the average for NZ equities (4.15%). Assuming an average inflation rate of 3.6%, a corporate tax rate of 28%, market-wide leverage of 30%, and no investor taxes on equity returns, this implies a post-tax WACC estimate of around 8.72% for an investment of average risk.

⁵⁷¹ Dimson, Marsh and Staunton, "Credit Suisse Global Investment Returns Yearbook 2016".

⁵⁷² Deutsche Bank "Markets Research – Auckland Int. Airport" (19 February 2016).

⁵⁷³ Dunedin International Airport Limited "2014 Disclosure Financial Statements" (27 November 2014).

⁵⁷⁴ PwC "Appreciating Value New Zealand" (Edition six, March 2015); and PwC "Queenstown Lakes District Council – Issue of shares in Queenstown Airport Corporation Limited to Auckland International Airport Limited – Detailed report on fairness opinion" (15 March 2011).

⁵⁷⁵ Craigs Investment Partners, First NZ Capital, Macquarie and UBS were all surveyed in early 2016 regarding their WACC estimates for AIAL, and the risk-free rates used in their analysis.

⁵⁷⁶ Airways New Zealand Ltd "Airways' pricing for the 2016-2019 period: Consultation response document" (May 2016), p. 30.

**Table 20: New Zealand sourced WACC estimates for airports
(normalised for differences in risk-free rates)**

	Original WACC estimate	Risk-free rate used	Normalised WACC estimate*
Deutsche Bank, 2016 (AIAL regulated only)	7.47%	4.40%	6.17%
Dunedin Airport (2014 financial disclosure)	6.87%	3.42%	6.28%
PwC, 2011 (Queenstown Airport aeronautical)	8.50%	4.90%	6.84%
PwC, 2015 (AIAL)	8.00%	4.00%	6.99%
Broker estimates, 2016 (AIAL)	6.00% to 8.40%	3.00% to 5.00%	5.71% to 6.67%
Airways NZ (May 2016)	6.90%	2.23%	7.17%

Note: * The normalised WACC estimates have been calculated by substituting in our risk-free rate estimate (as at 1 April 2016) of 2.60%.

737. After normalising for differences in risk-free rates, our mid-point post-tax WACC estimate for airports of 6.29% is similar to alternative New Zealand sourced estimates. Specifically, our mid-point estimate is:
- 737.1 above the Deutsche Bank estimate for the regulated segment of Auckland Airport's business of 6.17%;
 - 737.2 above the post-tax WACC of 6.28% that Dunedin International Airport used for its 2014 disclosure year;
 - 737.3 below the PwC estimate for Queenstown Airport's aeronautical business of 6.84%;⁵⁷⁷
 - 737.4 below the PwC estimate for AIAL's entire business of 6.99%;
 - 737.5 within the range of WACC estimates for AIAL's entire business made by research analysts employed by New Zealand investment banks (5.71% to 6.67%, with an average of 6.33%); and
 - 737.6 below the Airways NZ WACC estimate of 7.17%, based on its pricing for the 2016-2019 period.
738. We would generally expect estimates of Auckland Airport's WACC to be above our IM-based WACC estimate for specified airport services. This is because estimates of AIAL's post-tax WACC cover its entire business (including retail stores, car parking,

⁵⁷⁷ We have used the mid-point of the WACC range from 7.8%-9.2% (and mid-point of the risk-free rate range from 3.9%-5.9%), based on an asset beta of 0.6 (given that PwC notes it considers an asset beta of 0.6 is appropriate for the aeronautical business). PwC "Queenstown Lakes District Council – Issue of shares in Queenstown Airport Corporation Limited to Auckland International Airport Limited – Detailed report on fairness opinion" (15 March 2011), Table 11 and Appendix J.

property etc), but the IM focusses solely on regulated airport services (ie, aeronautical activities). We note that:

738.1 Deutsche Bank has estimated a WACC for AIAL's regulated business that is lower than for AIAL Group;⁵⁷⁸

738.2 in a 2011 report regarding the sale of shares in Queenstown Airport to AIAL, PwC stated that "In our view, the asset beta for the commercial business should not be less than the asset beta for the aeronautical business. The commercial assets have some but not all of the natural monopoly characteristics of the aeronautical assets". Specifically, PwC used an asset beta of 0.6 for the aeronautical business, and a range of 0.6-0.8 for the commercial business;⁵⁷⁹ and

738.3 Auckland Airport has previously acknowledged that its unregulated services would be expected to have a higher post-tax WACC than its regulated services.⁵⁸⁰

739. We note that Dunedin International Airport's post-tax WACC estimate for its airport activities (6.28%) is calculated using many of the same parameter values as the 2010 IMs (eg, asset beta of 0.60, TAMRP of 7%, and leverage of 17%), and that these are similar to the values contained in the amended cost of capital IM. We consider that this supports the reasonableness of our estimate, given that Dunedin Airport is an unregulated business, and so is free to use alternative values if it considers our approach does not produce a commercially realistic WACC estimate.

740. Airways NZ's pricing for the 2016-2019 period, which was finalised in May 2016, is based on a post-tax WACC of 7.17% (after adjusting for our risk-free rate). Airways NZ, through its Air Navigation Service (**ANS**), is a self-regulated monopoly provider of essential air transportation services.

741. However, we have placed limited weight on the Airways NZ estimate. We note that:

741.1 although Airways NZ states that its proposed WACC is based on our current IMs, it has used leverage of 40%. This is inconsistent with our approach to the leverage anomaly (of using the average leverage for our asset beta comparator sample), and will result in a higher WACC estimate. (The Airways NZ estimate of 7.17% is also based on the 67th percentile, while our estimate of 6.29% is based on the mid-point); and

⁵⁷⁸ Deutsche Bank "Markets Research – Auckland Int. Airport" (19 February 2016), p. 13.

⁵⁷⁹ PwC "Queenstown Lakes District Council – Issue of shares in Queenstown Airport Corporation Limited to Auckland International Airport Limited – Detailed report on fairness opinion" (15 March 2011), p. 74.

⁵⁸⁰ Auckland International Airport Limited "Airport regulation and pricing - Issues Brief" (November 2006), p. 5.

741.2 the High Court previously questioned the value of Airways NZ’s self-estimates as a reasonableness check for our airports WACC estimate.⁵⁸¹

Overseas estimates of the regulated cost of capital

742. We have also considered recent regulatory decisions regarding the cost of capital for airports made by the CAA in the UK, and the CAR in Ireland.⁵⁸² To enable comparison with our mid-point post-tax WACC estimate, we have converted:

742.1 the CAA’s real pre-tax WACC estimates to nominal post-tax WACC estimates (assuming an inflation rate of 3.0% and a tax rate of 20.2%), and then substituted in our risk-free rate estimate of 2.60%;⁵⁸³ and

742.2 the CAR’s real pre-tax WACC estimate to a nominal post-tax WACC estimate (assuming an inflation rate of 2.0% and a tax rate of 12.5%), and then substituted in our risk-free rate estimate of 2.60%.⁵⁸⁴

743. As shown in Table 21, our mid-point WACC estimate for airports of 6.29% is within the range of the CAA and CAR estimates (after normalising for differences in risk-free rates).

Table 21: Overseas regulatory WACC estimates for airports

Determination	Year	Normalised WACC estimate
CAA estimate for Heathrow	2014	6.11%
CAA estimate for Gatwick	2014	6.42%
CAR estimate for Dublin	2014	6.09%

We have also considered RAB multiples evidence, as an secondary reasonableness check

744. As part of our reasonableness checks, we have considered RAB multiples for regulated energy and airports businesses in New Zealand. RAB multiples can provide

⁵⁸¹ The High Court stated "We are not persuaded that Airways Corporation NZ’s self-estimate for its self-regulating air navigation services business is particularly helpful". *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1212].

⁵⁸² CAA "Estimating the cost of capital: technical appendix for the economic regulation of Heathrow and Gatwick from April 2014: Notices granting the licences" (February 2014); and CAR "Maximum level of airport charges at Dublin Airport 2014 determination" (7 October 2014).

⁵⁸³ The CAA refers to a tax rate of 20.2% in its decision, and notes that it used an inflation rate of 3% when undertaking analysis in the final proposals. CAA "Estimating the cost of capital: technical appendix for the economic regulation of Heathrow and Gatwick from April 2014: Notices granting the licences" (February 2014), figure 7.1 and para 5.30.

⁵⁸⁴ The CAR assumed a tax rate of 12.5% in its determination, based on the main corporate tax rate in Ireland. CAR "Maximum level of airport charges at Dublin Airport 2014 determination" (7 October 2014), para 7.121. We have assumed an inflation rate of 2.0%, based on Central Bank of Ireland’s target of maintaining "...inflation rates below, but close to, 2% over the medium term". Central Bank of Ireland "Strategic plan 2016-2018", p. 10.

a useful indicator of whether the allowed rate of return has been set at a sufficient level to adequately compensate investors for putting their capital at risk.

745. The RAB multiple of a regulated business is the ratio of its enterprise value to its RAB.⁵⁸⁵ The ratio tells us the market value of each dollar of the utility's RAB. For example, a ratio of 1.2 tells us that each \$1.00 of RAB is currently valued by the market to be worth \$1.20.
746. At its simplest, the concept is that (in the absence of other factors) a regulated business will deliver returns close to its 'true' cost of capital. That is, the net present value of expected cash-flows should, if the regulator's assumptions hold, equal the value of the RAB (ie, the RAB multiple should be 1.0).
747. However, in an incentive-based regulatory regime, the RAB multiple will not only reflect the relationship between the regulatory allowed rate of return and investors' views of WACC, but also the market's expectations of the company's ability to over or under-perform relative to the regulator's cash-flow and other modelling assumptions. On this basis, a RAB multiple of greater than 1.0 could imply either:
- 747.1 the regulatory allowed rate of return was too high; or
- 747.2 the market expected the company to outperform cash-flow or other model assumptions used in the regulatory determination.
748. We previously considered RAB multiples evidence in our 2014 decision on the amendment to the WACC percentile for price-quality path regulation of electricity lines and gas pipeline services. Further details regarding our approach to estimating RAB multiples, how RAB multiples have been used in other jurisdictions, and limitations of RAB multiples evidence, are contained in that decision.⁵⁸⁶

Summary of RAB multiples evidence we have considered

749. We have considered recent evidence regarding RAB multiples for businesses subject to regulation under Part 4 of the Commerce Act. In particular, RAB multiples are able to be calculated for:
- 749.1 the sale of Vector's gas transmission assets and gas distribution assets (outside of Auckland) to First State Funds, which was announced in November 2015 (and completed in April 2016);
- 749.2 the sale of Maui's gas transmission assets to First State Funds, which was announced in December 2015 (and completed in June 2016);

⁵⁸⁵ The enterprise value is calculated as the sum of the market value of net debt and the market value of the shareholders' equity.

⁵⁸⁶ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), Attachment C.

749.3 the takeover of 22.71% of shares in Horizon by Eastern Bay Energy Trust in June 2015; and

749.4 regulated businesses that are publicly listed, specifically Vector and AIAL.

750. Given that Vector and AIAL are publicly listed, we have simply reported RAB multiples estimated by research analysts employed by New Zealand investment banks for these companies. For Horizon and Maui, on the other hand, we have estimated RAB multiples ourselves based on publicly available information regarding the recent transactions affecting these companies.

751. The RAB multiples evidence we have considered is summarised in Table 22 and Table 23. Table 22 contains available RAB multiples for EDBs (ie, Vector and Horizon) and AIAL, while Table 23 focuses on the recent sales of Vector and Maui’s gas assets to First State Funds.⁵⁸⁷

Table 22: Summary of RAB multiples for regulated EDBs and airports⁵⁸⁸

	RAB multiple
Electricity distribution	
Vector - Craigs Investment Partners (Nov 2015)*	1.26x
Vector - Macquarie (Nov 2015)	1.43x
Horizon - Commerce Commission estimate (June 2015)**	1.13x - 1.34x
Airports	
AIAL - Deutsche Bank (Feb 2016)***	1.24x - 1.44x
AIAL - Forsyth Barr (June 2015)	1.40x

Notes: * Based on sum of the parts valuation for electricity lines.

** Upper end of the range includes the value of other net financial obligations, such as deferred taxes, when calculating the enterprise value.

*** Multiple of 1.24x is based on mid-point (P50) WACC. The 75th percentile (P75) implies a RAB multiple of 1.44x.

⁵⁸⁷ We also note the RAB multiples evidence presented in our 2014 WACC percentile decision. Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), Attachment C.

⁵⁸⁸ Sources for broker RAB multiples estimates: Craigs Investment Partners "Vector – Recycling assets at a premium" (9 November 2015); Macquarie "Vector – Pivot to Auckland and Australia" (9 November 2015); Deutsche Bank "Auckland Int. Airport – Excellent 1H16, regulatory red light" (19 February 2016); and Forsyth Barr "Auckland Airport – Pssst.... PS3 is a Problem" (16 June 2015).

Table 23: Summary of RAB multiples for recent Vector and Maui gas asset sales⁵⁸⁹

	RAB multiple	RAB multiple (adjusted for reduced beta)*
Vector sale of gas assets to First State Funds		
Craigs Investment Partners (Nov 2015)**	1.33x	1.25x
Macquarie (Nov 2015)	1.47x	1.38x
First NZ Capital (Nov 2015)***	1.4x - 1.5x	1.32x - 1.41x
Maui sale of gas assets to First State Funds		
Commerce Commission estimate (Dec 2015) ⁵⁹⁰	1.17x	1.10x

Notes: * The RAB multiples in this column reflect the impact that may be expected from our decision to reduce the gas asset beta from 0.44 to 0.40, and leverage from 44% to 42%. This reduces the post-tax WACC by approximately 6% (from 6.10% to 5.76%), and the return on capital by approximately 6%. Therefore, holding other factors constant, we expect this would reduce the observed RAB multiples for gas pipelines by approximately 6%.

** Assumes the RAB for the assets sold is \$652m, and that 10% of the sale price is due to unregulated income.

*** Depends on the split between the Auckland and non-Auckland RAB for gas distribution. First NZ Capital assumes approximately two-thirds of the gas distribution RAB is allocated to Auckland.

752. We consider that the available RAB multiples for electricity lines and airports (as shown in Table 22 above) support the reasonableness of our WACC estimates for these sectors. The observed multiples, which are generally significantly in excess of one, suggest the current regulatory settings are more than sufficient to compensate investors for putting their capital at risk. This conclusion is likely to hold under our amended cost of capital IM, given that we have not made material changes to our approach to estimating WACC for these sectors.

753. Regarding our proposal to only publish a mid-point WACC estimate (and standard error) for airports, we note that Deutsche Bank has estimated a RAB multiple for AIAL based on the mid-point WACC of 1.24x (compared to 1.44x at the 75th percentile). This supports our conclusion that the mid-point WACC estimate for airports is reasonable.

⁵⁸⁹ Sources for broker RAB multiples estimates: Craigs Investment Partners "Vector – Recycling assets at a premium" (9 November 2015); Macquarie "Vector – Pivot to Auckland and Australia" (9 November 2015); and First NZ Capital "Vector - Gas asset sale value broadly as expected" (9 November 2015).

⁵⁹⁰ We have updated the RAB multiple for the Maui sale since the draft decision, to reflect the updated closing RAB value as at December 2015.

754. We have paid particular attention to the RAB multiples for sale of Vector and Maui's gas assets (as shown in Table 23), given:
- 754.1 our decision to reduce the asset beta for GPBs from 0.44 to 0.40; and
 - 754.2 the lack of independent New Zealand sourced WACC estimates to assess the reasonableness of our WACC estimate for GPBs.
755. The observed multiples for the Vector and Maui gas sales support the reasonableness of our WACC estimate for GPBs. The observed multiples are all above 1, even after adjusting for the expected impact of reducing the asset beta for GPBs from 0.44 to 0.40 (and leverage from 44% to 42%). This suggests that the current regulatory settings are more than sufficient to compensate investors for putting their capital at risk (even after allowing for the expected impact of reducing the beta for GPBs).
- 755.1 The available RAB multiples for the Vector gas sale, in particular, imply that the regime is offering expected returns that are greater than our view of a normal return. The RAB multiples for the Vector sale are significantly above 1, ranging from 1.33x to 1.50x (or 1.25x to 1.41x, after adjusting for the expected impact of reducing the asset beta and leverage for GPBs).
 - 755.2 Although the RAB multiples for the Maui sale are lower than for Vector, they are still in excess of 1. We have estimated a RAB multiple for the Maui sale of 1.17x (or 1.10x, after adjusting for the expected impact of reducing the asset beta and leverage for GPBs).
 - 755.3 We note that the Maui sale occurred after the Vector sale, which may have impacted the sales process (by potentially reducing the level of competition for the Maui assets).
756. First State Investments stated that it appreciates that "regulatory asset base (RAB) multiples, if appropriately interpreted, can be a helpful benchmark for assessing the reasonableness of WACC estimates". However, First State Investments submitted that:⁵⁹¹
- ...the evidence presented by the Commission on RAB multiples for the Vector Gas and Maui pipeline transactions shows that the Commission's proposal to reduce the gas asset beta is not reasonable. Instead of deriving comfort from the test, the result should have led the Commission to question the appropriateness of reducing the asset beta for gas pipelines.

⁵⁹¹ First State Investments submission "Input methodologies review: Cost of capital" (4 August 2016), p. 1-2.

757. First State Investments also submitted that “there are a number of very important reasons why all transactions involving regulated assets are currently being undertaken at RAB multiples in excess of 1”, including:⁵⁹²

757.1 *The nature of the transaction.* First State Investments noted that the specifics of each transaction can justify paying above RAB since additional value can be held in things such as the value of existing and potential unregulated activities, intangibles, and whether the investor acquires control of the regulated business.

757.2 *The inherent logic of incentive regulation.* First State Investments noted that incentivising regulated businesses to generate cost savings for consumers requires regulated businesses to be able to share in the efficiency gains they can generate, justifying RAB multiples above 1.

757.3 *Growth potential.* First State Investments noted that it benefits directly from growing demand for gas distribution, since it is subject to a weighted average price cap. It also noted that it benefits from growing demand for gas transmission, since it reduces risk and increases opportunities to provide unregulated services, and from investing in new capital to maintain the networks.

757.4 *Intrinsic value to investors.* First State Investments stated that the market price of a transaction is influenced by the particular investor, and that investor may derive specific sources of value from the transaction. It noted that the following sources of value could justify RAB multiples above 1: scarcity value, capital availability, investors having a greater risk appetite than the benchmark efficient capital structure, strategic value, and portfolio benefits.

757.5 *Use of the 67th percentile.* First State Investments noted that the asymmetry of consequences in setting WACC means that RAB multiples should exceed 1, rather than using 1 as a benchmark of reasonableness. It stated that it is inconsistent for the Commission to aim high when setting WACC (by using the 67th percentile of its range of WACC estimates), and then expect RAB multiples of 1.⁵⁹³

758. Further, First State Investments submitted that:⁵⁹⁴

- A RAB multiple of 1 is not an appropriate benchmark for the gas transmission and distribution businesses that we purchased. In our view, a RAB multiple of less than about

⁵⁹² First State Investments submission "Input methodologies review: Cost of capital" (4 August 2016), p. 3-7.

⁵⁹³ As noted in paragraph 763.2 below, we estimate that if our mid-point WACC estimate exactly matched the firm's 'true' WACC, using the 67th percentile would be expected to lead to a RAB multiple of approximately 1.08x (other things being equal).

⁵⁹⁴ First State Investments submission "Input methodologies review: Cost of capital" (4 August 2016), p. 2.

1.25 after adjusting for the proposed WACC should be of concern to the Commission that its WACC estimate is less than the minimum the market would expect.

- The observed difference in estimated RAB multiples for electricity lines businesses and adjusted RAB multiples for the gas transmission and distribution pipelines previously owned by Maui and Vector clearly signals a market view that the cost of capital for gas pipelines is persistently higher than for electricity networks. By reducing the gas asset beta, the implied RAB multiples from the recent gas transactions are lower than RAB multiples for regulated electricity networks and airports.

759. MGUG, on the other hand, submitted that the available RAB multiples evidence does not suggest that the regulatory settings are “sufficient”, but rather that they are “demonstrably excessive”. MGUG referred to two observations which “appear to support the idea that the WACC methodology systematically underestimates actual profitability”:⁵⁹⁵

759.1 Colonial First State Global Asset Management (**CFSGAM**) has indicated that, despite spending more than the value of the RAB, its purchase of the Vector gas pipeline assets “offers an attractive anticipated cash yield and return profile in line with GDIF's target return”.⁵⁹⁶ MGUG noted that the target return profile is net IRR of 9-11% pa (including a cash yield of 4-6% pa), in comparison with 67th percentile WACC determinations for GTBs of 6.35% and 7.18% in July 2015.⁵⁹⁷

759.2 The Commission’s analysis of EDB profitability indicates that in most cases investment was substantially higher than historically. MGUG stated “we find it surprising that EDBs would increase investment considerably above historical rates when on the face of it they were unable to achieve a return on capital on their existing investment”.⁵⁹⁸

760. MGUG had also previously noted that CFSGAM’s unlisted infrastructure investments, where the New Zealand gas pipeline assets will sit, have delivered an annualised gross return of 13.2% across its portfolio since inception (over 20 years). MGUG stated that “[t]he addition of the New Zealand transmission assets to the portfolio is unlikely to have been done with the expectation of lowering the overall portfolio returns”.⁵⁹⁹

761. Contact also submitted that it has a number of concerns regarding the implications of statements in First State Investments’ submission for New Zealand regulated service consumers, and does not agree with the conclusion that the Commission

⁵⁹⁵ MGUG submission "Input methodologies – Draft decision" (4 August 2016), p. 7.

⁵⁹⁶ CFSGAM "CFSGAM managed funds to acquire 100% of Vector Gas Limited" (11 November 2015).

⁵⁹⁷ MGUG submission "Input methodologies – Draft decision" (4 August 2016), para 39; and MGUG "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), para 13-21.

⁵⁹⁸ MGUG submission "Input methodologies – Draft decision" (4 August 2016), para 40.

⁵⁹⁹ MGUG "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), para 16.

(and ultimately consumers) “should be comfortable with Price/RAB ratios well in excess of 1.0x”.⁶⁰⁰ Contact submitted that:⁶⁰¹

While we agree it is difficult to see everything behind the drivers of such multiples, the FSI submission has raised a number of concerns that consumers are paying too much for these services and not benefiting from unregulated activities derived from these privileged monopoly positions. This is not an outcome that would be expected in competitive markets and we see it as not in line with Section 52(A)(1).

762. While we agree with First State Investments that RAB multiples in excess of 1 could be explained by several reasons, differing views regarding the rate of return required by investors is one obvious potential factor. The presence of such RAB multiples greater than 1 is not, in our view, a justification for reducing our WACC estimate for GPBs. However, the available evidence suggests our best estimate of WACC for GPBs (based on an asset beta of 0.40) generates at least a normal rate of return.
763. Further, we disagree with First State Investments’ suggestion that RAB multiples of less than 1.25x would raise concerns that our WACC estimate is “less than the minimum the market would expect”.
- 763.1 In our 2014 WACC percentile decision, we referred to analysis based on a simplified discounted cash-flow model we built.⁶⁰² In a hypothetical example using this model, we estimated a RAB multiple of 1.16x based on the value generated by: using the 67th percentile WACC estimate rather than the mid-point, and the expectation that there will be an opex underspend of 11% pa into perpetuity.⁶⁰³
- 763.2 In this hypothetical example, approximately half of the 0.16 premium above RAB was due to the 67th percentile, and the other half was due to an assumed opex underspend of 11% pa into perpetuity. This suggests that if our mid-point WACC estimate exactly matched the firm’s ‘true’ WACC, using the 67th percentile would be expected to lead to a RAB multiple of approximately 1.08x (other things being equal).
- 763.3 Assuming our mid-point WACC estimate exactly matches the actual WACC, RAB multiples either above or below 1.08x could be expected to the extent the regulated business under or over performs relative to opex and capex benchmarks.
- 763.4 Regarding the 1.16x example outlined above, we consider the assumption of a 11% pa opex underspend into perpetuity is unlikely to be achievable in

⁶⁰⁰ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 13.

⁶⁰¹ Contact Energy "Input methodology review: Cost of capital cross submission" (25 August 2016), p. 15.

⁶⁰² When the allowed WACC equals the required rate of return and when the regulator’s allowed operating cash flows are in line with expected actual cash flows, the model calculates a RAB multiple of 1.0x.

⁶⁰³ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), para C96-C100.

reality.⁶⁰⁴ Contrary to First State Investments' submission, this indicates that RAB multiples significantly less than 1.25x should not raise concerns that our WACC estimate is too low.

764. We acknowledge that there are limitations of our RAB multiples analysis. For example, as noted in our 2014 WACC percentile decision:⁶⁰⁵
- 764.1 there are only a limited number of data points available;
 - 764.2 there are a range of factors which could potentially influence RAB multiples (in addition to the allowed rate of return), including outperformance of opex and capex benchmarks; and
 - 764.3 it can be difficult to isolate the enterprise value of the regulated activities of a business, due to uncertainty over the value of unregulated activities.
765. However, despite these limitations, we consider that the observed RAB multiples provide a useful indicator regarding the overall reasonableness of the regulatory settings (including the allowed WACC). As noted in paragraph 754, we consider that the available RAB multiples for GPBs are useful, given the lack of other New Zealand sourced information available to assess the reasonableness of our WACC estimate for this sector.
766. In response to MGUG's submissions, we note that:
- 766.1 MGUG appears to be comparing First State Investments' target *return on equity* with WACC rates we have determined (which by definition, are a weighted average of the *cost of debt* and the *cost of equity*). The cost of equity is higher than the cost of debt as equity holders take more risk than debt holders, so it seems that MGUG is not making a like-for-like comparison.
 - 766.2 The analysis of EDB investment levels referred to by MGUG suggests that the allowed rate of return we have set is at least sufficient to incentivise investment. However, MGUG has not provided any evidence to suggest that the observed investment levels reflect over-investment (such that the allowed rate of return should be reduced).
 - 766.3 We understand total returns have fallen over the last two decades, and it is not clear that CFSGAM would expect to earn the same percentage returns on the Maui and Vector acquisitions as it has earned historically.

⁶⁰⁴ This would require the regulated business to repeatedly reduce its operating expenditure by 11% pa, relative to its regulatory allowance. This seems unlikely, particularly given that opex savings are passed on to consumers when the price-quality paths are reset every five years.

⁶⁰⁵ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), para 6.35.

How we estimated the RAB multiples for Horizon and Maui

767. We have estimated the RAB multiples for Horizon and Maui based on publicly available information regarding the recent transactions affecting these businesses. The RAB multiples we have reported for Vector and AIAL, on the other hand, are estimates from research analysts employed by New Zealand investment banks.⁶⁰⁶
768. Table 24 summarises our RAB multiples calculations for Horizon. We have estimated both standard and adjusted RAB multiples. The difference is that the adjusted calculation also includes other net financial obligations, such as deferred taxes, when calculating the enterprise value.

Table 24: Horizon RAB multiple

	Measurement date	RAB multiple (standard)	RAB multiple (adjusted for other net financial obligations) ⁶⁰⁷
Enterprise value of regulated utility (\$m)			
Equity value implied by sale price	June 2015	110.2	110.2
Plus: net debt	March 2015	44.3	44.3
Plus: other net obligations	March 2015	-	24.0
Less: value of unregulated businesses	June 2015	25.0	25.0
Less: capital work in progress	March 2015	1.6	1.6
Total		127.9	151.9
RAB (\$m)	March 2015	113.3	113.3
EV / RAB		1.13x	1.34x

Source: Publicly available information and Commerce Commission analysis

769. The RAB multiples we have estimated for Horizon are based on the assumptions set out below.

769.1 The price paid by Eastern Bay Energy Trust implies a value of \$110.2m for 100% of Horizon's equity.⁶⁰⁸

769.2 Horizon had net debt of \$44.3m as at March 2015.⁶⁰⁹

⁶⁰⁶ The source documents are listed in footnotes 588 and 589. Given that Horizon and Maui are not publicly listed, no broker RAB multiples estimates are available for these companies.

⁶⁰⁷ The adjusted RAB multiple includes the value of other net financial obligations, such as deferred taxes. For further discussion see: Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), Attachment C.

⁶⁰⁸ On 5 June 2015 it was announced that Horizon had received a takeover notice from the trustees of Eastern Bay Energy Trust (who already owned 77.29% of Horizon's shares). The takeover, which went unconditional on 29 June 2015, involved Eastern Bay Energy Trust purchasing the remaining 5,675,255 shares it did not already own, at a price of \$4.41 per share.

⁶⁰⁹ Net debt is calculated as "Non-Current Portion of Bank Loans" less "Cash and Cash Equivalents". See: Horizon "Annual report for the year ended 31 March 2015", p. 2.

769.3 Horizon had other net financial obligations of \$24.0m as at March 2015.⁶¹⁰

769.4 Horizon's unregulated contracting business is valued at \$25m. This is based on the mid-point of the Simmons Corporate Finance estimate (from \$23m to \$27m).⁶¹¹

769.5 We have removed capital works in progress of \$1.6m from the enterprise value for the regulated business, given that RAB values do not include capital work in progress (ie, assets are only included in RAB once they are commissioned).

769.6 Horizon's closing RAB as at March 2015 is \$113.3m.⁶¹²

770. Table 25 summarises our RAB multiple calculations for Maui. The RAB multiple calculation for Maui is simpler than for Horizon, given we understand that there is no debt (or other net financial obligations) to be included when estimating the enterprise value.⁶¹³

Table 25: Maui RAB multiple

	Measurement date	RAB multiple (standard)
Enterprise value of regulated utility (\$m)		
Enterprise value based on sale price	Dec 2015	335.0
Less: capital work in progress	Dec 2015	3.1
Total		331.9
RAB (\$m)	Dec 2015	284.5
EV / RAB		1.17x

Source: Publicly available information and Commerce Commission analysis

771. The RAB multiple we have estimated for Maui is based on the assumptions set out below.

771.1 The sale price of \$335m is used as the enterprise value for the regulated business.⁶¹⁴ We have assumed there are no unregulated businesses to be subtracted.

⁶¹⁰ Other net financial obligations is calculated as "Deferred Tax Liabilities" plus current and non-current "Derivative Financial Instruments". See Horizon "Annual report for the year ended 31 March 2015", p. 2.

⁶¹¹ Simmons prepared an independent adviser's report regarding the takeover. Simmons "Horizon Energy Distribution Limited - Independent Adviser's Report - In Respect of the Full Takeover Offer by Eastern Bay Energy Trust" (June 2015), p. 42.

⁶¹² Horizon "Information Disclosure Reports prepared according to Part 4 of the Commerce Act 1986 For the Year Ended 31 March 2015".

⁶¹³ We understand that Maui is a joint venture, so only consists of operating assets.

⁶¹⁴ In December 2015 it was announced that First State Funds would purchase Maui for \$335m. <http://www.shell.co.nz/aboutshell/media-centre/news-and-media-releases/2015/mining-companies-sell-north-island-pipeline.html>.

771.2 We have removed capital works in progress of \$3.1m from the enterprise value, given that RAB values do not include capital work in progress (ie, assets are only included in RAB once they are commissioned).

771.3 Maui's closing RAB as at December 2015 was \$284.5m. We have updated the RAB value used between the draft IM review decision and this final decision, because updated disclosures for Maui (as at 30 June 2016) are now available.⁶¹⁵

Black's simple discounting rule

772. BSDR has been proposed by MEUG as an alternative method from which we might estimate a benchmark return. The rule has been raised as an alternative method (ie, compared to a CAPM approach) to consider the appropriate return applied to a regulated business.

Issues raised with the current approach

773. The current CAPM methodology is known to have limitations in estimating the appropriate risk-adjusted return.⁶¹⁶ IWA (on behalf of MEUG) therefore proposed an alternative method from which to assess the appropriateness of our estimate of the cost of capital of regulated businesses subject to price-quality regulation.⁶¹⁷

774. The submission does not directly specify how the BSDR might be incorporated into the IMs, but instead suggests that it could be used as a cross-check.

Background to Black's simple discounting rule

775. Frontier (on behalf of Transpower) explains how BSDR values an asset by estimating future 'certainty equivalent' cash-flows and discounting them using a risk-free rate.⁶¹⁸ In contrast, the standard approach estimates 'expected' cash-flows and the present value is determined by discounting using a risk-adjusted discount rate (ie, the WACC). Using consistent input assumptions, the two methods will result in the same answer.

776. Although the methods are equivalent, the two methods make use of different input estimates. The standard approach requires an estimate of expected cash-flows and a risk-adjusted discount rate, while the certainty equivalent approach requires an estimate of 'certainty equivalent' cash-flows.

⁶¹⁵ Maui Development Limited, information disclosure templates as at 30 June 2016.

⁶¹⁶ See paragraphs 644 to 659 above for further discussion.

⁶¹⁷ Ireland, Wallace & Associates Limited's submission on the problem definition paper "Input methodology review – "Black's simple discount rule" – A cross check on the IM cost of capital" (report prepared for MEUG, 19 August 2015).

⁶¹⁸ A 'certainty equivalent' cash flow is such that investors would be indifferent between receiving that cash flow *for sure* or receiving the 'expected' cashflow that has some risk associated with it. Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016), p. 71-72.

777. The IWA submission appears to suggest that by comparing the valuation of future cash-flows using the two different approaches, we can make judgments about the suitability of the WACC. For example, if the value of cash-flows based on the certainty equivalent approach was significantly lower than the value estimated from using the standard approach, then it might suggest that the WACC being used was higher than required by an investor, given the riskiness of returns.
778. However, this conclusion would only be valid if we had greater confidence in our estimate of certainty equivalent cash-flows than the estimate of the WACC. The BSDR provides a method for estimating the certainty equivalent cash-flows and so its usefulness as a cross-check on the WACC depends on the accuracy of estimating the certainty equivalent cash-flows (compared to the WACC).
779. The suggested approach for estimating these cash-flows is a 4-step process described by IWA in reference to a paper by Loderer.⁶¹⁹ Broadly speaking this process can be described as:
- 779.1 find a benchmark security or index that closely correlates with the project's cash-flows;⁶²⁰
 - 779.2 estimate the probability that returns of that benchmark security are lower than the risk-free rate between now and the timing of project cash-flows;
 - 779.3 obtain information from managers to assess the corresponding percentiles in the cash-flow probability distribution (the so-called conditional mean cash-flows/certainty equivalent cash-flows); and
 - 779.4 discount those cash-flows at the risk-free rate.
780. The advantages of the BSDR therefore depend on whether we can more robustly estimate the certainty equivalent cash-flows using this process or whether it is more robust to estimate the WACC directly using the CAPM and estimates of asset beta and the TAMRP.

⁶¹⁹ Loderer, Long, and Roth "Black's simple discounting tool" (August 2008).

⁶²⁰ The overall market return appears to be the most suitable option for this benchmark. The IWA submission does not provide any potential alternatives.

Assessment of Black's simple discounting rule

781. We commissioned advice from Dr Lally on this topic.⁶²¹ He considers that BSDR could be applied to regulatory situations but there are some practical difficulties with the four-step process outlined above. In Dr Lally's view the main drawbacks of the application of the approach for regulatory purposes are that:⁶²²

781.1 The model requires that the output/cash-flows of the regulated business are linearly related to the benchmark return and no evidence has been presented that is true.

781.2 A regulator would have to determine the probability distribution of the output/cash-flows without assistance from the regulated business because the regulated business would have a vested interest in the result.

781.3 The process is likely to produce an underestimate of the conditional mean (ie, 'certainty equivalent') cash-flows if there is not a close correlation between the benchmark return and the outputs/cash-flows.

782. Given these drawbacks Dr Lally does not recommend the use of this approach.

783. Submissions from suppliers provided a similar view to Dr Lally. The ENA summarise their position as:⁶²³

Dr Lally has noted the key practical difficulties with implementing Black's Rule in a regulatory context:

- estimating the probability distribution of regulatory cash flows will be very difficult in practice, particularly if potential bias means the ENBs cannot be involved;
- the relationship between regulatory cash flows and that of the market is unclear, and the linear relationship required does not necessarily hold; and
- a robust method for estimating the expected cash flows, conditional on the market return equalling the risk-free rate, has not been demonstrated.

The ENA agrees these are substantial challenges. As we stated in our previous submission, it would be difficult to implement Black's Rule in this context. We do not consider that Black's Rule would be a credible addition to the IMs.

⁶²¹ Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 28-36.

⁶²² Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), p. 35.

⁶²³ ENA "Input methodologies review: Emerging views papers – Submission to the Commerce Commission" (24 March 2016), p. 8

784. A further difficulty pointed out by Houston Kemp (on behalf of Powerco) is the complexity in assessing results from the use of the BSDR as a cross-check against the WACC. For example Houston Kemp suggest that:⁶²⁴

Care must be taken in interpreting any difference between the NPVs of these cash flows, because the regulatory WACC enters the estimated NPV of both the expected and certainty equivalent cash flows.

785. IWA do not expand on how it expected the results could be used as a cross-check to the WACC. It submitted that the unconditional (or expected) cash-flows can be compared with the conditional (or certainty equivalent) cash-flows:⁶²⁵

A comparison of the MAR and the related "unconditional" NCFs (NOPAT in this case) incorporating CAPM/WACC at 67th percentile can be compared to "conditional" NCFs estimated using Black's Rule incorporating an implied risk free rate.

786. Both Houston Kemp and CEG suggested that when the certainty equivalent cash-flows are much lower than the expected cash-flows, it implies that a higher WACC is required. CEG submitted "The lower the certainty equivalent value as a proportion of the risky cash-flow implies the cash-flow is more risky, not less."⁶²⁶

787. Using the example for Transpower provided in IWA's report, a difference of \$58m between the value of the discounted expected cash-flows and the certainty equivalent cash-flows can be calculated.⁶²⁷

788. Houston Kemp and CEG suggested that if a higher WACC is applied, both the certainty equivalent and expected cash-flows would increase (because the WACC increases the allowable revenue); the risk-free rate discount rate applied to the certainty equivalent cash-flows would be unchanged; and the WACC used to discount the expected cash-flows would increase. They suggested that if all of the same assumptions were retained, the difference of \$58m would *decrease*, when a higher WACC is applied.⁶²⁸

⁶²⁴ Houston Kemp's cross submission on the problem definition paper "Comment on select submissions to the Commission's input methodologies review" (report prepared for Powerco, 4 September 2015), p. 5.

⁶²⁵ Ireland, Wallace & Associates Limited's submission on the problem definition paper "Input methodology review – "Black's simple discount rule" – A cross check on the IM cost of capital" (report prepared for MEUG, 19 August 2015), para 5.3.

⁶²⁶ CEG "Use of Black's simple discount rule in regulatory proceedings" (report prepared for ENA, February 2016), para 72.

⁶²⁷ The value of this difference in the original IWA submission was \$254m. However, Houston Kemp and CEG correctly pointed out that this was a comparison of undiscounted cashflows. For comparison purposes the discounted cashflows are required. The expected cashflows need to be discounted at the WACC and the certainty equivalent cashflows need to be discounted at the risk-free rate. Houston Kemp's cross submission on the problem definition paper "Comment on select submissions to the Commission's input methodologies review" (report prepared for Powerco, 4 September 2015), p. 4-5; CEG "Use of Black's simple discount rule in regulatory proceedings" (report prepared for ENA, February 2016), para 76-78.

⁶²⁸ Houston Kemp's cross submission on the problem definition paper "Comment on select submissions to the Commission's input methodologies review" (report prepared for Powerco, 4 September 2015), p. 5;

789. Although that is one interpretation of the analysis, we do not consider that conclusion is as clear cut as these submissions suggest. The difference between the values of the two types of cash-flow could exist for a number of reasons. For example, if a lower WACC changed the relationship between the expected cash-flow and pessimistic case, or there was a change to the expected cash-flow distribution, then increasing the WACC could potentially result in a lower difference between the two values. However, we agree the interactions will be complex and dependent on the assumptions made in the calculation.

Decision on Black's Simple Discounting Rule

790. We consider that Black's Simple Discount Rule is an intuitively appealing method from which to assess the appropriate rate of return for a regulated business. However there are a number of challenges that need to be overcome before we consider that it could provide material benefit in our regulatory regime. These challenges include the following.

790.1 Greater clarity on how the results should be interpreted as a cross-check of the WACC. As noted by CEG and Houston Kemp, when the relationship between the expected and certainty equivalent cash-flows is kept consistent, decreases in the WACC appear to increase the difference between the values of the two types of cash-flow.

790.2 Determining a robust process for estimating the input parameters, and particularly the probability distribution of future cash-flows. We have limited data to determine this information, and because the WACC is an input to these cash-flows, the distribution itself could be a function of the WACC chosen. Given the lack of clarity over input parameters, determining them is likely to require consultation with interested parties.

791. We understand that the main benefits of the BSDR in an unregulated context would be to use manager's information to determine the probability distribution of future cash-flows.⁶²⁹ This information could then potentially provide a more accurate estimate of the appropriate risk-adjusted return than the CAPM approach that requires an estimate of the asset beta and TAMRP.

792. In a regulated scenario, this managerial knowledge aspect seems less important, because there might be other means to estimate the certainty equivalent cash-flows. For example, we could estimate the historical correlation between revenues of a regulated business and demand fluctuations to determine such an estimate.

CEG "Use of Black's simple discount rule in regulatory proceedings" (report prepared for ENA, February 2016), para 72 and 78.

⁶²⁹ There are difficulties in actually using any management information under a regulated scenario, given the managers incentive to maximise their regulatory allowance, see: Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016).

793. Particular difficulties for its use in a regulatory context include limited experience/precedent and the difficulties described in estimating the probability distribution of expected cash-flows. We have limited empirical information to help inform us on this or the likely distribution of cash-flows. These difficulties (in estimating the probability distribution of future cash-flows) are likely to be a key reason why the BSDR has not found common usage elsewhere in both unregulated and regulated situations.
794. The approach differs from our estimates of asset beta and TAMRP when using the CAPM approach, in which we have utilised market information where possible. We prefer to focus on empirical information because we consider it incorporates market impacts not captured under theoretical models and reduces the chance that any individual input could be contentious.
795. The overall implication from the IWA proposal appears to be a suggestion that for a regulated supplier under a revenue cap, there is limited risk to regulated revenues. This would mean the certainty equivalent net cash-flows should be close to the expected net cash-flows.
796. However, even if we had more information that provided further evidence that this proposition was true, this would need to be reconciled with evidence that empirical estimates of asset beta from comparable regulated firms consistently show a positive value for asset beta.
797. Therefore, we agree with Dr Lally's conclusion. We have decided not to use BSDR as a cross-check on the WACC until some of the identified issues have been resolved.
798. Although we have sympathy with the intentions of BSDR to provide another angle from which to assess the WACC, we cannot see a clear way forward to resolve the identified issues and enable sufficient confidence in the outputs. Therefore at this stage we do not consider it appropriate to use BSDR to influence the level of the WACC provided for in the IMs.
799. In response to the draft decision MEUG also agreed that it was not appropriate to use the BSDR as a cross-check on the WACC at this stage:⁶³⁰
- The draft decision concludes "We do not propose to use the BSDR as a cross-check on the WACC until some of the identified issues have been resolved." MEUG agrees. In our earlier submissions MEUG pointed out that there were aspects of BSDR that needed to be resolved before it could be considered as a tool for cross-checking CAPM derived cost of capital.
800. MEUG noted however, that it considered further research on the BSDR (as well as the SBL-CAPM and optimal percentile) is warranted and the Commission should start

⁶³⁰ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 33.

such research in preparation for the next review. It also questioned why further academic research was not commissioned on the BSDR as part of this IM review.⁶³¹

801. In response to MEUG's submission, we note that there is always a trade-off between the amount of research undertaken in different areas and the resources available to us. As part of this trade-off we focus areas of research in areas which we consider have the potential to have the largest impact on long-term benefits to consumers.
802. With regards to the current IM review, we commissioned an expert report on the potential for using BSDR in the context of regulation and provided a number of consultation periods in which stakeholders were free to provide further evidence for consideration.⁶³²
803. After reviewing the evidence before us, we decided against undertaking further research on the BSDR as we considered it would not provide any further benefit in the context of the current review. This is because it would require significant further work for us to have confidence in using the approach, given the lack of academic scrutiny on the BSDR methodology in the context of regulation, and because we would need to reconcile the approach with the empirical evidence of positive asset betas for regulated businesses. We decided a greater focus should be made on determining appropriate empirical estimates of inputs required for the SBL-CAPM (eg, asset beta).
804. However, we do note MEUG's suggestion of commencing further academic research on particular topics prior to the next review and this will be considered as part of our ongoing evaluation of the appropriate return for regulated suppliers.

⁶³¹ MEUG "Submission on Input methodologies draft review decisions" (4 August 2016), para 33-37.

⁶³² Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule "Review of WACC issues" (report to the Commerce Commission, 25 February 2016), Chapter 3.

Chapter 8: Application of WACC

Purpose of this chapter

805. The purpose of this chapter is to address issues that have been identified with the application of our WACC estimates. These issues are:
- 805.1 the timing of the determination and publication of our WACC estimates for airports given the differences between *ex-ante* profitability assessment following an airport's price setting event and *ex-post* profitability assessment;
 - 805.2 the timing of our amendments to WACC made as part of the IM review; and
 - 805.3 the requirement to publish a specific WACC for CPPs.

Airport WACC timing

806. We have decided to publish quarterly WACC estimates for airports, when requested, for the use in an *ex-ante* profitability assessment under ID regulation.⁶³³
807. We apply IMs when making our ID determinations for airports. The information required to be disclosed under ID includes a wide range of historic and forecast information and performance measures, covering both financial and non-financial matters.
808. Airports are not required to apply the cost of capital IM when setting their prices, but they must disclose information about the approach they used to set prices. The cost of capital IM enables us to determine a WACC benchmark against which the airports' profitability can be assessed.
809. We currently estimate and publish annual WACC estimates for airports' ID purposes, in April for Wellington Airport and July for Auckland Airport and Christchurch Airport. We publish these WACC estimates within one month of the start of the disclosure period.
810. In 2013 and 2014 we conducted s 56G reports to identify how effectively ID regulation is promoting the purpose of Part 4 for airports. Through this process we identified that it was not clear which WACC estimate we would use when assessing airports' profitability at a price setting event.
811. Airports are free to set their prices at any time within the five-year pricing period, which means that the ID WACC, published in either April or July, is not always up-to-date enough to use as a benchmark. We continue to consider that airports can calculate our WACC using the IMs methodology, within a reasonable degree of accuracy. However, as it is currently unclear which WACC estimate we will use when assessing airports' profitability, we consider that we can be more transparent.

⁶³³ We will consider the implementation of this decision in annual historic disclosures in a future process.

812. Therefore, we have decided to estimate a WACC for the two quarters that we do not currently calculate one for ID purposes. We will then use the closest quarter WACC estimate (prior to an airport's price setting event) in assessing profitability. When airports plan to reset their prices they can request that we publish that quarter's WACC estimate, otherwise we will only publish the two annual ID WACCs in April and July, as we currently do. We will also publish any WACC estimate that corresponds to a price setting event, in any circumstance in which it has not already been published on request from an airport.

813. This solution provides airports with the certainty as to which WACC estimate they should rely on when making their pricing decisions. We will only publish the extra WACC estimates for quarter 1 and quarter 4 if they are requested (or following a price setting event), so that we are not unnecessarily increasing regulatory costs.

814. In response to our draft decision, BARNZ requested that we should:⁶³⁴

Expand the ability to request the Commission to prepare and release a WACC estimate so that substantial customers of an airport can make such a request.

815. We have considered the request from BARNZ but do not think it is appropriate as it will add to the complication of the IMs but with limited benefit. For example, we would have to define a 'substantial customer' and could potentially increase the number of WACC estimates we would need to publish.

816. We also note that:

816.1 any interested party could use the WACC IMs to estimate a WACC separately from any publication by us; and

816.2 any WACC associated with a specific airport price setting event will be published.

When will our proposed changes to how we estimate WACC be incorporated in ID regulation?

817. In general, the updated IM determinations for all sectors will take effect (subject to any implementation date exceptions noted in each of the IM determination amendments):

817.1 for ID, at the beginning of the next disclosure year following publication of our final IM determination amendments, or from the next regulatory period following publication of our final IM determination amendments, as appropriate;

⁶³⁴ Letter from John Beckett (Executive Director, BARNZ) to Keston Ruxton (Manager, Commerce Commission) re the BARNZ technical drafting comments on [DRAFT] Amendment to the Commerce Act (Specified Airport Services Input Methodologies) Determination 2010" (18 August 2016), p. 1.

- 817.2 for DPPs, for the next DPP reset after the date of publication of our final IM determination amendments for each sector, which varies for GDBs, GTBs and EDBs;
- 817.3 for CPPs, for CPP applications made following the date our final GDB, GTB and EDB IM determination amendments are published; and
- 817.4 for the Transpower IPP, for the next IPP reset after the date of publication of our final IM determination amendments.

CPP/DPP dual WACC

- 818. We have decided to no longer estimate a CPP WACC and to instead apply the DPP WACC to a CPP. This is discussed further in Chapter 6. We will, therefore, no longer publish any specific WACCs for CPPs, and have removed the clauses describing the detailed determination of a CPP WACC from the cost of capital IM for EDBs, GDBs, and GTBs.

Attachment A: Further details regarding energy asset beta and leverage comparator sample

Purpose of this attachment

819. This attachment includes further details regarding the sample of comparator firms used when estimating asset betas for EDBs, Transpower and GPBs. It includes details of the full list of 74 companies included in our draft decision published on 16 June 2016 (ie, the two companies we have subsequently excluded from the sample – Jersey Electricity and National Fuel Gas Company – are included in this attachment).
820. Specifically:
- 820.1 Table 26 lists changes in the asset beta comparator sample used in the draft IM review decision, compared to the 2010 IMs decision. It shows the:
 - 820.1.1 15 companies included in the 2010 sample that are not included in our new sample because of acquisitions or de-listings (in red); and
 - 820.1.2 10 new firms that have been added (in green).
 - 820.2 Table 27 lists the 74 firms included in our energy comparator sample, including descriptions for each company reported by Bloomberg. Our assessment (based on the company descriptions) of whether each company is predominantly an electricity utility, predominantly a gas utility, or an integrated electricity and gas utility, is also included.
 - 820.3 Table 28 summarises the asset beta results for our energy comparator sample across the four separate five-year periods we have considered, based on daily, weekly and four-weekly frequencies.
 - 820.4 Table 29 summarises leverage for each of the companies in the energy comparator sample, across the four separate five-year periods we have considered.

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Table 26: Changes in our energy asset beta comparator sample since 2010

Bloomberg ticker	Company	Reason for removal/addition
0111145D US Equity	NICOR INC	Acquired by GAS US Equity.
AYE US Equity	ALLEGHENY ENERGY INC	Acquired by FE US Equity.
CEG US Equity	CONSTELLATION ENERGY GROUP	Acquired by EXC US Equity.
CHG US Equity	CH ENERGY GROUP INC	Acquired by FTS CN Equity.
CV US Equity	CENTRAL VERMONT PUBLIC SERVI	Acquired by multiple acquirers.
DPL US Equity	DPL INC	Acquired by AES US Equity.
ENV AU Equity	AUSTRALIAN GAS NETWORKS LTD	Acquired by multiple acquirers.
HDF AU Equity	APA SUB GROUP	Acquired by APA AU Equity.
HED NZ Equity	HORIZON ENERGY DISTRIBUTION	Delisted.
NST US Equity	NSTAR LLC	Acquired by ES US Equity.
NVE US Equity	NV ENERGY INC	Acquired by BRK/A US Equity.
PGN US Equity	PARAGON OFFSHORE PLC	Ticker change: PGNPF US Equity. PGNPF no longer relevant, is an offshore drilling rig company.
TEG US Equity	INTEGRYS ENERGY GROUP INC	Acquired by WEC US Equity.
UIL US Equity	UIL HOLDINGS CORP	Acquired by IBE SM Equity.
UNS US Equity	UNS ENERGY CORP	Acquired by FTS CN Equity.
AES US Equity	AES CORP	Acquired DPL US Equity (which was in 2010 sample). Electric utilities made up approx 47% of its revenues in FY2011.
BWP US Equity	BOARDWALK PIPELINE PARTNERS	Operates approximately 14,090 miles of natural gas pipelines.
DGAS US Equity	DELTA NATURAL GAS CO INC	Regulated gas distribution accounted for approx 66% of revenues in 2015.
EEP US Equity	ENBRIDGE ENERGY PARTNERS LP	Transports, generates, and distributes energy in North America. Natural gas business accounted for approx 55% of revenues in FY2015.
JEL LN Equity*	JERSEY ELECTRICITY PLC	Sole supplier of electricity in Jersey, Channel Islands. Approximately 80% of revenue came from energy in FY2015. <i>*Note: Jersey Electricity has been removed from the final comparator sample as discussed in paragraph 284.1 above.</i>
KMI US Equity	KINDER MORGAN INC	Owns/operates approximately 84,000 miles of pipelines in North America. Natural gas pipelines accounted for approx 60% of revenues in FY2015.
SSE LN Equity	SSE PLC	Electricity networks transmit and distribute electricity to around 3.7 million businesses. Also distributes gas to around 5.7 million homes.
STR US Equity	QUESTAR CORP	Involved in retail gas distribution, interstate gas transportation and gas production. Gas/Pipelines account for almost all its revenues.
TCP US Equity	TC PIPELINES LP	Natural gas pipelines make up all of its business (100% of revenues are from Pipeline Transportation).
WPZ US Equity	WILLIAMS PARTNERS LP	Operates long-haul natural gas transmission lines that serve utilities and power generators.

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Table 27: Descriptions of companies in energy asset beta comparator sample

Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
AEE US Equity	Ameren Corp	Ameren Corporation is a public utility holding company. The Company, through its subsidiaries, generates electricity, delivers electricity and distributes natural gas to customers in Missouri and Illinois.	Integrated
AEP US Equity	American Electric Power Co Inc	American Electric Power Company, Inc.(AEP) operates as a public utility holding company. The Company provides electric service, consisting of generation, transmission and distribution, on an integrated basis to their retail customers. AEP serves customers in the United States.	Electricity
AES US Equity	AES Corp/VA	The AES Corporation acquires, develops, owns, and operates generation plants and distribution businesses in several countries. The Company sells electricity under long term contracts and serves customers under its regulated utility businesses. AES also mines coal, turns seawater into drinking water, and develops alternative sources of energy.	Electricity
ALE US Equity	ALLETE Inc	ALLETE, Inc. provides energy services in the upper Midwest United States. The Company generates, transmits, distributes, markets, and trades electrical power for retail and wholesale customers.	Electricity
APA AU Equity	APA Group	APA Group is a natural gas infrastructure company. The Company owns and or operates gas transmission and distribution assets whose pipelines span every state and territory in mainland Australia. APA Group also holds minority interests in energy infrastructure enterprises.	Integrated
AST AU Equity	AusNet Services	AusNet Services is an energy delivery service provider. The Company engages in electricity distribution and transmission, and owns gas distribution assets in Victoria, Australia.	Integrated
ATO US Equity	Atmos Energy Corp	Atmos Energy Corporation distributes natural gas to utility customers in several states. The Company's non-utility operations span various states and provide natural gas marketing and procurement services to large customers. Atmos Energy also manages company-owned natural gas storage and pipeline assets, including an intrastate natural gas pipeline in Texas.	Gas
AVA US Equity	Avista Corp	Avista Corporation is an energy company that delivers products and solutions to business and residential customers throughout North America. The Company, through Avista Utilities, generates, transmits, and distributes electric and natural gas. Avista's other businesses include Avista Advantage and Avista Energy.	Integrated
BKH US Equity	Black Hills Corp	Black Hills Corporation is a diversified energy company. The Company generates wholesale electricity, produce natural gas, oil and coal, and market energy. Black Hills serves customers in Colorado, Iowa, Kansas, Montana, Nebraska, South Dakota and Wyoming.	Integrated
BWP US Equity	Boardwalk Pipeline Partners LP	Boardwalk Pipeline Partners, LP transports, gathers, and stores natural gas. The Company owns and operates interstate pipeline systems that either serve customers directly or indirectly throughout the northeastern and southeastern United States.	Gas

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
CMS US Equity	CMS Energy Corp	CMS Energy Corporation is an energy company operating primarily in Michigan. The Company, through its subsidiaries provides electricity and/or natural gas to its customers in Michigan. CMS Energy also invests in and operates non-utility power generation plants in the United States and abroad.	Integrated
CNL US Equity	Cleco Corporate Holdings LLC	Cleco Corporate Holdings LLC generates, transmits, distributes, and sells electricity. The Company, through a subsidiary, offers energy saving tips, efficiency programs, account management, bills payment, and customer assistance services. Cleco conducts its business in the United States.	Integrated
CNP US Equity	CenterPoint Energy Inc	CenterPoint Energy, Inc. is a public utility holding company. The Company, through its subsidiaries, conducts activities in electricity transmission and distribution, natural gas distribution and sales, interstate pipeline and gathering operations, and power generation.	Integrated
CPK US Equity	Chesapeake Utilities Corp	Chesapeake Utilities Corporation is a utility company that provides natural gas transmission and distribution, propane distribution, and information technology services. The Company distributes natural gas to residential, commercial, and industrial customers in Delaware, Maryland, and Florida. Chesapeake Utilities' propane is distributed to customers in Delaware, Maryland, and Virginia.	Gas
D US Equity	Dominion Resources Inc/VA	Dominion Resources, Inc., a diversified utility holding company, generates, transmits, distributes, and sells electric energy in Virginia and northeastern North Carolina. The Company produces, transports, distributes, and markets natural gas to customers in the Northeast and Mid-Atlantic regions of the United States.	Integrated
DGAS US Equity	Delta Natural Gas Co Inc	Delta Natural Gas Company, Inc. distributes, stores, transports, gathers, and produces natural gas. The Company, through its subsidiaries, buys and sells gas, as well as operates underground storage and production properties.	Gas
DTE US Equity	DTE Energy Co	DTE Energy Company, a diversified energy company, develops and manages energy-related businesses and services nationwide. The Company, through its subsidiaries, generates, purchases, transmits, distributes, and sells electric energy in southeastern Michigan. DTE is also involved in gas pipelines and storage, unconventional gas exploration, development, and production.	Integrated
DUE AU Equity	DUET Group	DUET Group invests in energy utility assets located in Australia and New Zealand. The Group's investment assets include gas pipelines and electricity distribution networks.	Integrated
DUK US Equity	Duke Energy Corp	Duke Energy Corporation is an energy company located primarily in the Americas that owns an integrated network of energy assets. The Company manages a portfolio of natural gas and electric supply, delivery, and trading businesses in the United States and Latin America.	Integrated
ED US Equity	Consolidated Edison Inc	Consolidated Edison, Inc., through its subsidiaries, provides a variety of energy related products and services. The Company supplies electric service in New York, parts of New Jersey, and Pennsylvania as well as supplies electricity to wholesale customers.	Integrated

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
EDE US Equity	Empire District Electric Co/Th	The Empire District Electric Company generates, purchases, transmits, distributes, and sells electricity. The Company supplies electricity to parts of Missouri, Kansas, Oklahoma, and Arkansas. Empire also provides water service to several towns in Missouri.	Integrated
EE US Equity	El Paso Electric Co	El Paso Electric Company generates, distributes, and transmits electricity in west Texas and southern New Mexico. The Company also serves wholesale customers in Texas, New Mexico, California, and Mexico. El Paso Electric owns or has partial ownership interests in electrical generating facilities.	Electricity
EEP US Equity	Enbridge Energy Partners LP	Enbridge Energy Partners, L.P. transports and stores hydrocarbon energy. The Company offers crude oil and natural gas liquids to refineries in the Midwestern United States and Eastern Canada.	Gas
EIX US Equity	Edison International	Edison International, through its subsidiaries, develops, acquires, owns, and operates electric power generation facilities worldwide. The Company also provides capital and financial services for energy and infrastructure projects, as well as manages and sells real estate projects. Additionally, Edison provides integrated energy services, utility outsourcing, and consumer products.	Electricity
ES US Equity	Eversource Energy	Eversource Energy is a public utility holding company. The Company, through its subsidiaries, provides retail electric service to customers in Connecticut, New Hampshire, and western Massachusetts. Eversource Energy also distributes natural gas throughout Connecticut.	Integrated
ETR US Equity	Entergy Corp	Entergy Corporation is an integrated energy company that is primarily focused on electric power production and retail electric distribution operations. The Company delivers electricity to utility customers in Arkansas, Louisiana, Mississippi, and Texas. Entergy also owns and operates nuclear plants in the northern United States.	Electricity
EXC US Equity	Exelon Corp	Exelon Corporation is a utility services holding company. The Company, through its subsidiaries distributes electricity to customers in Illinois and Pennsylvania. Exelon also distributes gas to customers in the Philadelphia area as well as operates nuclear power plants in states that include Pennsylvania and New Jersey.	Integrated
FE US Equity	FirstEnergy Corp	FirstEnergy Corp. is a public utility holding company. The Company's subsidiaries and affiliates are involved in the generation, transmission and distribution of electricity, exploration and production of oil and natural gas, transmission and marketing of natural gas, and energy management and other energy-related services.	Integrated
GAS US Equity	AGL Resources Inc	AGL Resources Inc. primarily sells and distributes natural gas to customers in Georgia and southeastern Tennessee. The Company also holds interests in other energy-related businesses, including natural gas and electricity marketing, wholesale and retail propane sales, gas supply services, and consumer products.	Gas
GXP US Equity	Great Plains Energy Inc	Great Plains Energy Incorporated provides electricity in the Midwest United States. The Company develops competitive generation for the wholesale market. Great Plains is also an electric delivery company with regulated generation. In addition, the Company is an investment company focusing on energy-related ventures nationwide that are unregulated with high growth potential.	Electricity

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
HE US Equity	Hawaiian Electric Industries I	Hawaiian Electric Industries, Inc. is a diversified holding company that delivers a variety of services to the people of Hawaii. The Company's subsidiaries offer electric utilities, savings banks and other businesses, primarily in the state of Hawaii.	Electricity
IDA US Equity	IDACORP Inc	IDACORP, Inc is the holding company for Idaho Power Company, an electric utility and IDACORP Energy, an energy marketing company. Idaho Power generates, purchases, transmits, distributes, and sells electric energy in southern Idaho, eastern Oregon, and northern Nevada. IDACORP Energy maintains electricity and natural gas marketing operations.	Electricity
ITC US Equity	ITC Holdings Corp	ITC Holdings Corporation is a holding company. Through subsidiaries, the Company transmits electricity from electricity generating stations to local electricity distribution facilities. ITC invests in electricity transmission infrastructure improvements as a means to improve electricity reliability and reduce congestion.	Electricity
JEL LN Equity	Jersey Electricity PLC	Jersey Electricity PLC generates, imports and distributes electricity. The Company is also involved in electrical appliance retailing, property management and building services contracting. Its other business interests include telecommunications and Internet data hosting.	Electricity
KMI US Equity	Kinder Morgan Inc/DE	Kinder Morgan Inc. is a pipeline transportation and energy storage company. The Company owns and operates pipelines that transport natural gas, gasoline, crude oil, carbon dioxide and other products, and terminals that store petroleum products and chemicals and handle bulk materials like coal and petroleum coke.	Gas
SR US Equity	Spire Inc	Spire Inc. is a public utility company involved in the retail distribution of natural gas. The Company serves an area in eastern Missouri and parts of several other counties. Spire also operates underground natural gas storage fields and transports and stores liquid propane.	Gas
LNT US Equity	Alliant Energy Corp	Alliant Energy Corporation provides public-utility service to customers in the Midwest. The Company's utility subsidiaries serve electric, natural gas, and water customers in Illinois, Iowa, Minnesota, and Wisconsin.	Integrated
MGEE US Equity	MGE Energy Inc	MGE Energy, Inc. is a public utility holding company. The Company's principal subsidiary generates and distributes electricity to customers in Dane County, Wisconsin. MGE also purchases, transports, and distributes natural gas in several Wisconsin counties.	Integrated
NEE US Equity	NextEra Energy Inc	NextEra Energy, Inc. provides sustainable energy generation and distribution services. The Company generates electricity through wind, solar, and natural gas. Through its subsidiaries, NextEra Energy also operates multiple commercial nuclear power units.	Electricity
NFG US Equity	National Fuel Gas Co	National Fuel Gas Company is an integrated natural gas company with operations in all segments of the natural gas industry, including utility, pipeline and storage, exploration and production, and marketing operations. The Company operates across the United States.	Gas

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
NG/ LN Equity	National Grid PLC	National Grid PLC is an investor-owned utility company which distributes gas. The PLC owns and operates the electricity transmission network in England and Wales, the gas transmission network in Great Britain, and electricity transmission networks in the Northeastern United States. National Grid also operates the electricity transmission networks in Scotland.	Integrated
NI US Equity	NiSource Inc	NiSource Inc. is an energy holding company. The Company's subsidiaries provide natural gas, electricity and other products and services to customers located within a corridor that runs from the Gulf Coast through the Midwest to New England.	Integrated
NJR US Equity	New Jersey Resources Corp	New Jersey Resources Corporation provides retail and wholesale energy services to customers in New Jersey and in states from the Gulf Coast to New England, and Canada. The Company's principal subsidiary, New Jersey Natural Gas Co., is a local distribution company serving customers in central and northern New Jersey.	Gas
NWE US Equity	NorthWestern Corp	NorthWestern Corporation, doing business as NorthWestern Energy, provides electricity and natural gas in the Upper Midwest and Northwest serving customers in Montana, South Dakota, and Nebraska.	Integrated
NWN US Equity	Northwest Natural Gas Co	Northwest Natural Gas Company distributes natural gas to customers in western Oregon, as well as portions of Washington. The Company services residential, commercial, and industrial customers. Northwest Natural supplies many of its non-core customers through gas transportation service, delivering gas purchased by these customers directly from suppliers.	Gas
OGE US Equity	OGE Energy Corp	OGE Energy Corp., through its principal subsidiary Oklahoma Gas and Electric Company, generates, transmits, and distributes electricity to wholesale and retail customers in communities in Oklahoma and western Arkansas. The Company, through Enogex Inc., operates natural gas transmission and gathering pipelines, has interests in gas processing plants, and markets electricity.	Integrated
OKE US Equity	ONEOK Inc	ONEOK, Inc. is a diversified energy company. The Company is involved in the natural gas and natural gas liquids business across the United States.	Gas
PCG US Equity	PG&E Corp	PG&E Corporation is a holding company that holds interests in energy based businesses. The Company's holdings include a public utility operating in northern and central California that provides electricity and natural gas distribution; electricity generation, procurement, and transmission; and natural gas procurement, transportation, and storage.	Integrated
PEG US Equity	Public Service Enterprise Grou	Public Service Enterprise Group Incorporated is a public utility holding company. The Company, through its subsidiaries, generates, transmits, and distributes electricity and produces natural gas in the Northeastern and Mid Atlantic United States.	Integrated
PNM US Equity	PNM Resources Inc	PNM Resources Inc. is a holding company. The Company, through its subsidiaries, generates, transmits, and distributes electricity.	Electricity

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
PNW US Equity	Pinnacle West Capital Corp	Pinnacle West Capital Corporation is a utility holding company. The Company, through its subsidiary, provides either retail or wholesale electric service to most of the State of Arizona. The Company, through a subsidiary, also is involved in real estate development activities in the western United States.	Electricity
PNY US Equity	Piedmont Natural Gas Co Inc	Piedmont Natural Gas Company, Inc. is an energy and services company that primarily transports, distributes, and sells natural gas. The Company serves residential, commercial, and industrial customers in North Carolina, South Carolina, and Tennessee. Piedmont also, through subsidiaries, markets natural gas to customers in Georgia.	Gas
POM US Equity	Pepco Holdings LLC	Pepco Holdings, LLC is a diversified energy company. The Company primarily distributes, transmits, and supplies electricity and supplies natural gas to customers in New Jersey, Delaware, Maryland, and the District of Columbia.	Integrated
PPL US Equity	PPL Corp	PPL Corporation is an energy and utility holding company. The Company, through its subsidiaries, generates electricity from power plants in the northeastern and western United States, and markets wholesale and retail energy primarily in the northeastern and western portions of the United States, and delivers electricity in Pennsylvania and the United Kingdom.	Integrated
SCG US Equity	SCANA Corp	SCANA Corporation is a holding company involved in regulated electric and natural gas utility operations, telecommunications, and other energy-related businesses. The Company serves electric customers in South Carolina and natural gas customers in South Carolina, North Carolina, and Georgia. SCANA also has investments in several southeastern telecommunications companies.	Integrated
SE US Equity	Spectra Energy Corp	Spectra Energy Corporation transmits, stores, distributes, gathers, and processes natural gas. The Company provides transportation and storage of natural gas to customers in various regions of the northeastern and southeastern United States, the Maritime Provinces in Canada and the Pacific Northwest in the United States and Canada, and the province of Ontario, Canada.	Gas
SJI US Equity	South Jersey Industries Inc	South Jersey Industries, Inc. is an energy services holding company. The Company provides regulated, natural gas service to residential, commercial, and industrial customers in southern New Jersey. South Jersey also markets total energy management services, including natural gas, electricity, demand-side management, and consulting services throughout the eastern United States.	Integrated
SKI AU Equity	Spark Infrastructure Group	Spark Infrastructure Group invests in utility infrastructure assets in Australia.	Integrated
SO US Equity	Southern Co/The	The Southern Company is a public utility holding company. The Company, through its subsidiaries, generates, wholesales, and retails electricity in the southeastern United States. The Company also offers wireless telecommunications services, and provides businesses with two-way radio, telephone, paging, and Internet access services as well as wholesales fiber optic solutions.	Electricity

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
SRE US Equity	Sempra Energy	Sempra Energy is an energy services holding company with operations throughout the United States, Mexico, and other countries in South America. The Company, through its subsidiaries, generates electricity, delivers natural gas, operates natural gas pipelines and storage facilities, and operates a wind power generation project.	Integrated
SSE LN Equity	SSE PLC	SSE PLC generates, transmits, distributes and supplies electricity to industrial, commercial and domestic customers in the United Kingdom and Ireland. The Company also stores and distributes natural gas, and operates a telecommunications network that offers bandwidth and capacity to companies, public sector organizations, Internet service providers, and others.	Integrated
STR US Equity	Questar Corp	Questar Corporation is a natural gas-focused energy company. The Company's operations include gas and oil exploration and production, midstream field services, energy marketing, interstate gas transportation, and retail gas distribution.	Gas
SWX US Equity	Southwest Gas Corp	Southwest Gas Corporation purchases, transports, and distributes natural gas to residential, commercial, and industrial customers in portions of Arizona, Nevada, and California. The Company also provides construction services to utility companies, including trenching and installation, replacement, and maintenance services for energy distribution systems.	Gas
TCP US Equity	TC PipeLines LP	TC Pipelines, LP acquires, owns, and participates in the management of United States-based pipeline assets. The Company owns interest in the Northern Border Pipeline Company, the owner of an interstate pipeline system that transports natural gas from the Montana-Saskatchewan border to natural gas markets in the Midwestern United States.	Gas
TE US Equity	TECO Energy Inc	TECO Energy, Inc. is a diversified, energy-related utility holding company. The Company, through various subsidiaries, provides retail electric service to customers in west central Florida, as well as purchases, distributes, and markets natural gas for residential, commercial, industrial, and electric power generation customers. Teco also has coal operations.	Integrated
UGI US Equity	UGI Corp	UGI Corporation distributes and markets energy products and services. The Company is a domestic and international distributor of propane. UGI also distributes and markets natural gas and electricity, and sells related products and services in the Middle Atlantic region of the United States.	Integrated
UTL US Equity	Unitil Corp	Unitil Corporation, a public utility holding company, conducts a combination electric and gas utility distribution operation in north central Massachusetts and electric utility distribution operations in the seacoast and capital city areas of New Hampshire. The Company is also involved in energy planning, procurement, marketing, and consulting activities.	Integrated
VCT NZ Equity	Vector Ltd	Vector Limited is an energy infrastructure company in New Zealand that provides electricity and gas transmission and distribution along with metering. The Company is also a wholesaler of LPG and natural gas. Vector also delivers broadband voice and data communications in the Auckland and Wellington regions.	Integrated

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Ticker	Name	Bloomberg description	Electricity/Gas/Integrated
VVC US Equity	Vectren Corp	Vectren Corporation distributes gas in Indiana and western Ohio and electricity in southern Indiana. The Company's subsidiaries provide energy-related products and services, including energy marketing, fiber-optic telecommunications services, and utility related services. Vectren's services include materials management, debt collection, locating, trenching and meter reading services.	Integrated
WEC US Equity	WEC Energy Group Inc	WEC Energy Group, Inc. operates as a utilities provider. The Company distributes electricity and natural gas to its customers in Wisconsin, Illinois, Michigan and Minnesota.	Integrated
WGL US Equity	WGL Holdings Inc	WGL Holdings Inc., through its Washington Gas Light Company subsidiary, sells and delivers natural gas and other energy-related products and services. The Company serves residential, commercial, and industrial customers throughout metropolitan Washington, D.C. and the surrounding region.	Integrated
WPZ US Equity	Williams Partners LP	Williams Partners LP owns, operates, develops, and acquires natural gas gathering systems and other midstream energy assets. The Company is principally focused on natural gas gathering, the first segment of midstream energy infrastructure that connects natural gas produced at the wellhead to third-party takeaway pipelines.	Gas
WR US Equity	Westar Energy Inc	Westar Energy, Inc. is an electric utility company servicing customers in Kansas. The company provides electric generation, transmission and distribution services.	Electricity
XEL US Equity	Xcel Energy Inc	Xcel Energy, Inc. provides electric and natural gas services. The Company offers a variety of energy-related services, including generation, transmission, and distribution of electricity and natural gas throughout the United States. Xcel utilities serve customers in portions of Colorado, Michigan, Minnesota, New Mexico, North Dakota, South Dakota, Texas and Wisconsin.	Integrated

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Table 28: Asset beta results for energy comparator sample

Ticker	1996 - 2001			2001 - 2006			2006 - 2011			2011 - 2016		
	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly
AEE US Equity	0.11	0.08	0.03	0.28	0.27	0.25	0.41	0.41	0.42	0.36	0.32	0.26
AEP US Equity	0.14	0.09	-0.04	0.39	0.42	0.54	0.35	0.33	0.31	0.32	0.29	0.21
AES US Equity	0.42	0.55	0.75	0.41	0.47	0.64	0.52	0.51	0.56	0.37	0.40	0.37
ALE US Equity	0.15	0.09	0.02	0.52	0.56	0.56	0.47	0.46	0.51	0.43	0.40	0.40
APA AU Equity	0.15	0.01	0.01	0.21	0.19	0.25	0.27	0.22	0.25	0.39	0.31	0.33
AST AU Equity	-	-	-	-	-	-	0.16	0.09	0.09	0.24	0.25	0.27
ATO US Equity	0.19	0.17	0.14	0.35	0.29	0.25	0.30	0.31	0.32	0.44	0.39	0.31
AVA US Equity	0.17	0.11	0.16	0.34	0.33	0.36	0.34	0.33	0.36	0.39	0.35	0.30
BKH US Equity	0.24	0.09	-0.09	0.37	0.47	0.58	0.52	0.50	0.59	0.50	0.43	0.47
BWP US Equity	-	-	-	0.35	0.01	0.00	0.39	0.46	0.26	0.42	0.43	0.52
CMS US Equity	0.08	0.05	0.13	0.24	0.30	0.47	0.26	0.25	0.24	0.30	0.26	0.18
CNL US Equity	0.19	0.14	0.09	0.41	0.47	0.62	0.47	0.39	0.37	0.41	0.39	0.28
CNP US Equity	0.14	0.10	0.04	0.18	0.27	0.40	0.27	0.30	0.28	0.41	0.39	0.30
CPK US Equity	0.03	0.01	0.02	0.09	0.12	0.20	0.54	0.50	0.37	0.54	0.33	0.27
D US Equity	0.11	0.08	0.03	0.31	0.29	0.33	0.38	0.36	0.31	0.33	0.29	0.17
DGAS US Equity	0.02	0.03	0.01	0.00	0.04	0.08	0.12	0.21	0.25	0.25	0.27	0.32
DTE US Equity	0.16	0.10	0.03	0.22	0.18	0.21	0.33	0.33	0.33	0.36	0.32	0.23
DUE AU Equity	-	-	-	0.11	0.01	0.01	0.14	0.14	0.16	0.14	0.12	0.13
DUK US Equity	0.18	0.12	-0.01	0.44	0.57	0.71	0.37	0.34	0.31	0.26	0.21	0.13
ED US Equity	0.17	0.13	0.09	0.26	0.21	0.17	0.28	0.27	0.23	0.24	0.17	0.06
EDE US Equity	0.07	0.07	0.04	0.29	0.27	0.32	0.35	0.33	0.36	0.38	0.30	0.22
EE US Equity	0.14	0.12	0.15	0.36	0.28	0.26	0.44	0.41	0.45	0.37	0.33	0.27
EEP US Equity	0.16	0.18	0.08	0.16	0.21	0.06	0.40	0.52	0.51	0.49	0.57	0.62
EIX US Equity	0.14	0.11	0.04	0.34	0.31	0.31	0.48	0.47	0.44	0.32	0.29	0.26
ES US Equity	0.07	0.08	0.16	0.18	0.19	0.17	0.30	0.30	0.28	0.36	0.32	0.25
ETR US Equity	0.09	0.06	0.02	0.27	0.30	0.35	0.44	0.39	0.39	0.28	0.25	0.22
EXC US Equity	0.11	0.06	-0.08	0.31	0.27	0.36	0.66	0.61	0.51	0.35	0.29	0.18
FE US Equity	0.12	0.03	0.00	0.25	0.21	0.24	0.42	0.39	0.34	0.27	0.22	0.12
GAS US Equity	0.18	0.18	0.17	0.35	0.35	0.36	0.36	0.38	0.33	0.31	0.26	0.12
GXP US Equity	0.12	0.13	0.17	0.28	0.35	0.40	0.32	0.35	0.44	0.32	0.32	0.30
HE US Equity	0.24	0.16	0.07	0.41	0.41	0.43	0.39	0.46	0.45	0.50	0.46	0.37
IDA US Equity	0.18	0.14	0.05	0.30	0.36	0.42	0.35	0.33	0.29	0.45	0.39	0.38

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Ticker	1996 - 2001			2001 - 2006			2006 - 2011			2011 - 2016		
	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly
ITC US Equity	-	-	-	0.49	0.02	0.02	0.43	0.47	0.49	0.32	0.28	0.19
JEL LN Equity	-	-	-	0.00	0.02	0.04	0.00	-0.01	-0.09	0.01	0.04	0.02
KMI US Equity	-	-	-	-	-	-	-	-	-	0.53	0.60	0.56
SR US Equity	0.16	0.15	0.08	0.40	0.35	0.29	0.44	0.34	0.14	0.44	0.34	0.30
LNT US Equity	0.12	0.09	0.04	0.29	0.31	0.27	0.48	0.48	0.43	0.42	0.38	0.31
MGEE US Equity	0.23	0.12	0.05	0.62	0.41	0.33	0.48	0.38	0.27	0.59	0.40	0.31
NEE US Equity	0.13	0.06	-0.03	0.30	0.29	0.28	0.44	0.41	0.36	0.33	0.31	0.25
NFG US Equity	0.20	0.18	0.08	0.30	0.36	0.40	0.75	0.76	0.76	0.80	0.89	0.79
NG/ LN Equity	0.51	0.52	0.47	0.28	0.24	0.30	0.32	0.29	0.27	0.31	0.27	0.26
NI US Equity	0.08	0.05	0.01	0.26	0.25	0.31	0.33	0.34	0.36	0.37	0.36	0.22
NJR US Equity	0.16	0.12	0.09	0.40	0.37	0.26	0.48	0.42	0.28	0.59	0.46	0.35
NWE US Equity	-	-	-	0.19	0.02	0.02	0.36	0.36	0.38	0.40	0.33	0.30
NWN US Equity	0.20	0.14	0.08	0.34	0.29	0.19	0.42	0.34	0.22	0.39	0.30	0.24
OGE US Equity	0.14	0.08	0.05	0.28	0.24	0.26	0.50	0.48	0.50	0.54	0.55	0.46
OKE US Equity	0.27	0.23	0.15	0.33	0.37	0.36	0.49	0.50	0.56	0.66	0.73	0.58
PCG US Equity	0.11	0.07	0.05	0.51	0.47	0.54	0.36	0.28	0.27	0.30	0.25	0.27
PEG US Equity	0.12	0.09	0.00	0.27	0.29	0.36	0.54	0.46	0.41	0.44	0.39	0.23
PNM US Equity	0.12	0.10	0.06	0.37	0.40	0.60	0.38	0.42	0.43	0.38	0.32	0.28
PNW US Equity	0.07	0.03	-0.04	0.33	0.38	0.49	0.33	0.34	0.33	0.39	0.36	0.29
PNY US Equity	0.20	0.19	0.10	0.41	0.40	0.35	0.49	0.41	0.25	0.50	0.44	0.45
POM US Equity	-	-	-	0.23	0.12	0.14	0.34	0.37	0.34	0.24	0.22	0.19
PPL US Equity	0.14	0.11	0.00	0.33	0.36	0.51	0.49	0.41	0.34	0.26	0.24	0.19
SCG US Equity	0.14	0.06	-0.03	0.26	0.27	0.29	0.34	0.31	0.33	0.32	0.28	0.25
SE US Equity	-	-	-	-	-	-	0.61	0.59	0.61	0.56	0.56	0.45
SJI US Equity	0.09	0.07	0.08	0.25	0.23	0.22	0.46	0.38	0.27	0.53	0.45	0.43
SKI AU Equity	-	-	-	-	-	-	0.28	0.23	0.21	0.39	0.30	0.19
SO US Equity	0.13	0.02	-0.04	0.26	0.15	0.10	0.30	0.24	0.22	0.23	0.19	0.09
SRE US Equity	0.10	-0.01	-0.12	0.42	0.47	0.56	0.54	0.54	0.52	0.43	0.41	0.38
SSE LN Equity	0.24	0.14	0.17	0.36	0.29	0.31	0.47	0.43	0.36	0.45	0.44	0.42
STR US Equity	0.21	0.20	0.13	0.43	0.52	0.63	1.09	1.08	0.90	0.52	0.50	0.32
SWX US Equity	0.17	0.16	0.22	0.28	0.26	0.22	0.43	0.41	0.40	0.50	0.40	0.38
TCP US Equity	0.14	0.05	-0.04	0.17	0.27	0.16	0.33	0.46	0.52	0.45	0.58	0.60
TE US Equity	0.12	0.05	-0.05	0.29	0.34	0.39	0.42	0.40	0.42	0.39	0.37	0.21
UGI US Equity	0.17	0.15	0.07	0.29	0.31	0.24	0.37	0.34	0.29	0.47	0.49	0.44

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Ticker	1996 - 2001			2001 - 2006			2006 - 2011			2011 - 2016		
	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly
UTL US Equity	0.06	0.08	0.20	0.03	0.04	0.03	0.09	0.12	0.15	0.34	0.21	0.15
VCT NZ Equity				0.43	0.08	0.04	0.24	0.21	0.28	0.25	0.20	0.19
VVC US Equity	0.44	0.08	0.01	0.32	0.33	0.31	0.34	0.33	0.29	0.43	0.39	0.39
WEC US Equity	0.13	0.09	0.03	0.20	0.21	0.19	0.29	0.27	0.25	0.35	0.28	0.15
WGL US Equity	0.28	0.22	0.13	0.43	0.37	0.30	0.49	0.39	0.26	0.56	0.45	0.39
WPZ US Equity	-	-	-	-	-	-	-	-	-	0.60	0.86	0.82
WR US Equity	0.07	0.03	-0.04	0.25	0.25	0.25	0.36	0.36	0.33	0.33	0.30	0.26
XEL US Equity	0.16	0.10	0.03	0.31	0.27	0.48	0.31	0.26	0.25	0.30	0.24	0.17
Average*	0.16	0.11	0.07	0.30	0.28	0.31	0.40	0.38	0.35	0.39	0.36	0.30

***Note:** The averages presented above include JEL LN Equity and NFG US Equity, which have been removed from the refined sample used in this final decision (for the reasons explained in paragraph 284 above).

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Table 29: Leverage results for energy comparator sample

Ticker	1996 - 2001	2001 - 2006	2006 - 2011	2011 - 2016
AEE US Equity	33%	36%	47%	44%
AEP US Equity	46%	50%	50%	45%
AES US Equity	38%	72%	60%	67%
ALE US Equity	34%	23%	26%	35%
APA AU Equity	54%	52%	61%	46%
AST AU Equity	-	-	61%	58%
ATO US Equity	38%	43%	47%	39%
AVA US Equity	41%	56%	50%	44%
BKH US Equity	27%	42%	42%	44%
BWP US Equity	-	32%	33%	40%
CMS US Equity	59%	77%	65%	51%
CNL US Equity	40%	45%	36%	32%
CNP US Equity	49%	69%	64%	47%
CPK US Equity	34%	37%	33%	26%
D US Equity	50%	45%	41%	39%
DGAS US Equity	58%	51%	44%	26%
DTE US Equity	47%	54%	54%	42%
DUE AU Equity	-	79%	76%	67%
DUK US Equity	28%	44%	37%	44%
ED US Equity	36%	41%	44%	40%
EDE US Equity	43%	46%	48%	44%
EE US Equity	64%	46%	43%	42%
EEP US Equity	32%	35%	41%	36%
EIX US Equity	54%	62%	40%	42%
ES US Equity	64%	63%	52%	41%
ETR US Equity	53%	41%	37%	50%
EXC US Equity	40%	40%	24%	38%
FE US Equity	53%	50%	45%	55%
GAS US Equity	40%	44%	44%	44%
GXP US Equity	37%	42%	48%	53%
HE US Equity	0%	4%	24%	25%
IDA US Equity	39%	48%	47%	39%
ITC US Equity	-	34%	45%	42%
JEL LN Equity	-	0%	0%	0%
KMI US Equity	-	-	-	42%
SR US Equity	39%	46%	38%	34%
LNT US Equity	43%	50%	32%	37%
MGEE US Equity	31%	29%	31%	21%
NEE US Equity	26%	40%	41%	44%
NFG US Equity	37%	40%	21%	23%
NG/ LN Equity	20%	47%	50%	44%
NI US Equity	43%	56%	58%	48%
NJR US Equity	36%	32%	27%	27%

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Ticker	1996 - 2001	2001 - 2006	2006 - 2011	2011 - 2016
NWE US Equity	-	41%	44%	42%
NWN US Equity	40%	40%	36%	40%
OGE US Equity	40%	46%	38%	33%
OKE US Equity	42%	56%	52%	43%
PCG US Equity	50%	45%	39%	41%
PEG US Equity	47%	56%	35%	31%
PNM US Equity	50%	47%	61%	51%
PNW US Equity	44%	46%	48%	37%
PNY US Equity	32%	31%	34%	35%
POM US Equity	-	62%	56%	51%
PPL US Equity	48%	47%	33%	50%
SCG US Equity	42%	47%	47%	46%
SE US Equity	-	-	41%	39%
SJI US Equity	47%	42%	31%	36%
SKI AU Equity	-	-	53%	29%
SO US Equity	43%	37%	39%	37%
SRE US Equity	38%	39%	31%	38%
SSE LN Equity	9%	18%	24%	29%
STR US Equity	30%	28%	18%	27%
SWX US Equity	58%	60%	49%	37%
TCP US Equity	3%	2%	29%	27%
TE US Equity	35%	55%	50%	43%
UGI US Equity	56%	49%	40%	41%
UTL US Equity	46%	50%	55%	46%
VCT NZ Equity	-	54%	56%	48%
VVC US Equity	43%	43%	45%	39%
WEC US Equity	43%	54%	44%	37%
WGL US Equity	32%	35%	32%	28%
WPZ US Equity	-	-	-	26%
WR US Equity	59%	62%	51%	45%
XEL US Equity	43%	56%	47%	44%
Average*	41%	45%	43%	40%

***Note:** The averages presented above include JEL LN Equity and NFG US Equity, which have been removed from the refined sample used in this final decision (for the reasons explained in paragraph 284 above).

Attachment B: Alternative approaches to energy comparator sample analysis

Purpose of this attachment

821. This attachment includes further details regarding alternative approaches to the energy comparator sample analysis, which we considered when reaching our decision.
822. We considered three main alternative approaches:
- 822.1 Oxera's refined sample, after applying its suggested liquidity and gearing filters;
 - 822.2 TDB's three step approach to refining the sample; and
 - 822.3 using TRBC as a cross-check, as suggested in First Gas' cross submission.
823. These three approaches are outlined in more detail below. Figure 16 to Figure 18 summarise the results under each approach, relative to the comparator samples used in our draft decision and this final decision.
824. For each approach, we have reported the results for the full energy sample, as well as separate electricity, gas, and integrated sub-samples. Oxera's submission on the draft decision suggested separate electricity and gas sub-samples when determining asset betas.⁶³⁵
825. The results presented in this attachment differ slightly from those in the Oxera, First Gas and TDB submissions, due to differences in frequencies and time periods used when averaging the results. The graphs below are presented on a like-for-like basis, using the amended asset betas after correcting the spreadsheet errors identified in our draft decision.

Oxera's refined energy sample

826. In response to our draft decision, Oxera submitted that seven companies should be excluded from the energy sample, by applying additional liquidity and gearing filters.
827. Specifically, Oxera recommended that:⁶³⁶
- 827.1 Jersey Electricity be excluded because it has a low proportion of days traded;
 - 827.2 AusNet Services, Boardwalk Pipeline Partners LP, Vector Ltd and Williams Partners LP should be excluded based on a low free float percentage;

⁶³⁵ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 2.

⁶³⁶ Oxera (report prepared for First Gas) "Asset beta for gas pipelines in New Zealand" (3 August 2016), p. 14-17

827.3 Delta Natural Gas Co should be excluded due to a high average bid-ask spread percentage; and

827.4 AES Corp should be excluded due to high average gearing.

828. Although we have applied the percentage of days traded liquidity filter when determining the final comparator sample, we disagree with the other filters suggested by Oxera. Our reasons are explained in paragraph 285 above.

TDB refinements to the energy sample

829. TDB noted that selecting an appropriate comparator sample involves making a trade-off between the comparability of the set with the regulated entities, and the statistical significance of the sample set. TDB considered that "...the Commission may have adopted too large a set at the expense of a loss in accuracy in the appropriate asset beta".⁶³⁷

830. TDB proposed three steps to refining the sample of 74 companies used in our draft decision:

830.1 **Step 1:** exclude 20 companies assessed as having higher systematic risk, largely through unregulated gas gathering, processing, liquids and commodity exposures not found in "pure-play" distribution or transmission.

830.2 **Step 2:** exclude another 14 companies with material lines of business with higher systematic risk that are either unrelated to the NZ regulated services (as they involve non-energy activities), or have energy revenues that are unregulated.

830.3 **Step 3:** exclude another 31 companies with energy activities that are regulated, but are engaged in activities outside the transport of electricity and gas (these companies are mostly generators, retailers, and transporters of electricity).

831. Further discussion of TDB's approach to refining the sample is included in paragraphs 309 to 320 above.

Thomson Reuters Business Classifications

832. In its cross submission, First Gas disagreed with Contact's view that "Bloomberg descriptions are too prone to error and do not provide enough information to form a view of how comparable the company's operations are relative to the service being regulated". First Gas noted that:⁶³⁸

⁶³⁷ TBD Advisory Limited (report prepared for Contact Energy) "Submission to the Commerce Commission on the input methodologies review draft decisions: Comparative company analysis" (4 August 2016), p. 5.

⁶³⁸ [PUBLIC] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), p. 5.

832.1 Bloomberg is an internationally recognised, widely used financial service provider; and

832.2 neither Contact nor TDB demonstrate why Bloomberg classifications are prone to error, and why their proposed filters lead to more reliable classifications.

833. Although First Gas considered Bloomberg classifications fit for purpose, it noted that TRBC could be used as an alternative. First Gas asked Oxera to update its asset beta estimates using TRBC, noting that:⁶³⁹

The purpose of this analysis is not to suggest the Commission adopt the TRBC system – but rather to test whether using a classification system with different screens than Bloomberg materially changes the result.

In order to refine the Commission's sample Oxera had already applied liquidity and gearing filters as described in its expert report. In addition, Oxera has now excluded five companies (namely, Kinder Morgan, Enbridge Energy, ONEOK, Spectra Energy, and TC Pipelines) from the gas sub-sample and the whole energy sample, as these were not classified as "natural gas utilities" under TRBC. This approach leads to the exclusion of five out of the six gas companies that are identified by TDB as outliers and therefore appears to objectively address concerns raised by Contact Energy, while maintaining transparency.

834. First Gas concluded that "[t]he results for the refined comparator sample show that the beta for gas companies, after excluding gas companies that are not classified as "natural gas utilities", remains considerably higher than that for the electricity companies in the whole 'energy' sample".⁶⁴⁰

835. In its analysis, Oxera appears to have limited the gas sub-sample to those companies which were both: (i) included its refined comparator sample (as discussed in paragraphs 826 to 828 above), and (ii) classified as "Natural Gas Utilities" under TRBC. However, the electricity and integrated sub-samples continued to be based on the Bloomberg classifications, rather than TRBC.

836. We have adopted a slightly different approach to Oxera in our analysis of TRBC, because we have used Thomson Reuters classifications to determine the electricity and integrated sub-samples, as well as the gas sub-sample. Specifically, we have separated the 74 companies used in our draft decision based on the classifications in Table 30 below.⁶⁴¹

⁶³⁹ [PUBLIC] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), p. 6.

⁶⁴⁰ [PUBLIC] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), p. 6.

⁶⁴¹ Companies classified as 'Oil & Gas Related Equipment and Services' have been excluded in our analysis using TRBC.

Table 30: TRBC approach to separating the energy comparator sample

Sample	TRBC industry group	# of companies
Electricity sample	'Electric Utilities & IPPs'	39
Gas sample	'Natural Gas Utilities'	15
Integrated sample	'Multiline Utilities'	11
Energy sample	'Electric Utilities & IPPs', 'Natural Gas Utilities', and 'Multiline Utilities'	66

837. As shown in Figure 17 below, when averaged across weekly and four-weekly asset betas for 2006-2011 and 2011-2016, our analysis of the TRBC approach leads to:

837.1 a 0.06 difference between the gas sub-sample and the whole energy sample (compared with 0.08 in Oxera's analysis),⁶⁴² and

837.2 a 0.09 difference between the gas sub-sample and the electricity sub-sample (compared with 0.08 in Oxera's analysis).⁶⁴³

Summary of results from alternative approaches to energy comparator sample

838. The graphs below summarise the results under each of the approaches to determining the energy comparator sample we have considered. Specifically:

838.1 Figure 16 shows the number of firms included in each comparator sample;

838.2 Figure 17 shows the asset beta for each approach, averaged across weekly and four-weekly estimates for 2006-2011 and 2011-2016; and

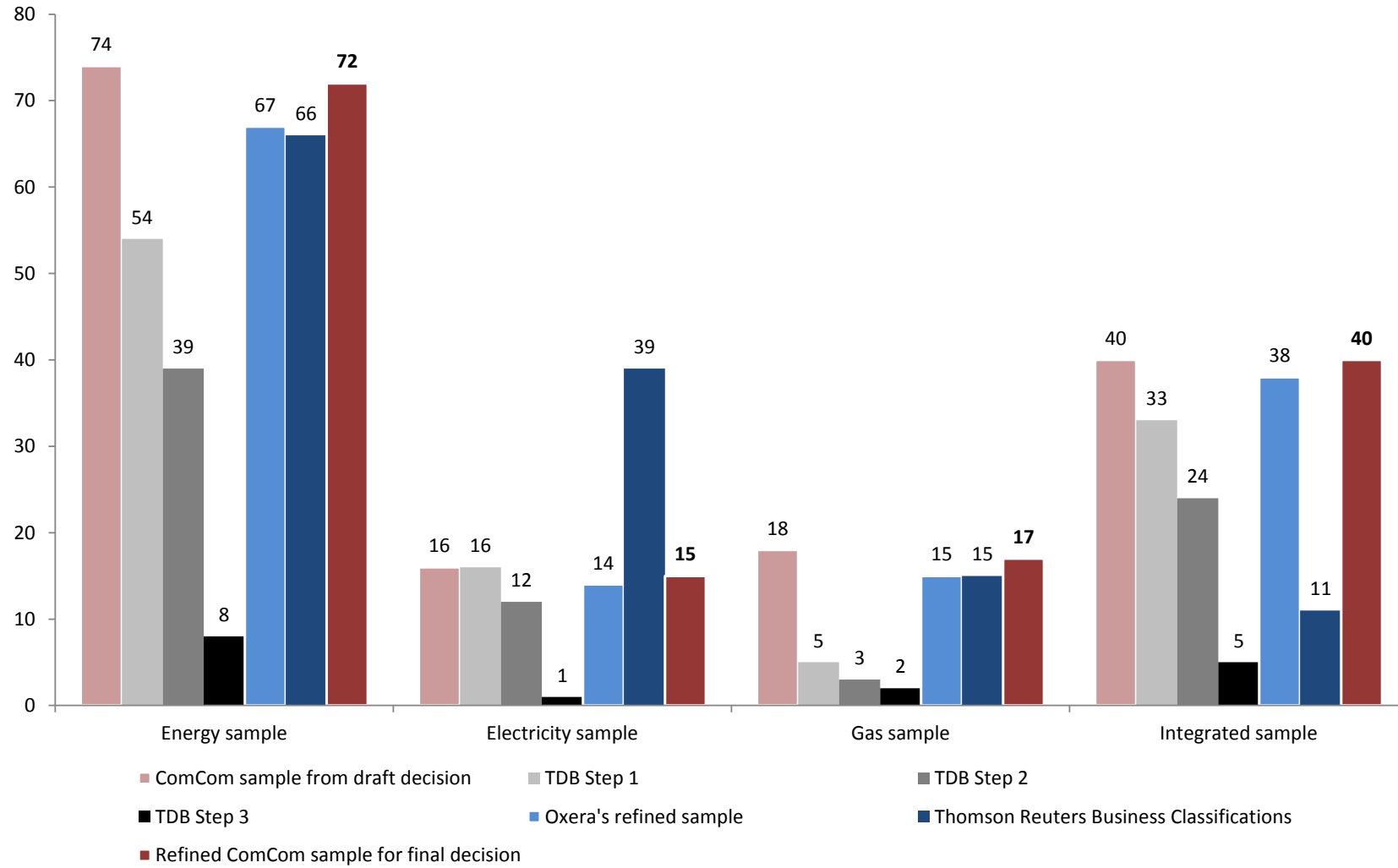
838.3 Figure 18 shows the average leverage for each approach, averaged across 2006-2011 and 2011-2016.

⁶⁴² [PUBLIC] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), table 1, p. 6.

⁶⁴³ [PUBLIC] First Gas "Cross submission on input methodologies review draft decisions: Cost of capital issues" (25 August 2016), table 1, p. 6.

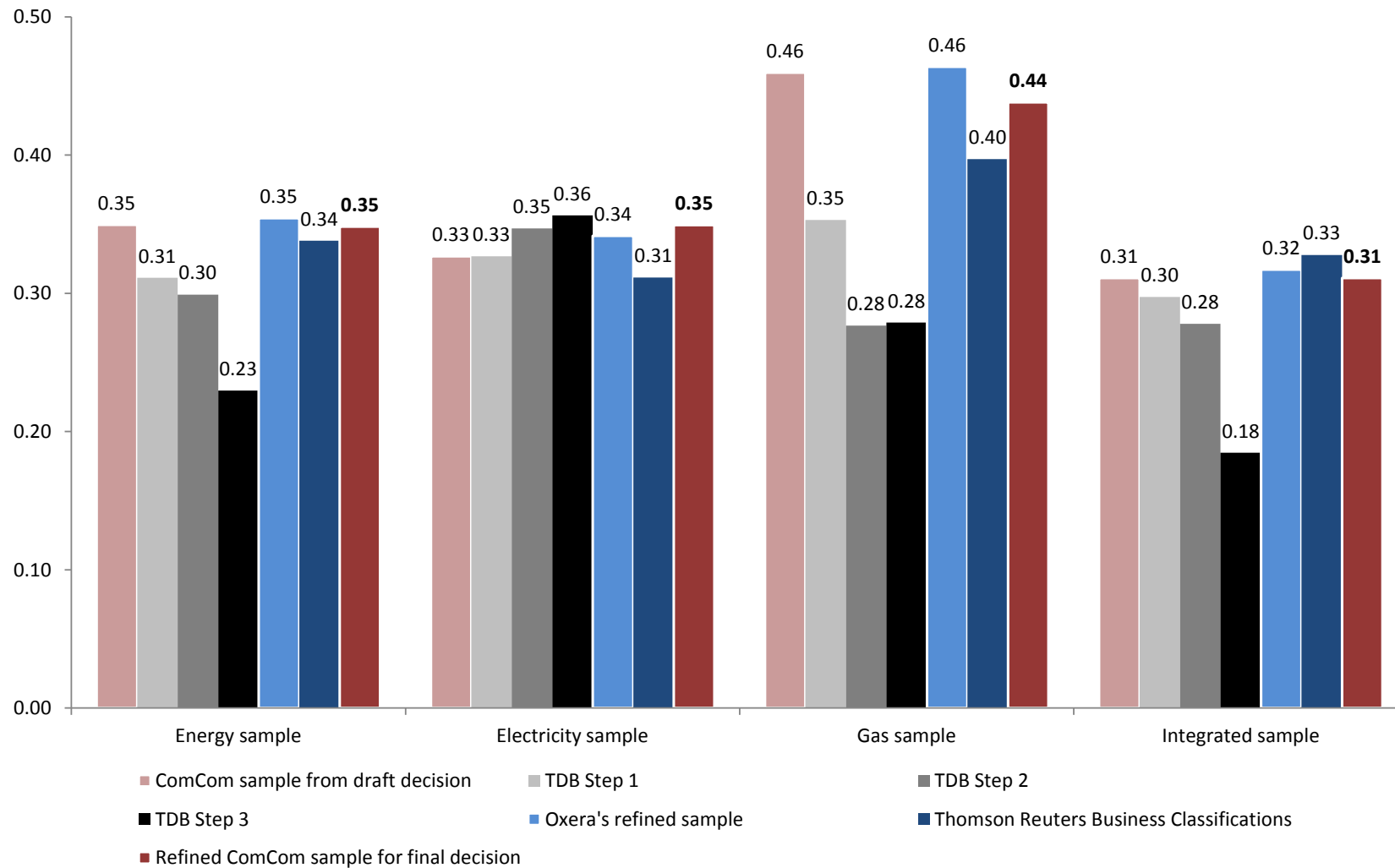
238

Figure 16: Number of firms in each comparator sample



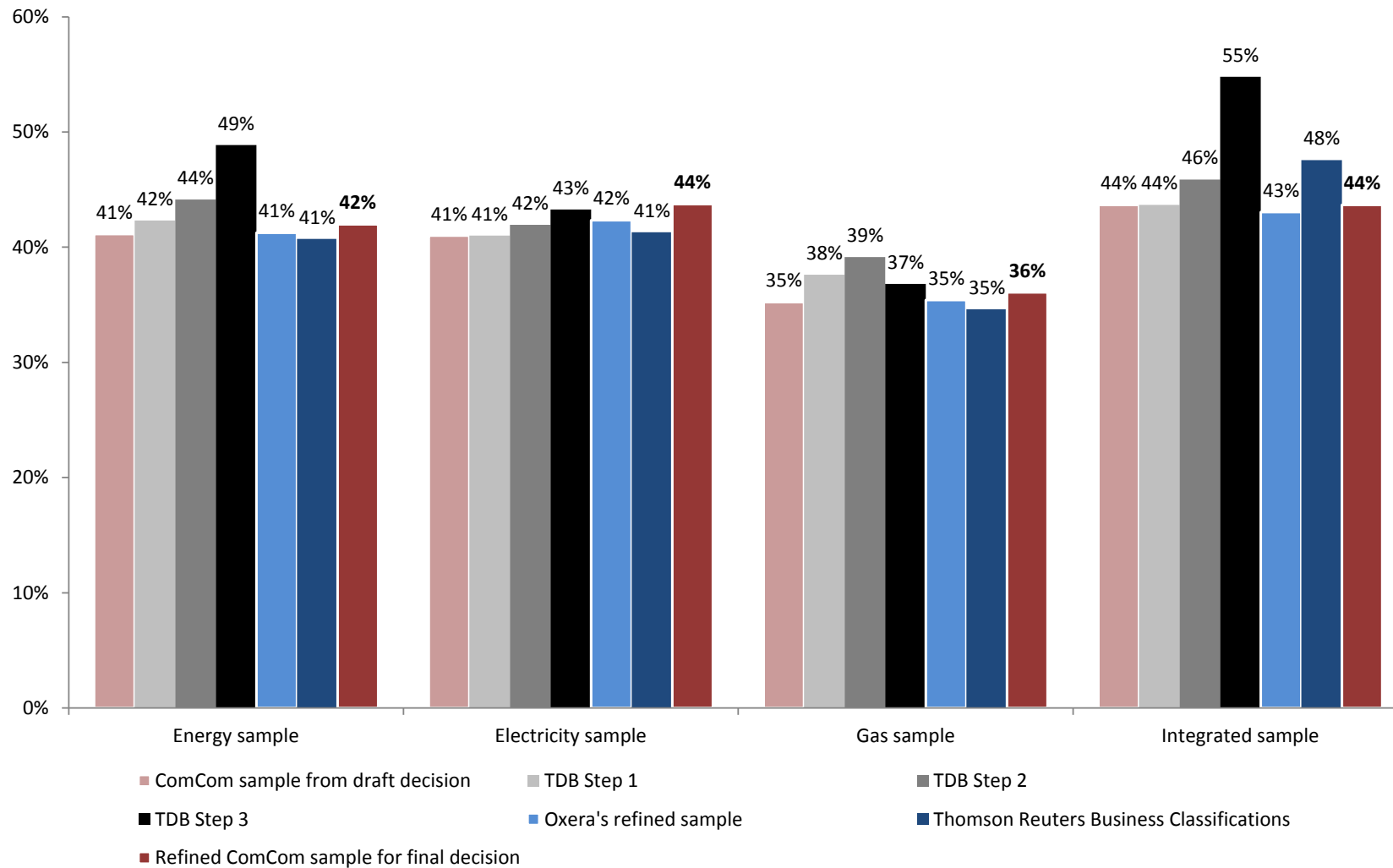
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Figure 17: Asset beta estimates (averaged across weekly and four-weekly, for 2006-2011 and 2011-2016)



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Figure 18: Leverage estimates (averaged across 2006-2011 and 2011-2016)



Attachment C: Further details regarding airports asset beta and leverage comparator sample

Purpose of this attachment

839. This attachment includes further details regarding the sample of comparator firms used when estimating the asset beta for airports. Specifically:

839.1 Table 31 lists changes in the asset beta comparator sample used in this IM review decision, compared to the 2010 IMs decision. It shows the:

839.1.1 four companies from the 2010 sample that are no longer included primarily because of acquisitions or de-listings (in red); and

839.1.2 five new firms that have been added (in green).

839.2 Table 32 lists the 26 firms included in our airports comparator sample, including descriptions for each company reported by Bloomberg; and

839.3 Table 33 summarises the asset beta results for our airports comparator sample across the four separate five-year periods we have considered, based on daily, weekly and four-weekly frequencies.

839.4 Table 34 summarises leverage for each of the companies in the energy comparator sample, across the four separate five-year periods we have considered.

Table 31: Changes in our airports asset beta comparator sample since 2010

Bloomberg ticker	Company	Reason for removal/addition
AELG SV Equity	Aerodrom Ljubljana dd	Acquired.
AFI IM Equity	Aeroporto Di Firenze Spa	Acquired.
FGX AU Equity	Future Generation Investment	Nothing to indicate they have holdings in airport assets.
GEM IM Equity	Gemina Spa	Acquired by ATL IM Equity.
AERO SG Equity	Aerodrom Nikola Tesla AD Beogr	Operates an airport in Serbia.
GMRI IN Equity	GMR Infrastructure Ltd	Involved in operating two major Indian airports as well as other activities.
MAHB MK Equity	Malaysia Airports Holdings Bhd	Investment holding company that owns subsidiaries that run airports.
TAVHL TI Equity	TAV Havalimanlari Holding AS	Airport operator at numerous airports.
TYA IM Equity	Toscana Aeroporti SpA	Management company for two airports.

Table 32: Descriptions of companies in airports asset beta comparator sample

Ticker	Name	Bloomberg description
000089 CH Equity	Shenzhen Airport Co	Shenzhen Airport Co., Ltd. provides airport terminal ground passenger transportation and cargo delivery services. The Company also leases airport lounge, designs and publishes advertisements, and offers air ticket agency services.
357 HK Equity	HNA Infrastructure Company Ltd	HNA Infrastructure Company Ltd provides airfield services, terminal facilities, ground handling services, passenger and cargo handling services. The Company also leases commercial and retail space at the Meilan Airport, operates airport-related business franchising, advertising, car parking, tourism services, and sells duty-free and consumable goods.
600004 CH Equity	Guangzhou Baiyun International	Guangzhou Baiyun International Airport Co., Ltd. operates the Guangzhou Baiyun International Airport and provides related transportation services, including ground, passenger, storage, airplane maintenance and repair, and other services. The Company also provides food, space rental, and advertising services.
600009 CH Equity	Shanghai International Airport	Shanghai International Airport Co., Ltd. operates Pudong Airport and Hongqiao airport in Shanghai. The Company provides a full range of services including air traffic control, terminal management, cargo handling, advertising, space rental, and other related services.
600897 CH Equity	Xiamen International Airport C	Xiamen International Airport Co., Ltd. operates and maintains Gaoqi Airport. The Company provides terminal transportation service, maintains airport waiting halls, operates airport shopping malls, as well as offers advertising and airport mechanical engineering services.
694 HK Equity	Beijing Capital International	Beijing Capital International Airport Company Limited operates both aeronautical and non-aeronautical business in the Beijing airport. The Company provides aircraft movement and passenger service facilities, safety and security services, fire-fighting services, and ground handling services. In addition, Beijing Capital operates duty free and other retail shops and leases properties.
8864 JP Equity	Airport Facilities Co Ltd	AIRPORT FACILITIES Co., LTD. manages and leases airport facilities at Haneda Airport in Tokyo and at Itami Airport in Osaka. The Company constructs, operates, and maintains air-conditioning, water supply, and sanitation systems for airport facilities. The Company also manages Narita International Airport facilities through its subsidiary.
9706 JP Equity	Japan Airport Terminal Co Ltd	Japan Airport Terminal Co., Ltd. constructs, manages and maintains passenger terminals and airport facilities at Haneda and Narita airports. The Company operates parking-lots, souvenir shops, and duty-free stores. Japan Airport Terminal, through its subsidiaries, manages restaurants and in-flight meal services.
ADP FP Equity	Aeroports de Paris	Aeroports de Paris (ADP) manages all the civil airports in the Paris area. The Company also develops and operates light aircraft aerodromes. ADP offers air transport related services, and business services such as office rental.
AERO SG Equity	Aerodrom Nikola Tesla AD Beogr	Aerodrom Nikola Tesla AD Beograd operates an international airport near Belgrade, Serbia. The airport serves passengers traveling to European and Middle Eastern destinations. The Company offers ground handling of aircraft, passengers, goods and mail; runway maintenance; advertising space rental; and maintenance of airport utilities and power infrastructure.

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AIA NZ Equity	Auckland International Airport	Auckland International Airport Limited owns and operates the Auckland International Airport. The Airport includes a single runway, an international terminal and two domestic terminals. The Airport also has commercial facilities which includes airfreight operations, car rental services, commercial banking center and office buildings.
AOT TB Equity	Airports of Thailand PCL	Airports of Thailand Public Company Ltd. operates the Bangkok International Airport (Don Muang) and the New Bangkok International Airport (Suvarnabhumi). The Company also operates provincial airports in Chiang Mai, Chiang Rai, Hat Yai, and Phuket.
ASURB MM Equity	Grupo Aeroportuario del Surest	Grupo Aeroportuario del Sureste S.A.B. de C.V. operates airports in Mexico. The Company holds 50 year concessions, beginning in 1998, to manage airports in Cancun, Cozumel, Merida, Oaxaca, Veracruz, Huatulco, Tapachula, Minatitlan, and Villahermosa.
FHZN SW Equity	Flughafen Zuerich AG	Flughafen Zuerich AG operates the Zurich Airport. The Company constructs, leases, and maintains airport structures and equipment.
FLU AV Equity	Flughafen Wien AG	Flughafen Wien AG manages, maintains, and operates the Vienna International Airport and the Voslau Airfield. The Company offers terminal services, air-side and land-side cargo handling, and the leasing of store, restaurant, and hotel airport building space to third party operators and businesses.
FRA GR Equity	Fraport AG Frankfurt Airport S	Fraport AG Frankfurt Airport Services Worldwide offers airport services. The Company operates the Frankfurt-Main, Frankfurt-Hahn and other German airports, the airport in Lima, Peru, and the international terminal in Antalya, Turkey. Fraport also provides services to domestic and international carriers including traffic, facility and terminal management, ground handling, and security.
GAPB MM Equity	Grupo Aeroportuario del Pacifico	Grupo Aeroportuario del Pacifico SAB de CV operates and maintains airports in the Pacific and central regions of Mexico.
GMRI IN Equity	GMR Infrastructure Ltd	GMR Infrastructure is an infrastructure company with interests in airports, power and roads. The Company is developing a greenfield international airport at Hyderabad, and is also operating, managing and developing the Delhi airport. Additionally, it is involved in development and operation of power plants and road projects in India.
KBHL DC Equity	Kobenhavns Lufthavne	Kobenhavns Lufthavne A/S (Copenhagen Airports A/S - CPH) owns and operates Kastrup, the international airport in Copenhagen, and Roskilde airport. The Company provides traffic management, maintenance, and security services, as well as manages the Airport Shopping Center and airport projects. Kobenhavns Lufthavne also has investments in airports in Mexico, England, and China.
MAHB MK Equity	Malaysia Airports Holdings Bhd	Malaysia Airports Holdings Berhad is an investment holding company. The Company, through its subsidiaries, provides management, maintenance, and operation of designated airports. Malaysia Airports also operates duty-free and non-duty free stores as well as provides food and beverage outlets at the airports.
MIA MV Equity	Malta International Airport PL	Malta International Airport PLC operates the Malta International airport.
OMAB MM Equity	Grupo Aeroportuario del Centro	Grupo Aeroportuario del Centro Norte, S.A.B. de C.V. (OMA) operates international airports in the northern and central regions of Mexico. The airports serve Monterrey, Acapulco, Mazatlan, Zihuatanejo and several other regional centers and border cities.

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SAVE IM Equity	SAVE SpA/Tessera	SAVE SpA operates the Marco Polo Airport in Venice, Italy. The Company operates through a concession from Italy's Ministry of Transport.
SYD AU Equity	Sydney Airport	Sydney Airport operates the Sydney, Australia airport. The Company develops and maintains the airport infrastructure and leases terminal space to airlines and retailers.
TAVHL TI Equity	TAV Havalimanlari Holding AS	TAV Havalimanlari Holding AS is an airport operator. The Company operates in airports in Turkey, Georgia, Tunisia, Macedonia, Saudi Arabia and Latvia. TAV Havalimanlari provides service in all areas of airport operations such as duty-free, food and beverage, ground handling, IT, security and operations.
TYA IM Equity	Toscana Aeroporti SpA	Toscana Aeroporti S.p.A. is the management company for Florence and Pisa airports. The Company offers flights around the world.

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Table 33: Asset beta results for airports comparator sample

Ticker	1996 - 2001			2001 - 2006			2006 - 2011			2011 - 2016		
	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly	Daily	Weekly	4-Weekly
000089 CH Equity	-	-	-	0.76	0.72	0.60	0.90	0.82	0.78	0.87	0.92	0.97
357 HK Equity	-	-	-	0.79	0.42	0.42	0.59	0.76	1.25	0.76	0.82	0.92
600004 CH Equity	-	-	-	1.05	0.37	0.26	0.83	0.73	0.65	1.04	0.95	0.96
600009 CH Equity	-	-	-	0.74	0.71	0.65	0.83	0.79	0.80	0.91	0.85	0.81
600897 CH Equity	-	-	-	1.05	0.97	0.87	0.89	0.69	0.65	1.04	1.05	1.06
694 HK Equity	0.59	0.09	0.08	0.91	0.91	0.89	0.98	1.13	1.06	0.44	0.38	0.42
8864 JP Equity	-	-	-	0.34	0.38	0.32	0.50	0.48	0.48	0.59	0.56	0.62
9706 JP Equity	-	-	-	0.55	0.60	0.67	0.73	0.72	0.65	0.90	0.88	0.93
ADP FP Equity	-	-	-	-	-	-	0.64	0.70	0.66	0.41	0.42	0.40
AERO SG Equity	-	-	-	-	-	-	-	-	-	1.04	1.18	1.13
AIA NZ Equity	0.58	0.37	0.46	0.82	0.96	0.82	0.79	0.74	0.68	0.82	0.73	0.69
AOT TB Equity	-	-	-	0.64	0.15	0.11	0.57	0.62	0.71	0.99	1.07	1.23
ASURB MM Equity	0.38	0.04	0.04	0.41	0.41	0.70	0.58	0.54	0.68	0.69	0.75	0.69
FHZN SW Equity	0.14	0.16	0.37	0.09	0.11	0.28	0.30	0.48	0.66	0.49	0.56	0.61
FLU AV Equity	-	-	-	0.67	0.77	0.88	0.41	0.52	0.57	0.23	0.28	0.26
FRA GR Equity	-	-	-	0.31	0.53	0.61	0.63	0.73	0.74	0.37	0.42	0.40
GAPB MM Equity	-	-	-	0.23	0.03	-	0.66	0.70	0.75	0.57	0.64	0.61
GMRI IN Equity	-	-	-	-	-	-	0.91	0.89	0.97	0.38	0.41	0.50
KBHL DC Equity	0.22	0.29	0.36	0.30	0.37	0.52	0.20	0.22	0.43	0.21	0.27	0.38
MAHB MK Equity	0.97	0.10	0.12	1.12	1.16	1.11	0.70	0.71	0.79	0.67	0.86	1.07
MIA MV Equity	-	-	-	-	-	-	0.24	0.32	0.52	0.36	0.46	0.87
OMAB MM Equity	-	-	-	-	-	-	0.65	0.67	0.86	0.57	0.58	0.73
SAVE IM Equity	-	-	-	0.87	0.05	0.07	0.38	0.49	0.70	0.18	0.21	0.25
SYD AU Equity	-	-	-	0.90	0.51	0.63	0.48	0.46	0.52	0.34	0.26	0.20
TAVHL TI Equity	-	-	-	-	-	-	0.39	0.34	0.38	0.40	0.39	0.25
TYA IM Equity	-	-	-	-	-	-	0.20	0.22	0.38	0.04	0.12	0.31
Average	0.48	0.18	0.24	0.66	0.53	0.58	0.60	0.62	0.69	0.59	0.62	0.66

Table 34: Leverage results for airports comparator sample

Ticker	1996 - 2001	2001 - 2006	2006 - 2011	2011 - 2016
000089 CH Equity	-	0%	0%	4%
357 HK Equity	-	0%	0%	4%
600004 CH Equity	-	0%	5%	0%
600009 CH Equity	-	0%	6%	0%
600897 CH Equity	-	0%	0%	0%
694 HK Equity	13%	0%	18%	41%
8864 JP Equity	-	40%	33%	36%
9706 JP Equity	-	20%	18%	22%
ADP FP Equity	-	-	27%	28%
AERO SG Equity	-	-	-	0%
AIA NZ Equity	19%	20%	27%	23%
AOT TB Equity	-	20%	41%	11%
ASURB MM Equity	0%	0%	0%	0%
FHZN SW Equity	33%	75%	37%	23%
FLU AV Equity	-	0%	28%	37%
FRA GR Equity	-	13%	23%	43%
GAPB MM Equity	-	0%	0%	0%
GMRI IN Equity	-	-	23%	75%
KBHL DC Equity	34%	37%	19%	17%
MAHB MK Equity	0%	0%	0%	26%
MIA MV Equity	-	-	21%	13%
OMAB MM Equity	-	-	0%	8%
SAVE IM Equity	-	8%	14%	17%
SYD AU Equity	-	0%	49%	45%
TAVHL TI Equity	-	-	51%	41%
TYA IM Equity	-	-	2%	10%
Average	17%	12%	18%	20%

Attachment D: Nelson-Siegel-Svensson approach to modelling yield curves

Purpose of this attachment

840. In conjunction with the Victoria University Business School, we initiated a summer research project focussing on assessing potential alternative approaches that could be used to estimate the debt premium for services regulated under Part 4. The research focussed on the NSS yield curve approach, which is described in this attachment.

Summary

841. The Nelson-Siegel term structure approach is used extensively internationally by central banks and other market participants for modelling the interest rate term structure. The framework has also been applied by other organisations (such as CEG) to estimate the debt premium.⁶⁴⁴
842. The framework allows for a yield curve with the 'humped' shape often associated with bond-yield term structures.⁶⁴⁵ We can include additional dummy variables in the model to account for the average level difference between bond ratings. These variables allow for an extended bond sample without significant skewing of the curve.
843. The NSS approach can objectively and transparently replicate the estimation of the debt premium over time, and appears to achieve reasonable accuracy. Therefore, the NSS framework appears well-suited to modelling the debt premium for WACC determinations.

The Nelson-Siegel-Svensson framework to estimating the yield curve

844. Yield curves are used extensively by central banks, financial institutions and government organisations around the world to price assets, manage and allocate risk and design policies.
845. The yield curve can be used to display the relationship between term to maturity and bid-yields of bonds (or in this case the debt premium). The yield curve works through an estimation methodology to derive a curve based on observed values.
846. The original framework was proposed by Nelson and Siegel in 1987 and later extended by Svensson in 1994. The Svensson extension improves the flexibility of the curve, but comes at the cost of two extra parameters.
847. The NSS model is defined as (formula 1):

⁶⁴⁴ CEG "Estimating the regulatory debt risk premium for Victorian gas businesses" (March 2012).

⁶⁴⁵ When 'yield curve' is used in this paper, we are referring to a debt premium curve.

$$DRP(t) = \beta_1 + \beta_2 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[\frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right]$$

Where:

- $DRP(t)$ is the debt risk premium;
- β_1 is a constant term independent of the term to maturity, interpreted as the long-run yield of the curve;
- β_2 impacts the beginning segment of the curve and is weighted by the term to maturity;
- β_3 is weighted by term to maturity and adds a 'hump' to the curve;
- β_4 is weighted by the term to maturity and allows for a secondary 'hump' to the curve;
- λ_1 is a constant associated with the β_2 and β_3 terms;
- λ_2 is a constant associated with the β_4 term;
- t/λ_1 influences the weight functions for β_2 and β_3 , determining where the hump is observed in the curve (where t is the term to maturity); and
- t/λ_2 influences the weight function of β_4 , determining the secondary hump.

848. The parameters of the yield curve are estimated through minimising the squared deviations between the estimated yield curve and observed data points (ie, through optimising the beta and lambda parameters). The optimised parameters indicate the shape of the yield curve.

849. In this paper the dataset used for estimation has been sourced from the Commission's existing debt premium and risk-free rate determination spreadsheets.

850. These determinations extract bond data from Bloomberg and annualise for use in debt premium estimation. Bonds with terms to maturity less than one year were not included in the dataset as these bonds can be affected by external factors. For example, PwC notes:⁶⁴⁶

Bonds that had less than one year to maturity were eliminated. The yields on bonds with less than a year to maturity remaining are influenced by monetary policy, and their inclusion would be likely to distort the shape of the debt risk premium curve. We understand from discussion with market price makers that bonds with less than a year to maturity are ignored when the yield relativities of bonds with longer terms to maturity are being considered.

⁶⁴⁶ PricewaterCoopers "Electranet: Estimating the benchmark debt risk premium" (May 2012), p. 13.

851. According to the European Central Bank,⁶⁴⁷ there are four main reasons for the popularity of the Nelson-Siegel model:
- 851.1 the model is easy to estimate;
 - 851.2 the yield curve can provide estimates for all maturities (ie, bonds not observable in the market);
 - 851.3 factors have intuitive interpretation so that estimations and conclusions are easily communicated from the model; and
 - 851.4 the model has been proven to fit data well.
852. For an EDB/GPB, the industry bond rating to estimate the debt premium is BBB+ rated bonds. This paper explores the NSS framework assuming the determination of an EDB/GBP debt premium, but can be easily applied to the airport sector (with a desired rating of A-).

Creating a bond sample with BBB, BBB+ and A- bonds

853. When creating a bond sample to for NSS curve estimates we used a three-month averaging period as it appears to be a good trade-off between relevancy and robustness.⁶⁴⁸
854. To estimate a NSS yield curve using a three-month averaging period requires a data set of suitable bonds. As BBB+ is the rating we would expect a benchmark EDB/GPB bond to have, we would like our bond sample to centre around the BBB+ rating.
855. We have included majority government-owned bonds in the sample to expand the number of observations. In a 2013 report by CEG,⁶⁴⁹ it was stated that samples with fewer than 15 bonds can end up with volatile results: "the reliability of results with such small sample sizes is highly questionable".
856. We can also include bonds from within two notches of the BBB+ credit rating ie, include BBB and A- bonds in the sample. This would expand the sample but at the cost of including bonds that potentially do not represent what a BBB+ benchmark would be.
857. We attempt to mitigate the non-representative effects of these additional bonds with the use of dummy variables in the NSS estimation function.

⁶⁴⁷ European Central Bank (2008).

<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp874.pdf?4b32dc2539d2598c420ec5e96a3891f7>

⁶⁴⁸ Note that future NSS curve estimates used in future as part of the debt premium methodology in the IMs will use 12 month averaging periods. The longer timeframe is more consistent with our historical averaging approach to estimate the debt premium.

⁶⁴⁹ Competition Economists Group "Estimating the debt risk premium" (June 2013), p. 14.

858. Including bonds from within two notches of the BBB+ credit rating (BBB and A-) provides an overall sample of 29 bonds for the month of April 2016 (13 A-, 5 BBB and 11 BBB+ bonds).
859. In the same CEG report, it was discussed whether including bonds with similar credit ratings was a viable approach. By adding these additional bonds, it assumes that the shapes of similarly rated curves are the same. The only difference between the bonds would be the level of the curve (eg, the β_1 term for the A- yield curve would be smaller than that for the BBB+ curve). This was considered a reasonable assumption when the bond ratings are very close to one another.
860. By creating dummy variables to take into account the effect of the BBB and A- rated bonds, additional information can be used to inform our estimation of the BBB+ yield curve.
861. This gives us the new function including an additional two beta parameters (formula 2):

$$DRP(t) = \beta_1 + \beta_2 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[\frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[\frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right] + \beta_5 \text{ BBB} + \beta_6 \text{ A-}$$

Where:

- β_5 is a binary dummy variable for BBB rated bonds; and
- β_6 is a binary dummy variable for A- rated bonds.

Applying a BBB+ only sample of bonds

862. Figure 19, Figure 20 and Figure 21 show the yield curves using only BBB+ rated bonds from October 2015 to January 2016 for WACC calculation months. There are fewer observations in these yield curves (10 observations each – ie, only four degrees of freedom) but the curves appear very well-fitted.
863. Without the bonds from the outer ratings (BBB and A-) the NSS fitted curve and observed values appear to have little deviation. The strictly BBB+ rated curves display a linear trend, likely because there are no short/long-term bonds in the sample.

Figure 19: October 2015 NSS Curve – BBB+

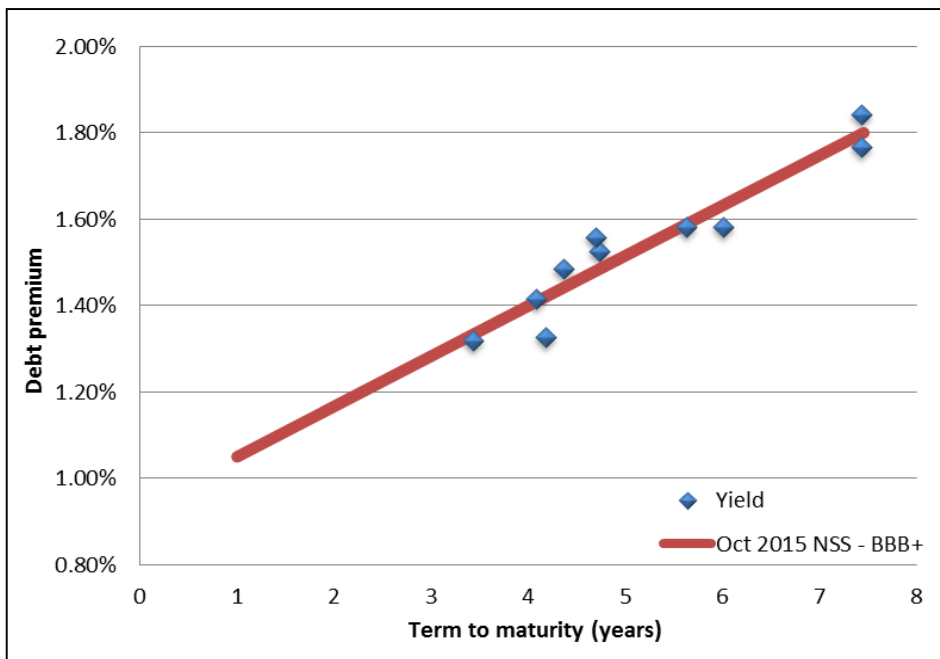


Figure 20: December 2015 NSS Curve – BBB+

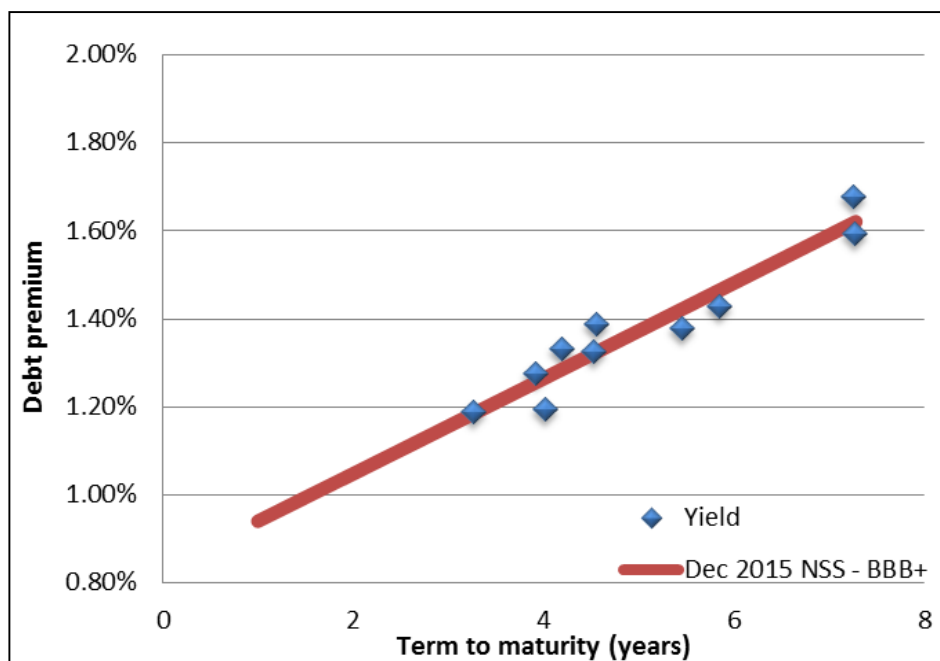
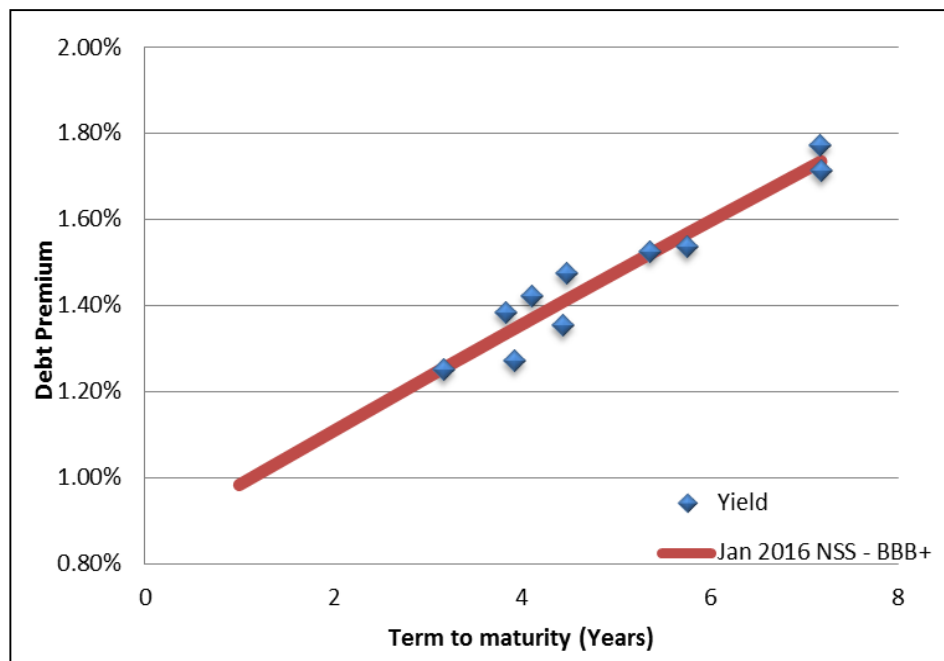


Figure 21: January 2016 BBB+ NSS Curve – BBB+



864. Table 35 summarises statistical information on the fitted yield curves. These statistical tests for the BBB+ only sample can be used as a comparison with larger sample of bonds. The average five-year estimate for the three months from October to January of 1.46% is slightly higher than that of the full sample for the same time period (1.42%).

Table 35: Summary statistics for BBB+ only bonds

Month	5-year estimate	R-Squared	RMSE	Sum of residuals squared
January 2016	1.48%	0.96	2.15E-07	2.04E-06
December 2015	1.37%	0.96	1.64E-07	1.89E-06
October 2015	1.52%	0.95	2.31E-07	2.42E-06
Average	1.46%	0.96	2.03E-07	2.12E-06

865. The average R-squared of 0.96 is high, indicating that on average 96% of the variation in the observed debt premium is explained by the model using three months of observations.

Applying a BBB, BBB+ and A- sample of bonds

866. Using dummy variables within the NSS framework (formula 2) provides the flexibility to include A- and BBB+ rated bonds; β_5 can be used to capture the average level shift

difference in the yields of BBB bonds and β_6 the average level shift difference in the yield of A- bonds, from the benchmark BBB+ bonds.

867. In Figure 22, the yield curve is estimated taking no account of differences in credit rating (formula 1). The higher rated A- bond debt premiums noticeably sit below the estimated yield curve. Controlling for the A- rated bonds can be expected to result in higher estimated BBB+ debt premiums.

Figure 22: Unadjusted NSS Curve (Oct 2015 – Jan 2016)

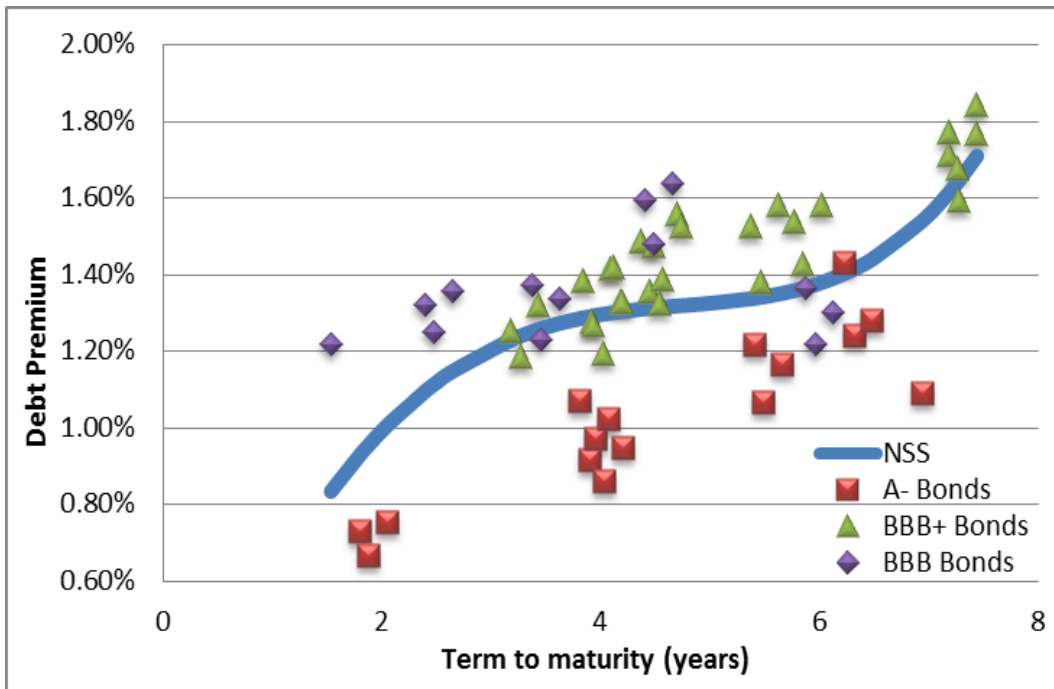
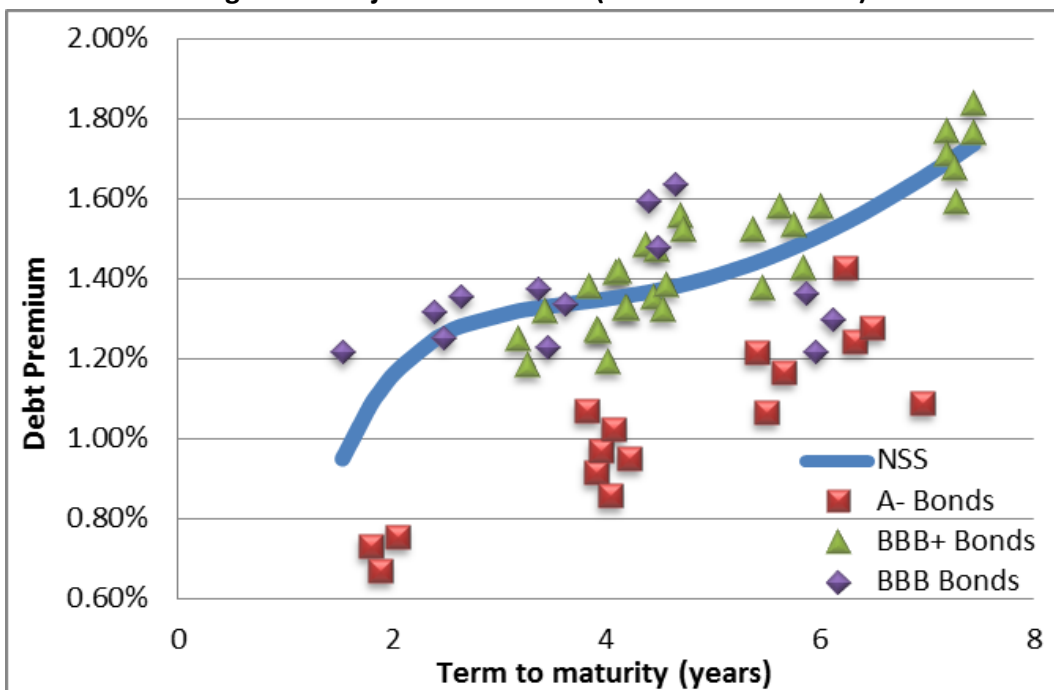


Figure 23: Adjusted NSS Curve (Oct 2015 – Jan 2016)



- 868. In Figure 23, the yield curve is estimated adjusting for differences in credit rating using dummy variables on credit rating (formula 2). This adjusted yield curve estimates higher debt BBB+ debt premiums for a given term to maturity compared to the non-adjusted yield curve.
- 869. The estimates of the five-year debt premium also differ between approaches; the non-adjusted curve has an estimated debt premium of 1.33% while the adjusted curve has a debt premium of 1.41%.

Table 36: Summary statistics for the sample with dummy variables (BBB, BBB+ and A-)

Month	5-year estimate	R-Squared	RMSE	Sum of residuals squared
January 2016	1.49%	0.73	4.94E-06	6.13E-05
December 2015	1.38%	0.57	8.20E-06	6.59E-05
October 2015	1.51%	0.61	1.05E-05	1.16E-04
Average	1.46%	0.64	7.88E-06	8.11E-05

- 870. Expanding the sample to cover BBB, BBB+, and A- bonds and using dummy variables results in lower R^2 values compared with the averaging and BBB+ only samples. This is expected given the inclusion of outer-rated bonds. However, the estimated BBB+ debt premium using the BBB+ only dataset (using formula 1) and the expanded dataset (using formula 2) are the same. The Root mean square error (RMSE) is also slightly larger with the expanded sample.

Figure 24: Adjusted NSS Curve (Jan 2015 – Jan 2016)

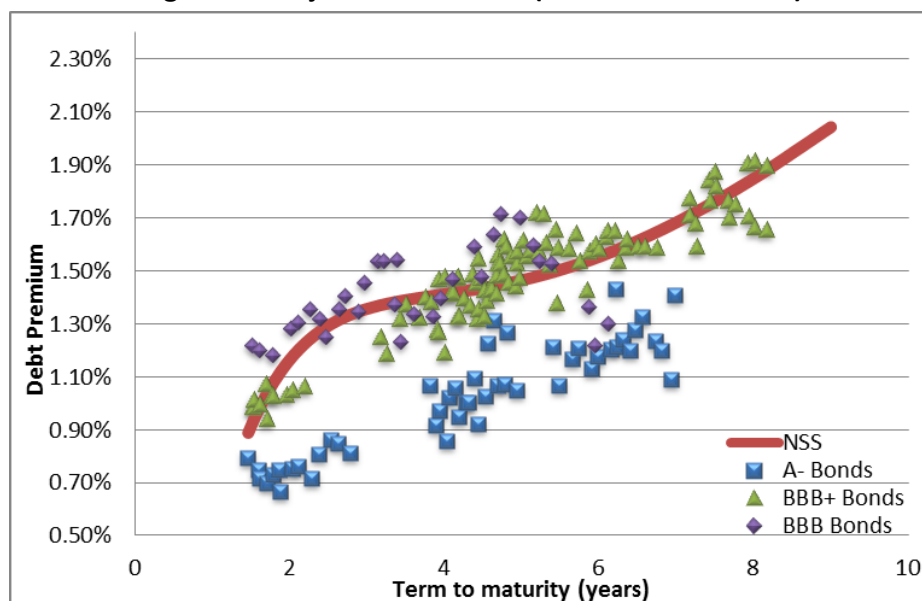
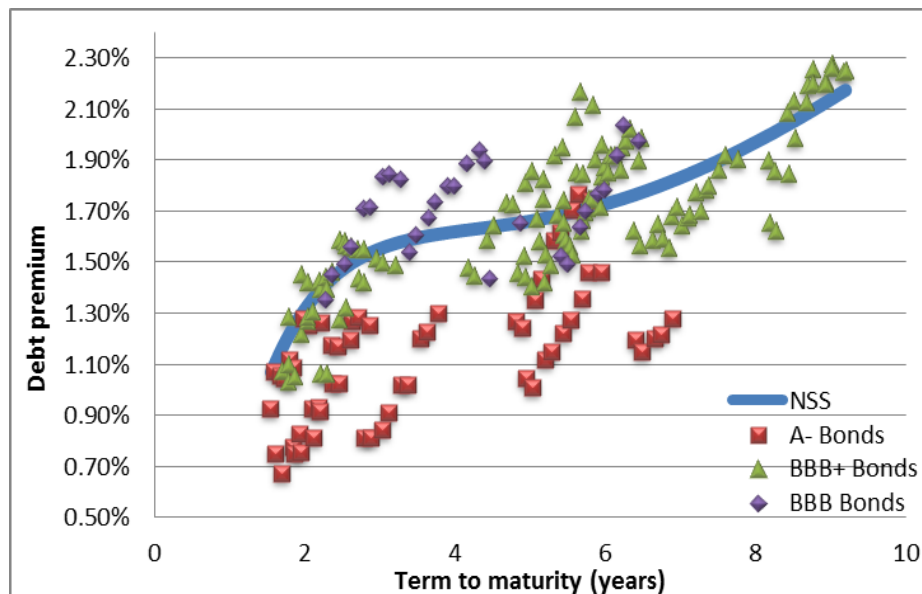


Figure 25: Adjusted NSS Curve (Jan 2014 – Jan 2015)



871. Figure 24 and Figure 25 demonstrate the debt premium curves spanning a year of observations and adjusted for credit rating using dummy variables. The parameters values used to generate the curves are also presented. Both annual yield curves have the same general shape and positioning of differently rated bonds.
872. It is interesting to note that the parameter values used in the model are very similar from one year to the next. This indicates for longer periods of data; the parameters used in the model show evidence of being stable (refer to Table 37 for parameter values). When compared with individual monthly parameter values, there can be significant differences (as monthly curves can fluctuate between curve shapes).
873. Stable annual parameter values suggest a consistent yield curve shape when using long averaging periods. When continuing with estimations, annual data is too long to be considered relevant at a point in time – the observations from 12 months ago would likely not be applicable to current estimations.
874. The Nelson-Siegel model appears useful for our bond data; the functional form allows for flexibility to take on many different curve shapes. Therefore the curve is able to be fitted to the data rather than enforcing a shape that may not be consistent with our data set of sample bonds. The Svensson extension allows for further flexibility of the curve to cater for different sets of data and different yield curve shapes.

Example of an estimation

Figure 26: EDB/GPB NSS Curve (Jan – Mar 2016)

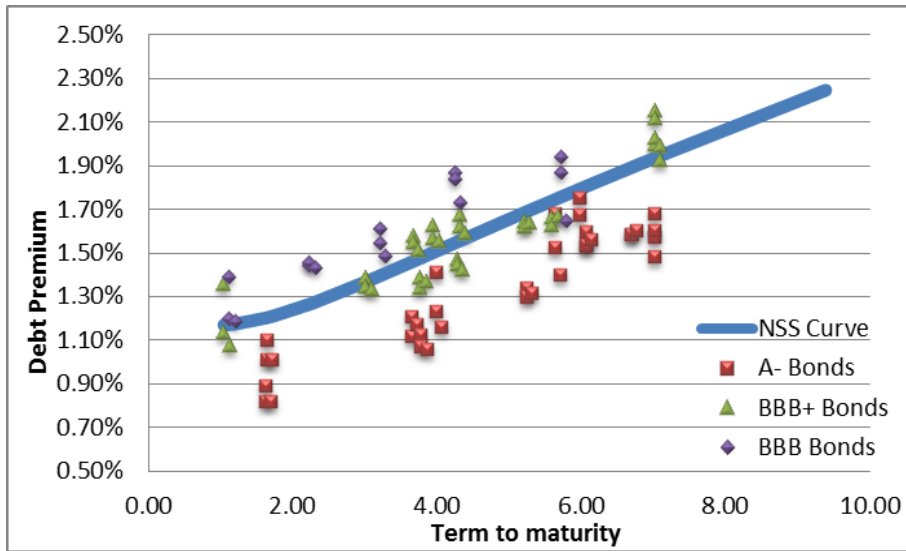
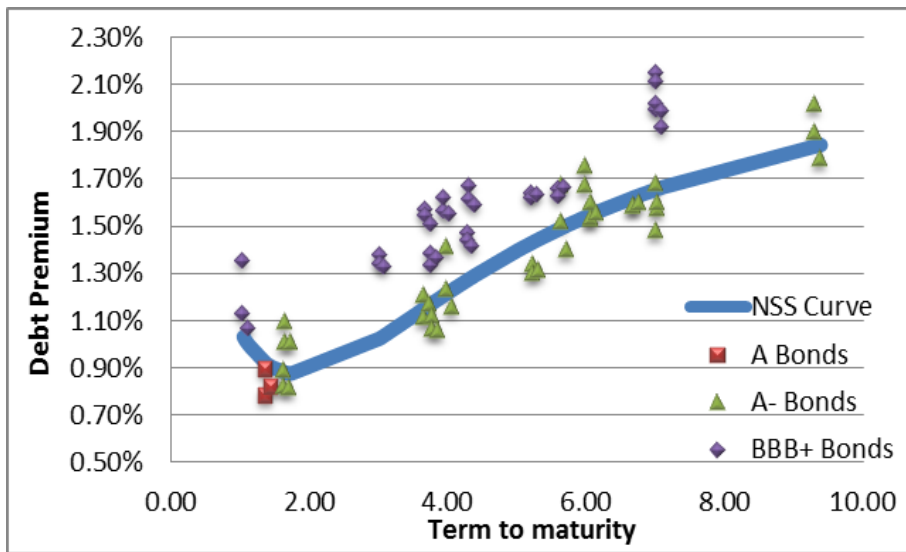


Figure 27: Airport NSS Curve (Jan – Mar 2016)



875. Figure 26 and Figure 27 demonstrate the estimation of the debt premium for a three-monthly averaging period for the EDB/GPB and airport sectors. The EDB/GPB determination includes BBB, BBB+ and A- rated bonds to determine the BBB+ debt premium. The airport determination includes BBB+, A- and A rated bonds to estimate the A- debt premium.

Table 37: Parameter values for different averaging periods

Parameters	EDB/GPB Jan 2015 – Jan 2016	EDB/GPB Jan 2014 – Jan 2015	EDB/GPB Jan – Mar 2016	Airport Jan – Mar 2016
β_1	-13.58	-13.45	-0.056	-0.0020
β_2	13.56	13.43	0.069	0.025
β_3	-9.20	-9.09	-8.72	-13.49
β_4	0.079	0.082	-0.0088	-0.049
β_5	0.00038	0.00039	0.0015	0.0027
β_6	-0.0036	-0.0036	-0.0029	-0.00084
λ_1	-3611.24	-3723.43	-3797.60	-158281
λ_2	1.16	1.26	1.19	1.02

876. Table 37 shows the parameter values for different averaging periods for estimating the debt premium term structure using formula 2. The annual averaging periods have very similar parameter values, and the three-month averaging periods are also comparable.

877. With different bond samples, the framework is optimised such that there are different parameter estimates – leading to different NSS curve shapes. The five-year estimates were consistent with the Commission estimates using the current approach.

Nelson-Siegel-Svensson: Strengths, weaknesses and assumptions

Overview of strengths and weakness:

878. Strengths:

878.1 can observe the debt premium at any term to maturity within the range of the curve (ie, bonds not observable in the market);

878.2 can generate relatively robust estimations from the yield curve with limited observations;

878.3 strong theoretical foundations – proven to produce reliable results;

878.4 similar to methods used in other countries (specifically Australia) for use in estimating the debt premium;

878.5 the functional form of the NSS model was created to be capable of handling a variety of yield curve shapes that are observed in the market; and

878.6 easily replicable.

879. Weaknesses:

879.1 may be perceived as complex and not fully transparent due to the complicated functional form;

879.2 there are several assumptions that must be made in the NSS model; and

879.3 there could be a potential collinearity problem (however very unlikely).

880. The NSS approach appeared to give reliable estimations for all of the time period averages (even with the lack of bonds in individual months). The relatively constant parameters for longer-term averages indicate a dependable general shape of the yield curve. The NSS model applied here can be easily reproduced in an excel spreadsheet. However the monthly data would need to be manually added to the spreadsheet and formatted or a mechanical process adopted.

881. The Nelson-Siegel model (and Svensson extension) can occasionally be prone to a collinearity problem. Even with badly-conditioned models, we can still obtain small residual values (indicative of a well-fitting model). For many values of the parameter λ ; the factor loadings can be highly correlated.⁶⁵⁰ An example of the collinearity would be if λ_1 and λ_2 are approximately equal; therefore β_3 and β_4 will have the same factor loading and give two perfectly collinear regressors. Although collinearity like this is very unlikely, when forecasting, correlated regressors are not necessarily a problem. (Gilli, Grobe, & Schumann, 2010).

882. When generating the yield curves to estimate the debt premium, we have implicitly assumed that:

882.1 liquidity of bonds (on-the-run vs. off-the-run) would have an effect on the bid-yield to maturity and subsequent debt premium, but is not taken into account in the model';⁶⁵¹

882.2 outer-rated bonds in the sample (BBB and A-) have the same yield curve shape as the BBB+ rated bonds; and

882.3 there is no significant difference between majority government-owned corporate bonds and private corporate bonds.

883. Incorporating dummy variables for outer-rated bonds (A- and BBB) allows expansion of the bond sample while taking into account the differences from these bonds.

⁶⁵⁰ Factor loadings represent how much a factor explains a variable.

⁶⁵¹ On-the-run bonds are newly issued bonds and generally exhibit a lower yield and higher price compared with a similar term to maturity (already out in the market) off-the-run bonds.

Attachment E: Analysis of the term credit spread differential

Purpose of this attachment

884. The purpose of this attachment is to provide further information on our changes to the TCSD.

Adjustments to the term credit spread differential

885. We have made some adjustments to the TCSD applied in the IMs. As described in paragraph 176 we decided that the policy intent for the TCSD remains valid, but that some improvements could be made to the way that it is implemented.

886. This attachment provides more information on why we considered that the approach to the TCSD could be improved and outlines changes we have made to the methodology.

886.1 Firstly, we consider why changes to the TCSD methodology better implement the policy intent behind the TCSD.

886.2 Secondly, we explain how we have determined a fixed relationship between original debt terms and the additional debt premium associated with debt with an original tenor over five years.

Issues with the previous approach

887. The previous IMs determined a TCSD for qualifying suppliers that was calculated using a formula that combined:

887.1 the additional debt premium associated with each issuance of debt that has an original term to maturity in excess of the five-year debt premium (the 'spread premium');⁶⁵²

887.2 an allowance for swap costs; and

887.3 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.⁶⁵³

⁶⁵² This debt is called 'qualifying' debt.

⁶⁵³ We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

888. The spread premium and the debt issuance adjustment are the most material elements of the TCSD. The debt issuance adjustment is a fixed relationship based on an assumption of debt issuance costs. The debt issuance costs were previously assumed to be 0.35% p.a. for a five-year period. This formula was specified in the IMs and meant that (proportionally) the impact was the same for all debt that had the same original term. The debt issuance costs adjustment was calculated as:⁶⁵⁴

$(0.0175 \div \text{original tenor of the qualifying debt} - 0.0035) \times \text{book value in New Zealand dollars of the qualifying debt at its date of issue}$

889. A different approach was undertaken for the spread premium. The spread premium was estimated using Bloomberg data and was calculated by using the difference between:

889.1 the yield shown on the Bloomberg New Zealand 'A' fair value curve *minus* the New Zealand swap rate quoted by Bloomberg (for a tenor equal to the original tenor of the qualifying debt); and

889.2 the yield shown on the Bloomberg New Zealand 'A' fair value curve *minus* the New Zealand swap rate quoted by Bloomberg (for a tenor of five years).

890. These values were taken from Bloomberg on the date that the debt was originally issued.

891. Two issues were raised with the previous approach.

891.1 The New Zealand 'A' fair value curve is no longer published by Bloomberg.⁶⁵⁵

891.2 The calculation requires four pieces of data, which are from daily Bloomberg estimates. As a result, calculating the difference between the corporate spread and the swap spread could lead to unstable results. The output can be very variable from day to day, and may not accurately reflect the real spread premium incurred by firms.

892. We were aware of the potential for variability from this calculation when setting the IMs in 2010 and so we applied a minimum and maximum value for the spread premium. This minimum value was set at 0.0015 and the maximum was set at 0.006.⁶⁵⁶

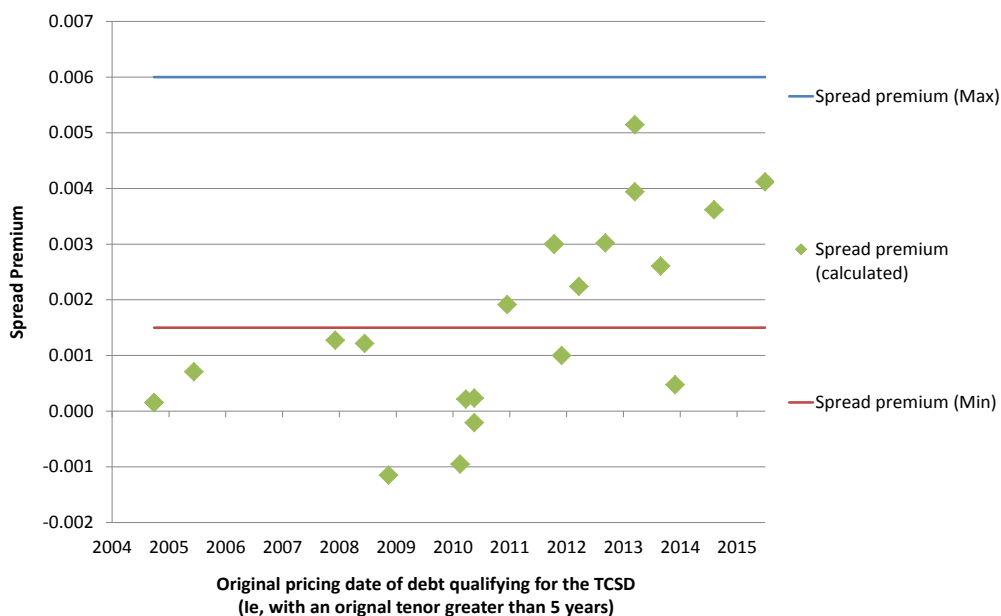
893. Figure 28 shows how the spread premium calculated by Transpower for its TCSD in 2015 is often at the minimum value. Similar outcomes can be seen for other suppliers that issue longer-term debt.

⁶⁵⁴ *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 2.4.11.

⁶⁵⁵ Due to this issue we have amended the IMs for Transpower so that an alternative methodology can be applied. See: *Transpower Input Methodologies Amendment Determination 2015 (No.2)* [2015] NZCC [27].

⁶⁵⁶ For example, see: *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 2.4.10.

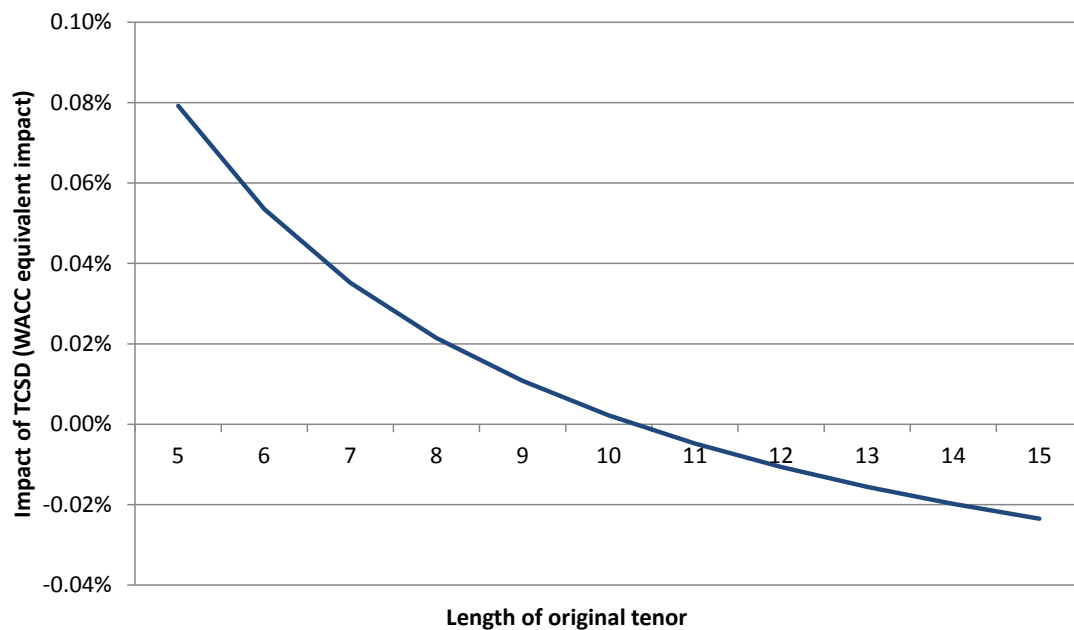
Figure 28: Calculation of the spread premium for Transpower’s 2015 TCSD



- 894. A problem arose when the spread premium was at the minimum value because when it was combined with the debt issuance cost adjustment it resulted in a decreasing allowance from the TCSD with increasing original term.
- 895. Figure 29 shows this effect and how, when the minimum value for the spread premium is used, the TCSD reduced as original tenor increased.⁶⁵⁷

⁶⁵⁷ Although Figure 29 shows a negative TCSD, the IMs limit the allowance to zero. Therefore, the TCSD would never have a negative impact on a supplier’s revenue allowance.

Figure 29: Decreasing TCSD with increasing original tenor for a spread premium at the minimum value of 0.0015



896. For this relationship to be correct it relies on a greater impact from the reduction in per annum debt issuance costs than the increase in the spread premium from issuing debt with a longer original tenor. However, because of the variability in the data, it is difficult to determine the appropriateness of our previous approach.

Revised approach

897. We have decided that a more appropriate methodology is to determine a fixed positive relationship between original tenor of issued debt and the additional spread premium.⁶⁵⁸ The benefits of this revised approach are to:

897.1 no longer require the use of the Bloomberg fair value 'A' Curve;

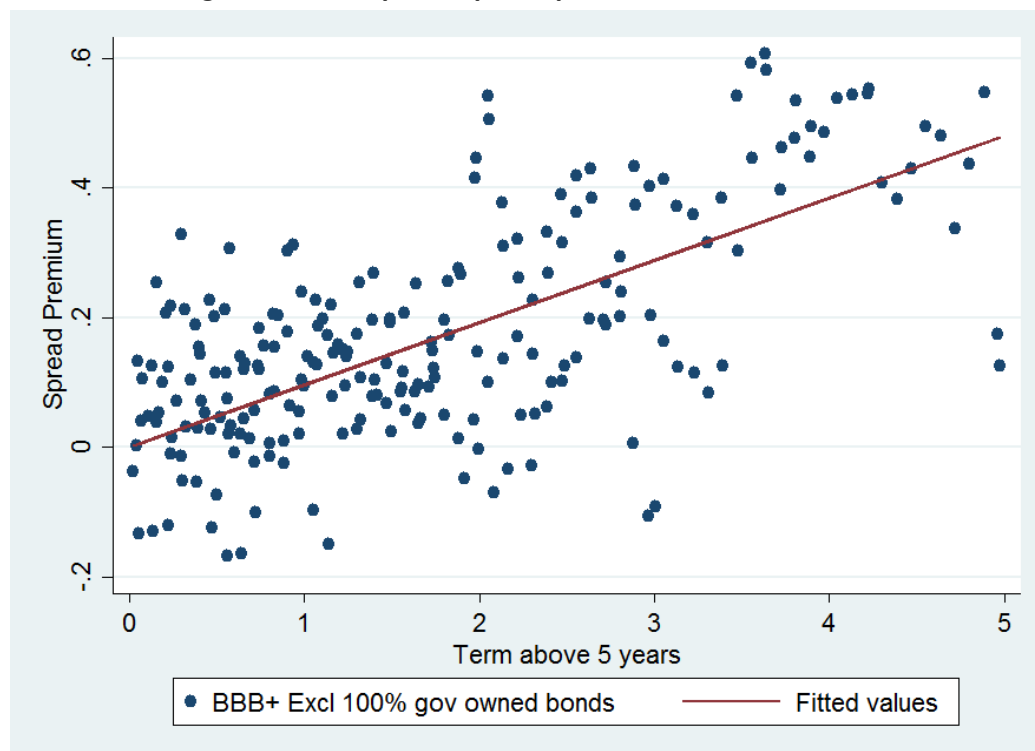
897.2 reduce the complexity and administrative burden compared to the previous approach because firms will no longer need to obtain market information on corporate bond yields or the interest rate swap rate; and

897.3 provide a positive relationship between the length of debt and the additional TCSD allowance. This is consistent with our consideration that the issuance of longer-term debt generally provides long-term benefits to consumers (due to reduced refinancing risks).

⁶⁵⁸ The TCSD would also no longer provide an allowance for the costs of executing an interest swap, because the costs of swaps would be considered as part of the allowance for debt issuance costs.

898. The fixed relationship has been determined by analysing the observed spread premiums for NZ domestic vanilla bonds with remaining tenor greater than five years and an estimate (using interpolation) of the equivalent government bond rate.
899. We then fitted a linear slope to the data points associated with a specific credit rating.⁶⁵⁹ The slope is shown in Figure 30 for BBB+ rated bonds.

Figure 30: Example of spread premium estimation



900. In the draft decision we estimated a spread premium of 5.59 bps p.a. for a BBB+ rated bonds and a spread premium of 1.72 bps p.a. for an A- rated bonds.⁶⁶⁰
901. In response to our draft decision, CEG suggested that we could improve the estimate of the spread premium by:
- 901.1 estimating a spread premium for individual months of data rather than pooling data over the whole historical period;⁶⁶¹
 - 901.2 excluding bonds that were issued by 100% government-owned companies;⁶⁶² and

⁶⁵⁹ The intercept of the linear slope was set to zero.

⁶⁶⁰ Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016), para 733.

⁶⁶¹ CEG (report prepared for ENA) submission on IM review draft decisions papers "Review of the proposed TCSD calculations" (4 August 2016), para 8.

- 901.3 excluding bonds that have a BVAL score below 6.⁶⁶³
902. We agree with CEG that there are some concerns with pooling across the whole sample. To account for these concerns, we have broken the full dataset into semi-annual periods to estimate spread premiums before calculating the average spread premium over the sample.
903. In analysing CEG's data, we found that some monthly spread premium estimates included large outliers and missing values due to insufficient bond observations in those months. For this reason, we focus on a semi-annual period rather than a monthly period as proposed by CEG.
904. We also agree with CEG that the yields on bonds issued by companies with 100% government ownership appear to behave differently and have lower debt premiums than other equivalent bonds. Therefore, we have excluded bonds from the sample that were issued by 100% government-owned companies.^{664, 665}
905. We do not consider that we need to include the BVAL restriction in our analysis. The BVALs are a third-party assessment on the reliability of bond data, which is potentially less objective than alternative criteria. In CEG's analysis, it was also found that applying the BVAL score restriction mostly excluded bonds which, at the time, were issued by a 100% government-owned entity. Given that we have excluded these type of bonds anyway, we do not consider that including the BVAL criteria would significantly improve the dataset.
906. A key assumption required to estimate the spread premium is to obtain an estimate of the five-year debt premium so that the 'spread' can be estimated.⁶⁶⁶ This estimate is required for each semi-annual period we have used in our analysis.
907. To provide a more robust estimate we have undertaken analysis using both CEG's estimate of the five-year debt premium which they have estimated using a NSS curve,⁶⁶⁷ and the Commission's historical debt premium estimates in the relevant

⁶⁶² CEG (report prepared for ENA) submission on IM review draft decisions papers "Review of the proposed TCSD calculations" (4 August 2016), para 18-29.

⁶⁶³ BVAL scores are used as a proxy for reliability of data. Bloomberg assigns each bond yield a BVAL score from 1 to 10, with 10 being the most reliable pricing information and 1 being the least reliable. CEG (report prepared for ENA) cross submission on IM review draft decisions papers: Topic paper 4 (Cost of capital) "Review of the proposed TCSD calculations – Update report" (25 August 2016), para 1.

⁶⁶⁴ In practice this has resulted in the removal of bonds issued by CIAL and three gentailers (Meridian, Genesis, Mighty River Power) prior to their part-privatisation.

⁶⁶⁵ We have also made an equivalent change in our methodology to estimate the debt premium.

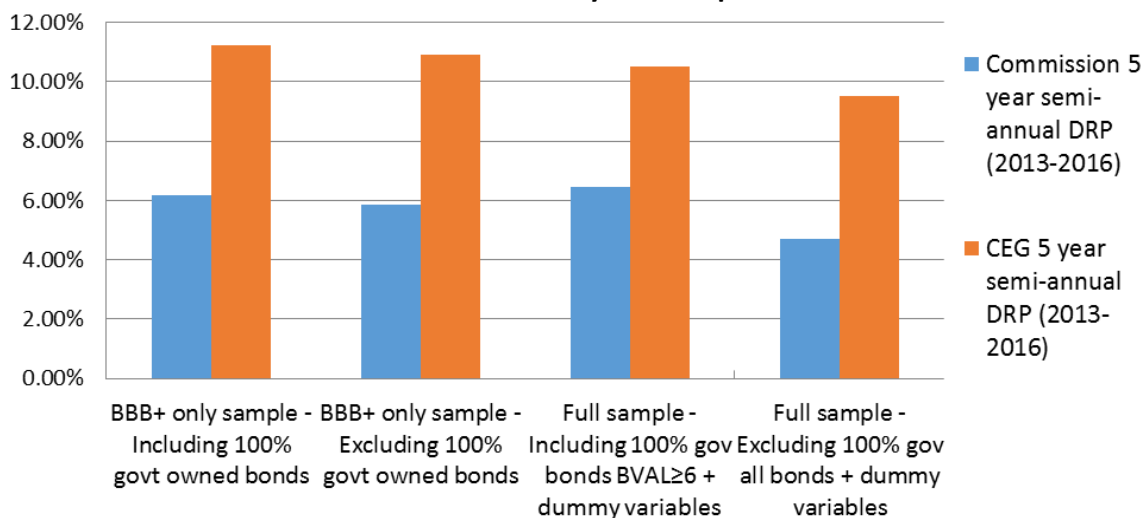
⁶⁶⁶ For example, when evaluating a seven-year corporate bond, we also need an estimate of the five-year debt premium, so the two-year spread can be estimated.

⁶⁶⁷ CEG (report prepared for ENA) submission on IM review draft decisions papers "Review of the proposed TCSD calculations" (4 August 2016), para 39.

time periods.⁶⁶⁸ We also analysed samples using only BBB+ bonds and also samples with BBB, BBB+ and A- bonds with rating dummy variables.

908. Figure 31 shows the comparison between spread premium estimates using the Commission and CEG’s five-year debt premium estimate in regard to four different samples. We have focussed on the period from 2013-2016 due to some anomalously high debt premium’s estimates prior to 2013 – leading to negative spread premium estimates on longer-term bonds.

Figure 31: Comparison of spread premiums estimates using CEG and Commission estimates of the five-year debt premium



909. There is a common range between around 4.5 – 6 bps p.a. for the Commission estimates, and around 9.5 – 11 bps p.a. for the CEG slope. Giving a greater weight to the our estimates, we consider that a spread premium of 7.5 bps p.a. is a reasonable estimate. Given the variation in the results (dependent on samples/time period used), we consider an approximate judgement is more appropriate than a value from a specific dataset.

910. We consider that using a linear slope is the most appropriate methodology to determine the spread premium required for the TCSD equation, rather than an alternative like a fitting a NSS curve.⁶⁶⁹ This is because:

910.1 it is straightforward to implement; and

910.2 there are difficulties in fitting NSS curves to the limited data points that we have on debt premiums greater than seven years – this is particularly relevant for A- bonds.

⁶⁶⁸ We note that these estimates have only used one month of data, but we have assumed that they are consistent over the whole six month period.

⁶⁶⁹ The use of NSS curves to help estimate the debt premium are discussed in more detail in Attachment C.

911. In addition to the additional credit spread premium incurred from issuing debt with longer maturity dates, the TCSD takes into account the reduced per annum issuance costs associated with longer-term debt.
912. Our estimate of the issuance costs is fixed, and so therefore regardless of the debt term, the required adjustment can be calculated based on our allowance of 0.20% p.a. issuance costs for debt with a five-year original term. Table 38 provides the lower debt issuance costs associated with debt that has a longer original tenor and also how this translates to a debt issuance cost adjustment as part of the TCSD calculation.

Table 38: Debt issuance costs adjustment factor

Tenor	5	6	7	8	9	10
Issuance costs (0.20% × 5/tenor)	0.20%	0.17%	0.14%	0.13%	0.11%	0.10%
Debt issuance adjustment	0.00%	-0.03%	-0.06%	-0.07%	-0.09%	-0.10%

913. From combining credit spread premium and the issuance costs adjustment, a fixed relationship between the original tenor of issued debt and the TCSD can be determined

Table 39: TCSD adjustment for different original tenor length (EDBS, GPBS and Transpower)

Tenor	5	6	7	8	9	10
Spread premium	0.00%	0.075%	0.15%	0.225%	0.30%	0.375%
Debt issuance adjustment	0.00%	-0.03%	-0.06%	-0.07%	-0.09%	-0.10%
TCSD premium	0.00%	0.05%	0.09%	0.16%	0.21%	0.28%

914. To incorporate the TCSD formula for energy businesses in the IMs we propose to:
- 914.1 provide a formula in which the input would be the original tenor of the relevant debt issuance – this input would not need to be rounded;
- 914.2 use the formula to calculate the TCSD premium for each bond by determining the relevant spread premium and debt issuance costs adjustment;
- 914.3 set the maximum tenor allowed in the calculation to be 10 years; and
- 914.4 apply those values to any qualifying debt in the same manner as the present TCSD.

915. The benefit compared to the current approach is that using a fixed value will simplify both the calculation of the TCSD and ensure that it always increases with the original tenor of qualifying debt.
916. As noted in paragraph 192 we have decided not to include a TCSD allowance for airports because any spread premium is likely to be outweighed by the debt issuance cost adjustment.

Attachment F: Materiality of dual WACC approach

Purpose of this attachment

917. The purpose of this attachment is to discuss the materiality of the dual WACC approach discussed in Chapter 6.

Dual WACC option

918. We describe in Chapter 6 the potential for perverse incentives with our current approach for determining a CPP WACC.
919. Our decision is to apply the DPP WACC for CPPs. However, one alternative option that was suggested was to introduce a dual WACC approach in which a different WACC is applied to different types of capex under the CPP. Advice from Dr Lally recommended this option because it minimises the identified incentive issues.⁶⁷⁰
920. Submissions from suppliers did not recommend the dual WACC approach suggesting there are some implementation issues and that it adds complexity to the regime.⁶⁷¹

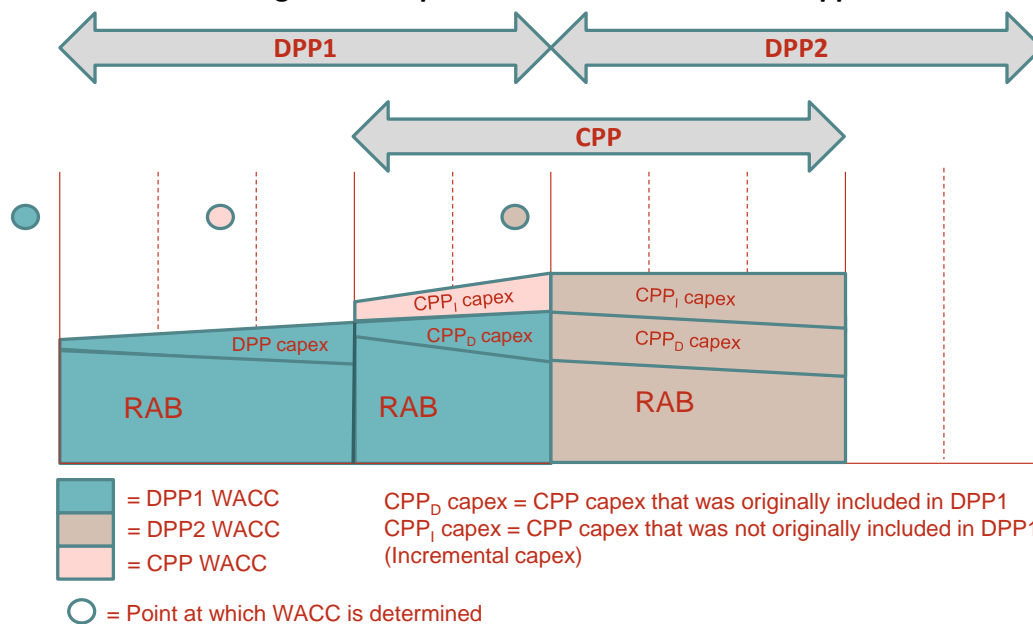
Explanation of the Dual WACC approach

921. The dual WACC approach would have applied a different WACC to different types of capex and the existing asset base. Figure 32 provides an illustration of how this might work in practice. The capex allowance under the CPP can be split into two categories, capex that was originally allowed for under a DPP and 'incremental capex' that is the additional capex provided for under a CPP.
922. There are two variants of the dual WACC approach. The first variant (shown in Figure 32) applies the CPP WACC to incremental capex until the end of the DPP. A second variant applies the CPP WACC to incremental capex until the end of the CPP.

⁶⁷⁰ Dr Martin Lally "Complications arising from the option to apply for a CPP" (18 September 2015).

⁶⁷¹ For example see: PwC (on behalf of 19 Electricity Distribution Businesses) "Submission to the Commerce Commission on input methodologies review: Update paper on the cost of capital" (5 February 2016), para 20; Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 53.

Figure 32: Implementation of a dual WACC approach



- 923. Under the first variant, the CPP WACC would be applied to additional capex approved during the CPP process (incremental capex), while the DPP WACC is applied to the RAB and the CPP capex that was originally included under the DPP. At the reset of the DPP, the new DPP WACC would apply to the RAB and future capex.
- 924. We consider that this type of approach can be implemented. However the difference in return on capital associated with applying a CPP WACC to incremental capex is likely to be a small element of the total return on capex. This was considered when assessing the benefits of the dual WACC approach.
- 925. The materiality was assessed by evaluating an example of the type of circumstances in which the dual WACC approach might be applied. One possible scenario would be that:
 - 925.1 incremental capex under a CPP (ie, additional capex above that which was allowed under a DPP) is equivalent to 5% of RAB over the CPP period;⁶⁷² and
 - 925.2 the CPP applies for three years before the DPP WACC is reset.⁶⁷³
- 926. If the incremental capex is 5% per year for three years, then the return on capital determined from the CPP WACC would be 10% of the total return on capital for

⁶⁷² We expect this would be at the high end of potential step-changes under a CPP.

⁶⁷³ We consider three years is appropriate because the CPP WACC is currently determined prior to a CPP application, which can be more than a year before the CPP starts. This means that any CPP that starts in the first or second year of a DPP is likely to have a CPP WACC equivalent to the DPP WACC or one that was determined prior to the DPP WACC. However, in year 3 a CPP WACC could be significantly differently to the DPP WACC.

those three years.⁶⁷⁴ The average over the five-year DPP regulatory period would be 6%.⁶⁷⁵

927. We also assume that the return on capital is approximately 30% of the total revenue allowance for the period and that the difference between the CPP WACC and DPP WACC is one third (eg, a 2% reduction from 6% to 4%).

928. Over the five-year period the impact on revenues would be:

Impact on price path \approx % revenue from the return on capital \times % of return on capital from Incremental CPP capex \times change in WACC value

Impact on price path $\approx 30\% \times 6\% \times 33\%$

Impact on price path $\approx 0.5\%$

929. This hypothetical example illustrates the potential materiality of the dual WACC approach on the price path. Given the relatively high assumptions for incremental CPP capex and the change in the WACC, we consider a 0.5% impact is at the high end of possible outcomes.

930. Applying a dual WACC option would have also required us to calculate a CPP WACC based on debt terms that are consistent with the time period to the next DPP reset. For example, if the CPP commences one year prior to the reset of the DPP then the CPP WACC would be estimated using a risk-free rate and debt premium that applies for one year. This further complicates the approach.

931. The second variant of the dual WACC approach would have been to apply the CPP WACC to CPP incremental capex until the end of the CPP, rather than until the start of the new DPP period. This approach would increase the materiality of the dual WACC approach but would increase the complexity. It would require us to maintain a differential between different types of capex for a longer period of time. As a result, we have not considered this variant of the dual WACC approach in detail.

932. After considering the materiality on the price path, we have decided that a dual WACC approach would not be appropriate for a CPP given the complexity costs associated with it and limited impact it is likely to have on investment incentives.

933. We consider that the existing DPP WACC should be applied to both the existing RAB and all new capex under a CPP. When the DPP WACC changes the new DPP WACC will be applied to the CPP path.

⁶⁷⁴ In the first year the CPP WACC applies capex equivalent to 5% of RAB. In the second year the CPP applies to the capex equivalent to 10% of RAB (5% from the first year and 5% from the second year). In the third year the CPP applies to the capex equivalent to 15% of RAB (5% from the first year, 5% from the second year and 5% from the third years). Therefore, the CPP WACC will apply to about 10% of the total return on capital for the three years, ie, $(5\% + 10\% + 15\%)/3$.

⁶⁷⁵ $10\% \times (3/5) = 6\%$.

934. This approach has the added benefit that we no longer need to estimate separate CPP WACCs.

Attachment G: Historical averaging approach to estimate the debt premium

Purpose of this attachment

935. The purpose of this attachment is to provide further information on the implementation of the historical averaging approach of the debt premium outlined in Chapter 3.
936. The historical averaging approach requires us to estimate a five-year debt premium each year and uses the average of five individual estimates (one for each year) to determine the 'average debt premium' used in the cost of debt formula in the IM determination.⁶⁷⁶
937. A summary of our debt premium methodology is described below.
- 937.1 Use 12 months of corporate bond data when estimating future debt premiums.
- 937.2 The 12 months of data corresponds to the debt premium reference year for each sector. The debt premium reference year ends on the same date as the determination window used to estimate the risk-free rate used in the WACC for price-quality paths.⁶⁷⁷
- 937.3 For historical debt premiums (ie, for years prior to the IM review) we will average all previous debt premium estimates published by the Commission (for the relevant credit rating) that correspond to the relevant debt premium reference year.
- 937.4 The average debt premium will be an average of five debt premium estimates that can be either an average of pre-IM review estimates, future estimates, or a mixture of both.

We have modified the approach proposed in the TCUP

938. The TCUP provided drafting of our original proposal to implement the historical approach. This original approach calculated an 'average debt premium' used in the cost of debt formula. This was an average of the 'debt premium' estimated each year when determining a WACC for ID.⁶⁷⁸

⁶⁷⁶ For example: *Electricity Distribution Services Input Methodologies Amendments Determination 2016* [2016] NZCC 24, clause 4.4.1.

⁶⁷⁷ For airports the 'debt premium reference year' corresponds to the end of the determination window used to estimate the risk-free rate for the WACC for the information disclosure year for Auckland and Christchurch airports.

⁶⁷⁸ Commerce Commission "Input methodologies review – Technical consultation update paper" (13 October 2016), Attachment A.

939. Submissions from suppliers on the implementation of the historical average of the debt premium suggested that:

939.1 we should use 12 months of data to estimate the debt premium each year rather than the three months proposed;⁶⁷⁹ and

939.2 the same determination windows should be used for the debt premium as the risk-free rate.⁶⁸⁰

940. After considering these submissions, we have made some changes to the methodology that we consider better implements the policy intent to provide a representative five-year debt premium.

941. Our revised approach to estimating the annual five-year debt premium only comes into effect in the future (ie, following the IM review). We will not be re-estimating historical debt premiums (ie, for years prior to the IM review). Instead, to estimate a historical debt premium we will average all of the relevant debt premiums already published by the Commission in that particular year.

Future estimates of the debt premium

942. Future estimates of the debt premium will use 12 months of corporate bond data to estimate an annual premium. This was suggested by the ENA as an improvement to our suggested approach.⁶⁸¹

The ENA supports a move to a historical average approach for the debt premium. However, the ENA questions why the historical average has been specified in this way, and not as an average of the full five year period. This could be achieved for example by extending the annual determination window to 12 months, or by estimating a debt premium every quarter and then averaging the quarterly values over 5 years.

943. We agree that using 12 months of data provides a more comprehensive estimate with only a limited amount of additional administrative effort. It reduces the risk that anomalous periods are not captured in the dataset.

944. We have also changed the alignment of the 12 months of data used so that it is consistent with the end of the determination window used to estimate the risk-free rate.

⁶⁷⁹ ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), para 34; Vector "Vector submission on the draft amended input methodologies determinations" (3 November 2016), p. 7; Orion submission on IM review technical consultation and on the ENA letter regarding live-line work "Submission on input methodologies review technical consultation" (3 November 2016), para 12.

⁶⁸⁰ Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 5-6; ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), para 37.

⁶⁸¹ Transpower "Input methodologies review: Technical consultation on updates to draft determinations" (3 November 2016), p. 5-6; ENA "Input methodologies review: Technical consultation update paper – Submission to the Commerce Commission" (3 November 2016), para 34.

945. The specific alignment of the 12 month window is not expected to have a large impact on estimates, given we will use five years of data. However, we consider that it is more appropriate than aligning the reference period with disclosure years because we will be able to use the most recent available data when setting the WACC for price-quality paths. This is important because it is only the WACC for price-quality paths that directly affects allowable revenue for regulated suppliers.⁶⁸²
946. Airports are not subject to price-quality paths and so we have set the debt premium reference year for airports to align with the disclosure year of Auckland and Christchurch airports.
947. We do not consider it is necessary or desirable to have a separate historical average estimate for different suppliers in the same sector. There is likely to be minimal impact from a slightly different alignment window and so we have used one debt premium reference year for the whole airport sector and have chosen the disclosure year that covers airports that in combination have the largest RAB.⁶⁸³
948. The debt premium reference years (**DPRYs**) that will be used for each sector are therefore:
- 948.1 EDBs – September to August;⁶⁸⁴
- 948.2 Transpower – September to August;
- 948.3 GPBs – March to February; and
- 948.4 Airports – July to June.

Estimates of the debt premium for years prior to the IM review

949. The TCUP suggested that when estimating the debt premium for previous years we would use the debt premiums previously estimated by us for each ID year for each supplier. However we have now modified this approach to take into account all debt premium estimates in a particular year for the relevant credit rating.⁶⁸⁵

⁶⁸² We will use the same debt premium estimate for ID, as for price-quality paths. This will result in a slight misalignment between the risk-free rate used for ID and the debt premium, however we consider the impact will be minimal because we are using a five year historical average.

⁶⁸³ This approach means that WACC estimates determined for different quarters but subject to the same debt premium reference year will have identical values for the debt premium.

⁶⁸⁴ For example, the 'debt premium reference year 2017' for EDBs is the period September 2016 to August 2017.

⁶⁸⁵ Ie, we will now include the debt premiums estimated for ID, DPPs, IPPs, and CPPs.

All the relevant Commission estimates within a ‘debt premium reference year’ will be used to estimate the debt premium for the years prior to the IM review.

950. Table 40 shows a summary of all of these previous debt premium estimates by the Commission and the average over each debt premium reference year.^{686, 687}
951. We will average all relevant estimates within a debt premium reference year to obtain an annual debt premium for all sectors.⁶⁸⁸

Combining previous and future estimates

952. To achieve a final historical average, we will combine five years of data. For example to obtain a historical average for the EDB IPP reset in 2020 we will average the debt premiums estimated for the reference years 2016-2020. The values for 2016 and 2017 are already known (1.59% for both years), and the values for 2018, 2019, 2020 will be estimated in each year prior to the reset.
953. For example the ‘average debt premium’ in each sector calculated as per the date of the final IM decision are:
- 953.1 EDBs and Transpower: $(2.24\% + 2.04\% + 1.76\% + 1.59\% + 1.59\%)/5 = \mathbf{1.84\%}$
- 953.2 GPBs: $(1.90\% + 2.34\% + 1.84\% + 1.66\% + 1.54\%)/5 = \mathbf{1.86\%}$
- 953.3 Airports: $(2.06\% + 1.50\% + 1.25\% + 1.05\% + 1.38\%)/5 = \mathbf{1.45\%}$

⁶⁸⁶ Note that that shows the date of publication of the WACC determination and the market data used to estimate the WACC is from the previous month (for example the September 2016 BBB+ WACC estimate of 1.71% uses market data from August 2016). Therefore when determining the historical estimates for each debt premium reference year the averaging period is lagged by a month compared to the period described in para 948.

⁶⁸⁷ All of these previous WACC determinations (including our estimate of the debt premium used) are available on the Commerce Commission website at: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/cost-of-capital-2/>

⁶⁸⁸ These historical values have been specified in the IM determination.

Table 40: Previous debt premium estimates publish by the Commission

Year	Month	Date	5 year debt premium BBB+	5 year debt premium A-	Debt premium (EDBs and Transpower)	Debt premium (GPBs)	Debt premium (Airports)
2011	4	Apr-11	1.70%	1.39%			
2011	6	Jun-11					
2011	7	Jul-11	1.75%	1.64%		DPRY 2013	
2011	9	Sep-11	1.90%			=	
2011	10	Oct-11	1.90%			1.90%	
2011	12	Dec-11	2.00%				DPRY 2013
2012	1	Jan-12	2.15%		DPRY 2013		=
2012	3	Mar-12			=		2.06%
2012	4	Apr-12	2.35%	1.94%	2.24%		
2012	6	Jun-12					
2012	7	Jul-12	2.55%	2.18%		DPRY 2014	
2012	9	Sep-12	2.50%			=	
2012	10	Oct-12	2.45%			2.34%	
2012	12	Dec-12	2.15%				DPRY 2014
2013	1	Jan-13	2.05%		DPRY 2014		=
2013	3	Mar-13			=		1.50%
2013	4	Apr-13	2.05%	1.54%	2.04%		
2013	6	Jun-13	1.85%				
2013	7	Jul-13	1.85%	1.45%		DPRY 2015	
2013	9	Sep-13	1.85%			=	
2013	10	Oct-13	1.80%			1.84%	
2013	12	Dec-13	1.70%				DPRY 2015
2014	1	Jan-14	1.80%		DPRY 2015		=
2014	3	Mar-14	1.85%		=		1.25%
2014	4	Apr-14	1.80%	1.31%	1.76%		
2014	6	Jun-14	1.75%				
2014	7	Jul-14	1.75%	1.18%		DPRY 2016	
2014	9	Sep-14	1.65%			=	
2014	10	Oct-14	1.55%			1.66%	
2014	12	Dec-14	1.55%				DPRY 2017
2015	1	Jan-15	1.60%		DPRY 2016		=
2015	3	Mar-15	1.65%		=		1.05%
2015	4	Apr-15	1.65%	1.09%	1.59%		
2015	6	Jun-15	1.60%				
2015	7	Jul-15	1.53%	1.00%		DPRY 2017	
2015	9	Sep-15	1.62%			=	
2015	10	Oct-15	1.56%			1.54%	
2015	12	Dec-15	1.35%				DPRY 2017
2016	1	Jan-16	1.46%		DPRY 2017		=
2016	3	Mar-16	1.58%		=		1.38%
2016	4	Apr-16	1.64%	1.36%	1.59%		
2016	6	Jun-16	1.72%				
2016	7	Jul-16	1.70%	1.40%			
2016	9	Sep-16	1.71%				



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20 December 2016	1178-2560	<i>Gas Distribution Services Input Methodologies Amendments Determination 2016 [2016] NZCC 25</i>
20 December 2016	1178-2560	<i>Gas Transmission Services Input Methodologies Amendments Determination 2016 [2016] NZCC 26</i>
20 December 2016	1178-2560	<i>Transpower Input Methodologies Amendments Determination 2016 [2016] NZCC 27</i>
20 December 2016	1178-2560	<i>Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28</i>
20 December 2016	1178-2560	<i>Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29</i>

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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to explain in relation to the airports profitability topic:
- X1.1 the problems we have identified within this topic area;
 - X1.2 our solutions to these problems;
 - X1.3 the reasons for our solutions; and
 - X1.4 how we have taken stakeholders' submissions into account in considering the above.
- X2. This paper relates to regulated suppliers of specified airport services, and will also be of interest to airlines, industry representatives and other interested persons.

Overview of the airports profitability topic

Scope of topic

- X3. This topic focusses on the forward-looking profitability assessment for airports. We have identified several issues which have made it difficult to carry out this assessment. In considering solutions we took into account the views of interested persons through submissions on our problem definition paper and our input methodology (IM) review draft decision.^{1, 2} We also took into account the views expressed by interested persons at the two airports profitability assessment workshops.

Difficulties in conducting forward-looking profitability assessments

- X4. We have encountered a number of difficulties when conducting forward-looking profitability assessments. There was no requirement in the previous Airports Information Disclosure (ID) Determination for airports to disclose a forward-looking profitability indicator. This meant that when we conducted profitability assessments, we had to ourselves assess the profitability that each airport was targeting.
- X5. We have also found it difficult to determine the effective returns the airports were targeting because, when setting prices, airports do not have to follow the approaches assumed in our Airport IMs. Airports can use different approaches to those specified in the Airports IMs.

¹ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).

² Commerce Commission "Input methodologies review draft decisions: Topic paper 5 – Airports profitability assessment" (16 June 2016).

- X6. The different approaches mean that:
- X6.1 airports may target a different time profile of capital recovery to those implied by the Airport IMs;
 - X6.2 the scope of the asset base used by airports when setting prices can differ to that disclosed under the Airports ID Determination; and
 - X6.3 the profitability assessment may need to take into account multiple pricing periods.
- X7. This can make it difficult to compare forward-looking profitability to the backward-looking profitability indicator included in annual *ex-post* disclosures since airports have to apply the Airport IMs Determination to *ex-post* disclosures.
- X8. We also identified various problems with the transparency of the information disclosed by airports. This made it difficult for us and other interested persons to understand an airport's pricing intent.
- X9. This topic paper also discusses consequential amendments to the Airport IMs resulting from the High Court-ordered amendment to the Airport IMs that the initial regulated asset base (**RAB**) value for land has to be assessed as at 2010.³
- X10. A separate topic paper, on the weighted average cost of capital (**WACC**) percentile for airports, discusses the WACC percentile against which the forward-looking profitability indicator will be compared.⁴

We have identified a number of changes to improve our forward-looking profitability assessments

- X11. Table X1 summarises the areas in this topic where our analysis has led to changes in the Airport IMs Determination, the Airports ID Determination, or both. There are other issues that we have considered in relation to this topic which have not resulted in changes. These issues are discussed later in this paper.

³ We made the High Court-ordered amendment in 2014. See, *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289, para 892.

⁴ Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

Table X1: Summary of changes in relation to this topic

Change	Outcomes of the change	Chapter
<p>Require airports to disclose a forward-looking profitability indicator by using an internal rate of return (IRR) calculation that comprises:</p> <ul style="list-style-type: none"> • an opening investment value at the beginning of the pricing period; • a forecast closing investment value; and • forecast cash-flows over the duration of the pricing period. <p>Supplement the IRR with a carry forward mechanism that can be used to adjust the opening investment value and the closing investment value to better reflect an airport's pricing intent and that can take into account multiple pricing periods.</p>	<p>Greater transparency for interested parties to better understand an airport's approach to pricing and, in particular, whether the airport is limited in its ability to extract excessive profits.</p>	<p>Chapter 4</p>

Change	Outcomes of the change	Chapter
<p>Make the following changes with respect to asset revaluations for disclosure purposes:</p> <ul style="list-style-type: none"> • require airports to disclose forward and backward-looking costs in a way that is most consistent to the approaches used when setting prices; • limit airports in their approaches to revaluing assets to the use of either consumer price index (CPI)-indexation or an un-indexed approach (except when revaluing land using market value alternative use (MVAU)); • allow airports to make their choice of either CPI-indexation or an un-indexed approach for parts of the asset base separately; • allow airports to apply alternative methodologies with equivalent effect where the application of the asset valuation IMs would prove prohibitively complex or costly. (Alternative methodologies can only be applied if they do not detract from the purpose of Part 4); • allow airports to elect an approach to revaluing assets only at the beginning of the next pricing period, and require airports to use the same approach in the <i>ex-post</i> disclosures; and • require airports to provide details on the expected treatment of any revaluation gains in the next pricing period arising from a potential change in the approach to revaluing assets. 	<p>Greater accuracy in the disclosures to better reflect an airport’s pricing intent.</p> <p>Greater clarity about the requirements in the Airport IMs and ID determinations.</p> <p>Greater transparency for interested parties to better understand an airport’s approach to pricing.</p> <p>Reduce complexity and compliance costs.</p>	<p>Chapter 5</p>

Change	Outcomes of the change	Chapter
<p>Make the following changes with respect to depreciation:</p> <ul style="list-style-type: none"> • require airports to apply specified principles when using alternative depreciation approaches; and • allow airports to apply alternative methodologies with equivalent effect where the application of the asset valuation IMs would prove prohibitively complex or costly. (Alternative methodologies can only be applied if they do not detract from the purpose of Part 4.) 	<p>Greater clarity about the requirements in the Airport IMs and ID determinations.</p> <p>Reduce complexity and compliance costs.</p>	Chapter 5
<p>Make the following changes with respect to assets held for future use:</p> <ul style="list-style-type: none"> • inclusion of the value of assets held for future use and revenue from, or associated with, assets held for future use on a forecast basis in the ID determination (so that airports can offset any revenue from or associated with assets held for future use against the value of assets held for future use); and • amend the definition of "net revenue" to make it clearer that (as intended) revenues derived from, or associated with, assets held for future use are captured by that definition. 	<p>Greater accuracy in the disclosures to better reflect an airport's pricing intent.</p> <p>Greater clarity about the requirements in the Airport IMs and ID determinations.</p>	Chapter 8

Change	Outcomes of the change	Chapter
<p>Make the following changes with respect to pricing assets:</p> <ul style="list-style-type: none"> • addition of a new schedule to the Airports ID Determination reflecting airports' targeted profitability based on the pricing asset base only; and • require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the total RAB. 	<p>Greater transparency for interested parties to better understand an airport's approach to pricing.</p>	<p>Chapter 9</p>
<p>Make the following changes with respect to the initial RAB value for land:</p> <ul style="list-style-type: none"> • set the initial RAB value for airport land using a pragmatic proxy of land as at 2010 by interpolating 2009 and 2011 MVAU land values (net of any capex or disposals of land that occurred during the years 2009/10 and 2010/11) based on existing MVAU land valuations; and • calculate the proxy by using the average of the 2009 MVAU valuation and 2011 MVAU valuation and add to the calculated proxy the value of any capex and disposals related to land that occurred up to the date of the interpolated value. 	<p>Greater clarity about the requirements in the Airport IMs and ID determinations.</p> <p>Reduce complexity and compliance costs.</p>	<p>Chapter 12</p>

Change	Outcomes of the change	Chapter
<p>Include in the carry forward mechanism to adjust the opening investment value un-forecast revaluation gains or losses (in real terms), unless an alternative treatment has been proposed by airports, and:</p> <ul style="list-style-type: none"> • to allow airports to calculate those, provided they have not been reflected in a prior price setting event, from the commencement of the ID regime as at 2010 for the first price setting event after 31 December 2016; and • to require airports to calculate those from the previous price setting event for the second and subsequent price setting events after 31 December 2016. <p>Include in the carry forward mechanism to adjust the opening investment value other risk sharing arrangements if these have been proposed in the airport's price setting event.</p> <p>Require airports to provide information in the annual <i>ex-post</i> disclosures about variances between forecasts and actuals for the risk allocation arrangements that were included in their price setting event (as these will inform the carry forward adjustment to the opening investment value for the next price setting event).⁵</p> <p>Require airports to summarise the views of substantial customers, as expressed during price setting consultation, regarding other risk sharing arrangements that have been included in the carry forward mechanism to adjust the opening investment value.</p>	<p>Greater transparency for interested parties to better understand an airport's approach to pricing.</p> <p>Greater clarity about the requirements in the Airport IMs and ID determinations.</p>	Chapter 6

⁵ We note that any consequential changes affecting the *ex-post* Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review and will be subject to a separate consultation process.

Change	Outcomes of the change	Chapter
<p>Include in the carry forward mechanism to adjust the forecast closing investment value, forecast over and under-recoveries that are intended by airports to be offset in future pricing events.</p> <p>Require airports to summarise the views of substantial customers, as expressed during price setting consultation, regarding those forecast over and under-recoveries included in the carry forward mechanism.</p> <p>When an airport has included forecast over and under-recoveries in the carry forward mechanism to adjust the forecast closing investment value, require the airport to provide information on:</p> <ul style="list-style-type: none"> • why the resulting forecast closing investment value is a good indicator of the remaining capital to be recovered at the end of the current pricing period; • the purpose and appropriateness of including these amounts in the carry forward mechanism; • the intended duration until these forecast over and under-recoveries have been fully offset; and • why using the carry forward mechanism to adjust the forecast closing investment value seems more appropriate in reflecting the airport's pricing intent than an alternative approach to accounting for these forecast over and under-recoveries already provided for under the Airport IMs and ID determinations. 	<p>Greater transparency for interested parties to better understand an airport's approach to pricing.</p>	<p>Chapter 7</p>

Change	Outcomes of the change	Chapter
<p>Make the following changes with respect to other adjustments airports may make to the price path:</p> <ul style="list-style-type: none"> • require airports to provide a high level disclosure of the total value of pricing incentives in the price setting event disclosures. 	<p>Greater transparency for interested parties to better understand an airport’s approach to pricing.</p>	<p>Chapter 11</p>
<p>Make the following changes with respect to the timing of cash-flows:</p> <ul style="list-style-type: none"> • specify, in the annual <i>ex-post</i> disclosures, 182 days before year-end timing assumptions for all expenditures and 148 days before year-end for all revenues;⁶ • specify, in the price setting event disclosures, 182 days before year-end timing assumptions for all expenditures and 148 days before year-end for all revenues; but • provide, in the price setting event disclosures, the flexibility for airports to deviate from the default cash-flow timing assumption if airports provide evidence that the actual cash-flow timing for specific cash-flow items is different from the default cash-flow timing assumption. 	<p>Greater transparency for interested parties to better understand an airport’s approach to pricing.</p>	<p>Chapter 10</p>

⁶ We note that any consequential changes affecting the *ex-post* Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review and will be subject to a separate consultation process.

- X12. This topic paper forms part of our package of decision papers on the IM review. As part of the package of papers, we have also published:
- X12.1 a summary paper of our decisions;
 - X12.2 an introduction and process paper, which provides an explanation of how the papers in our decision package fit together;
 - X12.3 a framework paper, which explains the framework we have applied in reaching our decisions on the IM review;
 - X12.4 a report on the IM review, which records our decisions on whether and how to change the IMs as a result of the IM review overall; and
 - X12.5 amendment determinations, which give effect to our decisions.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to:
 - 1.1 explain how we assess profitability for airports under Information Disclosure (**ID**) regulation;
 - 1.2 explain our solutions relating to the airport profitability assessment topic by discussing:
 - 1.2.1 the problems we identified within this topic area;
 - 1.2.2 our assessment of potential solutions to these problems; and
 - 1.2.3 the reasons for our chosen solutions.
 - 1.3 explain how we have taken stakeholders' submissions into account in considering the above and in deciding on our solutions to problems identified within this topic.

Where this paper fits in to our package of decision papers

2. This paper explains our solutions to problems identified within the airports profitability assessment topic.
3. We have identified solutions that could be accommodated through amendments to the Airport Input Methodologies Determination (**Airport IMs**), the Airports Information Disclosure Determination (**Airports ID**) or both. In responding to the problems identified in this topic area we considered that a holistic consideration of both the existing Airport IMs and ID was required.
4. This topic paper forms part of our package of decisions papers on the input methodologies (**IM**) review. For an overview of the package of papers and an explanation of how they fit together, see the Introduction and process paper published as part of our decisions package.⁷
5. To the extent our solutions to problems within this topic area involve changes to the Airport IMs, this paper explains how we have changed our existing Airport IMs decisions. A number of our solutions within this topic involve changes to the Airports ID requirements – this paper also explains how we have changed the Airports ID requirements.

⁷ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

6. The Report on the IM review collates our changes to the input methodologies (**IMs**) and presents them as decisions to change the IMs.⁸ The drafting changes to the Airport IMs and ID determinations, including those resulting from this topic area, are shown in the amendment determinations (which we have published alongside this topic paper).
7. The framework we applied in reaching our decisions on the IM review is set out in a separate paper, published alongside this paper.⁹ The framework paper explains that we have only changed the Airport IMs where this is likely to:
 - 7.1 promote the Part 4 purpose in s 52A more effectively;
 - 7.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 7.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
8. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.
9. Our changes to the Airports ID Determination are intended to achieve the following outcomes:
 - 9.1 greater accuracy in the disclosures by allowing airports to better reflect their pricing intent, meaning that the profitability indicator is likely to better reflect the airport's targeted profitability;
 - 9.2 greater clarity about the requirements in the Airport IMs and ID determinations;
 - 9.3 greater transparency for us and other interested persons to better understand an airport's approach to pricing; and
 - 9.4 ultimately, better ensuring that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 is being met, consistent with s 53A.
10. We explain how we applied these frameworks in reaching our solutions on our review of the Airport IMs and ID determinations in Chapter 3.

⁸ Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

⁹ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

Structure of this paper

11. Chapters 2 and 3 provide an overview of the context for assessing airport profitability, including:
 - 11.1 how airports are regulated; and
 - 11.2 identifying and explaining, at a high level, the problems with the *ex-ante* assessment of airports' profitability under the previous Airport IMs and ID determinations.
12. Chapter 3 also provides a summary of all our solutions to problems identified within the airports profitability topic area.
13. The remainder of the paper is divided into chapters, each addressing a problem or problem area within the airport profitability assessment topic. Each of the chapters broadly follows the following structure:
 - 13.1 a description of the problem or problem area;
 - 13.2 an explanation of our solutions and our reasons for adopting them; and
 - 13.3 a summary of the main comments stakeholders made in submissions on our IM review draft decision and our response.
14. In defining the problems and assessing potential solutions, we considered stakeholders' submissions, as well as views expressed at two workshops. We have discussed how they helped to shape our problem definitions and our solutions.
15. Attachment A to this paper explains our transitional arrangements for information disclosures based on the amended Airport IMs and ID determinations.
16. Attachment B to this paper illustrates how an airport can, in its price setting event (**PSE**) disclosures, disclose asset revaluations that are based on approaches that are not specified by the Airport IMs. It also illustrates, if such approaches have been chosen, how an airport can determine un-forecast revaluation gains or losses for the purpose of establishing the opening investment value of the current pricing period.¹⁰

¹⁰ We note that Attachment B was not included in our draft topic paper. It has been added to this final topic paper to provide clarification regarding the mechanics of some of our solutions. It is a stylised example only and as such should only be looked at for illustrative purposes. This stylised example takes a similar form of the stylised examples provided during Workshop 2 and has the same base case assumptions.

Introduction to this topic

17. When we refer to 'an airport' or 'airports' in this paper we are only referring to the airports that are subject to information disclosure regulation, as specified in s 56 of the Act. These are Auckland, Christchurch and Wellington airports.
18. In our problem definition paper, we identified the assessment of airports profitability topic as one of the key topics for the IM review.¹¹
19. This topic is about our assessment of airports' profitability under information disclosure regulation. In particular, it is about how the changes we have made to the Airport IMs and ID determinations will support the assessment.
20. During the problem definition phase we identified several issues that made it difficult to assess the expected profitability of airports when they set their prices. In reaching our decisions on the problems and solutions discussed in this paper, we have been informed by our consultation with stakeholders, which included submissions and two workshops.¹²
21. This topic has focussed on the assessment of airports profitability on a forward-looking basis. We have only made amendments to the Airport IMs and ID determinations relating to the *ex-post* disclosures made by airports where they are required to support our forward-looking profitability assessment.
22. This paper does not cover the weighted average cost of capital (**WACC**) percentile for airports, which is instead discussed in Topic paper 6 – WACC percentile for airports.¹³ That topic paper explains the WACC percentile against which the forward-looking profitability indicator explained in this topic paper will be compared.
23. This paper also does not cover the cost of capital IM for airports more generally. Our approach to calculating the cost of capital, including as it applies to airports, is covered by Topic paper 4 – Cost of capital issues.¹⁴

¹¹ Commerce Commission "Input methodologies review – Invitation to contribute to problem definition" (16 June 2015).

¹² Summaries of the views expressed at the workshops are available at our website.

¹³ Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

¹⁴ Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

Chapter 2: How airports are regulated

Purpose of this chapter

24. This chapter provides an overview of how airports are regulated, our responsibilities when regulating airports, and the interaction between the Airport IMs Determination and the Airports ID Determination.

How airports are regulated

25. This chapter focusses on those forms of regulation that we consider are most relevant to how airports set prices for regulated airport services. These are:¹⁵

25.1 the Airports Authorities Act (**AAA**); and

25.2 Part 4 of the Commerce Act 1986 (the **Act**).

26. Unless otherwise indicated, all statutory references in this paper are to the Act.

The AAA

27. The AAA sets out statutory obligations on, and powers of, airports. It is administered by the Ministry of Transport. The AAA includes obligations in relation to setting charges for airport services. In particular:

27.1 s 4A(1) of the AAA provides that an airport may "set such charges as it from time to time thinks fit for the use of the airport operated or managed by it, or the services or facilities associated therewith"; and

27.2 s 4B of the AAA determines that airports must consult with major consumers (ie, airlines) "in respect of any direct charge payable to the airport company by any passenger in respect of any or all identified airport activities".

28. In other words, airports are only required to consult (rather than negotiate) on charges, and airports are free to set prices as they see fit.

29. Section 4B of the AAA requires that airports must carry out consultation before fixing or altering charges and within at least five years after fixing or altering charges. This means that airports must consult on and set prices at least every five years. It also means that once prices have been set airports cannot change prices without carrying out another consultation.

¹⁵ The Ministry of Business, Innovation and Employment is reviewing the effectiveness of the current information disclosure regime for major international airports and its interaction with the regulatory regime for airport price setting under the Airport Authorities Act.

Part 4 of the Commerce Act

30. Part 4 provides for the regulation of the price and quality of goods or services supplied in markets where there is little or no competition, and little or no likelihood of a substantial increase in competition (s 52).

31. The purpose of Part 4 is:¹⁶

... to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—

(a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

(b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

(c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

(d) are limited in their ability to extract excessive profits.

32. As explained in the IM review framework paper, the central purpose of Part 4 of the Act is thus to promote the long-term benefit of consumers in markets where there is little or no competition and little or no likelihood of a substantial increase in competition. We promote the interests of consumers of the regulated service by promoting the s 52A(1)(a)-(d) outcomes consistent with what would be produced in workably competitive markets.¹⁷

33. Auckland Airport, Wellington Airport and Christchurch Airport are subject to information disclosure regulation under subpart 11 of Part 4. Subpart 11 came into force on 14 October 2008 and, among other things, prescribes the scope of regulated services and the definition of 'specified airport services' (s 56A). These are defined as:

33.1 aircraft and freight activities;

33.2 airfield activities;

33.3 specified passenger terminal activities; and

33.4 any other services that are determined by the Governor-General, by Order in Council made on the recommendation of the Minister, to be specified airport services.

¹⁶ Commerce Act 1986, s 52A.

¹⁷ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

34. Each of the 'specified airport services' set out above is defined in detail in s 2 of the AAA. These definitions are quite broad and include non-exhaustive lists of the types of activity that are considered to fall within each of these categories.
35. Specified airport services are subject to information disclosure regulation under subpart 11 of the Act (s 56C), the purpose of which is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 is being met (s 53A).
36. As further explained in Chapter 3, information disclosure regulation, while being light-handed, is still intended to promote the overall Part 4 purpose as set out in s 52A. As we explained in our s 56G reports, Parliament's intention behind this regime was to introduce regulation that would (among other functions) have an impact on airports' prices.
37. This intention is clear from the structure of Part 4 – all forms of Part 4 regulation including information disclosure regulation, are intended to promote the Part 4 purpose. This includes promoting outcomes such that suppliers are limited in their ability to extract excessive profits.

The relationship between Section 4A of the AAA and Part 4

38. While airports can set prices as they see fit, information disclosure is intended to have an impact on those prices. We do not consider that s 4A of the AAA is incompatible with the information disclosure regime as the two operate for distinct purposes. We also do not consider that Part 4 is subordinate to s 4A of the AAA.
39. The AAA establishes that the right of an airport to price as it sees fit needs to co-exist with the Part 4 regime. This is evidenced by s 4A(4) of the AAA which provides that "This section does not limit the application of regulation under Part 4 of the Commerce Act 1986".

Part 4 regulatory framework for airports

40. For airports, under Part 4 we are required to (among other requirements):
 - 40.1 set the IMs that apply to airports;
 - 40.2 set the information disclosure requirements for airports; and
 - 40.3 conduct summary and analysis of disclosed information to promote a greater understanding of airport performance.

The input methodologies that apply to airports

41. The IMs that apply to airports (**Airport IMs**) are the rules, processes and requirements applying to the regulation of the specified airport services under Part 4. The purpose of the Airport IMs is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation applicable to airports. This purpose is set out in s 52R.
42. IMs must include certain matters, to the extent applicable to the type of regulation (s 52T). Airports are not price-quality regulated and are only subject to information disclosure regulation. In light of the purpose of the information disclosure regulation, and the purpose of Part 4, we have determined IMs for:¹⁸
 - 42.1 allocation of costs to regulated services supplied by the airports;
 - 42.2 valuation of assets that are used to supply airport services;
 - 42.3 treatment of tax costs for regulatory purposes; and
 - 42.4 the cost of capital (which is applied only by us in order to monitor and analyse information disclosed by the airports).
43. Because airports can set prices as they see fit, the Airport IMs only apply to Airports ID for the purposes of assessing whether s 52A is being met and do not apply to the way airports set prices.
44. A brief description of the Airport IMs is set out below. The 2010 Airports IM reason paper provides a more fulsome discussion.¹⁹

Allocation of costs

45. The IMs relating to specified airport services must include methodologies for determining the "allocation of common costs, including between activities" (s 52T(1)(a)(iii)). The Airport cost allocation IM applies to the way in which costs incurred in the supply of regulated airport services, or incurred in supplying both unregulated and regulated services together, are reported as part of information disclosure.
46. The Airport cost allocation IM provides the rules that airports must adhere to when disclosing their shared cost data (and other financial information that relies on cost data). These rules are important since the allocation of shared costs, whether operating cost- or asset-related, can have a significant effect on financial results as represented in the regulatory accounts provided under the information disclosure regime.

¹⁸ *Airport Services Input Methodologies Amendments Determination 2016* [2016] NZCC 28.

¹⁹ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010).

Valuation of assets

47. The IMs relating to specified airport services must include methodologies for determining the "valuation of assets, including depreciation and treatment of revaluations" (s 52T(1)(a)(ii)). Matters covered in the Airport IM for the valuation of assets include:
- 47.1 establishment of the initial value of each airport's regulatory asset base (**RAB**);
 - 47.2 revaluation of assets;
 - 47.3 calculation of depreciation; and
 - 47.4 treatment of asset acquisitions and disposals.
48. The valuation of assets will help determine an appropriate baseline against which profitability can be assessed.

Treatment of tax

49. The Airport IMs relating to specified airport services must include, to the extent applicable to information disclosure regulation, the "treatment of taxation" (s 52T(1)(a)(iv)). The Airport IM for the treatment of taxation sets out the methodology used to calculate the regulatory tax allowance for each airport. This is primarily affected by the depreciation deduction that is used for regulatory tax purposes.
50. As airports are only subject to information disclosure regulation, the Airport IM for the treatment of taxation only applies to the way in which profitability is reported. This affects the way in which interested persons can assess airports profitability.

Cost of capital

51. The cost of capital is the financial return that investors require from an investment given its risk. It reflects the estimate of the rate of return that an investor would expect to get from a different investment of similar risk.
52. Section 52T(1)(a)(i) requires the IMs relating to a particular good or service to include an IM for the cost of capital. Airports do not have to apply the cost of capital established under the cost of capital IM for Airports (s 53F(1)). However, we can use the cost of capital IM to "monitor and analyse" information made available by regulated suppliers (s 53F(2)(a)).²⁰ Airports are also required to disclose our annual published WACC in *ex-post* disclosures of financial information.

²⁰ This has been confirmed by the High Court in *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 1132-1149.

53. The cost of capital IM is discussed in more detail in Topic paper 4 – Cost of capital.²¹

Information disclosure requirements

54. We are required to make a determination under s 52P that specifies how information disclosure regulation will be applied and what a determination made under s 52P must include. For airports, this determination is underpinned by the Airport IMs.
55. In setting the Airports ID Determination, we focussed on the information needed to allow an interested person to assess whether the long-term benefits of consumers are being promoted, through promotion of outcomes consistent with those produced in competitive markets.
56. The Airports ID Determination provides for the disclosure of:
- 56.1 historical financial information;
 - 56.2 quality performance measures and other key statistics;
 - 56.3 forecasts of total revenue requirements; and
 - 56.4 price and pricing methodologies.
57. In addition, the Airports ID Determination sets out publication, certification and audit requirements.
58. A brief description of the Airports ID Determination is set out below. The 2010 Airports ID reasons paper provides a more fulsome discussion.²²

Historical financial information

59. For the disclosure of historical financial information, airports are required to apply the Airport IMs for the valuation of assets (including depreciation and treatment of revaluations), the allocation of common costs, and the treatment of taxation.
60. As noted at paragraphs 51-53, we have also set an IM for airports in relation to deriving the cost of capital. We may apply this when conducting summary and analysis, however, airports cannot be required to apply it.

Quality performance measures and other key statistics

61. The disclosures of quality and other key statistics include a comprehensive set of measures of passenger satisfaction, reliability, capacity and utilisation, operational improvement, and other statistics.

²¹ Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

²² Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010).

Forecasts of total revenue requirements

62. The disclosures relating to forecast total revenue requirements are intended to align with airports' price setting processes. These disclosures provide key planning assumptions behind the setting of airports' revenue requirements, and include supporting information about proposed capital expenditure, operational expenditure and demand information. The historical financial disclosures also reconcile forecasts with actual annual outcomes.
63. The Airports ID Determination requires that airports publicly disclose, for a five-year forecast period, the core elements used by the airports for determining the forecast total revenue requirement. There are several components of the forecast revenue requirement.
- 63.1 **Revenue methodology** – this provides an overview of the methodology used to determine the forecast total revenue requirement.
- 63.2 **Forecast asset base and forecast value of assets employed** – this provides information on the forecast asset base that is rolled forward and the forecast value of assets employed. It includes information on how it is determined, and the extent to which it is used to determine the forecast total revenue requirement.
- 63.3 **Required return on capital** – this provides information on the forecast cost of capital, a description of the method used to determine it (including assumptions and justifications), and the extent to which it is used to determine the forecast total revenue requirement.
- 63.4 **Operating costs** – this provides information on the forecast operating costs by cost category, and a description of the extent to which they are used to determine the forecast total revenue requirement.
- 63.5 **Depreciation on assets** – this provides information on the total forecast depreciation and weighted average depreciation rates for each asset class. It includes a description of the extent to which they are used to determine the forecast total revenue requirement.
- 63.6 **Taxation** – this provides information on the forecast tax payable, including permanent and temporary differences, tax book value roll forward and reconciliation of tax losses. It includes a description of the extent to which they are used to determine the forecast total revenue requirement.
- 63.7 **Revaluation gains/losses** – this includes forecast land revaluations, indexed revaluations and any assumptions that have been used. It also includes a description of the extent to which forecast revaluations are used to determine the forecast total revenue requirement.

- 63.8 **Other operating revenue** – this includes information on forecast capital contributions, gains or losses on asset sales, and any other regulated income. It also includes a description of the extent to which they are used to determine the forecast total revenue requirement.

Price and pricing methodologies

64. Disclosure of pricing statistics provides interested persons with information that can assist them to assess the overall financial performance of the regulated business. When used in an appropriate context, pricing statistics are able to provide insight into the overall profitability and efficiency of the regulated business compared to suppliers of comparable services.²³
65. Pricing methodology disclosures provide information on the process for setting standard prices. They also provide information on how airports relate prices to demand and reflect the cost incurred in providing the services for which prices are set.
66. The pricing methodology allocates the forecast total revenue requirement to each service for which a price is set. Pricing methodology disclosures assist interested persons in understanding the degree to which prices reflect underlying cost and customer demand.

Summary and analysis of disclosed information

67. Section 53B(2)(b) of the Act provides that we:
- ...must, as soon as practicable after any information is publically disclosed, publish a summary and analysis of that information for the purpose of promoting greater understanding of the performance of individual regulated suppliers, their relative performance, and the changes in performance over time.
68. The requirement to publish a summary and analysis confers an ongoing, active role on us in respect of the information disclosure regime after the information disclosure requirements have been set.
69. We consider that our summary and analysis obligations contribute to ensuring that sufficient information is made available to interested persons to assess whether the Part 4 purpose is being met. It also provides the opportunity for us to consider the wider airport context.
70. We were also required by s 56G to carry out a one-off review of the effectiveness of information disclosure in promoting the Part 4 purpose for airports (the **s 56G reviews**). As part of the s 56G reviews we conducted profitability assessments on the airports. The difficulties and challenges that we faced in doing so helped us to identify many of the problems discussed in this topic paper.

²³ When using pricing statistics for comparative purposes, however, consideration should be given to other factors such as the regional variations in the cost of inputs.

71. Following the review of each airport we provided a report to the Ministers of Commerce and Transport. We refer to these as 's 56G reports'.

How the input methodologies interact with the information disclosure requirements

Airports must apply IMs when making annual ex-post disclosures

72. The Airports ID Determination requires airports to publically disclose each year (on an *ex-post* basis) information relating to their financial position and information relating to the quality of the specified services. This includes providing certain statistics, as outlined in Schedules 16 and 17 of the Airports ID Determination.²⁴
73. This *ex-post* information must be IM-compliant. The parts of the Airport IMs Determination which are applicable to the Airports ID Determination (and so must be applied by airports when disclosing information) are:
- 73.1 valuation of assets;
 - 73.2 allocation of common costs; and
 - 73.3 treatment of taxation.
74. As explained earlier in this chapter, airports are not required to apply IMs relating to cost of capital.²⁵ We can, however, apply any IM relating to those matters when we monitor and analyse the information disclosed by airports as per our obligations under s 53B. Airports are also required to disclose, but not apply, our annual published WACC in *ex-post* disclosures of financial information.

Airports do not have to apply IMs when making price setting event disclosures

75. The Airports ID Determination requires an airport to publically disclose, on an *ex-ante* basis, information relating to its forecast revenue requirement.²⁶ It must disclose this information following a price setting event, or within five consecutive years of the previous disclosure of this type.²⁷ This means that airports must disclose price setting information at least every five years.

²⁴ *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clauses 2.3 and 2.4.

²⁵ Commerce Act 1986, s 53F(1).

²⁶ *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clause 2.5.

²⁷ Price setting event means "a fixing or altering of price for a specified airport service by an airport under s 4A and s 4B of the Airport Authorities Act 1966, which- (a) is deemed to occur on the date that the new price comes into effect; and (b) excludes instances where the price is-(i) subject to adjustment as a result of a wash-up; (ii) reset or adjusted annually, including without further consultation; (iii) subject to separate negotiation for inclusion in the terms of a lease or licence; or (iv) not required to be consulted on by virtue of s 4B(3) of the Airport Authorities Act 1966." *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 1.4.

76. The forward-looking information disclosed under Airports ID Determination does not all have to be IM-compliant. However, airports must publically disclose a description of how the components of the forecast total revenue requirements have been determined.²⁸ These include:
- 76.1 forecast asset base;
 - 76.2 forecast cost of capital;
 - 76.3 forecast operational expenditure;
 - 76.4 forecast depreciation;
 - 76.5 forecast tax;
 - 76.6 forecast revaluations; and
 - 76.7 any other component of the total revenue requirement.
77. These disclosures must include (where appropriate) an explanation of any differences between how these components have been prepared and the most recent historical financial information (disclosed in accordance with clause 2.3 of the Airports ID Determination).
78. Since the *ex-post* information disclosed must be IM-compliant, this effectively requires an airport to explain any differences between the approach it has taken during price setting and an IM-compliant approach. This is aimed at assisting interested persons to make meaningful assessments of the appropriateness of prices in light of airports' revenue forecasts.²⁹
79. We also require airports to provide the following in their price setting event disclosures:
- 79.1 a summary of its pricing methodology;
 - 79.2 a summary of its proposed prices for charged services; and
 - 79.3 a report on the demand forecasts used when setting prices.

²⁸ We propose some changes to these disclosure requirements in this topic paper.

²⁹ We have amended the Airports ID Determination to introduce transitional requirements in the Airports ID Determination to require Auckland and Christchurch airports to restate some key information provided in their November 2016 historical financial disclosure, in a manner consistent with the amended Airport IMs and ID determinations, and to explain the difference between the preparation of each component for pricing purposes in Auckland and Christchurch airports' next price setting event disclosure to be provided considering this transitional schedule.

80. This information helps us and other interested persons understand and assess an airport's pricing decision.

Chapter 3: Summary of problem definition and solutions

Purpose of this chapter

81. The purpose of this chapter is to provide an overview of the problems we have identified with the *ex-ante* assessment of airports profitability and to outline our solutions. Further details on these problems and solutions are provided in Chapters 4-12.
82. We also identify whether our solutions have required amendments to the Airport IMs, Airports ID, or both.

Problem definition

83. This section explains, at a high level, the problems we identified with respect to the airports profitability topic.
84. The purpose of information disclosure is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 is being met.³⁰
85. As explained in Chapter 2, the purpose of Part 4 is stated in s 52A of the Act. Most relevant to the topic of airports profitability are s 52A(1)(a) and (d) of the Act. In particular, airports:
 - 85.1 have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
 - 85.2 are limited in their ability to extract excessive profits.
86. There was no requirement in the previous Airports ID Determination for airports to disclose a forward-looking profitability indicator. As a consequence, when we undertook the analysis required by s 56G of the Act to report on how effectively information disclosure regulation was promoting the Part 4 purpose, we had to assess the profitability that each airport was targeting in the 2012 price setting events ourselves.
87. In assessing targeted returns for each airport as part of the s 56G process:
 - 87.1 we found it difficult to determine the effective returns the airports were targeting, because airports can price as they see fit and as such did not have to follow the approaches assumed in our information disclosure requirements; and

³⁰ Commerce Act 1986, s 53A.

- 87.2 the Airport IMs and ID determinations did not provide for sufficient flexibility such that airports could disclose their price setting approaches in a transparent way. This made it difficult for us and other interested persons to understand an airport's pricing intent.
88. In the remainder of this section, we explain, at a high level:
- 88.1 the problems created by the lack of a forward-looking profitability indicator in the Airports ID Determination; and
- 88.2 where the Airport IMs and ID determinations lacked transparency which is discussed in light of the four matters listed below:
- 88.2.1 airports may target a time profile of capital recovery that is different to that assumed as the default position under the Airport IMs;
- 88.2.2 the scope of the asset base used by airports when setting prices can be different to that disclosed under the Airports ID Determination;
- 88.2.3 a profitability assessment should take into account multiple pricing periods;³¹ and
- 88.2.4 other transparency problems existed.
89. We have also made consequential amendments to the Airport IMs resulting from the High Court-ordered amendment to the Airport IMs that the initial RAB value for land has to be assessed as at 2010.³²

³¹ By this we mean that the profitability assessment of the current pricing period must be able to reflect decisions made in previous price setting periods that have an impact on charges for the current pricing period. A profitability assessment must also be able to reflect decisions made by airports impacting charges of the current and future price setting events that are not already reflected in the forecast closing asset base of the current pricing period.

³² We made the High Court-ordered amendment in 2014. *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289, para 892.

No forward-looking profitability indicator in Airports ID Determination

90. To assess whether airports are limited in their ability to extract excessive profits, we compare the effective rate of return targeted by an airport against our mid-point estimate of the cost of capital.
91. When an airport targets a return that is different from our mid-point estimate of the cost of capital, we want to understand the extent of, and rationale for any variance. Information provided by airports on the extent to which the targeted return is different from our mid-point estimate of the cost of capital will be factored into our assessment. We note that we remain committed to undertaking a contextual assessment of airport performance. A numerical comparison of an airport's targeted return and our mid-point estimate of the cost of capital will only be one aspect of this assessment.³³
92. To facilitate this analysis, we need transparent disclosures of targeted returns and underlying assumptions. In the past, transparency was limited by the fact that:
- 92.1 airports can set prices as they see fit;
 - 92.2 airports are not required to apply the Airport IMs Determination in setting prices and making their forward-looking pricing disclosures;
 - 92.3 airports do not have to apply our forecast of cost of capital when setting prices;
 - 92.4 airports may target a return that is different from an airport's estimate of cost of capital; and
 - 92.5 most importantly, we previously did not require airports to disclose a forward-looking profitability indicator that reflected the airport's decision on targeted returns.
93. When assessing targeted returns for the s 56G review, we found that determining targeted returns under current disclosure requirements can be onerous and inefficient for all parties involved. The lack of disclosure meant we had to seek additional information from airports to allow us to understand an airport's approach to pricing well enough to calculate targeted returns.
94. The lack of a forward-looking profitability indicator was even more problematic as the effective targeted return inherent in an airport's price setting can be different from the airport's estimate of its cost of capital.³⁴

³³ For more information on our decision for the published benchmark against which we assess airport profitability, see Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

³⁴ For example, if an airport has made a commercial decision to under-recover revenue in a pricing period.

95. The inclusion of a requirement on airports to disclose their targeted returns in the Airports ID Determination better promotes s 53A, because it allows interested persons to better understand what returns airports were targeting during the price setting events; it ensures the more timely release of such information; and reduces our costs in undertaking summary and analysis.³⁵

Insufficient transparency in previous Airports ID Determination

96. There was insufficient transparency in the previous Airports ID Determination because it did not:
- 96.1 require an airport to accurately and appropriately disclose its approach taken in the price setting event; and
 - 96.2 allow us and other interested persons to understand the approach taken by an airport when it sets prices or to assess the targeted returns inherent in the pricing decision.
97. In the following sections, we discuss, in the light of the matters listed below, why it was difficult to accurately assess an airport's targeted profitability:
- 97.1 airports may target a time profile of capital recovery that is different to that assumed as the default position under the Airport IMs;
 - 97.2 the scope of the asset base used by airports when setting prices can be different to that disclosed under the Airports ID Determination;
 - 97.3 a profitability assessment should take into account multiple pricing periods;³⁶ and
 - 97.4 under the previous Airport IMs and ID determinations, other transparency problems existed.

Airports may target a time profile of capital recovery that is different to that assumed as the default position under the Airport IMs

98. Given that airports can set prices as they see fit, an airport can target a time profile of capital recovery that is different to the default assumption in the Airport IMs Determination.³⁷

³⁵ Later in this chapter we discuss how meeting the s 53A purpose promotes the overall purpose of Part 4 of the Act.

³⁶ By this we mean that the profitability assessment of the current pricing period must be able to reflect decisions made in previous price setting periods that have an impact on charges for the current pricing period. A profitability assessment must also be able to reflect decisions made by airports impacting charges of the current and future price setting events that are not already reflected in the forecast closing asset base of the current pricing period.

99. There are two main ways an airport may target a different time profile of capital recovery compared to the default position under the Airport IMs Determination. These are:
- 99.1 through its approach to revaluations; and
 - 99.2 by explicitly (or implicitly) using non-standard depreciation (ie, an approach different to the default approach of straight line depreciation).
100. When airports use an alternative time profile of capital recovery, we need sufficient information to assess the appropriateness of the choices that the airport has made when setting prices.
101. Approach to revaluations: Following a price setting event, airports make price setting event disclosures reflecting the assumptions and outcomes of the price setting event.³⁸ The approach to revaluing assets used for disclosure purposes must be the one chosen by the airport in the price setting event.³⁹ This means that the *ex-ante* information we receive on asset revaluations may not be consistent with the Airport IMs.
102. In contrast, when making *ex-post* disclosures, the revenues and costs disclosed during the relevant regulatory period must be disclosed in accordance with the Airport IMs.
103. Therefore, in the past, if airports did not use an IM-consistent approach to asset revaluation when setting prices, we were not able to compare returns assessed on a forward-looking basis with returns assessed on a backward-looking basis. This was because the underlying RAB would have diverged between *ex-ante* and *ex-post* disclosure purely because the Airport IMs were not flexible enough to reflect the approaches to revaluing assets chosen by airports for price setting purposes.
104. Use of non-standard depreciation: Airports can apply non-standard depreciation in rolling forward the RAB for *ex-post* disclosures. Previously, there were no constraints on how airports apply non-standard depreciation, and airports were not required to make the approach consistent with the approach taken in pricing decisions. In the price setting event disclosures, airports were allowed to apply non-standard depreciation as they saw fit, as long as it reflected the pricing decision and they provided an explanation in their disclosures of what they had done.

³⁷ The default position under the pre-review Airport IMs involved straight line depreciation and CPI-indexation for non-land assets of the RAB (*Airport Services Input Methodologies Amendments Determination 2016* [2016] NZCC 28, clauses 3.4 (depreciation) and 3.7 (revaluation)). We have changed the Airport IMs Determination such that airports can now also use an un-indexed approach when rolling forward its RAB.

³⁸ *Airport Services Information Disclosure Amendments Determination 2016* [2016] NZCC 29, clause 2.5 and Schedule 18.

³⁹ See definition of "forecast revaluations". *Airport Services Information Disclosure Amendments Determination 2016* [2016] NZCC 29, clause 1.4.

105. Christchurch Airport was the first airport to disclose a non-standard depreciation methodology when setting prices. Our experience with Christchurch Airport's levelised pricing approach raised a number of issues which suggested that the previous non-standard depreciation requirements were too flexible.⁴⁰ These issues related to the *ex-post* and price setting event disclosure requirements and included:
- 105.1 **price setting event disclosure** – Christchurch Airport did not initially identify that it was appropriate to use non-standard depreciation rather than straight line depreciation when disclosing price setting information for PSE2;
 - 105.2 **price setting event disclosure** – we and other interested persons (in particular, BARNZ) found it difficult to understand Christchurch Airport's approach to non-standard depreciation; and
 - 105.3 **ex-post disclosure** – it was not clear how Christchurch Airport allocated its total non-standard depreciation to its individual asset classes for information disclosure.

The scope of the asset base used by airports when setting prices can be different to the scope of the asset base disclosed under the Airports ID Determination

106. Given that airports can set prices as they see fit, airports may use a different asset base when setting prices compared to the one disclosed for information disclosure purposes.
107. A different asset base for pricing purposes and information disclosure in itself may not be a concern, but reconciling the differences has been problematic. This has impacted on our and other interested persons' ability to accurately assess an airport's targeted return.
108. We have identified the following two instances that may result in different asset bases when setting prices compared to the asset base disclosed for information disclosure purposes:
- 108.1 Airports may explicitly or implicitly include a portion of assets held for future use in their asset base used for pricing purposes to collect charges for this portion before it is used in the supply of specified airport services.

⁴⁰ Commerce Commission "Summary and analysis of Christchurch Airport's revised information disclosure for its second price setting event" (9 July 2015), para 48.

- 108.2 In the past, airports have excluded certain assets (mainly comprising leased assets) from their pricing asset base.⁴¹ In contrast, as explained in Chapter 9, we included these assets in our analysis of targeted profitability because they are used in the supply of 'specified airport services'.⁴²
109. Assets held for future use: Under the Airport IMs, assets held for future use are excluded from the RAB value (and from associated disclosed profitability measures) until they are used in the supply of specified airport services.^{43, 44}
110. The previous Airport IMs and ID determinations might not have provided adequate transparency for interested persons to assess *ex-ante* profitability if airports were to include revenues associated with assets held for future use at future price setting events.
111. Pricing assets: Airports have excluded certain asset values and associated revenues from their pricing disclosures. These activities are however included in the definition of 'specified airports services' and have therefore been included in our s 56G analysis.⁴⁵
112. Understanding these differences in the underlying asset bases has been difficult in the past and, under the previous Airports ID Determination, could have made the airports profitability assessment of future pricing periods challenging for us and other interested persons.

Profitability assessment must take into account multiple pricing periods

113. Consistent with our approach to assessing *ex-ante* profitability for the s 56G review, in future, as is discussed in Chapter 4, we will use an internal rate of return (**IRR**) calculation to assess targeted returns over the pricing period.

⁴¹ More information on these assets is provided in Chapter 9.

⁴² This problem has previously been referred to as the problem associated with leased assets. Following discussions at the workshop held in April 2016 we have clarified that the problem definition is more accurately described as the treatment of pricing assets in the Airports ID Determination.

⁴³ *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.1 and definition of "excluded assets".

⁴⁴ Airports can expect to be able to earn a full return on and of the costs of holding and developing this land without profits appearing excessive, provided it is eventually commissioned for use to supply airport services (Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 4.3.74).

⁴⁵ See, for example, Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport, Section 56G of the Commerce Act 1986" (8 February 2014), p. 105, para F68.3.

114. In order to accurately reflect an airport's pricing intent, an IRR calculation must reflect commitments that an airport makes when setting prices, including the ability to reflect *ex-post* whether these commitments have been met. By reflecting these commitments, the profitability assessment for the current pricing period effectively links multiple pricing periods together.⁴⁶ For the purpose of this topic paper, we describe these commitments as:
- 114.1 *ex-post* effects of risk allocation (as defined below); and
 - 114.2 forecast over and under-recoveries that an airport intends to offset in future price setting events.
115. Ex-post effects of risk allocation: The previous Airports ID Determination did not provide sufficient transparency to identify *ex-post* effects of decisions on risk allocation between airports and airlines made during previous price setting events that had an impact on the current pricing period.
116. In the absence of this transparency, we and other interested persons could have found it difficult to appropriately and accurately reflect those effects in the *ex-ante* assessment of profitability.
117. We provide clarification of what we mean by *ex-post* effects of risk allocation below:
- 117.1 In this context, given that airports set prices in advance, airports and airlines use the term **risk** as a way to describe that actual out-turns can be different from forecasts. For example, when determining prices of the current pricing event, an airport forecasts demand of the next five years. The risk is that the actual demand disclosed *ex-post* can be higher (lower) from forecast demand resulting in higher (lower) *ex-post* returns than forecast.
 - 117.2 When we use the term '**ex-post effects of risk allocation**' in this topic paper, we refer to decisions that were made in previous pricing periods by airports on how those risks should be allocated between airports and airlines. This is important in the context of the *ex-ante* profitability assessment, as the allocation of those risks can affect charges of the current pricing event.
118. Forecast over and under-recoveries: The previous Airports ID Determination did not provide sufficient transparency to identify forecast over and under-recoveries by airports that were intended to be offset in future pricing events. In the absence of this transparency, we and other interested persons could have found it difficult to appropriately and accurately reflect those effects in the *ex-ante* assessment of profitability.

⁴⁶ For clarification, in the context of this topic paper, we define the current pricing period (also referred to as price setting event) as the upcoming pricing period airports have just consulted on and set prices for in accordance with AAA.

Other transparency problems existed

119. We have identified additional transparency concerns. Given that airports can set prices as they see fit, airports may adjust their price paths in a manner that is not NPV-neutral relative to their targeted return. In the past, we identified the following instances where this was the case:
- 119.1 commercial concessions; and
 - 119.2 route incentives.
120. In addition, we have identified the assumptions regarding timing of cash-flows as an area where insufficient transparency was provided under the previous Airports ID Determination. In order to calculate an *ex-ante* IRR that more accurately reflects targeted returns by airports, we established forecast cash-flow timing assumptions that were reflective of actual cash-flows occurring at the airports.
121. Commercial concessions: Commercial concessions are a commitment by an airport to under-recover revenue in a pricing period.^{47, 48}
122. The Airports ID Determination does not require airports to report on commercial concessions, or to disclose whether it plans for the under-recovery to be permanent or to be offset in future pricing periods.
123. In the absence of such a requirement, we and other interested persons may find it difficult to appropriately reflect commercial concessions in the *ex-ante* profitability assessment.
124. Route incentives: Route incentives are decisions by an airport to charge an airline less than the standard charge in order to secure new routes or additional passengers from that airline.
125. Previously, the Airports ID Determination only required airlines to disclose route incentive information (called 'pricing incentives' as part of the 'financial incentives' in Schedule 2 of the Airports ID Determination) in *ex-post* disclosures. There was no specific requirement for airports to report in the price setting event disclosures on route incentives.
126. In the absence of such a requirement, we and other interested persons could have found it difficult to accurately assess the impact of route incentives on the *ex-ante* profitability assessment of airports.

⁴⁷ 'Commercial concessions' is a term used by airports and is not in our Airport IMs and ID determinations.

⁴⁸ Commercial concessions can be done for a number of reasons. An example we have seen is Christchurch Airport's commercial concession of a phased implementation of its long-term pricing model in order to support the economic recovery of Canterbury following the 2010 and 2011 earthquakes (Christchurch International Airport Limited, Price Setting Disclosure, 19 December 2012).

127. Timing of cash-flows: In order to calculate an IRR that more accurately reflects returns targeted by airports, we had to establish forecast cash-flow timing assumptions that reflected actual cash-flows occurring at the airports.
128. We consider the previous year-end cash-flow timing assumptions implied by the use of a return on investment (**ROI**) in the *ex-post* disclosure requirements inappropriate, as they consistently and materially underestimated airport returns. This is because the ROI does not reflect actual cash-flows occurring throughout the year.
129. In addition, year-end cash-flow timing assumptions do not reflect our latest cross-sector thinking on this matter since we have applied intra-period cash-flow timing assumptions in the regulation of electricity distributors, gas pipeline businesses and Transpower.

Our solutions and the framework we applied in respect of these problems

130. This section describes, at a high level, our solutions in respect of the five problems identified above. Further details on our solutions are provided in the Chapters 4-12.
131. As explained in Chapter 2 and earlier in this chapter, information disclosure regulation under Part 4 of the Act is, in the first instance, intended to focus on ensuring that interested persons are able to assess whether the Part 4 purpose is being met; in particular, by helping to reflect the extent to which the objectives in s 52A(a) to (d) are being achieved.
132. Given the Part 4 purpose, it is clear that the supply of regulated services is likely to be, and is intended to be, influenced by the relevant type of regulation. In this respect, information disclosure regulation not only contributes to the specific purpose set out in s 53A, but it can also promote the s 52A purpose by improving the sharing of existing information between regulated suppliers and interested persons, as well as in some cases expanding the information available to regulated suppliers themselves.⁴⁹
133. The more effective the disclosure requirements are in meeting the s 53A purpose of information disclosure regulation and making airports' performance transparent, the more likely it is that information disclosure is promoting the overall Part 4 purpose.⁵⁰

⁴⁹ Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 2.7.3.

⁵⁰ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport – Section 56G of the Commerce Act 1986" (13 February 2014), para 2.15.

134. For instance, if the indicators disclosed in accordance with the information disclosure requirements are not providing a good measure of a particular area of performance, there might be relatively weak incentives for suppliers to change their conduct so that their performance becomes more consistent with the Part 4 purpose.⁵¹
135. Therefore, we consider that it is important to have a forward-looking profitability indicator in the Airports ID Determination that provides an accurate reflection of an airport's targeted profitability. This indicator is expected to provide better information to interested persons on airports' expected profits, consistent with s 53A, and consequently influence the airports' pricing behaviour to be more consistent with not extracting excessive profits, consistent with s 52A(1)(d).
136. We have also supplemented the new profitability indicator with a number of 'carry forward' mechanisms. To the extent such mechanisms provide greater transparency around an airport's investment intentions, disclosing that supplementary information may also provide greater incentives for airports to invest efficiently, consistent with promoting s 52A(1)(a) and (b) as well.
137. In this regard, our changes to the Airports ID Determination reflected in the inputs to the forward-looking profitability indicator, and the price setting event disclosures more widely, are intended to achieve the following outcomes:
- 137.1 greater accuracy in the disclosures by allowing airports to better reflect their pricing intent, meaning that the profitability indicator is likely to better reflect the airport's targeted profitability;
 - 137.2 greater clarity about the requirements in the Airport IMs and ID determinations;
 - 137.3 greater transparency for us and other interested persons to better understand an airport's approach to pricing; and
 - 137.4 ultimately, better ensuring that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 is being met, consistent with s 53A.
138. Table 3.1 outlines the problems as they are summarised in the problem definition section of this chapter, and provides our solutions. We also indicate in Table 3.1 where we:
- 138.1 have amended the Airport IMs, Airport ID, or both; and
 - 138.2 considered that no amendments were required to solve the relevant problem.

⁵¹ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport – Section 56G of the Commerce Act 1986" (13 February 2014), para 2.16.

Table 3.1: Summary of solutions

Problem	Sub-problem	Outcome	Solution	IMs or ID	Chapter
There was no forward-looking profitability indicator	-	Greater transparency for interested parties to better understand an airport’s approach to pricing and, in particular, whether the airport is limited in its ability to extract excessive profits	<p>Require airports to disclose a forward-looking profitability indicator, by using an IRR calculation that comprises: an opening investment value at the beginning of the pricing period, a forecast closing investment value and forecast cash-flows over the duration of the pricing period.</p> <p>Supplement the IRR with a carry forward mechanism that can be used to adjust the opening investment value and the closing investment value to better reflect an airport’s pricing intent and that can take into account multiple pricing periods.</p>	ID	4
Airports may target a different time profile of capital recovery to those implied by the Airport IMs	Asset revaluations	Greater accuracy in the disclosures to better reflect an airport’s pricing intent	<p>Require airports to disclose forward and backward-looking costs in a way that is most consistent to the approaches used when setting prices.</p> <p>Limit airports in their approaches to revaluing assets to the use of either CPI-indexation or an un-indexed approach (except when revaluing land using MVAU).</p> <p>Allow airports to make their choice of either CPI-indexation or an un-indexed approach for parts of the asset base separately.</p> <p>Allow airports to apply alternative methodologies with equivalent effect where the application of the asset valuation IMs would prove prohibitively complex or costly. Alternative methodologies can only be applied if they do not detract from the purpose of Part 4.</p>	IM	5
Airports may target a different time profile of capital recovery to those implied by the Airport IMs (cont)	Asset revaluations (cont)	Greater clarity about the requirements in the Airport IMs and ID determinations	Allow airports to elect an approach to revaluing assets only at the beginning of the next pricing period, and require airports to use the same approach in the <i>ex-post</i> disclosures.	IM	5

Problem	Sub-problem	Outcome	Solution	IMs or ID	Chapter
		Greater clarity about the requirements in the Airport IMs and ID determinations	Require airports to provide details on the expected treatment of any revaluation gains in the next pricing period arising from a potential change in the approach to revaluing assets.	IM	5
	Non-standard depreciation	Greater clarity about the requirements in the Airport IMs and ID determinations	<p>Require airports to apply specified principles when using alternative depreciation approaches.</p> <p>Allow airports to apply alternative methodologies with equivalent effect where the application of the asset valuation IMs would prove prohibitively complex or costly. Alternative methodologies can only be applied if they do not detract from the purpose of Part 4.</p>	IM	5
The scope of the asset base used by airports when setting prices can be different to that disclosed under the Airports ID Determination	Assets held for future use	No change	Assets held for future use remain outside the RAB until it is used to provide specified airport services (IMs are not amended).	N/A	8
		Greater clarity about the requirements in the Airport IMs and ID determinations	Amend the definition of "net revenue" to make it clearer that (as intended) revenues derived from, or associated with, assets held for future use are captured by that definition.	IM	8
		Greater accuracy in the disclosures to better reflect an airport's pricing intent	Inclusion of the value of assets held for future use and revenue from or associated with assets held for future use on a forecast basis in the ID determination (so that airports can offset any revenue from or associated with assets held for future use against the value of assets held for future use).	ID	8

Problem	Sub-problem	Outcome	Solution	IMs or ID	Chapter
	Pricing assets	Greater transparency for interested parties to better understand an airport's approach to pricing	<p>Addition of a new schedule to the ID determination reflecting airports' targeted profitability based on the pricing asset base only.</p> <p>Require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the total RAB.</p>	ID	9
The scope of the asset base used by airports when setting prices can be different to that disclosed under the Airports ID Determination (cont)	Initial RAB value for land	Greater clarity about the requirements in the Airport IMs and ID determinations	<p>Set the initial RAB value for airport land using a pragmatic proxy of land as at 2010 by interpolating 2009 and 2011 MVAU land values (net of any capex or disposals of land that occurred during the years 2009/10 and 2010/11) based on existing MVAU land valuations.</p> <p>Calculate the proxy by using the average of the 2009 MVAU valuation and 2011 MVAU valuation and add to the calculated proxy the value of any capex and disposals related to land that occurred up to the date of the interpolated value.</p>	IM	12

Problem	Sub-problem	Outcome	Solution	IMs or ID	Chapter
A profitability assessment should take into account multiple pricing periods	<i>Ex-post</i> allocation of risk	Greater transparency for interested parties to better understand an airport’s approach to pricing	<p>Include in the carry forward mechanism to adjust the opening investment value un-forecast revaluation gains or losses (in real terms), unless an alternative treatment has been proposed by airports, and:</p> <p>to allow airports to calculate those, provided they have not been reflected in a prior price setting event, from the commencement of the ID regime as at 2010 for the first price setting event after 31 December 2016; and</p> <p>to require airports to calculate those from the previous price setting event for the second and subsequent price setting events after 31 December 2016.</p> <p>Include in the carry forward mechanism to adjust the opening investment value other risk sharing arrangements if these have been proposed in the airport’s price setting event.</p> <p>Require airports to provide information in the annual <i>ex-post</i> disclosures about variances between forecasts and actuals for the risk allocation arrangements that were included in their price setting event (as these will inform the carry forward adjustment to the opening investment value for the next price setting event).⁵²</p> <p>Require airports to summarise the views of substantial customers, as expressed during price setting consultation, regarding other risk sharing arrangements that have been included in the carry forward mechanism to adjust the opening investment value.</p>	ID	6

⁵² We note that any consequential changes affecting the *ex-post* Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review and will be subject to a separate consultation process.

Problem	Sub-problem	Outcome	Solution	IMs or ID	Chapter
<p>A profitability assessment should take into account multiple pricing periods (cont)</p>	<p>Forecast under or over-recoveries</p>	<p>Greater transparency for interested parties to better understand an airport’s approach to pricing</p>	<p>Include in the carry forward mechanism to adjust the forecast closing investment value, forecast over and under-recoveries that are intended by airports to be offset in future pricing events.</p> <p>Require airports to summarise the views of substantial customers, as expressed during price setting consultation, regarding those forecast over and under-recoveries included in the carry forward mechanism.</p> <p>When an airport has included forecast over and under-recoveries in the carry forward mechanism to adjust the forecast closing investment value, require the airport to provide information on:</p> <ul style="list-style-type: none"> • why the resulting forecast closing investment value is a good indicator of the remaining capital to be recovered at the end of the current pricing period; • the purpose and appropriateness of including these amounts in the carry forward mechanism; • the intended duration until these forecast over and under-recoveries have been fully offset; and • why using the carry forward mechanism to adjust the forecast closing investment value seems more appropriate in reflecting the airport’s pricing intent than an alternative approach to accounting for these forecast over and under-recoveries already provided for under the Airport IMs and ID determinations. 	<p>ID</p>	<p>7</p>

Problem	Sub-problem	Outcome	Solution	IMs or ID	Chapter
Other transparency problems	Other adjustments to the price path	Greater transparency for interested parties to better understand an airport’s approach to pricing	<p>Require airports to provide a high level disclosure of the total value of pricing incentives in the price setting event disclosures.</p> <p>Not to make any changes to the information disclosure requirements with regards to commercial concessions because we consider that the introduction of a forecast carry forward mechanism could be used to make the expectations regarding commercial concessions sufficiently transparent.</p>	ID	11
Other transparency problems (cont)	Timing of cash-flows	Greater transparency for interested parties to better understand an airport’s approach to pricing	<p>Specify, in the annual <i>ex-post</i> disclosures, 182 days before year-end timing assumptions for all expenditures and 148 days before year-end for all revenues.⁵³</p> <p>Specify, in the price setting event disclosures, 182 days before year-end timing assumptions for all expenditures and 148 days before year-end for all revenues.</p> <p>Provide, in the price setting event disclosures, the flexibility for airports to deviate from the default cash-flow timing assumption if airports provide evidence that the actual cash-flow timing for specific cash-flow items is different from the default cash-flow timing assumption.</p>	ID	10

⁵³ We note that any consequential changes affecting the *ex-post* Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review and will be subject to a separate consultation process.

Chapter 4: Forward-looking profitability indicator

Purpose of this chapter

139. The purpose of this chapter is to explain our solution to the problem associated with the lack of a forward-looking profitability indicator in the previous Airports ID Determination.

Structure of this chapter

140. This chapter begins with a section on the problem definition, before going on to explain our solution to this problem. It finishes with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

141. This section explains the problem definition, including how it evolved through consultations, which included submissions and workshops.

Summary of problem definition

142. There previously was no forward-looking profitability indicator in the Airports ID Determination to assist us and other interested persons in assessing whether airports were targeting excessive profits when they set prices.
143. There might be relatively weak incentives for suppliers to change their conduct so that their performance becomes more consistent with the Part 4 purpose if the information disclosure requirements:
- 143.1 do not provide for indicators that are a good measure of a particular area of performance; or
 - 143.2 more importantly, do not provide for any indicators at all (as was the case with targeted profitability).
144. In this case, the key concern was whether the information disclosed following a price setting event sufficiently influenced airports' conduct such that they were limited in their ability to extract excessive profits.
145. In this chapter, we discuss how we have amended the Airports ID Determination in order to provide for a headline profitability indicator that can be used as a starting point for any subsequent summary and analysis undertaken by us and other interested persons concerning the profits targeted by airports.

Understanding targeted returns by airports is important

146. Understanding the returns targeted by airports is important in assessing whether airports are limited in their ability to extract excessive profits.

147. For this assessment we consider it appropriate to compare these targeted returns against our mid-point estimate of cost of capital. When an airport targets a return that is different from our mid-point estimate of the cost of capital, we want to understand the extent of the difference and the rationale underpinning this variance in targeted return.
148. Our analysis of airports' profitability relies on transparent and reasonably accurate disclosures of targeted returns, including the assumptions underpinning the disclosures. In the past, transparency was limited by the fact that:
- 148.1 airports can set prices as they see fit;
 - 148.2 airports are not required to apply the Airport IMs Determination in making their forward-looking pricing disclosures;
 - 148.3 airports do not have to apply our forecast of cost of capital when setting prices;
 - 148.4 airports may target a return that is different from an airport's estimate of cost of capital; and
 - 148.5 most importantly, airports were not required to disclose a forward-looking profitability indicator at all.
149. In particular, if a forward-looking profitability indicator can provide a good reflection of an airport's targeted returns, consistent with s 53A, then airports are less likely to target profits that are excessive, consistent with s 52A(1)(d).

Undertaking an ex-ante profitability assessment for each airport can be challenging

150. As there was no forward-looking profitability indicator in the Airports ID Determination when we undertook the s 56G review of the effectiveness of airport information disclosure, we performed an *ex-ante* profitability assessment for each airport relating to the price setting events which occurred in 2012.⁵⁴
151. When assessing the returns targeted during the price setting event for the s 56G review, we calculated an IRR forecast, which required information on:⁵⁵
- 151.1 the opening investment value;
 - 151.2 the forecast cash-flows over the duration of the pricing period; and

⁵⁴ For more information on the approach that we took, see, for example: Commerce Commission "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport, Section 56G of the Commerce Act 1986" (31 July 2013), para F3-F12.

⁵⁵ We used the IRR, rather than estimating returns on investment (which would have been consistent with information disclosure), as the concept of an IRR avoids problems with the short-term variability in returns. This is discussed in more detail under the section on our solution in this chapter.

- 151.3 the forecast closing investment value.
152. In a forward-looking IRR calculation, the **opening investment value** reflects the initial capital to be recovered. It comprises:
- 152.1 the IM-compliant closing RAB value from the *ex-post* disclosure of the year preceding the start of the current price setting event;⁵⁶ and
- 152.2 any adjustments reflecting decisions made in previous price setting periods that have an impact on charges for the current pricing period.⁵⁷ This is important in order to achieve consistency between the opening investment value and the forecast cash-flows that are used in a forward-looking IRR calculation.⁵⁸
153. The **forecast cash-flows** over the duration of the pricing period comprise:⁵⁹
- 153.1 revenues;
- 153.2 opex;
- 153.3 capex; and
- 153.4 tax.
154. We consider it is appropriate to assume that the airport's forecast cash-flows are the starting point for the cash-flows used in our IRR calculation. However, during the s 56G reviews we made adjustments to the forecast cash-flows provided by airports but we found it difficult to accurately and appropriately determine those adjustments in advance.⁶⁰

⁵⁶ Given that the closing RAB value of the year preceding the start of the current price setting event will not be available until after the price setting event disclosure, we have amended the Airports ID Determination such that airports use the closing RAB value from the most recent *ex-post* disclosure rolled forward to the first day of the current price setting period. This is similar to what NZAA suggests in its submission on our IM review technical consultation paper. NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 49.

⁵⁷ For the purpose of this topic paper, we refer to these decisions as the '*ex-post* effects of risk allocation'.

⁵⁸ For more information on the concept of matching the cash-flows to the opening investment value, see Chapter 6.

⁵⁹ We note that the cash-flows are those required to determine an IRR comparable with the vanilla WACC. To determine an IRR comparable with a post-tax WACC the cash-flows would also include the value of the notional interest tax shield.

⁶⁰ For more information on the adjustments that we made, see Chapter 6.

155. In a forward-looking IRR calculation, the **forecast closing investment value** reflects the remaining capital to be recovered. It comprises:
- 155.1 the forecast closing asset base used by airports when setting prices, reflecting an airport's assumed time profile of capital recovery;⁶¹ and
 - 155.2 any adjustments reflecting decisions made by airports that affect charges for the current and future price setting events that are not already reflected in the forecast closing asset base. This is important in order to derive a forecast closing investment value that is a good reflection of the remaining capital to be recovered.⁶²
156. Provided that the opening and forecast closing investment values are determined in a manner as discussed above, the forward-looking IRR of the current pricing event effectively links past and future pricing periods together. This allows for a profitability assessment that is a good reflection of an airport's pricing intent.
157. In undertaking our profitability analysis for the s 56G review, we used our judgement to determine the appropriate value of the inputs to the IRR calculation. We had to determine the investment values and cash-flows that best reflected the airport's pricing intent and risk allocation arrangements. We also ensured that the forecast cash-flows used in our profitability assessment were consistent with the assumptions implicit in the opening and forecast closing investment values.
158. In our view, and based on the experience from the s 56G review, the process under the current Airports ID Determination to establish those input values can be onerous and inefficient for all parties involved.
159. For example, when undertaking the s 56G reviews, additional consultations with airports were necessary to establish those input values such that they reflected the airports' pricing intent. In the case of Christchurch Airport, this resulted in Christchurch Airport choosing to re-disclose information relating to its second price setting event using a non-standard depreciation approach in order to provide additional transparency with regards to its forecast closing investment value.

⁶¹ In most cases, and following the amendments we have made in particular to asset revaluations as part of this IM review, we expect the forecast closing asset base to be identical with the forecast RAB rolled forward. However, there may be occasions in the future where the forecast closing asset base is different from the forecast RAB rolled forward (when an airport uses an approach to revaluing assets that is not consistent with the IMs, eg, MVEU for land, or $CPI \pm Y$, as discussed in Chapter 5).

⁶² For more information on the forecast closing investment value and the adjustments that we consider appropriate, see Chapter 7.

Stakeholders were open to exploring the introduction of a forward-looking profitability indicator

160. BARNZ supported our view that the lack of a forward-looking profitability indicator under ID can be problematic. In particular, BARNZ submitted that:⁶³

The level of returns being targeted is a key element in assessing the degree to which the purpose of s52A is being achieved or successfully promoted, and in comparing the performance of regulated suppliers, and most members of the general public will not be able to undertake such assessments themselves. The experience during the s56G review process demonstrated not only how important an assessment of the level of profitability being targeted is to reaching any judgment on the degree to which the purpose of Part 4 is being achieved, but also how complex the assessment is as a result of the different approaches taken by each of the airports.

161. NZAA was open to exploring the introduction of a forward-looking profitability indicator in the Airports ID Determination. However, NZAA was not convinced that "a new *ex-ante* mechanism can remove the inevitable degree of complexity involved in profitability assessment" and considered that the "summary and analysis process plays an important role in providing sufficient information to ensure that the purpose of information disclosure is met". NZAA was of the view that:⁶⁴

Summary and analysis by the Commission provides an opportunity for:

- (a) the Commission to contextualise the *ex-ante* price setting disclosures, and consider price setting against outcomes over time; and
- (b) the airports to explain in further detail the reasons for any complexities, if and when they arise.

Our solution in respect of this problem

162. This section explains our solution in respect of this problem.

Our solution

163. We have made amendments to the Airports ID Determination under s 52Q to increase the transparency relating to targeted returns. In particular, our solution in respect of this problem is:

- 163.1 to include a requirement on airports to disclose an *ex-ante* IRR for the current pricing period in the price setting event disclosure requirements. This includes an opening investment value, a forecast closing investment value and forecast cash-flows over the duration of the pricing period; and

⁶³ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 6.

⁶⁴ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 10 and 13.

- 163.2 to supplement the requirement to disclose an *ex-ante* IRR with a carry forward mechanism in the ID requirements that can be used to adjust the opening investment value and the forecast closing investment value used in an IRR calculation.
164. Our solution overcomes the problem caused by no requirement to disclose a forward-looking profitability indicator under information disclosure. In particular, requiring airports to disclose an IRR that measures expected profitability during the current pricing period, and supplementing it with a carry forward mechanism can:
- 164.1 provide for a headline indicator that can be used as a starting point for any subsequent summary and analysis undertaken by us and other interested persons, and (in doing so);
- 164.2 assist in determining if airports are targeting excessive profits; and
- 164.3 to the extent that the indicator provides a good reflection of an airport's targeted returns, influence price setting such that the returns targeted are not excessive.
165. In assessing the expected profitability of the current pricing period, the benefits of using an IRR as opposed to using a ROI (as it is currently implied by the *ex-post* disclosure requirements) are that an IRR:
- 165.1 avoids the problems associated with the short-term variability in returns that are inherent in a ROI calculation;
- 165.2 allows us to better take into account the time value of money by reflecting that cash-flows during a pricing period occur at different points in time; and
- 165.3 allows us to reflect specific cash-flow timing assumptions as discussed in Chapter 10.
166. Supplementing the forward-looking IRR with a carry forward mechanism is important as it enables us and other interested persons to assess airports' profitability across pricing periods. It also allows us and other interested persons to assess whether prices are being set consistent with the financial capital maintenance (**FCM**) principle over the longer term.⁶⁵ Where prices are set consistent with the FCM principle, airports should expect to receive at least a normal return on their investments, consistent with both s 52A(1)(a) and (d).⁶⁶

⁶⁵ For more information on the FCM principle, see Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

⁶⁶ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 2.6.28.

167. Our solution allows the reflection of historic and future pricing periods in the profitability assessment of the current pricing period and to assess if the FCM principle is being followed in the longer term. This can be achieved because:
- 167.1 first, the carry forward mechanism can be used to adjust the opening investment value in the IRR calculation to reflect decisions made in previous price setting periods that have an effect on charges for the current pricing period. This is important in order to achieve consistency between the opening investment value and the forecast cash-flows that are used in a forward-looking IRR calculation;⁶⁷ and
- 167.2 second, the carry forward mechanism can also be used to adjust the forecast closing investment value in an IRR calculation to reflect decisions made by airports impacting charges of the current and future price setting events that are not already reflected in the forecast closing asset base. This is important in order to derive a forecast closing investment value that is a good reflection of the remaining capital to be recovered.
168. For more information on what can be captured in the carry forward adjustment to the opening investment value see Chapter 6 on the *ex-post* effects of risk allocation. For more information on what can be captured in the carry forward adjustment to the forecast closing investment value, see Chapter 7 on the treatment of forecast over and under-recoveries.
169. We have not put many constraints around the use of the carry forward mechanism, because the mechanism is designed to improve transparency in the price setting event disclosures. We consider it important that the mechanism remains flexible enough to be applicable to as yet unforeseen circumstances in the future. We therefore have not limited the use of the mechanism to specific, pre-defined situations, as this may create a situation where an airport cannot disclose its pricing intent transparently.
170. In the remainder of this section, we provide more detail on:
- 170.1 why our solution can provide for a headline indicator that can be used as a starting point for any subsequent summary and analysis;
- 170.2 why an IRR avoids the problems associated with the short-term variability in returns; and
- 170.3 the views expressed by stakeholders on this problem in submissions and at workshops.

⁶⁷ See Chapter 6 for more information on the concept of matching the cash-flows to the opening investment value.

Solution can provide for a headline indicator

171. Our solution can provide for a headline indicator that can be used as a starting point for any subsequent summary and analysis undertaken by us and other interested persons.
172. We consider the *ex-ante* IRR that will be disclosed under information disclosure is likely to be a good reflection of an airport's pricing intent. However, because airports can set prices as they see fit, there may be circumstances where the price setting event disclosures do not fully capture the approaches taken by an airport in respect of its pricing decision.
173. We therefore consider that the *ex-ante* IRR disclosed under information disclosure can only be a starting point in the profitability analysis of airports. We would expect an airport to comment in its disclosures on the extent to which the IRR disclosed is a good reflection of its pricing intent.
174. In any subsequent summary and analysis, we may then ourselves calculate an IRR in a way that is more consistent with targeted returns inherent in an airport's pricing decision than the one provided under information disclosure. However, it is our intent to try and make the new indicator provided under information disclosure as good as possible in the first instance.

IRR avoids the problems associated with the short-term variability in returns

175. As we discussed in the s 56G review for Wellington Airport, an IRR avoids the problems associated with the short-term variability in returns that are inherent in an ROI calculation. In particular, we noted:⁶⁸

(F4) Our analysis of Wellington Airport's returns is based on its internal rate of return (IRR). We have used the IRR, rather than estimating its return on investment (ROI) which would be consistent with information disclosure, as it avoids problems associated with the short-term variability in returns.

(F5) Information Disclosure regulation under Part 4 requires airports to disclose an ROI. The ROI is an annual, single period profitability indicator which measures the airport's net income against its regulatory asset values at the end of each prior disclosure year. The ROI is intended to be comparable to the Commission's estimated weighted average cost of capital (WACC).

(F6) Analysis of returns using the ROI for Wellington Airport could be distorted by the revaluation of assets at Wellington Airport. The ROI reflects any revaluation gain (or loss) that occurs in the year prior to the change in the asset value. This can result in a 'spike' in the ROI,

⁶⁸ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is Promoting the purpose of Part 4 for Wellington Airport – Section 56G of the Commerce Act 1986" (8 February 2013), para F4-F7.

which signals an expectation of higher (or lower) profits in the future.⁶⁹ However, whether the reported returns actually eventuate depends on the extent to which the change in the asset value flows through into prices and revenues.⁷⁰

(F7) Unlike an ROI calculation, an IRR calculation does not rely on asset values in each year. Instead, it is based on the initial capital outlay, and the net cash-flows associated with that investment. It therefore avoids the 'spikes' that can occur in the ROI.

There was general support for our solution

176. At the first airports profitability workshop in December 2015, there was general support for using an *ex-ante* IRR for the five-year pricing period with a carry forward mechanism between pricing periods.⁷¹
177. In their submissions on this workshop, the New Zealand Airport's Association (**NZAA**) and the Board of Airport Representative New Zealand (**BARNZ**) confirmed their support for our solution. In particular:
- 177.1 NZAA stated that it "could support the inclusion of an *ex-ante* forecast IRR (using both pricing and IM inputs), disclosed at the start of a pricing period, indicating returns targeted for the five-year pricing period". NZAA was also of the view that "transparency would need to be enabled within the information disclosure regime to reflect the carry forward or wash-up outcome";⁷² and

⁶⁹ A 'spike' in the ROI above the cost of capital as a result of a revaluation of assets indicates an expectation of higher profits in the future—but those higher profits have not yet occurred. Such a spike would also indicate that consumers have not yet received any compensation, through lower prices, to offset those expected higher profits. However, that expected level of profits will only fully eventuate if prices rise to the level implied by receiving a normal return on the revalued asset base (eg, Commerce Commission "Authorisation for the Control of Supply of Natural Gas Distribution Services by Powerco Ltd and Vector Ltd Decisions Paper" 30 October 2008, paragraph F.9). For example, during consultation on the asset valuation input methodology, Professor George Yarrow observed that a revaluation corresponds to a capitalisation of *future* cash-flows (G. Yarrow, M. Cave, M. Pollitt and J. Small, *Review of Submissions on Asset Valuation in Workably Competitive Markets, a Report to the New Zealand Commission, Annex 2: George Yarrow – Response to Submissions on Individual Expert Reviews*, November 2010, paragraph 2.11).

⁷⁰ If prices following the revaluation do not rise to the level implied by the revalued assets, the ROI measured at the point of revaluation may give a misleading view of returns. See Commerce Commission "Authorisation for the Control of Supply of Natural Gas Distribution Services by Powerco Ltd and Vector Ltd, Decisions Paper" 30 October 2008, Appendix F.

⁷¹ Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), para 12.

⁷² NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 13 and 45.

177.2 BARNZ reiterated its support for "using a five-year IRR, with a limited set of items carried forward to the next period, and considers that this methodology would best promote the purpose of 52A, and represents the most appropriate balance between the various competing objectives contained in the purpose statement".⁷³

178. Both parties elaborated further in their respective submissions on items that should be carried forward between pricing periods. More information on what these are and our respective solutions are in Chapters 6 and 7.

Summary of submissions on our IM review draft decision and our response

179. Our final solution remains unchanged from our proposed solution outlined in our IM review draft decision. Both NZAA and BARNZ express their support for the proposed solution in submissions on our IM review draft decision. In particular:

179.1 NZAA is of the view that:⁷⁴

The IRR mechanism proposed by the Commission seems workable. In particular, NZ Airports is supportive of an IRR indicator that matches the length of a pricing period, with the inclusion of a limited carry forward mechanism to allow assessment across pricing periods where appropriate.

179.2 NZAA accepts that:⁷⁵

in principle, that this mechanism (ie, the carry forward mechanism) is likely to offer an effective way for the Commission to be able to assess the impacts of relevant adjustment (eg risk allocation) on an airport's forecast profitability.

179.3 BARNZ supports:⁷⁶

(..) the introduction of a forward looking profitability indicator to provide greater transparency around the level of profitability being targeted by airports. We endorse the Commission's observation at para 162 that the process under the current Airports ID Determination to establish those input values can be onerous and inefficient for all parties involved.

⁷³ BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 1.

⁷⁴ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 192.

⁷⁵ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 192.

⁷⁶ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 3.

180. In its submission, BARNZ expresses concerns relating to the 'lack of constraints' around the application of the carry forward mechanism.⁷⁷ We have addressed those concerns in Chapter 7, as these particularly relate to our decision on the treatment of forecast over and under-recoveries.
181. Airports' major concern with the introduction of a forward-looking profitability indicator under ID relates to how interested persons are going to judge airport performance in future. In particular, NZAA "remain concerned that a key risk arising under the Commission's proposals is that interested parties' starting point and end point for assessing airport performance will be to compare the disclosed internal rate of return ("IRR") to the mid-point WACC estimate".⁷⁸
182. We acknowledge the concern, but we cannot comment on how other interested persons are going to judge airport performance in future. However, we remain committed to undertaking a contextual assessment of airport profitability when we perform summary and analysis of the relevant price setting event. As such, we would want to understand the difference and rationale underpinning the variances between targeted returns and our mid-point WACC estimate.⁷⁹ Information provided by airports on the extent to which the IRR provided under ID is a good reflection of targeted returns will be factored into our assessment.
183. In our IM review draft decision we explained that "we may need to adjust the IRR provided under information disclosure in a way that is more consistent with targeted returns inherent in an airport's pricing decision". NZAA is of the view that this would have been contrary to the purpose of ID regulation and that these adjustments would not have been merited as the carry forward mechanism is meant to ensure that we do not need to make any adjustments.⁸⁰

⁷⁷ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 3.

⁷⁸ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 12.

⁷⁹ In our topic paper on the WACC percentile applicable to airports we explain our decision to require airports to publish evidence that provides an explanation for differences between their WACC and our estimate of the WACC; and their targeted return and their WACC. See, Commerce Commission "Input methodologies review decisions: Topic paper 6 – WACC percentile for airports" (20 December 2016).

⁸⁰ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 200-201.

184. We accept that our previous wording may have been ambiguous as it may have suggested we might 'adjust' the disclosed IRR provided by airports under ID. This is not our intention. As NZAA have rightly pointed out, our changes to the Airports IMs and ID Determinations, including but not limited to the carry forward mechanism, are meant to make the IRR as reflective of an airport's pricing decision as possible. Nevertheless, as we explained in paragraph 172, there may be occasions where the IRR provided by airports in their price setting event disclosures is not fully able to reflect the approaches taken in an airport's pricing decision. In any event, we would only ourselves calculate an IRR of an airport's price setting event when we perform summary and analysis.

Chapter 5: Time profile of capital recovery

Purpose of this chapter

185. This chapter discusses the problems and solutions we have identified in relation to an airport's time profile of capital recovery due to its treatment of revaluations and depreciation.

Structure of this chapter

186. This chapter begins with an introduction to the two main mechanisms through which an airport may end up with a different time profile of capital recovery than that implied by the Airport IMs Determination. These are through its approach to asset revaluations and depreciation.
187. We conclude the chapter with a discussion of an additional problem, and our solution to that problem, that is unique to Auckland Airport (but which could arise for any other airport in future). This problem arises from our solution with respect to asset revaluation.
188. Each discussion on asset revaluations, depreciation and the resulting problem to Auckland Airport covers:
- 188.1 the problem definition and the context in which we considered the problem, including an explanation of how the problem definition evolved through consultation, which included submissions and workshops;
 - 188.2 our solution and the respective reasons associated with the solution; and
 - 188.3 the main comments stakeholders made in submissions on our IM review draft decision and our response.

Introduction to the mechanisms which can adjust time profile of capital recovery

189. An airport can target a time profile of capital recovery that is different to the default position assumed under the Airport IMs Determination through two main mechanisms. These are:
- 189.1 through its approach to the revaluation of its asset base; and
 - 189.2 by explicitly (or implicitly) using non-standard depreciation.

190. The default positions under the previous Airport IMs Determination assumed that:⁸¹
- 190.1 revaluations of land assets had to be calculated by applying the consumers price index (**CPI**), although airports have the option of undertaking valuations at periodic intervals based on a market value alternative use (**MVAU**) methodology;
 - 190.2 revaluations of non-land assets had to be calculated by applying CPI-indexation; and
 - 190.3 depreciation of non-land assets had to be calculated by applying straight line depreciation.
191. When airports use an alternative time profile of capital recovery, our profitability assessments must be able to take into account and assess the appropriateness of the choices that an airport has made when setting prices. This is important to ensure that airport pricing decisions are transparent enough for us and other interested persons to be able to assess whether the airport has been limited in its ability to earn excessive profits (consistent with s 52A(1)(d)).
192. We have previously said that non-standard approaches might be appropriate. In our s 56G report for Auckland Airport we indicated that while the Airport IMs Determination provides an appropriate benchmark for assessing performance it was not the only legitimate benchmark for assessing performance in terms of the Part 4 purpose.⁸²
193. The remainder of this chapter focusses on the problems and our solutions associated with these mechanisms for adjusting the time profile of capital recovery.

⁸¹ *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clauses 3.4 (depreciation) and 3.7 (revaluation).

⁸² Commerce Commission "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport" (31 July 2013), Chapter 2, p. 20, para 2.41.

Asset revaluations – problem definition

Targeted profitability could be assessed on a different basis from actual profitability

194. When they set prices, airports can apply different asset revaluation approaches to those specified in the Airport IMs Determination, which previously meant that targeted profitability may have been assessed on a different basis from *ex-post* profitability. This was because:
- 194.1 the information disclosed by an airport about its price setting event must be consistent with the approaches the airport applied to forecast costs when determining prices;⁸³ whereas
- 194.2 the information disclosed by an airport on an annual basis about its actual costs must be consistent with the revaluation approaches set out in the Airport IMs Determination.
195. The previous Airport IMs Determination on asset revaluation did not allow the pricing decisions that differed from the Airport IMs to be reflected in the RAB value that was disclosed. This meant the value of the asset base could have differed between *ex-ante* and *ex-post* disclosure purely due to the different treatment of the revaluations in each situation.
196. These differences meant that, all else being equal, the returns that we assessed under *ex-post* information disclosure may not have been consistent with the airports expected returns when setting prices. This was because the airports may have treated revaluations differently than assumed under the IMs.

How stakeholders see the problem

197. During the IM review consultation process stakeholders expressed views on the subject of asset revaluations. BARNZ acknowledged that airports can use different asset revaluation approaches relative to the Airport IMs Determination but considered:⁸⁴

That it is vitally important that the IMs provide a clear lode-stone against which the reasonableness of the airport's approach can be compared in order to judge its reasonableness.

198. We agree with BARNZ that it is important to be able to assess whether or not the airport's approach is reasonable. This is important in our and other interested persons' assessment of profitability.

⁸³ *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clause 2.5 and Schedule 18. See also definition of "forecast revaluations". *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clause 1.4.

⁸⁴ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 10-11.

199. NZAA is of the view that there is sufficient information already provided under information disclosure regulation for interested persons to understand airport profitability.⁸⁵ We disagree with this view and consider the requirements could be more transparent to help us and other interested persons understand the implication when an airport has used an alternative approach to asset revaluations.

The problem was first identified in the s 56G review of Auckland Airport

200. The problem associated with asset revaluations was first identified in our s 56G review of the effectiveness of the information disclosure regime for Auckland Airport. Auckland Airport introduced a moratorium on asset valuations which meant revaluations were not included in the value of the asset base used to set prices.⁸⁶ This moratorium was first applied during PSE1 (2007-2012) and will continue in effect until at least the end of PSE2 (2012-2017).
201. An airport's choice of an indexed or un-indexed approach to revaluations changes the implied time profile of capital recovery. All other things being equal, the use of an un-indexed approach justifies higher revenues in the short- to medium-term as opposed to revenues if CPI-indexation is applied. However, either approach can be NPV-neutral over time.

Under s 56G profitability assessed consistent with Auckland Airport's pricing approach

202. In our assessment of Auckland Airport's targeted profitability under s 56G, we reached our conclusions on the effectiveness of information disclosure on the basis of an assessment that was consistent with the approach to revaluations applied by Auckland Airport in pricing.
203. As discussed in the s 56G report, Auckland Airport indicated if a revalued asset base were to be used in pricing in the future, the cumulative revaluation impact will be treated as an offset to the future revenue target.⁸⁷
204. If prices were to be set in future on the basis of the asset value rolled forward using CPI-indexation (without treating the revaluation as an offset to income), then Auckland Airport would be expected to earn excessive profits. This is because prices would reflect CPI-indexed revaluations that have not yet been appropriately treated as income in pricing.

⁸⁵ NZ Airports "Submission on IM review problem definition" (21 August 2015), para 216.

⁸⁶ Commerce Commission "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport" (31 July 2013), Attachment F, p. 91, para F31.

⁸⁷ Commerce Commission "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport" (31 July 2013), Attachment F, p. 85, para F13.

205. Therefore, unless Auckland Airport restates the disclosed asset value consistent with the revaluation moratorium, then future profitability assessments will be more complex. This is because the asset value that has been disclosed on an annual basis is higher than the asset value that would be consistent with Auckland Airport's past pricing approaches and previously indicated intentions.
206. Consequently, a related but separate problem has been created because in the past Auckland Airport has applied an alternative approach to revaluations. This separate problem is discussed later in this chapter.
207. The remainder of this section focusses on the extent to which input methodologies have been amended to reflect alternative revaluation approaches that may be applied by airports at future price setting events. The solution to this problem is intended to avoid the need to restate past asset values if airports change their approach in future.

Asset revaluations – our solution in respect to the problem

Changes to the Airport IMs Determination

208. Our solution is to amend the Airport IMs Determination such that airports are required to apply either CPI-indexation or an un-indexed approach when rolling forward the value of individual assets, depending on the approach applied in pricing. This change applies to both land and non-land assets.
209. We note that, if an airport uses an approach to revaluing assets in pricing that is not consistent with the approaches provided for in the Airport IMs, the airport must roll forward the value of individual assets by electing the approach provided for in the Airport IMs that is most consistent with its pricing decision.⁸⁸
210. We consider that this solution will allow us and other interested persons to better assess if airports are targeting excessive profits.
211. We have made this change because:
- 211.1 although the two approaches imply different time profiles of capital recovery, both are consistent with allowing interested persons to assess whether airports are limited in their ability to earn excessive profits (consistent with s 52A(1)(d));
 - 211.2 the benefit of ensuring that the approach when disclosing the roll forward of the value of individual assets reflects the pricing approach is that it improves the transparency of returns and reduces the risk that airports will have to restate asset values in future; and

⁸⁸ We note that, as at the publication date of this topic paper, we are unaware of an airport using another approach to revaluing assets as those we have now specified in the Airport IMs.

211.3 it provides additional flexibility to airports to disclose costs on a consistent basis to the approaches used by airports when setting prices.

212. When an indexed approach is applied in pricing, it can be shown that *ex-post* returns will comprise:

212.1 a performance-related real return, through cash-flows during the period; and

212.2 compensation for inflation, through inflation-indexed asset revaluations.

213. The practical effect of indexing asset values to actual inflation is therefore to ensure that the real return achieved in practice is consistent with the real return embedded in the cost of capital.

214. The primary impact of applying an un-indexed approach is to increase justifiable revenue in the short-term. However, a consequence of this approach is that an airport may also increase the extent to which its real return is exposed to inflation risk. The real return is the return the airport earns over and above compensation for actual inflation.⁸⁹

Changes to information disclosure requirements

215. We have changed the Airports ID Determination such that an airport is required to provide information on the approach used by it to revalue assets (ie, indexation or non-indexation) and the forecast value of revaluations as well as the forecast revaluation rate that the airport has applied to an asset. This information will make the airport's approach to revaluations transparent and provide supporting information for summary and analysis.

Specific implications for Auckland Airport's existing valuations

216. One implication of our changes to the Airport IMs and ID determinations is that Auckland Airport will be required to adjust its historic disclosed asset values such that they are most consistent with the approaches it adopted in pricing. This is required in order to:

216.1 ensure that our forward-looking and backward-looking profitability assessments are consistent; and

216.2 provide enough transparency for us and interested persons to assess whether Auckland Airport is limited in its ability to earn excessive profits.

⁸⁹ Dr Lally's expert advice on the cost of debt, asset beta adjustments for GPBs, RAB indexation and inflation risk, and TAMRP "Review of further WACC issues" (report to the Commerce Commission, 22 May 2016), p. 41.

217. At our April 2016 workshop, Auckland Airport indicated that restating asset values would be complicated and create significant additional compliance costs.⁹⁰ This is because the airport would have to reconcile its un-indexed approach to each of its individual assets in order to be compliant with the asset valuation IM.
218. We consider that Auckland Airport's concern can be addressed through the use of an alternative approach with an equivalent effect. In paragraphs 339 to 344 we discuss how we have accommodated such an alternative approach under the Airport IMs Determination.
219. We also note that the approach discussed in paragraphs 339 to 344 might provide a mechanism for addressing similar issues if they arise in future. For example, it can be used if airports adopt a non-standard depreciation methodology that is determined at the aggregate asset base level rather than by individual assets.

Past stakeholder views

220. In reaching our solution on the treatment of asset revaluations, we have taken into account past stakeholder views on the matter. This includes submissions on our IM review draft decision which we discuss later in this chapter. For example, in its submission on the IM review problem definition paper, BARNZ indicated that it would support an approach like our solution to this problem.⁹¹
221. BARNZ supported the addition of specified options in the IMs for airports on the degree of revaluations to apply (ie, none, CPI indexing only or Schedule A land revaluations) when rolling forward the RAB (but did not support the introduction of complete or unconstrained flexibility).
222. BARNZ also requested clarity on:
- 222.1 when an airport can make an election of the approach to revaluing assets;
 - 222.2 whether the election can be subsequently changed; and
 - 222.3 how an election by the airport is to be disclosed.
223. Theoretically, in the context of an airport's profitability assessment, an airport can make these elections any time provided revaluations are treated in a NPV-neutral manner (ie, ensuring the real FCM principle is being followed). However, our solution provides clarity which addresses the points raised by BARNZ because the Airport IMs and ID determinations have been amended such that:

⁹⁰ Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 8.

⁹¹ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review", (21 August 2015), p. 2.

- 223.1 under information disclosure, an airport can only elect its approach to revaluing assets when setting prices, and, if possible, it must use the same approach in its price setting event and *ex-post* disclosures (this will address the points in paragraphs 222.1 and 222.2); and
- 223.2 an airport will be required to provide details on the treatment of any revaluation gains in the next pricing period arising from a change in the approach to revaluing assets (this will address the point in paragraph 222.3).
224. NZAA indicated that it would support the inclusion of further flexibility in the Airport IMs Determination in order to allow pricing revaluation approaches to be aligned with the information disclosure requirements. However, NZAA also argued for any non CPI-based revaluation approaches to be included in the Airport IMs Determination, noting that:⁹²
- Providing this flexibility in the IM would not reduce the effectiveness of the information disclosure regime because the fundamental principle will remain that all revaluations included in the RAB must also be included in disclosed income. However, it would improve the ability of all parties to evaluate airport outcomes because RAB revaluation forecasts and actual outcomes will be presented on a more consistent basis.
225. We acknowledge that, when setting prices, an airport may use an approach to revaluing assets that may be different to those specified in the Airport IMs. In that regard, we note that the approach to revaluing assets can only be the same in price setting event and *ex-post* disclosures when an airport revalued its assets by using either CPI-indexation or an un-indexed approach. If, for price setting purposes, an airport revalued its asset base or parts of it using a non IM-consistent approach, the approaches to revaluing assets in price setting event and *ex-post* disclosures may diverge.
226. However, we consider the carry forward mechanism can be used such that the revaluation approaches in price setting event and *ex-post* disclosures are still the same even if an airport, for price setting purposes, revalued its asset base or parts of it by using a non IM-consistent approach. We discuss this in more detail in the following section.

⁹² NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 39.

Carry forward mechanism is available to address non IM-consistent revaluation approaches

227. We consider that, based on the approaches to revaluing assets airports have used since the introduction of the ID regime, our solution will in most cases provide sufficient flexibility for an airport to disclose how it revalued assets in its pricing decision. However, if an airport revalued its pricing asset base using a non IM-consistent methodology, the carry forward mechanism described in chapters 4 and 7 of this paper is available for airports to transparently disclose this approach. This means that in practice, an airport can use the carry forward adjustment to the forecast closing investment value to reflect the difference in asset values resulting from its pricing approach to revaluations and an IM-consistent approach.
228. By following this approach, the asset roll forward approaches in price setting event and *ex-post* disclosures will still be the same even if an airport, for price setting purposes, revalued its asset base or parts of it by using a non IM-consistent approach.⁹³ This allows us and other interested persons to more easily identify the impact on profitability of airports applying alternative approaches to revaluing assets. We can then comment on how appropriate the airports' approach was through summary and analysis. As we discuss it in more detail in Chapter 6, this approach also allows for a transparent disclosure of un-forecast revaluation gains or losses in the price setting event disclosures of the subsequent price setting period.
229. We consider that this approach addresses NZAA's comment that even further flexibility is required for an airport to be able to disclose any non CPI-based revaluation approaches. Christchurch Airport re-iterates this view in its submission on our IM review draft decision, where the airport suggests "to leave open the option of permitting an airport to apply a fixed increment to the revaluation gain to either all assets (or just to land assets)".⁹⁴
230. In Attachment B, we provide a stylised example that illustrates the mechanics of this approach. We consider it useful for the stylised example to be looked at alongside the narrative provided in this topic paper. This is because the matters relating to the disclosure of asset revaluations based on non IM-consistent approaches and the treatment of any resulting un-forecast revaluation gains or losses in the price setting event disclosures span across several chapters of this topic paper.
231. However, if an airport chooses not to use the carry forward adjustment to the forecast closing investment value to disclose the value of asset revaluations that are associated with non IM-consistent approaches, we want to know to what extent the disclosed forecast asset revaluations comprise such values. We have amended Schedule 18 in the Airports ID Determination accordingly.

⁹³ Further information about the calculation of carry forward amounts can be found in chapters 6 and 7.

⁹⁴ Christchurch Airport submission on IM review draft decisions papers "IM review submission" (4 August 2016), para 26.3.

Asset revaluations – summary of submissions on our IM review draft decision and our response

232. Our final solution is largely unchanged from the proposed solution outlined in our IM review draft decision. However, in response to submissions on our IM review draft decision:

232.1 we have removed our proposed change to the Airport IMs Determination to include an objective method of forecasting CPI based on the approach to forecasting CPI used in other regulated industries;

232.2 we have removed our proposed change to the Airports ID Determination that required an airport to:

232.2.1 disclose the IM-consistent forecast of CPI and the forecast value of revaluations that would have been projected had this methodology been applied at an asset category level; and

232.2.2 identify the impact of any differences on the value of forecast revaluations arising from the application of the IM-consistent forecast of CPI and the forecast CPI used to set prices on asset revaluations.

233. In this section, we summarise the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and provide our response.

Our solution to allow for either CPI-indexation or an un-indexed approach when rolling forward the value of individual assets

234. We have not changed our proposed solution outlined in our IM review draft decision that requires airports to apply either CPI-indexation or an un-indexed approach when rolling forward the value of individual assets, depending on the approach applied in pricing.

235. Both NZAA and BARNZ consider this additional flexibility created in the Airport IMs sensible.^{95, 96} Auckland Airport also supports our decision, however, notes that its "position is subject to the proposed ID requirements allowing us to reflect the revaluation approach that has been taken in pricing, which may differ within an asset category as defined by the Commission".⁹⁷ We respond to Auckland Airport's submission in the following section.

⁹⁵ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 214 a.

⁹⁶ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016). p. 8-9.

⁹⁷ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 11a.

Revaluations can be reflected at an individual asset level

236. We acknowledge that the drafting in our IM review draft decision suggested that asset revaluations under information disclosure could only be reflected at an asset category level. We have clarified in our IM review final decision that asset revaluations under information disclosure can be reflected at an individual asset level. This is because airports can have different revaluation approaches for assets within each asset category.
237. When disclosing asset revaluations at an asset category level, we expect an airport to explain when different indexing approaches are adopted within the same asset category.⁹⁸ In particular, we expect an airport to disclose the revaluation rates that have been used within the same asset category. We note that we have not included a requirement on airports to disclose a weighted average of the revaluation rates used across a single asset category as it was suggested by NZAA.⁹⁹ If considered relevant, we will be able to infer such an average rate from the disclosure of forecast revaluations for each asset category ourselves.
238. BARNZ is aware that airports can have different revaluation approaches for assets within each asset category and considers that information disclosure should reflect this to some extent. However, BARNZ considers it "unmanageable" to reflect asset revaluations at an individual asset level. In particular, BARNZ submitted that:¹⁰⁰

Auckland Airport's advice that its moratorium does not apply to all assets within a category has reminded us that the airport did not apply its moratorium to leased assets. BARNZ therefore proposes expanding the election categories it supports to include leased and unleased, which would provide 24 different categories for the decision of whether to revalue or not to be made. BARNZ considers this is ample. It would be unmanageable for interested parties to be faced with an election at any more granular level. In particular, reviewing Auckland Airport's 60 000 line items for decisions on whether to revalue or not would be unworkable.

⁹⁸ This was also suggested by Auckland Airport. See, Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 14 c.

⁹⁹ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 52.

¹⁰⁰ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 4.

239. We acknowledge BARNZ's concern that reconciling asset revaluations disclosed at an asset category level to individual assets can be an onerous task. However, in order to provide transparency, we consider it important that asset revaluations included in the price setting event disclosures track what has been done for pricing. As such we agree with Auckland Airport's comment that:¹⁰¹

it is key that the disclosure requirements allow airports to reflect the approach that has actually been taken in pricing. We support an approach where airports can roll forward individual assets in accordance with the indexing approach to those assets in pricing, with disclosure of aggregate revaluations at an asset category level. This will mean that individual assets within a category may have different indexing approaches applied for disclosure purposes, if that aligns with the pricing approach that has been taken.

Consistent approach to revaluations in price setting and ID disclosures

240. Stakeholders generally agree with the new requirement on airports to disclose forward and backward-looking asset values on a consistent basis to the approaches used when setting prices.¹⁰²
241. NZAA submitted that "the flexibility to align the approach to indexation used in pricing with that used for the purpose of annual ID disclosures has the benefit of improving transparency of returns for interested persons. Alignment between the *ex-ante* and *ex-post* disclosures also minimises the risk of having to restate asset values, which airports are plainly keen to avoid".¹⁰³ Auckland Airport commented in a very similar way.¹⁰⁴
242. However, in its submission on our IM review technical consultation update paper, NZAA requested clarification on how an airport can disclose forecast asset revaluations in its price setting event disclosures if it revalued its asset base for pricing purposes by using approaches that are different from those specified in the Airport IMs.¹⁰⁵
243. We agree with NZAA that information disclosure must ensure that airports have the ability to transparently disclose such a scenario, because, when setting prices, airports do not have to follow the approaches specified in the Airport IMs. We have responded to NZAA's request in this chapter by outlining our view that the impact on asset revaluations resulting from airports using approaches that are different from

¹⁰¹ Auckland Airport "Input methodologies review: Cross submission on draft decision and submission on draft IM and ID determinations" (18 August 2016), para 2d.

¹⁰² See, for example, BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016).

¹⁰³ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 215.

¹⁰⁴ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 13 b.

¹⁰⁵ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 20(a).

those specified in the Airport IMs should be captured in the carry forward adjustment to the forecast closing investment value.

244. As we explain in this chapter, by following this approach, the revaluation approaches reflected in the closing asset bases in price setting event and *ex-post* disclosures will still be the same even if an airport, for price setting purposes, revalued its asset base or parts of it by using a non IM-consistent approach. As we discuss in more detail in Chapter 6, this approach also allows for a transparent disclosure of un-forecast revaluation gains or losses in the price setting event disclosures of the subsequent price setting period.
245. Finally, we note that BARNZ also supports the new requirement on airports to elect an approach to revaluing assets only at the beginning of the next pricing period.¹⁰⁶ No other stakeholder submitted on this.

Our solution regarding disclosure requirements associated with asset revaluations

246. In response to submissions, we have removed from our final IM review decision some of the disclosure requirements that we proposed in our IM review draft decision that apply to asset revaluations.

No disclosure of asset revaluations using an IM-consistent CPI forecast

247. As part of our IM review draft decision we proposed to include in the Airport IMs Determination an objective method of forecasting CPI based on the approach to forecasting CPI used in other regulated sectors. We proposed to amend the Airports ID Determination in a way that airports would have been required to:
- 247.1 disclose the IM-consistent forecast of CPI and the forecast value of revaluations that would have been projected had this methodology been applied at an asset category level; and
- 247.2 identify the impact of any differences on the value of forecast revaluations arising from the application of the IM-consistent forecast of CPI and the forecast CPI used to set prices on asset revaluations.
248. This would have allowed us and other interested persons to understand the forecast value of the assets had the CPI calculated under the Airport IMs been applied. As we discussed in Chapter 6 of our IM review draft decision, an airport that does not revalue its asset base could have used the carry forward mechanism to adjust the opening investment value such that it would remove the difference between actual CPI-indexation and an IM-consistent forecast CPI.
249. However, in response to submissions on our IM review draft decision, we have removed the proposed objective method of forecasting CPI from the Airport IMs Determination as well as the respective disclosure requirements. This is because

¹⁰⁶ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 8.

airports and airlines unanimously agree that "there has not in practice been any material issue regarding the forecasting of CPI, due partly to the presence of readily available objective forecasts in the market and also to the fact that the Commission's approach to forecasting CPI used in other regulated sectors has been available to use as a reference point since 2010".^{107, 108}

250. In their cross submissions on our draft IM review decision, NZAA and Auckland Airport elaborate further on the removal of the respective disclosure requirements regarding asset revaluations and the consequential effects. NZAA considers that the "proposal to require disclosure of "IM compliant" CPI forecasts serves no useful purpose and cannot be justified under the Commission's decision-making framework, namely its requirement that the benefits of any changes outweigh the costs of change".¹⁰⁹
251. Auckland Airport similarly submitted that "if an airport has not forecast to index asset values at CPI in their pricing approach, and is not required to index those asset values at CPI for annual disclosure purposes, we struggle to see the benefit in requiring them to disclose what would hypothetically happen to their asset values if the Commission's estimate of forecast CPI was applied".¹¹⁰
252. As also noted in Chapter 6, consequently, if an airport wanted to remove the effect of inflation risk from its price setting event disclosures, the airport would have to use its own forecast of CPI and provide information on how it has been determined.

Asset revaluations remain permitted

253. The International Air Transport Association ('IATA') submitted that asset revaluations should not be permitted as they are a "tactic to inflate cost base (and thus higher prices)" and it "results in windfall gains at the expense of user – airlines and passengers". With regards to airport land used to provide specified airport services IATA is of the view that "airlines should not pay for the investment value of land and infrastructure used by airports". IATA considers "charges paid by airlines should reflect the operational cost of using the land to provide aeronautical services and not its market value".¹¹¹

¹⁰⁷ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 9.

¹⁰⁸ Airports endorse BARNZ's submission in cross submissions on the draft IM review decision. See, for example, Auckland Airport "Input methodologies review: Cross submission on draft decision and submission on draft IM and ID determinations" (18 August 2016), para 2c and NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 70.

¹⁰⁹ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 71.

¹¹⁰ Auckland Airport "Input methodologies review: Cross submission on draft decision and submission on draft IM and ID determinations" (18 August 2016), para 2c.

¹¹¹ IATA "Submission on draft decision papers and report on the IM review" (4 August 2016).

254. We continue to consider that allowing for asset revaluations (including land to be included in the RAB and revalued using an MVAU approach), as long as any resulting gains are treated as income, is appropriate.¹¹² We have not seen any evidence that suggests otherwise. We note that, during the problem definition stage of the IM review as well as at the various workshops that we held with airports stakeholders, the other stakeholders did not raise concerns with asset revaluations being permitted to airports under information disclosure.

Depreciation – problem definition

255. The Airport IMs and ID determinations allow airports to use non-standard depreciation (also known as alternative, implied or economic depreciation) when disclosing information under information disclosure regulation.^{113, 114} Airports are allowed to apply non-standard depreciation and, under the previous Airport IMs and ID determinations, they had to provide an explanation in their disclosures of what they had done when non-standard depreciation was applied. This was required so that interested persons could assess how it met the Part 4 purpose.¹¹⁵

256. During its second price setting event (**PSE2**) Christchurch Airport set prices based on a 20-year levelised price path but did not disclose a depreciation profile consistent with this pricing decision (ie, it disclosed straight line depreciation). Our s 56G report identified that it would have been more transparent to disclose a non-standard depreciation methodology.

257. Christchurch Airport subsequently made a voluntary re-disclosure of its pricing disclosure using a non-standard depreciation methodology, intended to be consistent with its levelised pricing approach.¹¹⁶ This made Christchurch Airport the first airport to disclose a non-standard depreciation methodology.

¹¹² Our respective reasons are outlined in our 2010 IM Reasons Paper. Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010).

¹¹³ Non-standard depreciation is any methodology other than straight line depreciation as set out in the Airport IMs Determination. *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*.

¹¹⁴ Depreciation is not applied to land and easements (other than fixed life easements) and therefore non-standard depreciation can only be applied to an airport's non-land assets. *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*.

¹¹⁵ Commerce Act (Specified Airport Services Input Methodologies) Determination 2010 (Commerce Commission Decision 709, 22 December 2010), clause 3.4; *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clauses 2.5 and 2.3, Schedules 18 and 4.

¹¹⁶ Our s 56G report on Christchurch Airport found that, among other things, the use of a 20-year levelised price path and straight line depreciation made it difficult for us and other interested parties to assess profitability as it broke the link between target returns and the RAB. Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport – Section 56G of the Commerce Act 1986" (13 February 2014).

258. Having reviewed the approach applied by Christchurch Airport, we considered that it was an improvement on the previously disclosed information because it:
- 258.1 provided a relatively straightforward way to calculate depreciation that was intended to better reflect the assumptions inherent in Christchurch Airport's pricing approach; and
 - 258.2 was consistent with us and interested persons being able to more readily assess whether Christchurch Airport is limited in its ability to earn excessive profits over time (consistent with s 52A(1)(d)).
259. Nevertheless, our experience with Christchurch Airport's use of a non-standard depreciation methodology has raised a number of problems:
- 259.1 Christchurch Airport did not initially identify that it was appropriate to use non-standard depreciation rather than straight line depreciation when disclosing price setting information for PSE2; and
 - 259.2 in addition, airlines found it difficult to engage with Christchurch Airport's approach to non-standard depreciation. In part, this may have been due to the fact that the non-standard approach adopted by Christchurch was intended to better reflect the lower current utilisation of assets, but (counter-intuitively) was associated with an increase in disclosed depreciation.
260. This suggested that there was scope to improve the previous requirements for non-standard depreciation to ensure that:
- 260.1 an airport discloses a depreciation methodology that is consistent with its pricing decisions; and
 - 260.2 there is sufficient information disclosed to allow us and interested persons to assess the depreciation methodology an airport has disclosed.
261. In addition, we note that different approaches to depreciation may imply changes to the incentives facing airports. For example, a consequence of the approach applied by Christchurch Airport was that the business is exposed to a lower proportion of any overspend in capital expenditure (and, conversely, retains a lower proportion of any benefits associated with an underspend in capital expenditure).
262. Our consideration of each of these matters is explored in greater detail below.

Identification and application of non-standard depreciation approach

263. As part of our review under s 56G for Christchurch Airport, we expressed concerns about the transparency of returns, because (amongst other reasons) Christchurch Airport did not identify that given its pricing methodology it would be appropriate to apply a non-standard approach to depreciation. In our view, such an approach would have better reflected the assumptions inherent in Christchurch Airport's 20-year levelised price path.¹¹⁷
264. As a result of the s 56G report, Christchurch Airport voluntarily restated its price setting event disclosure to incorporate a non-standard depreciation methodology that better reflected Christchurch Airport's pricing intent.¹¹⁸ As noted earlier, our view is that these changes have resulted in improvements in the transparency of Christchurch Airport's pricing approach.

Stakeholders found it difficult to engage with the approach to non-standard depreciation

265. Stakeholders found it difficult to engage with the approach to non-standard depreciation in Christchurch Airport's revised disclosure.¹¹⁹ For various reasons, the disclosed value of non-standard depreciation was higher than the disclosed value of standard depreciation. This was counter-intuitive given the justification for using a non-standard depreciation approach. We consider that the provision of additional information about the approach may have assisted stakeholder understanding.

Impact of non-standard approach to depreciation on incentives

266. By disclosing information about the non-standard approach to depreciation, interested persons have been able to assess the extent to which Christchurch Airport has had incentives to improve efficiency (consistent with s 52A(1)(b)).
267. As noted previously, the impact of the approach applied by Christchurch Airport is that the business is exposed to a lower proportion of any overspend in capital expenditure (and, conversely, retains a lower proportion of any benefits associated with an underspend in capital expenditure).
268. This is because the depreciation applied to the RAB *ex-post* was fixed in advance (set equal to forecast depreciation), and there was consequently no impact on *ex-post* depreciation as a result of the capital expenditure undertaken during the period.

¹¹⁷ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport – Section 56G of the Commerce Act 1986" (13 February 2014).

¹¹⁸ Christchurch Airport "Supplementary voluntary disclosures" (28 November 2014).

¹¹⁹ Letter from Aaron Schiff (Schiff Consulting, on behalf of BARNZ) to John McLaren (Manager, Commerce Commission) summarising views on Christchurch Airport's revised information disclosure for PSE2, (9 July 2010).

269. In his paper on updating the regulatory asset base, Biggar discusses the impact using forecast or actual depreciation has on the incentives faced by regulated suppliers. Biggar also provides a number of examples to demonstrate these incentives.¹²⁰

270. The following example (from Biggar) demonstrates the impact of an airport rolling forward the RAB using actual capital expenditure and forecast depreciation:¹²¹

suppose that a firm initially has a RAB equal to zero. Suppose that the capex target for the next five-year regulatory period is \$100 million for a project which lasts 20 years. The forecast depreciation for the next five-year regulatory period is therefore \$25 million. Suppose that the capex out-turn is \$80 million. The closing RAB is then set equal to the opening asset base plus the actual capex less the forecast depreciation, which is \$55 million. Note that the present value of the revenue stream in this example is just \$80 million – the firm neither gains nor loses financially from under-spending in this example. The firm also does not benefit from inflating the capex target.

271. The next example demonstrates the impact of an airport rolling forward the RAB using actual capital expenditure and actual depreciation:¹²²

suppose that the opening RAB is zero. The capex target for the next regulatory period is \$100 million for a project which lasts 20 years. The straight line depreciation allowance on this project for the next five-year regulatory period is $X/4$ where X is the level of spending on the project, so the forecast depreciation is \$25 million. If the capex out-turn is, say, \$80 million, the "actual" depreciation is therefore \$20 million, so the rolled forward asset base is equal to \$60 million. Under this approach the firm is allowed to keep the \$25 million depreciation it earned during the regulatory period, instead of the \$20 million depreciation associated with the lower actual capex. The extra \$5 million is the benefit to the firm from this strategy. This benefit to the firm can be increased by both inflating the capex target (which increases the forecast depreciation allowance) and reducing the actual capital spending of the firm.

272. The examples above highlight that, in applying a non-standard approach to depreciation, it is important to consider the impact that such an approach might have on an airport's incentives to improve efficiency. The specific impact will also depend on other approaches adopted by the airport; for example, whether or not there is a capex wash-up.

273. Airports can set prices as they see fit, and the approaches they apply to depreciation may create different incentives to improve efficiency. However, once prices have been set, they cannot be changed unless there is another price setting consultation (which must occur at least every five years), so the incentives are locked in.

¹²⁰ Darryl Biggar "Updating the regulatory asset base: revaluation roll forward and incentive regulation" (1 April 2004).

¹²¹ Darryl Biggar "Updating the regulatory asset base: revaluation roll forward and incentive regulation" (1 April 2004), para 13.

¹²² Darryl Biggar "Updating the regulatory asset base: revaluation roll forward and incentive regulation" (1 April 2004), para 17.

Depreciation – our solution in respect of this problem

274. To help improve interested persons' understanding about non-standard approaches to depreciation, we have amended the Airport IMs Determination and the Airports ID Determination to include a set of high level principles that airports must apply when disclosing non-standard depreciation profiles.
275. Table 5.1 outlines the principles that now apply and identifies whether the principles have resulted in a change to the Airport IMs Determination or Airports ID Determination.

Table 5.1: Principles and whether these are IM or ID Determination changes

	Principle	Airport IM or ID
1	An airport must disclose the expected time profile of capital recovery implied by its price setting methodology and demonstrate how this is NPV-neutral given its targeted return.	ID
2	The depreciation profile applied and disclosed by an airport must be consistent with the time profile of capital recovery implied by the airport's price setting methodology and its choice of RAB indexation.	IM
3	Despite principle 2, an airport can only apply or disclose a non-standard depreciation profile if it is able to explain why the time profile of capital recovery implied in its price setting is consistent with the purpose of s 52A of the Act.	IM
4	The decision to use non-standard depreciation can only be made <i>ex-ante</i> , at the time when prices are set and the same methodology must be applied <i>ex-post</i> over the period the price setting event is in effect.	IM/ID
5	It should be clearly explained and evidenced how the expected time profile of capital recovery reflects the airport's expected value or utilisation of the RAB or parts of the RAB.	ID
6	When an airport first introduces a non-standard depreciation methodology, the standard straight line depreciation profile must be disclosed alongside the non-standard profile on an <i>ex-ante</i> basis for the lesser of the duration of the asset life or 10 years.	ID
7	If using a non-standard depreciation methodology that is determined using an aggregated asset base, the airport must provide supporting documentation to demonstrate how the non-standard depreciation has been allocated to asset classes.	ID
8	Where an airport has disclosed straight line depreciation but has materially changed the expected asset lives in order to reflect a different time profile of capital recovery, this must be transparently disclosed and include appropriate explanations or justifications for the change.	ID

Reasons for preferring this solution

276. We consider that this solution will improve interested persons' understanding about non-standard approaches to depreciation. In doing so, it will more clearly allow interested persons to assess whether airports are targeting or extracting excessive profits (consistent with s 52A(1)(d)).
277. Our solution seeks to balance flexibility with prescription. By providing principles we can provide clarity on what we expect and the evidence we need to support transparency when an airport chooses to apply non-standard depreciation. By keeping these principles high level we can do so without risking unintended consequences that can come from being overly prescriptive.
278. We consider that this level of flexibility is important because airports are not required to use Airport IMs when they set prices. If the principles were too prescriptive it could discourage airports from taking them into account when setting prices. This would create transparency issues between pricing (when airports do not have to apply the Airport IMs) and information disclosure requirements (when airports do have to apply the Airport IMs).
279. We note that the introduction of principles that need to be followed when airports disclose a non-standard depreciation approach does not imply we have an inherent preference for standard depreciation over alternative approaches.¹²³ Rather, we consider the use of non-standard depreciation requires further explanation as the application of non-standard depreciation is not defined under the Airport IMs and can be more complex than standard depreciation which is generally well understood.
280. We discuss the reason for each of the principles below.

Principle one: an airport must disclose the expected time profile of capital recovery implied by its price setting methodology and demonstrate how this is NPV-neutral given its targeted return

281. This principle seeks to ensure that an airport's decisions about its time profile of capital recovery are transparent to interested persons. It also seeks to ensure that, where an airport has targeted a different time profile of capital recovery, the impact is NPV-neutral at the airport's targeted return.
282. In the absence of this principle, it would have been possible that airports could disclose price setting information in a manner that did not explicitly address the airport's expected time profile of capital recovery or allow interested parties to understand the airport's pricing intent.

¹²³ Christchurch Airport expresses this concern in its submission on our IM review technical consultation paper. Christchurch Airport submission on IM review technical consultation "IM review submission" (3 November 2016), para 8.1.

283. We would have also been concerned that without this principle, an airport could use a time profile of capital recovery that was not NPV-neutral at its targeted return. That is, that an airport could expect a higher expected return using its adjusted time profile of capital recovery than would be expected using the time profile of capital expected using straight line depreciation (given its stated targeted return).

Principle two: the depreciation profile applied and disclosed by an airport must be consistent with the time profile of capital recovery implied by the airport's price setting methodology and its choice of RAB indexation

284. This principle seeks to ensure that the depreciation profile applied and disclosed by an airport is consistent with the time profile of capital recovery inherent in an airport's price setting event. When an airport uses non-standard depreciation in its price setting event disclosures, it is intended to improve the transparency of the airport's time profile of capital recovery rather than further obscuring the airport's pricing decisions. It is important as the purpose of allowing non-standard depreciation is to improve the transparency of pricing decisions. It also seeks to ensure that the airport's depreciation profile is consistent with its decision about the indexation of the RAB.
285. Without this principle an airport could have used a depreciation profile (ie, standard as well as non-standard) that is inconsistent with the time profile of capital recovery that would be implied by its pricing methodology. This would have meant that the forecast closing asset base in our IRR calculation would not provide a good indicator of the remaining capital to be recovered. This would have had the effect of making the disclosure less transparent, making it more difficult for us and other interested parties to assess profitability over time.
286. We consider it important that this principle also applies to standard depreciation. As we have seen in the past (ie, when Christchurch Airport applied standard depreciation alongside its levelised price path in PSE2), the choice of standard depreciation is not always appropriate as it can result in a forecast closing investment value that does not reflect an airport's expectation of the remaining capital to be recovered at the end of a pricing period. We therefore disagree with NZAA's point of view, that "if an airport discloses a standard depreciation approach, further explanation of that approach should not be required".¹²⁴

¹²⁴ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 54.

Principle three: despite principle 2, an airport can only apply or disclose a non-standard depreciation profile if it is able to explain why the time profile of capital recovery implied in its price setting is consistent with the purpose of s 52A of the Act

287. This principle seeks to prevent an airport from using non-standard depreciation in its disclosure where an airport cannot adequately explain the time profile of capital recovery used to set prices. That is, we are seeking to ensure that non-standard depreciation is only used where it is consistent with the purpose of s 52A of the Act.
288. In the absence of this principle, we would have been concerned that an airport could use non-standard depreciation to explain any time profile of capital recovery, even one that would not necessarily be consistent with s 52A given the airport's particular circumstances. For example, when an airport uses non-standard depreciation to account for a levelised price path which is intended to reflect that current demand is low and expected to grow over time, an airport will have to explain why this is consistent with s 52A. Amongst other things, this explanation may comprise supporting information (eg, passenger number forecasts used by the airport when determining its levelised price path).

Principle four: the decision to use non-standard depreciation can only be made ex-ante, at the time when prices are set and the same methodology must be applied ex-post over the period the price setting event is in effect

289. Airports can price as they see fit. This includes being able to choose to explicitly (or implicitly) switch between using straight line and non-standard depreciation from one price setting event to the next. This principle seeks to prevent airports from being able to switch between depreciation approaches for disclosure purposes *during* a pricing period.
290. Without this principle, airports could have set prices using straight line depreciation then partway through the pricing period begin to disclose using non-standard depreciation (or vice versa). This would have made it difficult for us and other interested persons to assess profitability.

Principle five: it should be clearly explained and evidenced how the expected time profile of capital recovery reflects the airport's expected value or utilisation of the RAB or parts of the RAB

291. This principle seeks to ensure that an expected time profile of capital recovery is being used that reflects the expected value or utilisation of the RAB. We would expect airports to disclose sufficient evidence to support this position.
292. This is important as the explanation and evidence will help us to assess the reasonableness of the airport's approach. It will also allow us to identify whether we need to conduct any further summary and analysis on the impact of the expected time profile of capital recovery on expected returns. Without this information it would have been difficult to reach a view on the approach taken.

Principle six: when an airport first introduces a non-standard depreciation methodology, the standard straight line depreciation profile must be disclosed alongside the non-standard profile on an ex-ante basis for the lesser of the duration of the asset life or 10 years

293. This principle seeks to ensure that we are able to understand the consequence, and test the longer term impact of using non-standard depreciation through our summary and analysis. We do not collect the information required to set the non-standard depreciation profile ourselves. Limiting the disclosure requirement to the lesser of the duration of the asset life or 10 years (ie, two pricing periods) is aimed at ensuring the right balance between increased transparency and additional compliance cost.
294. Without this principle we would not have had enough information to conduct a thorough profitability assessment as we would not have been able to compare what the airport has done to what would have occurred had straight line depreciation been applied. In the absence of a disclosure of the roll-forward of the RAB under straight line depreciation, we would not have had sufficient information to accurately approximate this roll-forward ourselves.
295. Airports will have to disclose both standard and non-standard depreciation forecasts for both the price setting event in which non-standard depreciation is introduced and the subsequent price setting event.
296. We note that the requirement to disclose both standard and non-standard depreciation for the lesser of the duration of the asset life or 10 years does not involve forecasting capital expenditure post the current pricing period. The disclosed depreciation profiles will be purely based on the opening pricing asset base for the current pricing period and the capital expenditure forecast to occur in that period.¹²⁵

Principle seven: if using a non-standard depreciation methodology that is determined using an aggregated asset base, the airport must provide supporting documentation to demonstrate how the non-standard depreciation has been allocated to asset classes

297. Under the ID requirements airports must disclose depreciation information *ex-post* by individual asset class. Airports may use a non-standard depreciation methodology that is determined at the total RAB level rather than by individual asset classes. If this occurs we want to be able to understand how total non-standard depreciation has been allocated across the three non-land asset classes.
298. Without this principle, airports could have allocated total depreciation to the individual assets classes in any manner they choose. Requiring airports to explain any allocation methodology allows us to consider whether the airports' approach seems reasonable by considering the asset class's proportion of the total RAB or its proportion of total depreciation under a straight line depreciation approach.

¹²⁵ This is in response to a concern Christchurch Airport expresses in its submission on our IM review technical consultation paper. Christchurch Airport submission on IM review technical consultation "IM review submission" (3 November 2016), para 8.2.

Principle eight: where an airport has disclosed straight line depreciation but has materially changed the expected asset lives in order to reflect a different time profile of capital recovery, this must be transparently disclosed and include appropriate explanations or justifications for the change

299. The purpose of this principle is to ensure that an airport's decisions about changing its time profile of capital recovery are made transparent through information disclosure.
300. An airport may be able to alter its expected time profile of capital recovery by changing the asset lives used to determine the value of depreciation using the straight line methodology. The previous information disclosure requirements did not collect sufficient information about the asset lives used to determine the disclosed depreciation using straight line depreciation or how these have changed over time.
301. Without this principle, it may have been possible for an airport to alter its time profile of capital recovery, even when using the default straight line depreciation methodology, without making this transparent to ourselves or interested persons.
302. We have amended the Airports ID Determination such that an airport is only required to disclose the respective information if the change in asset lives has a material impact on the average asset life across the relevant asset category.¹²⁶ We have defined this impact on the average asset life of the asset category as being 10% or greater.
303. We note that an airport may request from us an exemption to any requirement of the Airports ID Determination under clause 2.9 of the Airports ID Determination. With regards to principle eight, an airport may make such a request if it considers the materiality threshold of 10% seems inappropriate given its particular circumstances.

We have not made any amendments to specify how airports disclose information about the value of non-standard depreciation ex-post

304. We have not amended the Airport IMs and ID determinations to specify how airports disclose information about the value of non-standard depreciation *ex-post* (ie, whether an airport should use forecast or actual depreciation). This is because, while the approach an airport takes to non-standard depreciation will have an impact on the incentives for airports to be efficient in their capital expenditure, it is not the only factor that will have an impact.

¹²⁶ We did this in response to NZAA's submission on our IM review technical consultation update paper where NZAA suggests that a requirement on airports to disclose the information every time an airport makes a change to the expected life of one of its assets can be very onerous. NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 54.

305. In practice, incentives to be efficient will be affected by a range of decisions made by airports including:
- 305.1 the approach to the disclosure of depreciation;
 - 305.2 the WACC businesses expect to earn;
 - 305.3 the choice of whether or not to index the RAB;
 - 305.4 the use of the carry forward mechanism; and
 - 305.5 proposed wash-ups and other adjustments for forecasts versus actuals.
306. Under information disclosure regulation (ie, where airports can set prices as they see fit), we do not determine the incentives for airports to be efficient in their capital expenditure. However, it is possible for us to assess the strength of incentives faced by airports and whether they are consistent with s 52A(1)(b).
307. To assess the efficiency incentives airports face, we need to consider the decisions an airport makes in aggregate rather than individually. Therefore, changes to the way in which we require depreciation to be disclosed would not necessarily affect the strength of a specific efficiency incentive. This is because the strength of the incentive could be adjusted by other decisions made by an airport.
308. It is also not clear that there is an appropriate strength of incentive that should be targeted in all situations. It could be that judgement needs to be applied to assess what incentive strength should be in place for any airport at a particular point in time.

Depreciation – summary of submissions on our IM review draft decision and our response

309. Our final solution, the inclusion of a set of high level principles that airports must apply when disclosing non-standard depreciation profiles, is largely unchanged from our proposed solution outlined in our IM review draft decision. However, in response to submissions on our IM review draft decision, we have revised the following principles:
- 309.1 Principle 3: We have revised this principle such that it requires an airport that uses non-standard depreciation to explain why the time profile of capital recovery, implied in its price setting, promotes the purpose of s 52A of the Act. In our IM review draft decision we proposed to require an airport to justify or explain why the time profile of capital recovery implied in its price setting is appropriate.

309.2 Principle 5: We have revised this principle such that it requires an airport that uses non-standard depreciation to clearly explain and evidence how the expected **time profile of capital recovery** (ie, which comprises an airport's approach to non-standard depreciation and asset revaluations) reflects the airport's expected value or utilisation of the existing RAB. In our IM review draft decision we proposed to require an airport to clearly explain and evidence how the **non-standard depreciation profile** reflects the airport's expected value or utilisation of the existing RAB.

309.3 Principle 6: We have revised this principle such that it requires an airport following the introduction of a non-standard depreciation methodology to disclose the standard straight line depreciation profile alongside the non-standard profile on an *ex-ante* basis for the lesser of the duration of the asset life or 10 years. In our IM review draft decision we proposed to require an airport to disclose this information for the duration of the current pricing period only.

310. All airports and airlines who submitted on our proposed solution unanimously supported the inclusion of a set of high level principles that airports must apply when disclosing non-standard depreciation profiles.
311. NZAA considers that any "concerns surrounding disclosures involving the use of non-standard depreciation are, in our view, now significantly diminished".¹²⁷ Christchurch Airport also supports the inclusion of principles in the Airport IMs and ID determinations and considers that the "approach strikes an appropriate balance, informing all stakeholders about the Commission's expectations and a principled approach to non-standard depreciation, without being so prescriptive as to mandate particular approaches to disclosure that might depart from commercial pricing".¹²⁸
312. Christchurch Airport, who used non-standard depreciation for its PSE2, considers that our proposed set of principles provides for a useful framework that can be used during consultations with airlines for its upcoming price setting event. In particular, Christchurch Airport submitted the following:¹²⁹

As the Commission is aware this topic is of particular relevance to CIAL. Our approach to depreciation in PSE2 was restated to a non-standard depreciation method (implied depreciation) in order to make transparent the return of capital during PSE2. Looking forward to PSE3 we have committed to consulting with our customers on an approach to non-standard depreciation that is transparent and economically correct. The principles proposed by the Commission assist us in selecting and explaining our depreciation method, and should provide a useful framework for consultation with our customers.

¹²⁷ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 224 (d).

¹²⁸ Christchurch Airport submission on IM review draft decisions papers "IM review submission" (4 August 2016), para 21.

¹²⁹ Christchurch Airport submission on IM review draft decisions papers "IM review submission" (4 August 2016), para 23.

313. BARNZ also appreciates the inclusion of principles in the Airport IMs and ID determinations. In particular, BARNZ submitted that:¹³⁰

BARNZ does not consider that requiring airports to justify and explain their rationale for using non-standard depreciation according to the principles or specific topics set out in Table 5.1 creates an unreasonable deterrent against applying non-standard depreciation. While the additional information required will undoubtedly create an additional obligation on the airports to explain and justify the approach being used, BARNZ does not consider that this is inappropriate. Non-standard depreciation should be reserved for situations which are outside of the norm, and where there is something different justifying amending the profile of the recovery of capital. A substantial investment, which will have a low level of use initially, with use increasing over time, is an obvious example – a new terminal, or perhaps a second runway. For large investments such as these, the cost or time of complying with additional disclosure requirements to establish the justification and rationale for adopting a non-standard profile for the recovery of capital, will be minimal in relation to the size of the investment.

314. Both BARNZ and Christchurch Airport, however, suggested a few revisions to the principles as we proposed them in our draft decision of the IM review. In the following, we discuss these proposed revisions and outline to what extent we have addressed them in our final solution.

Principle 3

315. In our IM review draft decision we proposed to require an airport to justify or explain why the time profile of capital recovery implied in its price setting is appropriate.
316. BARNZ submitted that our proposed drafting would "benefit from the concept of 'appropriate' being grounded in some way". Ideally, BARNZ would want a new principle requiring airports to disclose how the non-standard depreciation profile contributes to the long-term benefit of consumers and the outcomes produced in competitive markets as set out in s 52A(1).¹³¹
317. We accept that our previous drafting was potentially too vague and that it could have allowed for different interpretations against which standard the 'appropriateness' of non-standard depreciation should have been assessed. We agree with BARNZ that it is the extent to which it promotes s 52A of the Act that interested persons want to understand. We have updated principle 3 in order to address BARNZ's concern accordingly.

¹³⁰ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 11-12.

¹³¹ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 11.

318. Given that airports will need to explain why the time profile of capital recovery implied in its price setting is consistent with the purpose of s 52A of the Act, we also consider principle 3 addresses IATA's comment made in its submission on our IM review draft decision (ie, "any deviation from straight line methodology should only be in benefits of consumers").¹³²

Principle 5

319. In our IM review draft decision we proposed to require an airport to clearly explain and evidence how the non-standard depreciation profile reflects the airport's expected value or utilisation of the existing RAB.
320. Christchurch Airport submitted that our proposed drafting should be refined "to clarify that this principle would authorise a firm to choose a depreciation method that resulted in the combination of the return on capital and return of capital bearing a relationship to the expected value or utilisation of the existing asset base (and thus generating a smoother price path over time)".¹³³
321. We agree with Christchurch Airport that it is the combination of the return of capital and return on capital that bears the relationship to the existing RAB. Accordingly, we have refined this principle in order to reflect that the focus should be on the time profile of capital recovery and how this reflects the airport's expected value or utilisation of the existing RAB.

Principle 6

322. In our IM review draft decision we proposed that the standard straight line depreciation profile must be disclosed alongside the non-standard profile on an *ex-ante* basis for the pricing period when an airport first introduces a non-standard depreciation methodology.
323. At the workshop that we held in April 2016, our staff discussed this principle with the participants and suggested the information disclosed should even reflect the entire remaining life cycle of an asset. Workshop participants were concerned that continually disclosing both straight line and non-standard depreciation beyond the current pricing period could create confusion and complexity.¹³⁴ We agreed with the participants and, in our IM review draft decision, we therefore required airports to provide the information only for the current pricing period.

¹³² IATA "Submission on draft decision papers and report on the IM review" (4 August 2016).

¹³³ Christchurch Airport submission on IM review draft decisions papers "IM review submission" (4 August 2016), para 22.

¹³⁴ Commerce Commission "Summary of views – Airports profitability assessment – Workshop 2" (16 June 2016), para 13.

324. BARNZ submitted that the disclosure of this information for the duration of the current pricing period is too short. BARNZ considers that a "comparison of the two profiles for a longer period is needed – ideally the length of the comparison would equate to the predicted term the non-standard depreciation will apply for". However, BARNZ is of the view that "with some long life assets this might be too onerous, on balance, a ten year comparison is appropriate, and balances the requirement for requiring interested parties have sufficient information and transparency, against the cost involved in preparing longer comparisons".¹³⁵
325. In its cross submission on our IM review draft decision, NZAA disagrees with BARNZ's proposal to provide a ten year comparison of depreciation profiles. NZAA considers BARNZ's proposal was "put forward without any objective justification" and that the "costs associated with compiling this information are underestimated by BARNZ". In addition, NZAA is of the view that "the transparency sought by the Commission is achieved through the application of the seven other non-standard depreciation principles".¹³⁶
326. In requiring airports to provide information, we consider it important that the information disclosure requirements strike the right balance between enhancing transparency of an airport's pricing intent and the additional complexity and compliance cost.
327. In that regard, we do not consider BARNZ's proposal to be unreasonable. By providing comparisons for ten years (ie, two price setting events), we and interested persons can identify the difference in methodology and understand how the airport is intending to update non-standard depreciation for new information at a subsequent price setting event. We note that these were the most significant concerns we and BARNZ had in understanding Christchurch Airports non-standard depreciation approach implemented at its PSE2.¹³⁷
328. We therefore have revised principle 6 such that airports have to disclose the standard straight line depreciation profile alongside the non-standard profile on an *ex-ante* basis for the lesser of the duration of the asset life or 10 years. We consider this enhances transparency under ID and addresses BARNZ's comment in ensuring the right balance between increased transparency and additional compliance cost.

¹³⁵ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 11.

¹³⁶ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 58.

¹³⁷ For more information, see Commerce Commission "Summary and analysis of Christchurch Airport's revised information disclosure for its second price setting event" (9 July 2015), para 66-75.

329. In providing this information in its price setting event disclosures, we note that an airport is likely to avoid having to respond to questions we or other interested persons may have in trying to understand the longer term impact if an airport selects to use non-standard depreciation. We consider that such a process, as it was the case when Christchurch Airport restated its PSE2 disclosures, is likely to be more onerous and costly for the airport than complying with the additional information disclosure requirements.

Suggested new principle

330. BARNZ submitted that the "principles do not expressly address whether the non-standard depreciation profile has to be applied to the RAB as a whole, or whether it can be focused on particular assets or related asset groups [...] BARNZ supports the airports having the ability to apply non-standard depreciation to particular assets or groups of assets where the circumstances in question satisfy the principles proposed by the Commission".¹³⁸
331. We have not included such a principle as part of our solution because we consider the alternative methodologies with equivalent effect mechanism introduced as part of this IM review creates sufficient flexibility in the Airport IMs for airports to apply depreciation (straight line as well as non-standard) to particular assets or related asset groups.
332. We explain the alternative methodologies with equivalent effect mechanism in more detail in the following section. There we introduce it as our solution to Auckland Airport's unique problem which requires the airport to adjust past disclosures in order to reflect its asset moratorium.
333. We note that, although we introduce the mechanism in the context of asset revaluations, we have amended the Airport IMs Determination such that the alternative methodologies with equivalent effect mechanism can be applied where the application of the asset valuation IMs in general would prove prohibitively complex or costly.¹³⁹ Amongst other things, this includes the IM that applies to the disclosure of an airport's approach to depreciation.
334. This means in practice, provided the application of the Airport IMs (ie, requiring airports to calculate depreciation at the asset level) would prove prohibitively complex or costly, an airport can apply depreciation to particular assets or related asset groups so long as it results in an outcome that provides for an effect which is likely to be equivalent to the application of the asset valuation IMs. We note that, when using the alternative methodologies with equivalent effect mechanism, additional disclosure requirements as explained in the following section will apply.

¹³⁸ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 11.

¹³⁹ In the following section, we use a particular problem to Auckland Airport as an example to illustrate what 'prohibitively complex or costly' can mean.

Restatement of asset values for Auckland Airport and other airports affected in future

335. This section outlines an issue for Auckland Airport (and other airports affected in future) resulting from our solution regarding asset revaluations, and discusses our solution to this issue.

Problem definition

336. Under our solution for asset revaluations airports will be required, when disclosing the roll forward of the value of individual assets, to reflect the approach to asset revaluations applied in its pricing decision. This is of particular importance for Auckland Airport, as the airport will have to adjust past disclosures to reflect its moratorium on asset revaluations (as identified in paragraph 216 to 219). Depending on how this is implemented by the airport, this can result in write-downs relative to the values that have been disclosed under information disclosure regulation.

337. Auckland Airport expressed some concern with the complexity and cost associated with re-disclosing historic RABs to reflect an un-indexed approach to revaluations. In particular, rather than a concern with our solution in principle, the concern appeared to be around the practical implications of implementing our solution given the requirement under the Airport IMs to roll forward each asset individually. This would require a significant amount of effort from Auckland Airport to reconcile and roll forward over 60,000 assets using the revised approach.¹⁴⁰

338. More generally, the issue arises because the Airport IMs Determination defines asset values as being rolled forward on an individual asset basis, rather than in aggregate.

Our solution

339. We consider that an adjustment to past disclosures to reflect Auckland Airport's moratorium on asset revaluations can be accommodated through either a restatement of the RAB, or an adjustment to the forecast closing investment value in the year preceding Auckland Airport's next price setting event. If Auckland Airport wanted to do the latter, it could use the carry forward mechanism that we have introduced and discussed in the context of the forward-looking profitability indicator (Chapter 4).

340. We are of the view that a restatement of the RAB is more appropriate, as it better reflects the permanent nature of the adjustment that is required to Auckland Airport's past disclosures (ie, to make them consistent with price setting event disclosures). We consider the carry forward mechanism to be more appropriate for an airport to reflect specific decisions that have a short to medium term impact on future pricing decisions. As such we would be concerned that an adjustment to the closing investment value using the carry forward mechanism may be perceived by the airport and interested persons as only a temporary adjustment that may be offset and revoked in future.

¹⁴⁰ Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 9.

341. However, we acknowledge that restating the RAB by rolling forward each asset individually (as it is required by the Airport IMs) can be too onerous. We, therefore, have amended the Airport IMs Determination such that airports can apply alternative methodologies with equivalent effect where the application of the IMs would prove prohibitively complex or costly. These alternative methodologies can only be applied in place of the requirements to roll forward the asset base under the Airport IMs.
342. The alternative methodology can be used when an airport makes a disclosure (either forward-looking or backward-looking) so long as it results in an outcome that provides for an effect which is likely to be equivalent to the application of the Airport IMs and it does not detract from the purpose of Part 4.
343. In applying an alternative methodology, an airport has to comply with additional information disclosure requirements that require an airport to:
- 343.1 identify any alternative methodology applied;
 - 343.2 identify where the alternative methodology has been applied in the disclosure;
 - 343.3 discuss the reasons for the alternative methodology;
 - 343.4 provide evidence the methodology is likely to have an equivalent effect (and does not detract from the Part 4 purpose); and
 - 343.5 provide appropriate certification (ie, senior management).
344. When applying an alternative methodology, airports are still required under the Airports ID Determination to break down the RAB into the four asset categories of land; sealed surfaces; infrastructure and buildings; and vehicles, plant and equipment.

Reasons for preferring this solution

345. Consistent with our decision-making framework, we consider that the inclusion of alternative methodologies with equivalent effect results in a reduction in complexity and compliance costs while still not detracting from the purpose of Part 4.
346. In addition, we do not require individual asset values when assessing airport profitability. When assessing airport profitability, on either a forward or backward-looking basis, we do not use any information beyond the RAB reported at an asset category level. We consider that the four asset categories provide sufficient transparency for the disaggregation of the RAB for interested persons.

347. We do not consider that this amendment causes future problems due to insufficient transparency regarding the value of individual assets. While it has been useful to have this level of information in other sectors in order to easily account for the sale and purchase of regulated assets, such sales have not been material in the airport's sector.

We consider a pseudo-asset can be an alternative methodology with equivalent effect

348. In our IM review draft decision, we discussed the concept of a pseudo-asset as an alternative solution to the application of the alternative methodologies with equivalent effect mechanism.¹⁴¹ Such a mechanism would have been more targeted towards the specific issue facing Auckland Airport, as opposed to the more general alternative methodologies with equivalent effect mechanism.¹⁴²
349. We did not amend the Airport IMs Determination in order to allow for the application of pseudo-assets. This is because the more general alternative methodologies with equivalent effect mechanism provides greater flexibility to airports. However, despite the fact that we discussed in our IM review draft decision the concept of a pseudo-asset as an alternative solution to the application of the alternative methodologies with equivalent effect mechanism, we consider Auckland Airport (or any other airport) could apply the concept of a pseudo-asset under the umbrella of the alternative methodologies with equivalent effect mechanism.¹⁴³
350. In complying with the information disclosure requirements that apply when an airport makes use of the alternative methodologies with equivalent effect mechanism, the airport will enable us to comment on its use and its implementation when we perform summary and analysis.

Transitional schedules allow for a restatement of the RAB

351. Auckland Airport's annual disclosures during PSE2 (2012-2017) have been unable to reflect the airport's moratorium on asset revaluations that was applied in its price setting methodology. This creates difficulties for both the assessment of the airport's actual performance during PSE2 by interested persons and the disclosure of Auckland Airport's third price setting event.

¹⁴¹ We have previously used pseudo-assets in the asset valuation input methodologies for Transpower. How pseudo-assets work in the Transpower context is discussed in Commerce Commission "Input methodologies (Transpower) reasons paper" (22 December 2010), para 4.4.25-4.4.30.

¹⁴² In its submission on our draft IM review decision, Auckland Airport notes that the application of a pseudo-asset should be possible under our final IM review decision as the inclusion of a pseudo-asset in the RAB can reflect the impact on the RAB of unwinding the moratorium at Auckland Airport. Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 17 c.

¹⁴³ Provided the application of a pseudo-asset would result in an outcome that is likely to be equivalent to the application of the IMs.

352. We have included a transitional schedule in the Airports ID Determination which an airport can submit at the time of the next price setting event disclosure. The purpose of this transitional schedule is for airports that have been unable to disclose historic asset values consistent with their price setting methodology to restate its asset value information.¹⁴⁴
353. The transitional schedule, which is discussed in greater detail in Attachment A, includes a restatement of the RAB, broken into asset categories for the most recent disclosure year and a restatement of the historic roll-forward of the RAB for the past five years at the aggregate level.¹⁴⁵
354. For Auckland Airport, we would expect the transitional schedule to include a disclosure of the value of the asset base at the asset category level in disclosure year 2016 reflective of the moratorium on asset revaluations that has been in effect since 2007. We would also expect a restatement of the asset value roll forward at the aggregate level consistent with the moratorium on asset revaluations since 2012. Finally, Auckland Airport would need to explain whether any alternative methodology with equivalent effect had been applied (eg, using a pseudo-asset) and provide suitable reasoning and evidence to support this.

Summary of submissions on our IM review draft decision regarding the restatement of asset values for Auckland Airport and our response

355. Our final solution, the inclusion of an alternative methodologies with equivalent effect mechanism, is largely unchanged from our proposed solution outlined in our IM review draft decision. However, in response to submissions on our IM review draft decision:
- 355.1 we have clarified that an adjustment to Auckland Airport's past disclosures to reflect its moratorium on asset revaluations should be accommodated through a restatement of the RAB;
- 355.2 we have confirmed that an alternative methodology with equivalent effect mechanism to restate Auckland Airport's RAB can be used;
- 355.3 we have clarified that it may be appropriate to create a pseudo-asset under the umbrella of the alternative methodologies with equivalent effect mechanism;

¹⁴⁴ The transitional schedule is only for use by an airport that is able to disclose asset values in a manner consistent with the IMs or is able to meet the disclosure requirements for alternative methodologies with equivalent effect.

¹⁴⁵ The inclusion of the transitional schedule allows airports to simplify the explanations provided in the price setting event disclosures by updating historic disclosures for the IM changes resulting from the IM review. It also provides additional information to support the assessment of past performance by airports in a manner that is more consistent with the airport's price setting methodology, the method used for assessing performance in our s 56G reports and our approach to assessing performance in future.

- 355.4 we have amended our proposed drafting in the Airports IM and ID Determinations such that the alternative methodology applied is **likely** to have an equivalent effect; and
- 355.5 consequentially, we have refined our view on the senior manager's certification when applying an alternative methodology with equivalent effect such that:
- 355.5.1 all reasonable enquiry has been made to ensure that the alternative methodology is **likely** to have an equivalent effect; and
 - 355.5.2 airports have to provide information on the factual basis on which this certification has been made.

356. In the remainder of this section, we summarise and respond to submissions that relate to the introduction of the alternative methodologies with equivalent effect mechanism in the Airport IMs Determination first, followed by a summary and our response on submissions on potential alternative solutions that Auckland Airport could use to adjust past disclosures in order to reflect its moratorium on asset revaluations.

The introduction of an alternative methodologies with equivalent effect mechanism

357. NZAA supports our decision "to allow airports to apply alternative methodologies with equivalent effect where the application of the asset valuation IMs would prove prohibitively complex or costly. Under the Commission's proposal, alternative methodologies can (rightly in our view) only be applied if they do not detract from the purpose of Part 4".¹⁴⁶
358. Auckland Airport "appreciates the Commission's acknowledgment of our concerns with the complexity and cost associated with any restatement attempt at an individual asset level. We therefore support the draft decision to allow Auckland Airport to restate its current RAB using alternative methodologies with equivalent effect".¹⁴⁷

¹⁴⁶ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 216.

¹⁴⁷ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 17 a.

359. BARNZ does not oppose the use of alternative methodologies with equivalent effect where the application of the asset valuation IMs would prove prohibitively complex or costly. However, BARNZ:¹⁴⁸
- 359.1 suggests the mechanism should only be available with prior leave from us because airports could be incentivised "to develop accounting systems and asset registers in a manner which enables them to avoid IM requirements on the basis that they are complex or costly"; and
- 359.2 considers the alternative methodologies with equivalent effect mechanism to be unnecessary. BARNZ submitted that the next closest alternative methodology that was available for other regulated industries under the previous IMs determinations provided for an appropriate solution if asset valuation IMs are prohibitively costly and complex.
360. We note that as part of this IM review, we have made the decision to remove the next closest alternative methodology from all respective IM determinations.¹⁴⁹ Consequently, it is not available anymore to any of the industries regulated under Part 4 of the Act.
361. However, the next closest alternative methodology served a different purpose compared to the alternative methodologies with equivalent effect mechanism and would not have been appropriate if the application of the asset valuation IMs are prohibitively costly and complex.
362. In that regard we agree with NZAA's cross submission on our IM review draft decision.¹⁵⁰ NZAA notes that it was the purpose of the next closest alternative methodology to allow for an alternative approach to be applied when the prescriptive approach in the IMs became unworkable. It aimed to provide flexibility while maintaining certainty of the material effect of the IMs. As such, the next closest alternative methodology could have resulted in an equivalent or non-equivalent outcome to the prescriptive approach.

¹⁴⁸ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 12.

¹⁴⁹ Commerce Commission "Input methodologies review final decision: Report on the IM review" (20 December 2016).

¹⁵⁰ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 52.

363. We acknowledge BARNZ's concern that, without prior leave from us, airports could be incentivised "to develop accounting systems and asset registers in a manner which enables them to avoid IM requirements on the basis that they are complex or costly". However, we consider the risk that airports intentionally create such systems in order to use an alternative methodology with equivalent effect very low. This is because, when using an alternative methodology with equivalent effect, airports will have to comply with additional information disclosure requirements (as discussed in paragraph 343). These are aimed at ensuring that sufficient information is available for us and other interested persons to assess whether the application of an alternative methodology with equivalent effect was appropriate.¹⁵¹
364. Airports and airlines unanimously submitted on the circularity that was inherent in our IM review draft decision.¹⁵² This circularity resulted from a requirement on airports to provide evidence that an alternative methodology has an equivalent effect on the valuation outcome compared to applying the asset valuation IMs. We agree with Auckland Airport, who submitted that:¹⁵³
- In order for an airport to know that an alternative methodology has an equivalent effect, it would, logically, need to apply the IMs to ascertain what effect it has. Clearly, this would defeat the purpose of allowing the use of alternative methodologies with equivalent effect.
365. We accept that this would have been unduly onerous and have revised our IM review draft decision such that, when applying an alternative methodology, evidence has to be provided that suggests that it achieves an effect that is **likely** to be equivalent with the valuation outcomes had the IMs been applied.
366. Consequentially, we have also revised the senior manager's certification requirements in order to reflect our revised thinking. These now require a senior manager to certify that all reasonable enquiry has been made to ensure that the alternative methodology is **likely** to have an equivalent effect. The airport has to underpin the certification with the factual basis on which it has been made.

¹⁵¹ NZAA proposes very similar information disclosure requirements in order to address BARNZ's concern in its cross submission on the IM review draft decision. NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 49.

¹⁵² See, for example, NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 217, and BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 5.

¹⁵³ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 22.

Alternative solutions to adjust past disclosures in order to reflect Auckland Airport's moratorium on asset revaluations

367. Auckland Airport seeks flexibility in order to adjust past disclosures to reflect its moratorium on asset revaluations and submitted that:¹⁵⁴

the Commission should refrain from mandating one option for addressing the impact of Auckland Airport's "disclosure-only" revaluations on its current RAB. In short, we think it is too early to narrow down the disclosure options that are available. We think restatement (including through the use of alternative methodologies), the carry forward mechanism, and the pseudo-asset mechanism could all be workable and transparent, and that it is too early to prejudge which will be the most transparent in practice.

368. BARNZ is of the view that Auckland Airport's asset values should be restated but opposes more than one option being available in order to adjust past disclosures to reflect Auckland Airport's moratorium on asset revaluations. In its cross submission BARNZ noted:¹⁵⁵

BARNZ does not support there being a menu of alternative means of disclosure on a topic as fundamental (and historically very contentious) as asset valuations. Certainty is required by all parties. BARNZ considers that the Commerce Commission needs to specify one option for restating asset values, with airports having the ability to apply for leave to use an alternative methodology (should the specified methodology not prove able to be applied in practice) under the new IM proposed to be contained in new clause 1.5 of the IM Determination. BARNZ is fundamentally opposed to airports having the ability to adopt an alternative approach with equivalent effect, without any prior oversight by the Commission, as proposed in the draft determination.

Of the three options, BARNZ's preference is for the asset values to be restated. As noted in our main submission, a decision on whether or not to revalue assets should ideally be a stable long-term decision and, as such, is not particularly suited for inclusion within the carry forward mechanism, which, as noted by the Commission, is intended for short to medium term adjustments.

369. We understand Auckland Airport's proposal to preserve in our IM review decision a suite of potential solutions in order to adjust past disclosures to reflect its moratorium on asset revaluations. Under our solution, Auckland Airport will still be able to apply an alternative methodology with equivalent effect which can include a pseudo-asset approach (see paragraph 349).

¹⁵⁴ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 22.

¹⁵⁵ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 3-4.

370. However, as a mechanism to adjust Auckland Airport's past disclosures, we consider the use of the carry forward mechanism to adjust the forecast closing investment value less appropriate. This is because, as is discussed in paragraph 340, a permanent adjustment to Auckland Airport's past disclosures is better accommodated through a restatement of its RAB as opposed to an adjustment of the forecast closing investment value.
371. Consistent with BARNZ's view, we have clarified that an adjustment to Auckland Airport's past disclosures to reflect its moratorium on asset revaluations should be accommodated through a restatement of the RAB. However, we have not mandated the implementation approach to restating the asset base for Auckland Airport (or any other airport) as this may create a situation where information disclosure is not flexible enough to accommodate the specific situation of an airport in future. Under the umbrella of the alternative methodologies with equivalent effect mechanism, airports will be able to determine an implementation approach to restating the asset base that is best suited to their specific situation.¹⁵⁶

¹⁵⁶ Provided the application of the alternative methodology would result in an outcome that is likely to be equivalent to the application of the IMs.

Chapter 6: *Ex-post* effects of risk allocation

Purpose of this chapter

372. The purpose of this chapter is to explain our solution to the problem associated with the *ex-post* effects of risk allocation in the context of the profitability assessment of airports.
373. In this chapter we explain to what extent the opening investment value should be adjusted in order to appropriately reflect the *ex-post* effects of risk allocation.¹⁵⁷
374. In the context of this chapter:
- 374.1 given that airports set prices in advance, airports and airlines use the term **risk** as a way to describe that actual out-turns can be different from forecasts. For example, when determining prices of the current pricing event, an airport forecasts demand of the next five years. The risk is that the actual demand disclosed *ex-post* can be higher (lower) from forecast demand resulting in higher (lower) *ex-post* returns than forecast; and
- 374.2 the term '***ex-post* effects of risk allocation**' refers to decisions that were made in previous pricing periods by airports on how those risks should be allocated between airports and airlines. This is important in the context of the *ex-ante* profitability assessment, as the allocation of those risks can affect charges of the current pricing event.

Structure of this chapter

375. This chapter begins with a section on the problem definition. We also use this section to explain the relevant context that we considered in determining our solution.
376. We then explain our solution and the reasons for it. This chapter finishes with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

377. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops. In this section we also explain the relevant context for our solution.

Summary of problem definition

378. The Airports ID Determination did not provide sufficient transparency for us and other interested persons to identify *ex-post* effects of risk allocation between airports and airlines made during previous price setting events.

¹⁵⁷ As discussed in Chapter 4, the opening investment value comprises the opening RAB and a carry forward mechanism to adjust the opening investment value.

379. This was problematic as it impacted our and other interested persons' ability to accurately assess if an airport was targeting excessive profits.

A forward-looking profitability indicator requires assumptions on the opening investment value

380. As discussed in Chapter 4, we have included a forward-looking profitability indicator (**IRR**) in the Airports ID Determination for future price setting events which comprises:
- 380.1 forecast cash-flows over the duration of the pricing period;
 - 380.2 the opening investment value; and
 - 380.3 the forecast closing investment value.
381. We need to determine, in advance, the most appropriate assumptions regarding the opening investment value such that the IRR is the best reflection of an airport's pricing intent.
382. As explained in Chapter 4, in order to establish an **opening investment value** that is a good reflection of an airport's pricing intent and the initial capital to be recovered, it comprises:
- 382.1 the IM-compliant **closing RAB** from the *ex-post* disclosure of the year preceding the start of the current price setting event;¹⁵⁸ and
 - 382.2 any **adjustments reflecting decisions made by airports** in previous price setting periods that have an impact on charges for the current pricing period. This is important in order to achieve consistency between the opening investment value and the forecast cash-flows that are used in a forward-looking IRR calculation.

¹⁵⁸ Given that the closing RAB value of the year preceding the start of the current price setting event will not be available until after the price setting event disclosure, we have amended the Airports ID Determination such that airports use the closing RAB value from the most recent *ex-post* disclosure rolled forward to the first day of the current price setting event. This is similar to what NZAA suggests in its submission on our IM review technical consultation paper. NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 49.

Ex-post effects of risk allocation are better addressed through adjustments to the opening investment value

383. When undertaking the s 56G review, our default assumption for the opening investment value for our IRR calculation was the RAB disclosed in the previous *ex-post* disclosures. We then considered whether there were any adjustments that needed to be made to the RAB to reflect a specific airport's pricing intent.¹⁵⁹
384. The starting point for the cash-flows in the IRR was the airport's estimate of future revenues and costs. In order to ensure that the cash-flows used in our IRR calculation were consistent with the implicit assumptions in the opening investment value we made adjustments to the airport's forecast cash-flows:
- 384.1 where we considered an airport had included within their revenue forecasts the return of over and under-recoveries that had occurred in previous price setting events; and
- 384.2 where over and under-recoveries that had occurred in previous price setting events were already reflected in the opening RAB.
385. In the s 56G report for Wellington Airport, we discussed the concept of matching the cash-flows (or revenues) to the opening investment value.¹⁶⁰ If we recognised an un-forecast land revaluation gain in the opening investment value (ie, we assumed that the revaluation gain occurred in the previous pricing period), then any repayments of the gain throughout the PSE would have been backed out of target revenue.¹⁶¹ However, if we used unadjusted target revenue to inform our cash-flows, we should back the revaluation gain out of the opening investment value.
386. We consider it is appropriate to assume that the airport's forecast cash-flows are the starting point for the cash-flows used in our IRR calculation. This is because we cannot predict the adjustments we may need to make to an airport's cash-flows in advance of prices being set.¹⁶²

¹⁵⁹ For example, we adjusted Auckland Airport's opening RAB in the IRR calculation to reflect the fact that it had not revalued its pricing assets since 2007.

¹⁶⁰ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport" (8 February 2013), para F55-F59.

¹⁶¹ If an airport repays the value of any un-forecast revaluation gains to airlines, this results in a reduction in the total forecast revenue requirement for the relevant price setting event. By backing out the repayments, we increased the forecast revenue requirement to reflect the expected revenues that would have been required in the absence of any repayment of past un-forecast revaluation gains.

¹⁶² For example, an airport's total forecast revenue can be made up of a number of adjustments for different reasons. We may not be able to identify what proportion of an un-forecast revaluation gain an airport intends to return over the current pricing period. Therefore we may not understand how an airport's cash-flows need to be adjusted in order to ensure that the cash-flows match the assumptions about the timing of revaluation gains implied by the opening investment value.

387. Consequently, for transparency reasons, we consider that *ex-post* effects of risk allocation are better addressed through adjustments to the opening investment value instead of changes to the forecast cash-flows.

Risk allocation determines the impact of ex-post effects on the ex-ante profitability assessment of the current pricing period

388. As discussed in the topic paper on the framework for the IM review, ideally, risks should be allocated to suppliers or consumers depending on who is best placed to manage the risk, unless doing so would be inconsistent with s 52A.¹⁶³ We refer to this approach as "default risk allocation" for the purposes of this chapter. NZAA and BARNZ agree with our approach regarding risk allocation.^{164, 165}

389. As also explained in the topic paper on the framework for the IM review, consideration of who is best placed to manage risks includes the ability to:¹⁶⁶

389.1 control the probability of the occurrence;

389.2 mitigate costs of occurrence; and

389.3 absorb costs where they cannot be mitigated.

390. Where an airport has not identified any alternative risk allocations, the risk that actual out-turns are different from forecasts is assumed wholly by the airport. That is, if actual out-turns are in favour of airports (eg, higher demand, lower costs) an airport's *ex-post* return will be higher than expected. Similarly, if actual out-turns disadvantage airports, an airport's *ex-post* return will be lower.

391. Accordingly, we consider that in those circumstances (ie, where the risk is wholly assumed by the airport), there is no reason to carry forward the impact of actual out-turns of the prior period being different to forecasts into the *ex-ante* profitability assessment of the current pricing period.¹⁶⁷

392. If airports assume all the risks and rewards associated with actuals being different from forecasts, the outcomes (with regards to airport profitability) may differ from those if markets were actually workably competitive (in particular, if actual revaluations are greater than forecast). However, sometimes outcomes different to those in a workably competitive market are the result of alternative risk allocations proposed by an airport as part of the price setting consultation process.

¹⁶³ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

¹⁶⁴ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 21.

¹⁶⁵ BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 2.

¹⁶⁶ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

¹⁶⁷ For clarification, no disclosure of any kind would be required where the airport assumes the risk.

393. At the airports profitability assessment workshop held on 1 December 2015, our staff discussed with stakeholders how the disclosure requirements could make the way risks have been allocated when airports set prices more transparent. They also discussed the possibility of including a carry forward mechanism between pricing periods within our IRR calculation in order to reflect decisions about risk allocation.^{168, 169}
394. NZAA submitted that there are sound reasons for expecting airports to be better placed than airlines and passengers to manage, mitigate or absorb the risk of unexpected variations in airport forecasts. For example, NZAA considered that airports are better placed to anticipate the extent of any variation in values and to take mitigating action as they are likely to have better information in relation to changes in resource costs.¹⁷⁰
395. NZAA also noted that in rare occasions, pricing may be set on a basis that reflects a risk allocation that differs from the default risk allocation. NZAA's view is that it is only in those circumstances a carry forward between pricing periods reflecting over and under-recoveries may be appropriate.¹⁷¹
396. BARNZ argued that differences between forecasts and actuals should be carried forward into the next pricing period to the extent they reflect:¹⁷²
- 396.1 un-forecast revaluation gains;
 - 396.2 timing differences of major capital expenditure;¹⁷³
 - 396.3 any undertaking by an airport to wash-up a risk as recorded in the price setting event disclosures; and
 - 396.4 any risk where there was a material disagreement by a substantial volume of the airport's customers over the airport's adopted approach, where we consider it is appropriate to carry forward the difference.

¹⁶⁸ Commerce Commission "Airport profitability assessment workshop 1 – workshop papers" (18 December 2015), slide 30.

¹⁶⁹ In Chapter 4, we explain our decision to include a carry forward mechanism in the Airports ID Determination. As we discuss in more detail in Chapter 4, the general purpose of this mechanism is to carry forward between pricing periods any over or under-recoveries that relate to past or future decision. In doing so, this mechanism will create further transparency in ID as it allows an airport to more accurately reflect its pricing decision.

¹⁷⁰ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 22.

¹⁷¹ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 24.

¹⁷² BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 2.

¹⁷³ BARNZ suggests major capex should be defined as projects costing \$30 m or more.

397. We agree with NZAA that carry forward adjustments to the opening investment value should only be made where an approach to allocating risk is different to the default risk allocation. We took this principle into account when we determined our solution regarding the elements that should be captured in a carry forward adjustment.
398. For clarification, we do not immediately assume that any carry forward adjustment to the opening investment value will be reflected in the carry forward adjustment to the forecast closing investment value. The carry forward adjustment to the closing investment value will be based on the airport's stated intentions as described in the current price setting event. This is discussed further in Chapter 7.

Our solution in respect of this problem

399. This section explains our solution in respect of this problem.

Our solution

400. We have not changed the Airport IMs Determination to address this problem.
401. Our solution in respect of the problem associated with the *ex-post* effects of risk allocation is to amend the Airports ID Determination in order to:
- 401.1 include un-forecast revaluation gains or losses (in real terms) in the carry forward adjustment to the opening investment value unless an alternative treatment has been proposed by airports and to:
 - 401.1.1 allow airports to calculate those, provided they have not been reflected in a prior price setting event, from the commencement of the ID regime as at 2010 for the first price setting event after 31 December 2016; and
 - 401.1.2 require airports to calculate those from the previous price setting event for the second and subsequent price setting events after 31 December 2016.
 - 401.2 include other risk sharing arrangements in the carry forward adjustment to the opening investment value if these have been proposed in the airport's price setting event disclosure;
 - 401.3 require airports to summarise the views of substantial customers as expressed during price setting consultation regarding other risk sharing arrangements that have been included in the carry forward mechanism to adjust the opening investment value; and

401.4 require airports to provide information in the annual *ex-post* disclosures about variances between forecasts and actuals for the risk allocation arrangements that were included in their price setting event (as these will inform the carry forward adjustment to the opening investment value for the next price setting event).¹⁷⁴

402. Our solution will allow us and other interested persons to better assess if an airport is targeting excessive profits by creating transparency in information disclosure with regards to the *ex-post* effects of risk allocation on the current pricing event.

403. We explain our reasons in more detail in the remainder of this section.

Our solution to include un-forecast revaluation gains or losses (in real terms) in the carry forward adjustment to the opening investment value

404. As explained in Chapter 5, our solution regarding asset revaluations requires airports to disclose forward and backward-looking costs in a way that is most consistent to the approaches used when setting prices.¹⁷⁵ However, when rolling forward the RAB in the annual *ex-post* disclosures, it limits airports to the use of either CPI-indexation or an un-indexed approach with the exception of land. Regarding land we continue to hold the view that airports can revalue it using an MVAU valuation methodology.¹⁷⁶

405. Our Airport IM reasons paper states that any gains or losses that arise as a result of asset revaluations are to be treated as income or losses when we monitor prices.¹⁷⁷ This is important because actual revaluations may differ from forecast asset values assumed in the price setting event disclosures. We have considered how these differences should be reflected in the carry forward adjustment to the opening investment value.

406. The risk is that actual revaluations may vary from forecast to the degree that actual values increase at a rate different to that assumed in the price setting event disclosures.

407. In determining whether un-forecast revaluation gains or losses (in real terms) should be included in the carry forward adjustment to the opening investment value of the current pricing period, we discuss the following four scenarios:

¹⁷⁴ We note any consequential changes affecting the *ex-post* Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review and will be subject to a separate consultation process.

¹⁷⁵ When setting prices, an airport may use an approach to revaluing assets that may be different to those specified in the Airport IMs. In that regard, we note that the approach to revaluing assets can only be the same in forward-looking and *ex-post* disclosures when an airport revalues its assets for price setting purposes by using either CPI-indexation or an un-indexed approach.

¹⁷⁶ *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.9.

¹⁷⁷ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para X21.

407.1 **Scenario 1:** An airport forecasts asset revaluations using CPI-indexation. During the previous pricing period, the airport did not revalue its land using a periodic MVAU valuation.

407.2 **Scenario 2(a):** As scenario 1, but the airport revalued its land in the previous pricing period using a periodic MVAU valuation.

407.3 **Scenario 2(b):** As scenario 2(a), but the airport adds an increment to the forecast CPI-indexation rate applicable to land revaluations (ie, CPI + Z) based on the expectation that land values will increase at a rate greater than CPI.¹⁷⁸

407.4 **Scenario 3:** An airport does not revalue its asset base at all.

408. In discussing these scenarios, we assumed that airports treat revaluation gains (or losses) as income for price setting purposes.¹⁷⁹

Our solution in terms of scenario 1

409. When an airport had forecast asset revaluations using CPI-indexation and did not revalue its land using a periodic MVAU valuation in the previous pricing period, no adjustment to the opening investment value of the current pricing period is required.

410. This is because when actual inflation is lower (higher) than forecast:

410.1 an airport's nominal revenues are unchanged, while its real revenues are higher (lower); but

410.2 this is offset by actual RAB revaluations being lower (higher) by an equal amount but in the opposite direction to the change in real revenues.

¹⁷⁸ We have used the term CPI + Z to describe the scenario where an airport has forecast revaluations based on using a rate greater than CPI, such that total rate can be split into the rate of inflation (CPI) and the incremental rate above inflation (Z).

¹⁷⁹ This is to ensure consistency with the the FCM principle (NPV=0), as outlined in the topic paper on the framework for the IM review, which means that suppliers have an opportunity to maintain financial capital maintenance in real terms. Christchurch Airport acknowledges the issue. Christchurch Airport argued that "un-forecast revaluation gains and losses should be booked as revenue, although we consider it is valid to apply this principle only to the real (ie, after CPI inflation) component of the revaluation gain or loss". Christchurch Airport, Untitled submission on the problem definition paper (21 August 2015), para 6.

Our solution in terms of scenario 2(a)

411. When an airport had forecast asset revaluations using CPI-indexation and revalued its land using a periodic MVAU valuation in the previous pricing period, the opening investment value of the current pricing period will be adjusted for the un-forecast revaluation gain or loss that occurred in the previous pricing period as a result of the MVAU valuation.
412. In particular, it will be adjusted for the amount calculated as the difference of actual land revaluations based on a periodic MVAU valuation and actual land revaluations based on actual CPI. For the same reasons as outlined under scenario 1, no adjustment for variances arising from actual CPI being different to forecast CPI is required.
413. In practice, provided the un-forecast revaluation (in real terms) is a gain, the un-forecast revaluation gain will be included as a negative amount in the carry forward adjustment to the opening investment value. This approach effectively reduces the opening investment value in order to offset the un-forecast revaluation gain that is already reflected in the opening RAB value of the current pricing event (comprising the closing RAB disclosed in the previous *ex-post* disclosures).

Our solution in terms of scenario 2(b)

414. This scenario is different to scenario 2(a), because it assumes that the airport adds an increment to the forecast CPI-indexation rate applicable to land revaluations based on the expectation that land values will increase at a rate greater than CPI. All forecast land revaluations are then superseded by an actual MVAU valuation.
415. In more general terms, this scenario addresses a situation where an airport forecasts asset revaluations when setting prices by using approaches that are different from those specified in the Airport IMs. Christchurch Airport refers to this scenario as a situation where an airport adds a "fixed increment to the revaluation gain to either all assets (or just to land assets)".¹⁸⁰ In Chapter 5, we discuss how an airport can transparently disclose those in its price setting event disclosures.

¹⁸⁰ Christchurch Airport submission on IM review draft decisions papers "IM review submission" (4 August 2016), para 26.3.

416. In this scenario, the opening investment value of the current pricing period will be adjusted for the un-forecast revaluation gain or loss calculated as the difference of the actual MVAU valuation and the land revaluation based on actual CPI (as in scenario 2(a)), less the forecast land revaluation associated with the increment on forecast CPI that was considered when setting prices at the previous price setting event.¹⁸¹
417. This approach ensures that, when determining the opening investment value of the current pricing period, un-forecast revaluation gains or losses that occurred in the previous pricing period are assessed against all forecast asset revaluations that an airport had included when setting prices at the previous price setting event.
418. In Attachment B, we provide a stylised example that illustrates the mechanics of this approach. We consider it useful for the stylised example to be looked at alongside the narrative provided in this topic paper. This is because the matters relating to the disclosure of asset revaluations based on non IM-consistent approaches and the treatment of any resulting un-forecast revaluation gains or losses in the price setting event disclosures span across several chapters of this topic paper. In particular, the stylised example illustrates how the carry forward adjustment to the forecast closing investment value of the previous pricing period and the carry forward adjustment to the opening investment value of the current pricing period can work together when establishing un-forecast revaluation gains or losses.

Our solution in terms of scenario 3

419. When an airport does not revalue its asset base at all, we consider that the opening investment value of the current pricing period must be adjusted for the un-forecast revaluation gain or loss that has occurred as a result of actual revaluations. However, this adjustment would only apply if an airport:
- 419.1 decides for the current pricing period to move from an un-indexed approach to asset revaluations to an approach based on CPI-indexation; or
- 419.2 revalues its land using a periodic MVAU valuation.

¹⁸¹ If the airport has disclosed the value associated with the increment on forecast CPI using the forecast closing carry forward adjustment as we suggest it in Chapter 5, this additional adjustment to the opening investment value will occur by default through the opening carry forward adjustment relating to closing carry forwards from the previous price setting event. We illustrate this in the stylised example provided in Attachment B of this topic paper.

420. Given that under this scenario the asset base has not been revalued based on forecast CPI-indexation and, accordingly, revaluations have not been treated as income, the amount included in the carry forward adjustment to the opening investment value is not limited to the real component of a revalued asset base for the simple reason that no such component exists. For clarification, and in response to a question BARNZ raised in its submission on the IM review draft decision, the amount included in the carry forward adjustment to the opening investment value would reflect the total difference between the revalued asset base and the rolled forward value of the equivalent asset base since it was last revalued.¹⁸²
421. In our IM review draft decision, under scenario 3, we discussed how an airport could use the carry forward mechanism to adjust the opening investment value to remove the effect of inflation risk from its price setting event disclosures.¹⁸³ This approach would have involved an airport disclosing forecast asset revaluations based on an IM-consistent forecast CPI as part of the price setting event disclosure. We proposed this additional disclosure requirement in our IM review draft decision.
422. As we explain in more detail in Chapter 5, we have decided not to include this disclosure requirement in our final IM review decision. This is because both airports and airlines are of the view that such a disclosure is not warranted as it serves no useful purpose and the associated compliance costs are unlikely to outweigh the additional benefits.

Reasons for including un-forecast revaluation gains or losses (in real terms) in the carry forward adjustment to the opening investment value

423. Un-forecast revaluation gains or losses will be reflected:
- 423.1 in our *ex-post* assessment of actual returns for the prior price setting event; and
 - 423.2 in our assessment of returns of the current price setting event if our assessment included prior price setting events or started from the initial RAB in 2010.
424. While an *ex-post* assessment of returns would always identify actual revaluation gains or losses at the time when they are reflected in the disclosed RAB, airport stakeholders are of the view that the focus should be on the *ex-ante* assessment of profitability of the current pricing period, because they want to understand how these targeted returns compare to our estimate of cost of capital.^{184, 185}

¹⁸² BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 6.

¹⁸³ By including asset revaluations based on the difference of actual CPI-indexation and an IM-consistent forecast CPI, an airport could have removed the effect of inflation risk from its price setting event disclosures consistently with an airport that does revalue its assets using CPI-indexation.

¹⁸⁴ Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), Attachment C, para 3-4.

425. The RAB at the start of the price setting period will already reflect any revaluation gains or losses that occurred during the previous pricing period. Including un-forecast revaluation gains or losses in the carry forward adjustment to the opening investment value in a way as explained above is aimed at ensuring that the impact of any un-forecast revaluation gains or losses that occurred during the previous pricing period:¹⁸⁶

425.1 is taken into account in the *ex-ante* profitability assessment of the current pricing period; and

425.2 is appropriately treated as income.

426. In addition, this approach enhances transparency in the *ex-ante* profitability assessment by ensuring consistency with the concept of matching the forecast cash-flows with the opening investment value. No further adjustments to the forecast cash-flows are required as the impact of any revaluation gains or losses has already been accounted for in the opening investment value.

427. For clarification, not including the un-forecast revaluation gains or losses in the carry forward adjustment to the opening investment value would:

427.1 allow airports to justify cash-flows in future that do not recognise the un-forecast revaluation gain as income when setting prices;

427.2 only recognise un-forecast revaluation gains or losses in the *ex-post* assessment of airport profitability; and

427.3 result in forecast cash-flows that may not be consistent with the opening investment value of the current pricing period.

Start date for the calculation of un-forecast revaluation gains or losses in real terms

428. In general, un-forecast revaluation gains or losses (in real terms) will have to be calculated from the previous pricing period. By including them in the carry forward adjustment to the opening investment value, provided they are adequately treated as income, the current and the previous pricing period are linked together consistent with the FCM principle in the longer term.

¹⁸⁵ We note that Wellington Airport submitted on our IM review draft decision, that "the information on actual performance is also materially relevant to the statutory purpose of ID regulation of fully informing interested persons about the performance of airports". However, we do not consider that this view impacts on our decision to include un-forecast revaluation gains or losses (in real terms) in the *ex-ante* profitability assessment of the current price setting event. See, Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 103.

¹⁸⁶ For clarification, and in response to a question NZAA raised in its submission on the IM review draft decision, the approach is consistent whether the out-turn results in a loss or a gain. See, NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 229.

429. However, we consider a different approach is required for the first price setting event following these amendments to the Airports ID Determination. This is because the carry forward mechanism (or any other mechanism) was not available to airports to disclose un-forecast revaluation gains and losses (in real terms) that had occurred from the beginning of the ID regime as at 2010 appropriately.
430. Consequently, for the first price setting event following these amendments to the Airports ID Determination, airports can calculate un-forecast revaluation gains or losses (in real terms) from the beginning of the ID regime as at 2010.¹⁸⁷

Alternative risk sharing arrangements proposed by the airports

431. In the past, airports have included alternative risk allocation arrangements when setting prices and have provided details of these arrangements in their price setting event disclosures.¹⁸⁸ BARNZ submitted that any undertaking by an airport to wash-up a risk as recorded in a previous price setting event disclosure should also be included in the carry forward adjustment to the opening investment value.¹⁸⁹ We agree with BARNZ.
432. However, airlines might not agree with an airport's approach to risk allocation and no agreement between the parties is required before airports set prices.¹⁹⁰
433. Also, as submitted by NZAA, airlines cannot enter into a contract, arrangement or arrive at an understanding with other airlines over the price at which they would acquire airport services.¹⁹¹
434. We consider that the risk allocation arrangements identified in an airport's previous price setting event disclosure are the appropriate starting point when identifying other adjustments to include in the carry forward adjustment to the opening investment value.
435. Given that airports are not obliged to reach agreement with airlines when setting prices, we also consider it appropriate to understand the airlines' view of any proposed risk allocation arrangements.

¹⁸⁷ Unless these un-forecast revaluation gains and losses (in real terms) have already been reflected in a prior price setting event.

¹⁸⁸ For example, Wellington Airport proposed a 'wash-up' when setting prices in PSE1 that would return any over-recoveries associated with a delay in any capital expenditure associated with their new international terminal 'the Rock'.

¹⁸⁹ BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 2.

¹⁹⁰ Airports are able to set prices as they see fit. Airports are required to consult with airlines when setting prices. The purpose of consultation is to ensure the views of interested persons are provided to airports so that those views can be taken into account as part of good decision making. For more information on how airports set prices see Chapter 2.

¹⁹¹ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 26-27.

436. We therefore want to collect additional information regarding the views expressed by substantial customers of the airport (for simplicity, we just refer to these as airlines) at the time of price setting.¹⁹²
437. During the s 56G review, the consultation material provided a clear indication of the views expressed by airlines on risk allocation issues. We do not currently require airports to disclose the consultation documents associated with price setting events. For the s 56G review, we requested these documents as additional information to support our analysis.
438. BARNZ submitted that the consultation documents provide a good record of the views expressed by airlines on an airport's approach regarding risk allocation.¹⁹³
439. As the information on the views expressed by airlines is only relevant in the context of proposed alternative risk allocations, we do not consider it appropriate to require airports to provide all consultation documents under ID.
440. However, we have amended the Airports ID Determination to require airports to provide a summary of views expressed by airlines on an airport's approach regarding risk allocation (but only in the event an airport has included a carry forward adjustment to the opening investment value reflecting alternate risk allocations under ID).
441. Interested persons can comment on these disclosures and provide their views to us at any time.¹⁹⁴ Understanding the airlines' views regarding any proposed risk sharing arrangements by airports is important. This information will allow us to consider through summary and analysis whether there was any objection by a substantial volume of the airport's customers over the airport's adopted approach that could impact on our assessment of an airport's profitability.

No requirement to adjust for timing differences of capex projects

442. We do not consider that we need to adjust the opening investment value for any timing differences of capex projects from what was forecast unless it is proposed by airports at the time of their previous price setting event disclosure.

¹⁹² Substantial customer has the meaning set out in section 2A of the Airport Authorities Act 1966.

¹⁹³ BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 3.

¹⁹⁴ This information to us can also include information on risk sharing arrangements sought by airlines that were declined by airports.

443. This is consistent with the default risk allocation approach because airports are best placed to manage the risk associated with capex projects. As NZAA rightly points out in its cross submission on the IM review draft decision, a compulsory carry forward to account for any timing differences of major capex projects "risks disincentivising efficient investment and constraining market development".¹⁹⁵
444. This is also consistent with our approach for price-quality regulated industries where we generally do not require adjustments for differences in actual capex compared to forecast capex. It seems disproportionate to prescribe an approach given the airports sector is subject to information disclosure only.
445. However, we would still be able to discuss the impact and implications of any timing differences relating to capex projects as part of our summary and analysis. In order to be able to undertake a more contextual analysis we welcome interested persons to provide their views on capex forecasts used by airports when setting prices as well as actual capex. This could also include information on an *ex-ante* basis whether any capex risk should be shared between airports and airlines or whether any gains realised *ex-post* as a result of deferred capex projects should be returned to airlines in future pricing periods.

Summary and analysis

446. The amount to be carried forward as an adjustment to the opening investment value is needed to inform the airport's next pricing decision.
447. Airports will determine the value of the carry forward at the time of price setting, but airlines might have a different view on whether the carry forward appropriately reflects the risk allocation arrangements set by the airports at the previous price setting event.
448. The determination of the appropriate carry forward is complicated by the need to calculate the amount before the pricing period ends, despite not having received all of the information required to inform this calculation. This is because airports are required to provide the annual *ex-post* disclosure for the last year of the previous pricing period five months after the new prices have come into effect.
449. We do not consider it appropriate for us to determine the value of the carry forward adjustment to the opening investment value to be used by airports in the next price setting event. Airports can set prices as they see fit and would not be obliged to use any carry forward calculated by us. However, we consider we should comment on the appropriateness of the airport's method for calculating the carry forward adjustment in our summary and analysis.

¹⁹⁵ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 47.

450. We have therefore amended the Airports ID Determination to require airports to disclose in their annual *ex-post* disclosures the variance between forecast and actuals to date for the risk allocation arrangements that were included in their price setting event (as these will inform the carry forward adjustment to the opening investment value for the next price setting event).
451. For example, if an airport had included a wash-up arrangement relating to a particular capex project when setting prices at the previous price setting event, the airport would be required:
- 451.1 to disclose the variances between forecast and actual expenditure for that project in its *ex-post* disclosures for each year of the pricing period; and
- 451.2 to identify the outstanding value of the over or under-recovery.
452. We can use these disclosed variances to consider whether an airport has determined the appropriate carry forward adjustment to the opening investment value when setting prices at the next price setting event. We can also take into account the disclosed variances when undertaking summary and analysis on the *ex-post* profitability assessment for airports.
453. With the relevant variances disclosed, we will be able to perform summary and analysis on these variances and consider whether the airport's disclosures appropriately reflect the risk allocation arrangements that were in place for the pricing period.
454. We will also be able to comment on the appropriateness of the disclosed variances being included in the carry forward adjustment to the opening investment value for the next price setting event. This will allow airports the opportunity to reflect our comments when determining the carry forward adjustment to the opening investment value used to set prices.

Summary of submissions on our IM review draft decision and our response

455. Our final solution is largely unchanged from the proposed solution outlined in our IM review draft decision. However, in response to submissions on our IM review draft decision, we have amended our proposed solution with regards to the disclosure requirements for airports:
- 455.1 by clarifying the start date for the calculation of un-forecast revaluation gains or losses (in real terms); and
- 455.2 by moving away from requiring airports to provide information on the 'degree of acceptance' by airlines when including amounts in the carry forward mechanism to only summarise the views expressed by substantial customers during consultations.

456. In this chapter, we summarise the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and provide our response.

Our solution regarding un-forecast revaluation gains or losses

457. We have not changed our proposed solution to include un-forecast revaluation gains and losses (in real terms) in the carry forward adjustment to the opening investment value. However, we have clarified the start date for the calculation of un-forecast revaluation gains or losses (in real terms) as this was left unclear in our IM review draft decision.
458. NZAA accepts our solution.¹⁹⁶ Wellington Airport submitted again its "long standing view that all the risks and rewards of property ownership should lie with the airport, including unforecast revaluation gains and losses".¹⁹⁷ However, Wellington Airport acknowledges that "if ID is to empower interested parties to determine whether FCM is being achieved under the Part 4 regime the carry forward would need to adjust the opening investment value for the net effect of the differences between previous revaluations (actual MVAU revaluations and revaluations on actual CPI)".¹⁹⁸
459. NZAA and Wellington Airport are both of the view that un-forecast revaluation gains and losses (in real terms) have to be calculated from the beginning of the ID regime as at 2010 in order to allow for the FCM principle to be met from that time.¹⁹⁹
460. BARNZ also supports including un-forecast revaluation gains and losses (in real terms) in the carry forward adjustment to the opening investment value. This is because "unlike other forecast elements such as opex or volumes, their effect on the asset base, and levels of returns targeted, will effect subsequent pricing periods" and it "should enable such revaluations to be appropriately included as income in the measurements of targeted profitability".²⁰⁰

¹⁹⁶ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 229.

¹⁹⁷ Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 84.

¹⁹⁸ Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 91.

¹⁹⁹ Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 94-96.

²⁰⁰ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 5.

461. BARNZ agrees with NZAA and Wellington Airport that, in general, un-forecast revaluation gains and losses (in real terms) have to be calculated from the beginning of the ID regime as at 2010. However, BARNZ also considers that "any matters arising out of or relating to PSE1 before FY10, which were specifically committed to be carried forward by the airport" should be included in the carry forward adjustment to the opening investment value. This would not only apply to un-forecast revaluation gains and losses, but also to any other commitment from PSE1 aimed at adjusting risk allocation.²⁰¹
462. As we explain in this chapter, we consider un-forecast revaluation gains and losses (in real terms) can be calculated from the beginning of the ID regime as at 2010 (should an airport choose so). We disagree with BARNZ's suggestion to go even further back in time. Consistent with what we said in the s 56G reports, establishing the initial RAB under Part 4 effectively draws a 'line in the sand' under decisions made prior to Part 4. Therefore, taking into account decisions made prior to 2010 would not be consistent with establishing a 'line in the sand' RAB value at the beginning of the regime.²⁰²
463. In its submission on our IM review technical consultation update paper, NZAA requested clarification on how an airport can disclose un-forecast revaluation gains if it has revalued its asset base for pricing purposes by using approaches that are different from those provided for in the Airport IMs.²⁰³ We have responded to NZAA's request by adding scenario 2(b) to the section that discusses the treatment of un-forecast revaluation gains in this chapter. We agree with NZAA that information disclosure must ensure that airports have the ability to transparently disclose such a scenario, because when setting prices airports do not have to follow the approaches provided for in the Airport IMs.

²⁰¹ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 6-7.

²⁰² See, for example, Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport – Section 56G of the Commerce Act 1986" (13 February 2014), para F92 and F97.

²⁰³ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 28-37.

464. NZAA also submitted that the term "un-forecast revaluation gains or losses" should be replaced by "default opening carry forward revaluation adjustment".²⁰⁴ NZAA considers that its suggested term more accurately describes what the intent of this adjustment is given that the "unforecast gains/losses disclosure is essentially the default IM position".²⁰⁵ NZAA also points out that under the label proposed in our IM review draft decision, "airports are required to place a value in a box labelled "unforecast revaluations", although that number is not technically an unforecast revaluation gain/loss".²⁰⁶
465. We agree that the "unforecast gains/losses disclosure is essentially the default IM position" as it is assessed against the (IM-compliant) RAB disclosed *ex-post* in the year preceding the current price setting event. We therefore have changed it from "un-forecast revaluation gains or losses" to "default revaluation gain/loss adjustment" in the Airports ID Determination.
466. We also acknowledge that the amount disclosed under "default revaluation gain/loss adjustment" may not always reflect an un-forecast revaluation gain or loss because there may be (rare) occasions when parts of it may have been forecast. This may be the case when an airport had forecast revaluations based on non IM-consistent approaches (CPI + Z) in the preceding price setting event, and the "default revaluation gain/loss adjustment" of the current price setting event is assessed against the closing (IM-compliant) RAB disclosed of that preceding price setting event.
467. However, based on the revaluation approaches we have seen used by airports in the recent past, this is the exception rather than the rule. We therefore continue to consider that the term "un-forecast revaluation gains or losses" in most cases accurately describes the respective amount disclosed in the price setting event disclosures. We therefore have left the term unchanged in this topic paper. In any event, we consider it less relevant that the label attached to the disclosed amount always and to the full extent reflects how it has been calculated as long as airports describe in their price setting event disclosures as accurately as possible how they have established the amount included under "default revaluation gain/loss adjustment".

²⁰⁴ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 39-39.

²⁰⁵ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 36.

²⁰⁶ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 38.

468. We note that this may also include information on how they have established revaluations for the year prior to the price setting event disclosure given that the actual value will not be available until after the price setting event disclosure (and can therefore only be an airport's best estimate).²⁰⁷

Our solution regarding other risk sharing arrangements

469. We have not changed our proposed solution to include other risk sharing arrangements in the carry forward adjustment to the opening investment value if these have been proposed in the airport's price setting event disclosure.
470. NZAA supports our solution. In particular, NZAA considers that "adjustments to the opening investment value should only be made where the allocation of risk is different to that of the default risk allocation (eg where a carry forward or wash up was signalled) and these have been explained in an airports' price setting event disclosures".²⁰⁸
471. BARNZ also supports our solution and notes two recent examples that could be reflected as other risk sharing arrangements in the carry forward adjustment to the opening investment value.²⁰⁹
- 471.1 The agreement with Auckland Airport over Pier B that half of the required return on capital during its first five year pricing period would be deferred to be recovered until the earlier of six contact gates or the third five year pricing period (which will commence in July 2017).
- 471.2 The wash-up arrangements over timing of major capital expenditure with Wellington Airport.

Our decision to require airports to summarise the views of airlines

472. We have amended our proposed solution that required airports to provide information on the 'degree of acceptance' by airlines such that it requires airports to only summarise the views expressed by airlines during consultation (regarding other risk sharing arrangements that have been included in the carry forward mechanism to adjust the opening investment value).

²⁰⁷ NZAA submitted this concern in its submission on our IM review technical consultation update paper. As we explain in the context of the opening RAB, we would expect this value to be the airport's best estimate as the time of populating the price setting event disclosures. NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 29.

²⁰⁸ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 232.

²⁰⁹ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 6.

473. This is in response to submission comments from NZAA and BARNZ who both advocated for this change to our IM review draft decision. In particular, they submitted that providing information on the 'degree of acceptance' could be a 'subjective and debatable standard'.²¹⁰ NZAA notes that:²¹¹

Requiring airports to point to a level of acceptance creates uncertainty as for several reasons the outcome of the consultation process cannot be described as one point on a sliding scale of acceptance:

(i) There can be a very large number of airline customers that are consulted during price setting events;

(ii) Not all those airline customers may agree;

(iii) Those that do agree may not have the same reasons for agreeing;

(iv) Some will not engage or comment at all; and

(v) Some views are provided with a preference or commitment to confidentiality.

474. Consistent with views expressed by BARNZ, we continue to consider that the airlines' views on risk allocation arrangements are important to interested persons including ourselves. When we do summary and analysis of an airport's price setting event, this information will help us to come to a balanced view in assessing whether the long-term benefit of consumers has been promoted consistent with s 52A. We therefore disagree with NZAA's comment that, in order to assess if the long-term benefit of consumers has been promoted, it is not relevant whether an airline accepts an approach to pricing or not.²¹²

²¹⁰ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 3.

²¹¹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 241.

²¹² NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 238.

475. We nevertheless disagree with BARNZ's comment that there should be a "specific avenue preserved for airlines to directly provide their views to the Commerce Commission".²¹³ We have reworded the requirement as it implied providing airlines with a mandated right of response in the Airports ID Determination (which never was our intention).²¹⁴ We do not consider that providing such a right is appropriate as we agree with NZAA that this may "create incentives for consultation participants to provide views with the aim of influencing subsequent ID analysis, instead of genuinely engaging for price setting purposes. It would be unfortunate if ID requirements provided incentives to not reach common ground in consultation".²¹⁵
476. In any event, airlines and other interested persons can provide their views on the *ex-post* effects of risk allocation at any time to us and we will consider those when we undertake summary and analysis of an airport's price setting event. When providing their views to us, this may of course comprise information on risk sharing arrangements sought by airlines that were declined by airports during consultation.²¹⁶ BARNZ considers this an important step in the process as "it is far more common for there to be differences regarding the absence of a wash-up arrangement, rather than users objecting to the presence of a wash-up arrangement".²¹⁷

²¹³ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 3.

²¹⁴ Our proposed solution required airports to provide information on the 'degree of acceptance' by airlines regarding other risk sharing arrangements and to give interested persons, following the airports disclosures under information disclosure but prior to our summary and analysis, the opportunity to comment on airports' disclosures on allocation of risks.

²¹⁵ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 40(b).

²¹⁶ It is not in our interest to limit interested persons in the information provided to us.

²¹⁷ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 6.

Chapter 7: Treatment of forecast over and under-recoveries

Purpose of this chapter

477. The purpose of this chapter is to explain our solution to the problem associated with the treatment of forecast over and under-recoveries in the context of the profitability assessment of airports.
478. In this chapter we explain to what extent the forecast closing investment value as discussed in Chapter 4 can be adjusted in order to appropriately reflect forecast over and under-recoveries.²¹⁸

Structure of this chapter

479. This chapter begins with a section on the problem definition, before going on to explain our solution to this problem. It finishes with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

480. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

Summary of problem definition

481. There were insufficient transparency requirements in the Airports ID Determination for us and other interested persons to identify forecast over and under-recoveries resulting from an airport's pricing event that are intended to be offset in future pricing events.
482. This was problematic as it impacted our and other interested persons' ability to accurately assess if an airport was targeting excessive profits.

A forward-looking profitability indicator requires assumptions on the forecast closing investment value

483. As discussed in Chapter 4, we decided to include a forward-looking profitability indicator (IRR) in the Airports ID Determination for future price setting events which comprises:
- 483.1 forecast cash-flows over the duration of the pricing period;
 - 483.2 the opening investment value; and
 - 483.3 the forecast closing investment value.

²¹⁸ As discussed in Chapter 4, the forecast closing investment value comprises the forecast closing asset base and a carry forward mechanism to adjust the forecast closing investment value.

484. We need to determine, in advance, the most appropriate assumptions regarding the forecast closing investment value such that the IRR is the best reflection of an airport's pricing intent.
485. As explained in Chapter 4, a **forecast closing investment value** that is a good reflection of an airports' pricing intent and the remaining capital to be recovered comprises:
- 485.1 the **forecast closing asset base** used by airports when setting prices reflecting an airport's assumed time profile of capital recovery;²¹⁹ and
- 485.2 any **adjustments reflecting decisions made by airports** that affect charges for the current and future price setting events that are not already reflected in the forecast closing asset base.

The forecast closing investment value should reflect the airport's expectation of the remaining capital to be recovered

486. The forecast closing investment value is an important input assumption to the calculation of a forward-looking profitability indicator for the current price setting event as it should reflect an airport's expectation of the remaining capital to be recovered at the end of the current pricing period.
487. We consider the forecast closing investment value should link the current pricing period to subsequent pricing periods enabling a profitability assessment across pricing periods.
488. When assessing airports' targeted profitability for the s 56G review, we used our judgement to determine the appropriate value of the inputs to the IRR calculation.²²⁰ We had to determine the forecast closing investment values in a way that best reflected the airports' pricing intent and the remaining capital to be recovered.

²¹⁹ In most cases, and following the amendments we have made in particular to asset revaluations as part of this IM review, we expect the forecast closing asset base to be identical with the forecast RAB rolled forward. However, there may be rare occasions in the future where the forecast closing asset base can be different from the forecast RAB rolled forward (eg, when an airport uses an approach to revaluing assets that is not consistent with the IMs, eg, MVEU for land, CPI + Z).

²²⁰ In our assessment of how effectively information disclosure is promoting the Part 4 purpose we examined the performance and conduct of airports. For example: Commerce Commission "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport" (13 February 2014), para 2.52.

489. For example, in order to assess targeted returns for Auckland Airport, we used forecast closing asset values reflecting Auckland Airport's non IM-compliant moratorium on asset valuations used when setting prices. This approach better reflected Auckland Airport's future pricing behaviour (ie, the remaining capital to be recovered) as Auckland Airport had stated it had no intention of revaluing its asset base for the following pricing event.²²¹
490. However, Auckland Airport also indicated it may unwind the moratorium in a future pricing event and inquired about IM-consistent approaches to addressing this intention.²²²
491. If Auckland Airport expected to unwind the asset moratorium in a subsequent price setting event, the forecast closing investment value for the calculation of an IRR for the current price setting event should be based on asset values reflecting Auckland Airport's likely future pricing behaviour.
492. This approach would result in assessed targeted returns for the current price setting event being higher due to an increased forecast closing investment value reflecting higher asset values unless it is adjusted for Auckland Airport's intention to also pass on the revaluation gain to airlines.²²³
493. This is of importance as Auckland Airport has noted several times that if the moratorium is unwound in the future, and a revalued asset base is used in pricing, the cumulative impact will be treated as an offset to the future revenue requirements to make sure the FCM principle is being followed.²²⁴
494. The previous Airports ID Determination did not provide sufficient transparency for us and interested persons to identify such expected or intended over- (and under) recoveries by airports that they intend to offset in future pricing events.
495. We considered this problematic as it affected our and other interested persons' ability to accurately assess if an airport was targeting excessive profits.

²²¹ Commerce Commission "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport" (31 July 2013), Attachment F, para F29-31.

²²² Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 10.

²²³ For clarification, if Auckland Airport indicated to unwind its asset moratorium in the next price setting event and that any resulting revaluation gain would be returned to customers through reduced prices in a NPV neutral manner, we do not consider that the forecast closing investment value of the current price setting event needed to be adjusted for the revaluation gain.

²²⁴ See, for example, Auckland Airport "Problem definition for input methodologies review: submission to Commerce Commission" (21 August 2015), para 72.

Our solution in respect of this problem

496. This section explains our solution to this problem.

Our solution

497. We have not amended the Airport IMs Determination. Instead, we consider that airports can use the carry forward mechanism proposed in Chapter 4 to adjust the forecast closing investment value in a way that reflects forecast over and under-recoveries that are intended by airports to be offset in future price setting events.

498. We have made the following amendments to the Airports ID Determination:²²⁵

498.1 When an airport has included forecast over and under-recoveries in the carry forward mechanism to adjust the forecast closing investment value, require the airport to provide information on:

498.1.1 why the resulting forecast closing investment value is a good indicator of the remaining capital to be recovered at the end of the current pricing period;

498.1.2 the purpose and appropriateness of including these amounts in the carry forward mechanism;²²⁶

498.1.3 the intended duration until these forecast over and under-recoveries have been fully offset; and

498.1.4 why using the carry forward mechanism to adjust the forecast closing investment value seems more appropriate in reflecting the airport's pricing intent than an alternative approach to accounting for these forecast over and under-recoveries already provided for under the Airport IMs and ID determinations.²²⁷

498.2 Require airports to summarise the views of substantial customers as expressed during consultation regarding forecast over and under-recoveries that have been included in the carry forward mechanism to adjust the forecast closing investment value.²²⁸

²²⁵ Under s 52Q of the Act.

²²⁶ For clarification, by requiring to comment on the 'purpose' we mean an explanation of what these forecast over and under-recoveries actually represent; by requiring airports to comment on the 'appropriateness' we mean they should provide an explanation of why it is reasonable from an airport's perspective to carry these amounts forward into the next price setting event.

²²⁷ This may include, but is not limited to, non-standard depreciation, revaluations, offsetting revenues associated with assets held for future use against the forecast value of assets held for future use.

²²⁸ As per in the previous chapter, for simplicity, we just refer to these as airlines.

499. This is our solution because it creates transparency around targeted profitability of airports and improves our and other interested persons' ability to assess if airports are targeting excessive profits. This is achieved by:
- 499.1 better reflecting an airport's pricing intent in information disclosure;
 - 499.2 being able to take into account multiple pricing periods in the profitability assessment (ie, the carry forward mechanism that adjusts the forecast closing investment value links the current pricing period together with subsequent pricing periods);
 - 499.3 clearly identifying where airports have decided to under or over-recover in a price setting event (but with the intent to offset this over or under-recovery in future price setting events). This enables us to comment on the reasonableness of the proposed carry forward in our summary and analysis (eg, if the FCM principle is being met in the longer term); and
 - 499.4 not impacting on airports' ability to set prices as they see fit, as our solution only creates greater transparency around decisions made by airports when setting prices.
500. The additional disclosure requirements on airports accompanying any disclosed carry forward amounts allow us to consider in our summary and analysis if these carry forwards are in the long-term interest of consumers. In particular, we will be able to comment on an airport's preference for using the carry forward mechanism as opposed to using an alternative that may already exist under the Airport IMs and ID determinations.
501. In summary, our solution provides transparency in the price setting event disclosures without impacting on airports' ability to set prices as they see fit. It allows us and other interested persons to assess the appropriateness of the airport's use of the carry forward mechanism to adjust the forecast closing investment value.
502. We have identified a few circumstances where forecast over or under-recoveries that are intended to be offset by airports in future pricing events can be included in the carry forward mechanism. Further guidance on these circumstances is provided later in this chapter.
503. An additional benefit of the carry forward mechanism to adjust the forecast closing investment value is that it removes the requirement for us to determine up front how other yet un-identified issues are to be considered.

A carry forward to adjust the forecast closing investment value forms the basis of the carry forward adjustment to the opening investment value of the next pricing event

504. We would expect the carry forward adjustment to the opening investment value for the next pricing period (discussed in the previous chapter) to include adjustments made by an airport at the previous price setting event that affect the airport's expected recovery in future price setting events.
505. Our solution allows us and other interested persons to identify whether this has been done. This is because an adjustment to the forecast closing investment value of the previous pricing event would be the starting point when determining any adjustments to the opening investment value of the current pricing event.
506. For clarification, when the carry forward adjustment to the forecast closing investment value is used as an input to the opening carry forward of the next price setting event, our view is that it should not be adjusted for any differences between forecast assumptions and actuals that have occurred in previous pricing periods unless such adjustments were signalled at the time the forecast carry forward was set.
507. NZAA submitted that the "forecast closing carry forward adjustment can necessarily only be assessed as an indication of intent at that time [...] It follows that the price setting process should take into account the actual circumstances at the time, rather than the circumstances that were predicted to exist at the time. If decisions are made in the future that are different to those that were predicted, then the airports will provide reasons for this".²²⁹
508. We agree with NZAA that the carry forward adjustment to the forecast closing investment value only reflects an airport's estimate of a planned over or under-recovery at the time prices are set. We also understand that an airport may want to adjust the carry forward adjustment to the forecast closing investment value for actual out-turns when using it in determining the carry forward adjustment for the opening investment value of the subsequent price setting event. However, in order to provide clarity under the Airports ID Determination, we remain of the view that an airport can only do so in its price setting event disclosures if it had indicated its intention to adjust for actual out-turns at the time the carry forward adjustment to the forecast closing investment value was determined.

²²⁹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 209-210.

Stakeholders considered a carry forward should only occur in limited and pre-defined circumstances

509. The purpose of the airports workshop in December 2015 was to seek key stakeholders' views on how airports profitability assessments could be performed. One of the objectives was to understand key stakeholders' views on the options for assessing airports profitability.²³⁰
510. At the workshop, there was general support to include some form of carry forward mechanism between the pricing periods and for the carry forward to include, at a minimum, those amounts that were agreed to be carried forward by parties during consultation of the price setting event.²³¹
511. In submissions to the workshop, NZAA and BARNZ were still supportive of the introduction of a carry forward mechanism and both parties similarly considered that carry forwards between pricing periods should only occur in limited and pre-defined circumstances.^{232, 233}

Circumstances where a carry forward mechanism to adjust the forecast closing investment value can be used

512. At the workshop held in April 2016, our staff discussed with stakeholders circumstances where the carry forward mechanism as an adjustment to the forecast closing investment value can be used. In particular, we consider that a carry forward can be used to address the issues listed below.²³⁴
513. **Auckland Airport unwinding its asset moratorium:** As discussed earlier in this chapter, a carry forward mechanism could be used to reflect a situation where Auckland Airport intends to unwind its asset moratorium over more than one pricing period.

²³⁰ Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), para 2-3.

²³¹ Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), Attachment C, para 11-13.

²³² BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 1.

²³³ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 17.

²³⁴ However, there may be other circumstances we have not yet seen in practice that can be transparently disclosed in the carry forward mechanism by an airport. We therefore have not limited the use of it to the issues listed here.

514. **An airport using a non IM-consistent approach to revaluing assets:** In Chapter 5, we discuss our solution with regards to asset revaluations. We consider that, based on the approaches to revaluing assets airports have used since the introduction of the ID regime, our solution will in most cases provide sufficient flexibility for an airport to disclose how it revalued assets in its pricing decision. However, if an airport revalued its pricing asset base using a non IM-consistent methodology, the carry forward adjustment to the forecast closing investment value is available to transparently disclose this approach. This means in practice, an airport can use the carry forward adjustment to the forecast closing investment value to reflect the difference in asset values resulting from its pricing approach to revaluations and an IM-consistent approach.
515. **Commercial concessions:** As discussed in Chapter 11, commercial concessions are commercial decisions made by the airport to under-recover revenue. Airports could include a commercial concession in the carry forward mechanism to adjust the forecast closing investment value if airports specifically state in their price setting event disclosures that they intend to recover the concession in future pricing events.
516. **Assets held for future use:** As explained in Chapter 8, assets held for future use are excluded from the RAB value (and from associated disclosed profitability measures) until they are used in the supply of specified airport services as specified in the Airport IMs.²³⁵ Airports can expect to be able to earn a full return on and of the costs of holding and developing these assets, without profits appearing excessive, provided they are eventually commissioned for use to supply airport services.²³⁶
517. An airport may include revenues associated with assets held for future use at a future price setting event. If this happens, in order to create transparency around these early over-recoveries, an airport could use the carry forward mechanism to adjust the forecast closing investment value provided it intends to offset these over-recoveries in a later period.
518. In order to avoid double counting of revenues associated with assets held for future use in the profitability assessment, we would expect an airport not to include it in the carry forward mechanism if it has already been captured by our preferred solution discussed in Chapter 8 (ie, as an offset to the value of the assets held for future use balance).

²³⁵ *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.1.

²³⁶ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 4.3.74.

519. This is of particular importance for Auckland Airport, as Auckland Airport might include additional revenues associated with the planned second runway in its third price setting event in 2017. This would result in the assessment of higher returns in the short-term unless Auckland Airport adjusts the forecast closing investment value by an amount reflecting these additional revenues (but taking into account the time value of money).²³⁷ This approach would signal Auckland Airport's intention to return the value of any identified over-recoveries in future pricing events.²³⁸

'Summary of views' of airlines on proposed carry forwards by airports

520. Consistent with our solution regarding the *ex-post* assessment of risk, we have included a requirement in the Airports ID Determination for airports to summarise the views of substantial customers expressed during consultation regarding forecast over and under-recoveries that are included in the carry forward mechanism to adjust the forecast closing investment value.
521. This disclosure requirement would apply in the event airports include carry forwards as adjustments to the forecast closing investment value in their price setting event disclosures.
522. This approach will allow us to consider through summary and analysis whether a substantial number of the airport's customers objected to the airport's adopted approach which might impact on our assessment of an airport's profitability.
523. Airlines can provide their views to us directly at any time (including information on carry forwards that were proposed by airlines but declined by airports during consultations) and we will consider those when we undertake our summary and analysis.
524. In our view, the benefits arising from enhanced transparency in the price setting event disclosures outweigh the cost of the increased disclosure requirements particularly in light of airports intent that carry forwards "will be the exception rather than the norm".²³⁹

Summary of submissions on our IM review draft decision and our response

525. Our final solution is largely unchanged from the proposed solution outlined in our IM review draft decision. However, in response to submissions on our IM review draft decision, we have amended our draft decision regarding the disclosure requirements when airports use the carry forward mechanism to adjust the forecast closing investment value.

²³⁷ For clarification, this would only result in the assessment of excessive profits if Auckland Airport chooses not to offset those additional revenues against its land held for future use balance.

²³⁸ We note that the forecast balance of the assets held for future use has been specifically designed to account for revenues associated with assets held for future use. We therefore consider, in general, the use of it to account for such circumstances more appropriate. We discuss this further in Chapter 8.

²³⁹ NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 45.

526. In addition to providing information on the purpose and appropriateness of including forecast over and under-recoveries in the carry forward mechanism and on the resulting forecast closing investment value, our final solution also requires airports to disclose information on:
- 526.1 the intended duration until these forecast over and under-recoveries have been fully offset; and
- 526.2 why using the carry forward mechanism to adjust the forecast closing investment value seems more appropriate in reflecting the airport's pricing intent than an alternative approach to accounting for these forecast over and under-recoveries already provided for under the Airport IMs and ID determinations.
527. Consistent with our decision made in the context of the *ex-post* effects of risk allocation, we have moved away from requiring airports to provide information on the 'degree of acceptance' by airlines when forecast over and under-recoveries are included in the carry forward mechanism. We now only require airports to summarise the views expressed by substantial customers during pricing consultations.
528. NZAA submitted that it is comfortable with the "proposed use of adjustments to the closing investment value".²⁴⁰
529. BARNZ appears to generally support our solution but considers that the carry forward mechanism could be used inappropriately. BARNZ criticises the lack of constraints on airports around the use of the mechanism and, in particular, that the "open-ended nature of this proposal creates an incentive for an airport as a matter of course to over-state its forecast costs and under-state likely demand, so as to portray a perceived 'under-recovery' for the airport to identify as a shortfall it intends to later recover".²⁴¹
530. BARNZ considers that we "need to place greater guidelines around when it is appropriate to target such under or over recoveries with the intention to later recoup them, and over what sort of time-frame". BARNZ also submitted that the use of the carry forward adjustment to the forecast closing investment value "should be limited to unusual situations where its use may result in more efficient pricing, such as where there would otherwise be a price shock from an event such as a material step change investment (perhaps a substantial terminal expansion or a second runway) or an unusual event has occurred causing a dramatic reduction in demand, as happened following the Christchurch earthquakes".²⁴²

²⁴⁰ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 243 a.

²⁴¹ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 8.

²⁴² BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 8.

531. We have not put many constraints around the use of the carry forward to adjust the forecast closing investment value, because the mechanism is designed, as NZAA rightly points out in its cross submission on our IM review draft decision, "to ensure that an airport's disclosures best track what an airport is doing in pricing: it is a mechanism to improve transparency".²⁴³ We therefore have not limited the use of the mechanism to "unusual situations", as this might mean that an airport's disclosure does not align with the approach used when setting prices. Also, not limiting the use of the mechanism to "unusual situations" will allow for the application of the carry forward to as yet unforeseen circumstances in the future.
532. However, in order not to create an incentive for airports to earn excessive profits, the mechanism may only be used by an airport if the airport intends to offset any amounts included in it in future price setting events. In requiring airports to provide information under ID about the purpose and appropriateness for including amounts in the carry forward mechanism, we can better assess in our summary and analysis if the airport is targeting excessive profits.
533. We nevertheless have increased the disclosure requirements that were included in our IM review draft decision. Requiring airports to disclose information on the intended duration of a carry forward amount included in ID (ie, an airport's expectation of how long it will take for the carry forward to be fully offset) will allow us and other interested persons to better assess its appropriateness.
534. We acknowledge that the "open-ended nature" may create some uncertainty among airlines and that, even though the airport might not be targeting excessive profits, current airlines might pay now for other airlines receiving discounts in the future.²⁴⁴ However, we may comment on the duration and the consequential effects when we do summary and analysis of the airport's price setting event.
535. We have also added to our final IM review decision a requirement on airports to explain why using the carry forward mechanism to adjust the forecast closing investment value seems more appropriate in reflecting the airport's pricing intent than an alternative approach to accounting for forecast over and under-recoveries provided for under the Airport IMs and ID determinations.

²⁴³ NZ Airports "Cross submission on Commerce Commission's input methodologies review draft decision" (18 August 2016), para 22.

²⁴⁴ BARNZ submitted on this matter in the context of the use of the carry forward to account for revenues that are associated with assets held for future use. BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 13.

536. In general, given that some of the features provided for under the Airport IMs and ID determinations have been specifically designed to account for certain circumstances (eg, revaluation approaches and non-standard depreciation to alter the time profile of capital recovery, offsetting revenues associated with assets held for future use against the forecast value of assets held for future use), we consider using one of these mechanisms to account for such circumstances more appropriate than the carry forward mechanism.²⁴⁵
537. We consider that this additional requirement addresses BARNZ's concern relating to the use of the carry forward to adjust the forecast closing investment value if revenues associated with assets held for future use are collected.²⁴⁶ We agree with BARNZ that including these revenues in the carry forward balance would create less transparency than disclosing them in the forecast assets held for future use balance and therefore consider the use of the carry forward mechanism under such circumstances less appropriate. However, we also agree with Auckland Airport that the "carry forward mechanism should remain an alternative if, for whatever reason, it is not possible to use the future use schedule".²⁴⁷
538. We have also changed our IM review draft decision regarding a disclosure requirement on airports to provide airlines' views on forecast over and under-recoveries that are included in the carry forward mechanism to adjust the forecast closing investment value. Consistent with our decision made in the context of the *ex-post* effects of risk allocation, we have moved away from requiring airports to provide information on the 'degree of acceptance' by airlines when forecast over and under-recoveries have been included in the carry forward mechanism, to only requiring them to summarise the views expressed by substantial customers during consultations.²⁴⁸

²⁴⁵ In particular, the special designs of these features are more likely to create transparency in ID as opposed to using the carry forward mechanism to adjust the forecast closing investment value.

²⁴⁶ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 13.

²⁴⁷ Auckland Airport "Input methodologies review: Cross submission on draft decision and submission on draft IM and ID determinations" (18 August 2016), para 2a.

²⁴⁸ For details and our reasoning, see Chapter 6.

Chapter 8: Assets held for future use

Purpose of this chapter

539. The purpose of this chapter is to explain our solution to the problem associated with the treatment of assets held for future use in the context of the profitability assessment of airports.

Structure of this chapter

540. This chapter begins with a section on the problem definition, before going on to explain our solution to this problem. It finishes with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

541. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

Summary of problem definition

542. Our previous Airport IMs and ID determination requirements meant that it became difficult to assess the impact revenues associated with assets held for future use had on the expected profitability of regulated airport services. The previous Airport IMs and ID determinations did not provide adequate transparency if airports were to include revenues associated with assets held for future use at a future price setting event. This, in turn, could have made it difficult for interested persons to assess airports profitability.

Requirements for assets held for future use in information disclosure

543. Assets held for future use (also referred to as excluded assets, land held for future use, and future development land) are excluded from the RAB value (and from associated disclosed profitability measures) until they are used in the supply of specified airport services as specified in the Airport IMs.^{249, 250}

²⁴⁹ *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.1 and definition of "excluded assets".

²⁵⁰ Airports can expect to be able to earn a full return on and of the costs of holding and developing this land without profits appearing excessive, provided it is eventually commissioned for use to supply airport services. Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 4.3.74.

544. The treatment in the IMs of assets held for future use, in particular future development land, recognises the indirect incentives that the treatment might create under information disclosure regulation. Airports should not have an incentive to acquire land imprudently, nor to hold land indefinitely without developing it. Requiring that land is being used before it enters the RAB places the risk of ultimate non-development on the airports (ie, profits will appear excessive if airports attempt to earn a return on the value of the land before it is developed in order to supply specified airport services).²⁵¹
545. Given that airports are best placed to manage this risk, it is reasonable that they are the ones that are required to bear it. Under this treatment there is a possibility that airports might attempt to commission new capacity imprudently or in advance of the time that they otherwise would have.²⁵² Information disclosure is intended to limit the incentives to attempt this, because interested persons should have sufficient information to be able to assess whether or not such an attempt has been made.
546. The Airports ID Determination requires that the value of assets held for future use is tracked over time on an *ex-post* basis.²⁵³ The Airport IMs establish that the value of assets held for future use comprises the base value, accumulated holding costs and revaluations, but is net of net revenue generated from the assets not otherwise reported under ID.²⁵⁴ The relevant value will enter the RAB when the assets become used in the supply of specified airport services.
547. As we explain later in this section, however, the previous requirements and the information previously disclosed by airports to us may have been insufficient for interested persons to understand the impact on profitability if an airport included charges for assets held for future use in its price setting event and respective disclosures.

²⁵¹ That said, the risks are modest under an information disclosure regime, not least because land could potentially be sold, given that it has a value in an alternative use, and any residual risk relates to holding and development cost.

²⁵² Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 4.3.77.

²⁵³ This information is disclosed to us under section 2.3 (Annual Disclosure Relating to Financial Information) and Schedule 4 (Report on Regulatory Asset Base Roll Forward) of the ID determination.

²⁵⁴ *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.11.

Charging for assets held for future use before they are used to supply regulated services

548. The treatment of assets held for future use is of particular concern for Auckland Airport as the airport currently holds a significant amount of land for its planned second runway.²⁵⁵ Auckland Airport has indicated a concern that there are likely to be price shocks at the time when the second runway is completed and is included in the RAB.²⁵⁶
549. When setting prices for the price setting event in 2007, which came into effect prior to the Part 4 regime, Auckland Airport included charges associated with assets held for its second runway. However, for its second price setting event (2012), Auckland Airport set prices in a manner consistent with the Airport IMs by excluding its assets held for future use from the asset base used to set prices and from airport charges.
550. When setting prices for its third price setting event in 2017, Auckland Airport is considering including additional revenues associated with the planned second runway. This would result in higher revenues in the short-term with the expectation of lower revenues at the time the assets held for future use are included in the RAB.²⁵⁷ In particular, Auckland Airport submitted that:²⁵⁸

Although the current IM and ID regimes provide transparency regarding the costs of land for future use, the problem is there is no clarity today on how transparency should be enabled and profitability assessed in the event that an airport were to smooth prices in advance of commissioning an asset held for future use. One potential price-smoothing alternative has been considered by Auckland Airport and is summarised briefly as follows: (a) Auckland Airport believes that the value of land held for future use could be monitored through ID showing the holding costs and net income attributed to that land. (b) An interim levy could be introduced and the net income attributable to the land held for future use would be deducted from the original value of, and the holding costs associated with, that land.

551. Airports can set prices as they see fit, and therefore future prices might include revenues related to assets held for future use. We consider that there are two likely scenarios that an airport might consider when including charges associated with assets held for future use in future airport price settings, which affects the understanding of interested persons:

²⁵⁵ Auckland submitted that the "northern runway capex has not yet been costed, but could conceivably be in the order of \$600m". Auckland Airport "Problem definition for input methodologies review: submission to Commerce Commission" (21 August 2015), para 44(b).

²⁵⁶ Auckland Airport "Problem definition for input methodologies review: submission to Commerce Commission" (21 August 2015), para 44-45.

²⁵⁷ In this instance, higher or lower revenues refers to revenues being different from those revenues that are required by an airport to support its target revenue excluding charges for land held for future use.

²⁵⁸ Auckland Airport "Problem definition for input methodologies review: submission to Commerce Commission" (21 August 2015), para 50-51.

551.1 **Scenario 1:** An airport sets prices so that the additional revenues associated with assets held for future use can be identified and offset against the value of assets held for future use (eg, through a special levy).

551.2 **Scenario 2:** An airport increases prices in a way that does not distinguish between revenues associated with the RAB and revenues relating to assets held for future use.

Our solution in respect of this problem

552. This section explains our solution in respect of this problem.

Our solution

553. Our solution involves both IM and ID amendments.

IM amendments

554. We have not made any change regarding the treatment of assets held for future use. We consider that assets held for future use should remain outside of the RAB until they are used to provide specified airport services.²⁵⁹

555. However, consistent with our framework for the IM review, we have made an amendment to the definition of "net revenue" in the IMs, to make it clearer that (as intended) revenues derived from, or associated with, assets held for future use are captured by that definition.

ID amendments

556. We have made amendments to the Airports ID Determination to increase the transparency relating to revenues associated with assets held for future use. In this regard, our solution to the problem associated with assets held for future use addresses the two scenarios discussed earlier.

557. **To address scenario 1** (ie, where an airport chooses to price in a way that revenues associated with assets held for future use **can be separated** from revenues associated with the RAB), we have amended the ID requirements to include the revenue from, or associated with, assets held for future use on a forecast basis (eg, the special levy) and the value of assets held for future use on a forecast basis in the disclosure requirements under clause 2.5 of the Airports ID Determination.

558. Under this scenario:

558.1 we would expect that airports offset these forecast revenues against the forecast value of the assets held for future use according to the formula described in clause 3.11(2) of the Airport IMs;²⁶⁰ and

²⁵⁹ *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28, clause 3.1.*

- 558.2 airports would be required to provide information on the rationale for including revenues associated with assets held for future use for the price setting event.
559. **To address scenario 2** (ie, where an airport chooses to set prices in a way that revenues associated with assets held for future use **cannot be separated** from revenues associated with the RAB), we consider:
- 559.1 that airports should use the carry forward mechanism as described in Chapter 7 to identify the value of upfront recoveries associated with assets held for future use that an airport intends to return to airlines in future; and
- 559.2 consistent with the information disclosure requirements under scenario 1, airports would be required to provide information on the rationale for including revenues associated with assets held for future use for the price setting event.
560. When including revenues associated with assets held for future use in the carry forward mechanism to adjust the forecast closing investment value, the disclosure requirements that are applicable to the use of this mechanism, and which are outlined in Chapter 7, would apply. In particular, an airport would be required to explain why using the carry forward mechanism is more appropriate in reflecting an airport's pricing intent than offsetting revenue associated with assets held for future use against the forecast balance of the assets held for future use.
561. Given that the forecast balance of the assets held for future use has been specifically designed to account for revenues associated with assets held for future use, in general, we consider the use of it to account for such circumstances more appropriate.
562. In order to ensure consistency between the price setting event and *ex-post* disclosures, we would expect an airport to use in its *ex-post* disclosures the approach to treating revenues associated with assets held for future use selected in its price setting event disclosures.²⁶¹ However, any consequential changes affecting the *ex-post* disclosure of airport profitability information under the Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review and will be subject to a separate consultation process.

²⁶⁰ In order to minimise complexity and compliance costs for airports, we would expect an airport to only provide the value of assets held for future use on a forecast basis in ID in the event it has included revenues associated with assets held for future use in the price setting event and wants to make use of the formula described in clause 3.11(2) of the Airport IMs.

²⁶¹ For example, if an airport cannot separate revenues associated with land held for future use in its price setting event disclosures, *ex-post* profitability assessment would have to take into account all revenues (eg, including revenues associated with land held for future use).

Summary

563. In summary, our solution will allow us and other interested persons to better assess if airports are targeting excessive profits.
564. We explain the reasons for our solutions in more detail in the remainder of this section.

Revenues derived from assets held for future use

565. As explained in the Airport IMs reasons paper:²⁶²

Even though holding future development land forms part of the regulated services, it does not follow that the Commission must set an IM for the valuation of assets that treats future development land in the same manner as land currently in use.

566. The reasoning above has been endorsed by the High Court.²⁶³
567. The value of assets held for future use must be disclosed to us in Schedule 4 of the ID Determination. The value of assets held for future use is determined under clause 3.11 of the Airport IMs as follows:²⁶⁴

base value + holding costs – net revenue²⁶⁵ – tracking revaluations

568. As it can be seen, the net revenues derived from assets held for future use must be deducted from the value of those assets for disclosure purposes. Given the definition of net revenues (ie, they are net of tax and opex), we have changed Schedule 18 such that airports do not have to disclose opex and tax associated with assets held for future use separately anymore.²⁶⁶

²⁶² Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 4.3.79.

²⁶³ *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 905-908.

²⁶⁴ *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, definition of "assets held for future use".

²⁶⁵ (c) 'net revenue' means the sum of amounts, other than those included in total regulatory income under an **ID determination** or preceding regulatory information disclosure requirements, for all **disclosure years** derived from holding, or associated with, the **excluded asset**, where the amount derived from holding the **excluded asset** in the **disclosure year** in question is determined in accordance with the formula- (revenue derived from the **excluded asset** (other than tracking revaluations) – **operating costs** incurred in relation to the **excluded asset**)*(1 – **corporate tax rate**) (*Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.11).

²⁶⁶ NZAA pointed to this inconsistency in its submission on our IM review technical consultation update paper. NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 43.

569. As explained in the Airport IMs Reasons paper:²⁶⁷

To provide transparency around the value of the future development land, and thus allow interested parties to make assessments as to whether the Part 4 purpose is being met, it is necessary to identify holding costs, and other factors such as net revenue and revaluations, separately from the initial land value. This is provided for in the formula set out in clause 3.11 of the IM Determination. This treatment is supported by submissions received on this topic. (Emphasis added)

570. As explained in the ID reasons paper:²⁶⁸

The ID Determination requires that in disclosure periods prior to the earlier of the land's commissioning or the commencement of the associated works under construction, Airports must separately disclose the following information concerning the cost of holding the land:

- the 'initial value' of the land;
- the accumulated value of holding costs;
- any accumulated income generated from the land, net of associated operating costs; and
- accumulated gains or losses from revaluations. (Emphasis added)

571. We continue to hold the view that the net revenues derived from assets held for future use must be deducted from the value of those assets, and we have not received any evidence to suggest otherwise. We have amended the definition of "net revenue" in clause 3.11(6)(c) of the Airport IMs to make our policy intent clearer.

Reasons for including forecast value and revenues of assets held for future use in the Airports ID Determination

572. As discussed earlier in this chapter, Auckland Airport has indicated that it may consider using a special levy in future price setting events to increase revenue in the short-term and reduce possible price shocks in future.

573. Auckland Airport (and other airports) can make use of the existing clause 3.11 of the Airport IMs to offset net revenues associated with a special levy from the value of the assets held for future use.

574. This is our solution because, where an airport chooses to price in a way that revenues associated with assets held for future use can be separated:

574.1 it creates transparency as it allows us and other interested persons to assess an airport's profitability taking into account revenues associated with its RAB only;

574.2 there would be no immediate expectation of excessive profits resulting from a special levy (assuming an appropriate return is targeted on the assets included in the RAB); and

²⁶⁷ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para C3.9.

²⁶⁸ Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 3.139.

574.3 it provides for a mechanism that can minimise the price shock when the asset enters the RAB upon commissioning (as at that time the carrying value of the assets held for future use would be net of any associated net revenues).

575. However, as discussed earlier in this chapter, information related to assets held for future use was previously only disclosed on an *ex-post* basis. This information did not allow interested persons to understand the impact on *ex-ante* profitability if an airport includes charges for assets held for future use in its price setting events.
576. Therefore, we have amended the Airports ID Determination such that airports disclose the value of, and revenue from or associated with, assets held for future use on a forecast basis.

Reasons for allowing airports to use the carry forward mechanism

577. Given that airports have the ability to price as they see fit, future prices might be set in a way that does not allow us and other interested persons to identify what portion of revenue relates to the underlying RAB and what portion relates to assets held for future use.
578. If an airport increased revenues but included no other adjustments for assets held for future use, the higher revenues suggests that there may be excessive profits. This is because all revenues would be included within regulatory income if the airport did not separately identify revenues associated with assets held for future use.
579. However, we would expect that if an airport were to increase forecast revenues, it would do so in a way that does not immediately suggest that there may be excessive profits.
580. An airport could use the carry forward mechanism as described in Chapter 7 as an adjustment to reflect the upfront recoveries related to revenues from its assets held for future use. This would signal its intention to return the value of any upfront recoveries related to revenues from its assets held for future use identified at the end of the pricing period to airlines in future pricing periods.²⁶⁹
581. If an airport chooses to price in a way that revenues associated with assets held for future use cannot be separated from revenues associated with the RAB, allowing airports to use the carry forward mechanisms is our preferred solution because:
- 581.1 it creates transparency as it allows us and other interested persons to assess an airport's profitability taking into account revenues associated with its RAB only (as the carry forward adjusts for the impact of the revenues associated with assets held for future use from the profitability assessment);

²⁶⁹ The airports would have to do this in a way that the value included in the carry forward would equate to the present value of future reductions in revenues that would be expected to occur once the land held for future use is commissioned.

581.2 there would be no immediate expectation of excessive profits resulting from upfront recoveries related to revenues from its assets held for future use (assuming an appropriate return is targeted on the assets included in the RAB); and

581.3 it provides for a mechanism that can minimise the price shock when the asset enters the RAB upon commissioning (as the value captured in the carry forward would offset the increase in the opening RAB).

582. We note that, when accounting for revenues associated with assets held for future use in the carry forward adjustment to the forecast closing investment value, the disclosure requirements associated with this mechanism would apply (see Chapter 7). In particular, an airport would be required to explain why using the carry forward mechanism to adjust the forecast closing investment value seems more appropriate in reflecting the airport's pricing intent than offsetting revenues associated with assets held for future use against the forecast value of the assets held for future use balance.

Summary and analysis

583. Although we consider that revenues associated with assets held for future use are not part of regulatory income, in our summary and analysis of the price setting event disclosures, we would test the impact of those revenues on the airports' profitability based on the RAB.

584. Our solution under scenario 1 and 2 ensures that sufficient information is provided for us and other interested persons to undertake such a sensitivity analysis. This is because of the following reasons:

584.1 **Scenario 1:** Where an airport chooses to price in a way that revenues associated with assets held for future use **can be separated** from revenues associated with the RAB, us and other interested persons would be able to identify the forecast revenue collected on assets held for future use.

584.2 **Scenario 2:** Where an airport chooses to price in a way that revenues associated with assets held for future use **cannot be separated** from revenues associated with the RAB, us and other interested persons would also be able to identify the change in the carry forward balance that is a result of forecast revenue collected on assets held for future use.

585. Given that our solution provides sufficient transparency to test the impact of revenues collected on assets held for future use on the airports' profitability based on the RAB, we have not amended the Airports ID Determination to include a separate IRR for the RAB that would also take into account revenues collected on assets held for future use.²⁷⁰

²⁷⁰ 'Separate' means in addition to the IRR as discussed in Chapter 4 (ie, based on the RAB and taking into account all revenues associated with the RAB).

586. We would also be able to comment, through summary and analysis, on the concept of earning revenues on assets excluded from the RAB. In particular, we will be able:
- 586.1 to keep track of these early revenues and to assess the extent to which an airport has returned them to airlines; and
- 586.2 in the long-term, to assess if an airport's approach to charging for assets held for future use is NPV-neutral.
587. We will also collect information on the rationale underpinning why an airport has included revenues associated with assets held for future use for the price setting event. Requiring airports to provide this additional information in the price setting event disclosure requirements will allow us to comment on the appropriateness of the approach in our summary and analysis.

Summary of submissions on our IM review draft decision and our response

588. Our final solution remains unchanged from our proposed solution outlined in our IM review draft decision. NZAA and Auckland Airport are both supportive of our decision.²⁷¹ In particular, Auckland Airport submitted that:²⁷²

it is positive that airports will be able to separately disclose revenue associated with assets held for future use to reflect their pricing intent without this distorting the assessment of target returns when compared to the RAB. We also agree with the Commission's proposal to provide for two alternative solutions, with an airport retaining the flexibility to adopt the solution that best mirrors their pricing scenario. This enhanced transparency is consistent with the Commission's objectives for the IM review and, in turn, better enables airports to explore efficient pricing options with airline customers.

589. BARNZ supports amending the Airports ID Determinations so that airports can offset forecast revenues associated with assets held for future use against their forecast value. BARNZ also agrees with our decision to leave assets held for future use outside the RAB and that it would not be appropriate for airports to make use of non-standard depreciation to account for such revenues. However, BARNZ strongly questions:²⁷³

the appropriateness of the Commission's proposal that airports could use the carry forward mechanism with respect to revenue associated with assets held for future use. If an element of unbundled charges is intended to relate to providing a return associated with assets held for future use, and is able to have the value of that 'upfront recovery' be identified so that it can be recorded in the carry forward mechanism (which is what the Commission is proposing), then BARNZ does not understand why this level of certainty is not sufficient to

²⁷¹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 245.

²⁷² Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 29-30.

²⁷³ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 13.

enable it to be recorded in the schedule 4 table recording the value of assets held for future use.

590. In particular, BARNZ is concerned that:²⁷⁴

In broad terms, the Commission's carry-forward option would result in consumers in the short-term paying the holding costs of assets held for future use, consumers in the medium term receiving the benefit of what was paid by those earlier consumers, and consumers in the long-term receiving no benefit at all and having to pay a return on the fully capitalised holding costs.

591. We agree with BARNZ that disclosing revenues associated with assets held for future use should preferably be done in the assets held for future use schedule. This is our preferred solution as it provides the greatest level of transparency among the solutions we considered. However, given that airports can price as they see fit, we do not want to limit the options that are available under information disclosure that an airport can use to reflect its approach to pricing.

592. For clarification, eliminating the carry forward as an option to disclose revenues associated with assets held for future use could potentially result in a situation where information disclosure cannot provide transparency with regards to an airports pricing approach. This would be contrary to what we are trying to achieve through our amendments to the Airports IMs and ID Determinations.

593. We acknowledge that airports can price in a way that current airlines pay a premium (or receive a discount) and future airlines receive the benefit (or make up for the earlier discount), but this would not be limited to instances where an airport charges for assets held for future use. In fact, a similar situation would occur any time an airport makes a decision to under or over-recover in its current pricing period with the intention to offset this in future pricing periods. Again, the carry forward mechanism is only a means to making this pricing behaviour transparent in information disclosure.

594. However, if an airport uses the carry forward mechanism to capture revenues associated with assets held for future use, the disclosure requirements explained in Chapter 7 will apply. They are intended to shed light on an airport's use of the mechanism and to enable us, when we perform summary and analysis of an airport's price setting event, to comment on its appropriateness.

²⁷⁴ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 13.

595. When commenting on an airport's use of the carry forward mechanism to capture revenues associated with assets held for future use, in our summary and analysis, we would have a particular focus on the airport's explanation why using it seemed more appropriate in reflecting an airport's pricing intent than the assets held for future use schedule. Given that the forecast value of the assets held for future use balance has been specifically designed to account for revenues associated with assets held for future use, in general, we consider using this mechanism to account for such circumstances more appropriate. However, we agree with Auckland Airport that the "carry forward mechanism should remain an alternative if, for whatever reason, it is not possible to use the future use schedule".²⁷⁵

²⁷⁵ Auckland Airport "Input methodologies review: Cross submission on draft decision and submission on draft IM and ID determinations" (18 August 2016), para 2a.

Chapter 9: Pricing assets

Purpose of this chapter

596. The purpose of this chapter is to explain our solution to the problem associated with the treatment of pricing assets in the Airports ID Determination.
597. This problem has previously been referred to by us and submitters in this consultation process as relating to the treatment of leased assets.²⁷⁶ Following discussions at the workshop held in April 2016, we have clarified that the problem definition is more accurately described as the treatment of pricing assets in the Airports ID Determination.²⁷⁷
598. For the purpose of this chapter, we define pricing assets as the asset base airports use to set prices and explain how transparency can be created in information disclosure with regard to targeted returns based on these assets.

Structure of this chapter

599. This chapter begins with a section on the problem definition, before going on to explain our solution to this problem. It finishes with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

600. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

Summary of problem definition

601. Airports have been excluding certain asset values from the pricing assets that are, however, activities that are included in the definition of "specified airport services" in s 56A of the Act. Those activities have therefore been disclosed by airports for ID purposes and were included in our s 56G analysis.²⁷⁸

²⁷⁶ Therefore, we use the term 'leased assets' when referring to submissions, as this was the expression used by submitters.

²⁷⁷ Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 43.

²⁷⁸ See, for example, Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport, Section 56G of the Commerce Act 1986" (8 February 2014), para F68.3.

602. A different asset base for pricing and information disclosure purposes in itself may not be a concern, but reconciling the differences has been problematic.²⁷⁹ We consider that this has impacted on our and other interested persons' ability to accurately determine an airport's targeted return.
603. For example, in case of Auckland Airport, the asset base used to set prices comprised airfield and terminal activities but excluded:²⁸⁰
- 603.1 aircraft and freight activities;²⁸¹ and
- 603.2 certain specified passenger terminal activities, namely leased identified tenancies and collection facilities for duty free.

How the problem evolved

604. We first identified the problem associated with pricing assets during the s 56G review of airports.
605. All airports have been excluding certain asset values and cash-flows from their pricing decisions which were included in our analysis of airports targeted returns (as these activities are included in the definition of 'specified airport services' in s 56A of the Act).
606. Our s 56G analysis showed that airports were targeting higher returns on pricing assets compared to targeted returns on the RAB. This implies that airports have been targeting lower returns on those assets that are excluded from the pricing asset base but are included for ID purposes.
607. In particular, we estimated that for PSE2, the exclusion of those assets from the pricing asset base increased targeted returns based on pricing assets of:
- 607.1 ~0.5% for Auckland Airport;²⁸²

²⁷⁹ See, for example, Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport, Section 56G of the Commerce Act 1986" (13 February 2013), para F158-165.

²⁸⁰ We do not have visibility on the assets that Wellington Airport and Christchurch Airport exclude from their pricing assets in relation to the activities that are included in the definition of "specified airport services" in s 56A of the Act. However, we understand that they largely comprise 'leased assets'.

²⁸¹ In case of Auckland Airport, for aircraft and freight activities, revenues are driven by contracted rental rates and renegotiated at the end of the term of the lease. Prices are struck through benchmarking to comparative market rentals. For the most part, these revenues relate to leases within the terminal, or hangars (including those for aircraft maintenance), freight facilities within a security area and the joint user fuel hydrant line.

²⁸² Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport, Section 56G of the Commerce Act 1986" (31 July 2013), para E49.

607.2 ~0.6% for Christchurch Airport;²⁸³ and

607.3 ~0.2% for Wellington Airport.²⁸⁴

608. This analysis indicates that the impact of different asset bases for pricing and ID purposes on the profitability assessment can be material. We therefore disagree with NZAA's comment made in its submission on our IM review draft decision that the contribution of non-pricing activities is not a material proportion of the total regulated assets or revenues.²⁸⁵ However, we recognise that we only have a limited historic series to rely on and that airport behaviour can change over time.²⁸⁶
609. We discussed the problem associated with different asset bases for pricing and ID purposes in our invitation to contribute to the problem definition for the IM review.²⁸⁷
610. NZAA submitted that leased assets are appropriately recorded in annual and price setting event disclosures, and considered further analysis as unwarranted.²⁸⁸
611. BARNZ submitted that leased assets form part of the definition of "regulated airport services", and therefore need to be disclosed under the Airports ID Determination. In particular, BARNZ stated the following:²⁸⁹

The difficulty we have experienced over the past five years (and indeed under the old AAA disclosures too) is that there is a disconnection between the pricing asset base, on which prices are calculated and set under the AAA and disclosed soon after the price setting event, and the regulatory asset base as a whole. The former is only a subset of the latter, therefore it is impossible to determine the return being achieved on the pricing asset base when the revenues and costs are not subsequently separately disclosed. This means one cannot (from the disclosed information) accurately compare the revenues targeted from the pricing asset base with the returns actually earned on that base.

²⁸³ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport, Section 56G of the Commerce Act 1986" (13 February 2013), para E73.

²⁸⁴ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport, Section 56G of the Commerce Act 1986" (8 February 2014), para E42.

²⁸⁵ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 250.

²⁸⁶ In its PSE3, Wellington Airport targeted the same return on leased as for pricing assets. Commerce Commission "Summary and analysis of Wellington Airport's third price setting event" (30 June 2015), para 53.

²⁸⁷ As explained earlier in this chapter, at that stage of our consultation process we referred to this problem as "leased assets". Commerce Commission "Input methodologies review – Invitation to contribute to problem definition" (16 June 2015), para 318-320.

²⁸⁸ NZ Airports "Cross submission on Commerce Commission's input methodologies review: invitation to contribute to problem definition" (4 September 2015), para 48.

²⁸⁹ BARNZ "Cross submission on problem definition submissions" (5 September 2015), p. 3-4.

612. BARNZ reiterated this view at our workshop held in April 2016.²⁹⁰

Our solution in respect of this problem

613. This section explains our solution in respect of this problem.

Our solution

614. We have not made any amendment to the Airport IMs Determination at this stage. Instead, we have amended the Airports ID Determination under s 52Q of the Act to increase the transparency relating to targeted returns on pricing assets. In particular, our solution in respect of this problem is:

614.1 to add a new schedule to the Airports ID Determination reflecting airports targeted returns based on pricing assets; and

614.2 to require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the RAB.

615. Following this approach, we and other interested persons will be able to determine the impact of assets that are excluded from pricing assets but included in the RAB on airports' profitability. This can be achieved by simply deducting targeted profitability based on the pricing asset base from targeted profitability based on RAB values.

616. In addition, we and other interested persons will be in a position to:

616.1 separately identify targeted returns inherent in the airports' pricing decision; and

616.2 understand why those targeted returns might differ from the disclosed IRR associated with the total RAB.

617. Our solution creates transparency in ID by requiring airports to disclose targeted returns based on pricing assets. Our solution only requires airports to provide information based on an aggregated asset level that airports already have determined in their pricing decision.

618. For clarification:

618.1 we have not specified the pricing asset base that airports would have to provide information on in ID; and

618.2 we do not require airports to determine opening and closing asset values for leased or other assets that are not part of the pricing asset base and tracking those over time. This was a concern raised by Auckland Airport at the workshop held in April 2016.

²⁹⁰ Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 44.

619. We explain our reasons in more detail in the remainder of this section.

Our solution ensures that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 of the Commerce Act is being met

620. In the Airports ID Determination reasons paper we stated:

3.55 The ID Determination requires Airports to report operating revenue such that revenue from leases, rentals and concessions is separately disclosed and other operating revenue earned in relation to airport activities is reported using categories that correspond to the Airport's specific charges.

3.56 Regulatory income comes from a range of sources. To enable an effective assessment of movements in profitability either between years, or between forecast and actual revenue some level of disaggregated disclosure is required. In determining the appropriate level of disclosure the Commission considered the characteristics of revenue and other income streams that Airports receive.

3.61 Revenue from leases, rentals and concessions has a generally understood meaning in financial reporting and is relevant to all Airport businesses. Having this revenue disclosed in its own pre-defined category will aid comparability.

621. We continue to consider that an adequate disclosure of information related to the pricing assets enables interested persons to understand airports' approach to pricing.

622. This is because the additional information provided enables interested persons to determine the impact of different asset bases for pricing and disclosure purposes on airports profitability; assess the profitability of pricing assets separately in the price setting event disclosures; and consequently assess if airports are targeting excessive profits in particular.

623. This ultimately ensures that sufficient information is readily available to interested persons to assess whether airports are being limited in their ability to extract excessive profits, consistent with s 53A.

624. In our view, the benefits arising from enhanced transparency in the price setting event disclosures outweigh the cost of the increased disclosure requirements, particularly in the light of airports having to populate the new schedule with information they are likely to already have available from meeting their consultation obligations under the AAA in respect of pricing. In response to a submission made by Auckland Airport on our IM review draft decision, we confirm that, when populating the new schedule, airports will be required to use the identical asset base that has been established when setting prices and the associated revenue that has been included in the pricing model.²⁹¹
625. In this regard, pursuant to the AAA, airports are required to consult with "substantial customers" as part of their process of amending prices for airport activities. These airport activities align with the 'specified airport services' identified in the Act. Further, these consultation obligations require airports to prepare and make available to their substantial customers information relevant to the calculation of prices for airport activities and costs of major investments.²⁹²
626. We also note that our solution contributes to future-proofing the Airports ID Determination by continuing to provide transparency on airports' targeted returns based on pricing assets even if airports decide to remove (or add) further items from (or to) their pricing asset base that are included in the definition of 'specified airport services'.

Our solution addresses BARNZ's transparency concern

627. Our solution addresses BARNZ's transparency concern that "one cannot (from the disclosed information) accurately compare the revenues targeted from the pricing asset base with the returns actually earned on that base".
628. We did not follow BARNZ's suggestion to separate out leased assets and associated costs and revenues into a separate schedule (or table).²⁹³ We understand that different asset bases for pricing purposes and ID purposes are largely a result of the exclusion of leased assets from the pricing asset base. However, our solution also provides transparency in the event that airports decide to change the items included in the pricing assets, but which remain included in the RAB (for ID purposes).
629. Therefore, separating out particular asset bases in the Airports ID Determination seems counter-intuitive and, in our view, the cost associated with populating those schedules in information disclosure outweighs the additional benefit of increased transparency.

²⁹¹ Auckland Airport submitted that "the important point of principle is that a consistent approach is taken to all building blocks for the same scope of services when forecasting the pricing asset base". Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 42.

²⁹² "Substantial customers" are defined in section 2A of the AAA.

²⁹³ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 11.

We disagree with NZAA that leased assets are appropriately recorded under the ID disclosures

630. We agree with NZAA's view that "there is no basis for seeking the Commission to separately identify assets based on the way prices are set for particular customer classes".²⁹⁴
631. However, we disagree with NZAA's position that leased assets are appropriately recorded under the ID disclosures and that further analysis is unwarranted. As discussed in the problem definition section of this chapter, both us and BARNZ have encountered significant difficulty in assessing airports targeted returns based on pricing assets and would continue to do so if no further transparency were created under the Airports ID Determination.

Summary of submissions on our IM review draft decision and our response

632. Our final solution remains unchanged from our proposed solution outlined in our IM review draft decision. BARNZ and Air New Zealand are both supportive of our decision. In particular, Air New Zealand submitted that:²⁹⁵
- the proposed new Schedule 19 pricing asset base disclosure to be a significant enhancement to the information disclosure regime. As was evident during the s 56G reviews of airport pricing decisions, there is a great degree of confusion as to the linkage between airport price setting pursuant to the AAA and the regulatory asset base subject to the Commerce Act. Establishing a clear link between how airports actually set prices and the returns those prices are intended to deliver on the actual assets employed will deliver a great deal more transparency for all interested parties.
633. BARNZ "sees the proposed new schedule 19 as a significant improvement in the transparency provided by the information disclosure requirements and as particularly important in allowing interested parties to assess the degree to which airports are limited (or not) in their ability to target extracting excessive returns".²⁹⁶
634. BARNZ also supports our decision to require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the RAB. In particular, BARNZ submitted that "requiring explanations of the difference, and any justification, will only improve the level of transparency and understanding achieved by interested persons".²⁹⁷

²⁹⁴ NZ Airports "Cross submission on Commerce Commission's input methodologies review: invitation to contribute to problem definition" (4 September 2015), para 46.

²⁹⁵ Air New Zealand "Input methodologies review draft decision – Cross submissions input methodologies review draft decision – Cross submissions" (18 August 2016), p. 2.

²⁹⁶ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 7.

²⁹⁷ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 15.

635. NZAA and Auckland Airport, however, are not convinced that the additional costs associated with complying with the new requirements outweigh the benefit of increased transparency. In particular, NZAA submitted that it "is concerned that this Schedule could create additional complexity if it requires reference to profitability outcomes from assets where the price setting process does not align with how airports set prices for airlines, and passengers, under the AAA".²⁹⁸ NZAA also submitted that:²⁹⁹

the airlines receive substantial detailed information from the airports during AAA consultation. Producing yet a further schedule of information for BARNZ is not required to enable assessment of the airport achievement of the Part 4 objectives".

636. Auckland Airport submitted that:³⁰⁰

It is unclear to us how the proposed solution will allow an interested party to more effectively assess whether the purpose of Part 4 is being met. Instead, the proposal risks adding further layers of analysis and complexity for interested parties that is not materially helpful for that assessment.

637. However, Auckland Airport is of the view that the new disclosure requirements must ensure that "the important point of principle is that a consistent approach is taken to all building blocks for the same scope of services when forecasting the pricing asset base" and "that Schedule 19 provides flexibility for airports to disclose the revenue that has been included in the pricing model, even though this revenue may not stem from standard charges set as part of the pricing consultation". In broader terms, Auckland Airport considers that "additional cost and complexity will arise if the Commission seeks to define pricing assets for ID purposes in a way that prevents airports from disclosing how they have established their pricing asset base in practice".³⁰¹

638. We agree with Auckland Airport and NZAA that additional complexity and compliance costs associated with populating the new schedule have to be minimised. In considering this:

638.1 we defined pricing assets as the asset base airports use to set prices (ie, we did not specify the pricing asset base that airports would have to provide information on);

²⁹⁸ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 248.

²⁹⁹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 251.

³⁰⁰ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 41.

³⁰¹ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 42.

- 638.2 we confirmed that airports only have to provide information based on an aggregated asset level that they already have determined in their pricing decision; and
- 638.3 we do not require airports to determine opening and closing asset values for leased or other assets that are not part of the pricing asset base nor do they need to track those over time.
639. We therefore continue to hold the view that the benefits arising from enhanced transparency in the price setting event disclosures outweigh the cost of the increased disclosure requirements. Based on our own experience when performing the s 56G review, and strongly supported by airlines in submissions on our IM review draft decision, we are convinced that additional transparency needs to be created under information disclosure to be able to assess targeted returns by airports when setting prices. We have not seen any evidence in submissions on our draft decision that suggests otherwise.
640. This is confirmed by BARNZ in its cross submission on the IM review draft decision where BARNZ re-iterates that:³⁰²
- 640.1 "it is the return on the pricing assets which is most relevant to assessing whether an airport is targeting the extraction of excessive profits";
- 640.2 "it is a subset of the schedule 18 disclosure which cannot be separated out by interested parties themselves and it is a subset which interested people need to have in order to assess the levels of return being targeted through the exercise of the AAA price setting powers"; and
- 640.3 "adding schedule 19 is unlikely to substantially increase compliance costs or complexity. As noted by the airports themselves, the airports already prepare the information on the pricing asset base in consultation which demonstrates that this new schedule will not be an onerous task to prepare – the information already exists. In fact, some airports already voluntarily disclose summaries of the leased information (which is the complement to the pricing asset base information being proposed to be disclosed by the Commission)".

³⁰² BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 7.

Chapter 10: Forecast timing of cash-flows

Purpose of this chapter

641. The purpose of this chapter is to explain our solution to the problem associated with the forecast timing of cash-flows in the context of the profitability assessment of airports.

Structure of this chapter

642. This chapter begins with a section on the problem definition, before going on to explain our solution to this problem. It finishes with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

643. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

Summary of problem definition

644. The Airports ID Determination previously did not explicitly specify cash-flow timing expectations for airports, but it included a year-end ROI calculation in the *ex-post* information disclosure requirements from which year-end cash-flow timings could be inferred.

645. However, these year-end cash-flow timing assumptions consistently and materially underestimated airport returns, because they did not reflect the time value of money of cash-flows occurring throughout the year.

646. In addition, the previous year-end cash-flow timing assumptions were not consistent with our latest cross-sector thinking on this matter. We have applied updated intra-period cash-flow timing assumptions in the regulation of electricity distribution businesses (EDBs), gas pipeline businesses (GPBs) and Transpower (ie, both in the setting of price-quality determinations and in their information disclosure requirements).³⁰³

Year-end cash-flow timing assumptions understate targeted profitability

647. We used year-end cash-flow timing assumptions in our profitability assessment in the s 56G reviews, as this was the most consistent option with the treatment of cash-flows inferred by the *ex-post* information disclosure requirements. We also tested the impact of assuming that cash-flows would occur mid-year rather than at the end of the year.

³⁰³ See, for example, our reasons paper on the ID amendments for electricity distributors and gas pipeline businesses. Commerce Commission "Information Disclosure for Electricity Distribution Businesses and Gas Pipeline Businesses: Final Reasons Paper" (1 October 2012), para 3.22-3.36 and Attachment E.

648. Our profitability assessment for Auckland Airport and Wellington Airport in the s 56G reviews indicated that the profitability of airports was understated by approximately half a percent using year-end cash-flow timing assumptions if cash-flows in fact occurred mid-year.³⁰⁴
649. Although we did not place any weight on our analysis based on mid-year cash-flow timing in drawing our conclusion on the effectiveness of the information disclosure regime, we indicated our intent to consider enhancing the information disclosure requirements to better reflect the actual timing of cash-flows.
650. In our invitation to contribute to problem definition for the IM review, we re-emphasised our intent to include cash-flow timing assumptions that better reflected the actual timing of cash-flows and invited interested persons to submit on this matter.³⁰⁵
651. BARNZ supported our intent to update the information disclosure requirements. In particular, BARNZ stated in its submission the following:³⁰⁶
- Given that revenues are received (and expenses incurred) throughout the year BARNZ considers that the end-of-year calculations understate the level of returns being targeted. BARNZ considers that the ID requirements in relation to intra-period cash flow timing assumptions should be amended to reflect mid-year cash-flows. Unless there are good reasons otherwise, the same timing assumptions should be applied to airport ID as are applied in the ID for other industries regulated under Part 4.
652. NZAA saw merit in reviewing the cash-flow timing assumptions under the Airports ID Determination further, but did not submit any particular views on this matter.³⁰⁷

³⁰⁴ See, for example, Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is Promoting the purpose of Part 4 for Wellington Airport – Section 56G of the Commerce Act 1986" (8 February 2013), para E33.2.

³⁰⁵ Commerce Commission "Input methodologies review – Invitation to contribute to problem definition" (16 June 2015), para 331-333.

³⁰⁶ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 13-14.

³⁰⁷ NZ Airports "Cross submission on Commerce Commission's input methodologies review: invitation to contribute to problem definition" (4 September 2015), para 56.

Our solution in respect of this problem

653. This section explains our solution in respect of this problem.

Our solution

654. We have not made any amendments to the Airport IMs Determination. Instead, we have amended the Airports ID Determination so that interested persons can better assess if airports are targeting excessive profits by more accurately reflecting actual and expected timing of cash-flows in airports' disclosures. Specifically, we have amended the Airports ID Determination to:

654.1 specify, in the **price setting event disclosures**, 182 days before year-end ('mid-year') timing assumptions for all expenditures and 148 days before year-end for all revenues; but

654.2 provide, in the **price setting event disclosures**, the flexibility for airports to deviate from the default cash-flow timing assumption if airports provide evidence that the actual cash-flow timing for specific cash-flow items is different from the default cash-flow timing assumption; and

654.3 specify, **in the annual ex-post disclosures**, 182 days before year-end timing assumptions for all expenditures and 148 days before year-end for all revenues.^{308, 309}

655. We note that any consequential changes affecting the *ex-post* Airports ID Determination will be considered as part of a follow-up project that is separate from the IM review. This project will be subject to a separate consultation process. As part of that consultation process, we will also seek stakeholder's views on alternative solutions regarding cash-flow timing assumptions in the annual *ex-post* disclosures.³¹⁰

656. We explain our reasons in more detail in the remainder of this section.

Better assessment of airports profitability

657. We consider that specified default cash-flow timing assumptions:

³⁰⁸ The Airports ID Determination requires airports to provide an ROI in the *ex-post* disclosures. *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clause 2.3.

³⁰⁹ The implementation of mid-year cash-flow timing assumptions in the *ex-post* assessment of airports profitability would require moving to an IRR-based profitability indicator as an ROI-based approach does not allow accounting for specific cash-flow timing assumptions.

³¹⁰ For example, as we stated in our reasons paper on the 2012 ID Determination amendments for electricity distributors and gas pipeline businesses, under some circumstances, using monthly cash-flows may result in a significantly better estimation of returns than using mid-year cash-flow timing assumptions. Examples include when capital expenditure during the year is lumpy or revenue is seasonal. See: Commerce Commission "Information Disclosure for Electricity Distribution Businesses and Gas Pipeline Businesses: Final Reasons Paper" (1 October 2012), para 3.27-3.28.

- 657.1 better reflect the actual timing of cash-flows;
 - 657.2 result in improved accuracy as compared to assuming cash-flows occur year-end, as they take into account intra-year effects;
 - 657.3 consequently, allow interested persons to better assess if airports were targeting excessive profits; and
 - 657.4 only require changes to the profitability indicator calculation under information disclosure requirements, rather than a change to the data used by airports in the calculation of profitability (this is because our solution still requires the same revenue and expenditure amounts to be disclosed each year).
658. In addition, by allowing airports to deviate from the default cash-flow timing assumptions in their price setting event disclosures, we can take account of airport-specific circumstances which may result in an even better estimate of expected profitability.
659. We consider that under the previous year-end cash-flow timing assumptions airports did not have an incentive to comment on the appropriateness of the default assumption, because a year-end assumption is in favour of airports.
660. Our solution could potentially result in an over-estimate of expected returns, if the actual timing of cash-flows lies between the default assumptions and end-of-year. Our solution incentivises airports to provide evidence on the reason why the new default assumptions could be inappropriate.
661. If airports choose to use different cash-flow timing assumptions when setting prices, airports would have to provide evidence in their price setting event disclosures underpinning why the assumptions for specific cash-flow items are different from the default assumptions. We would then comment on the appropriateness of the default cash-flow assumptions in our summary and analysis.

Our solution is consistent with our approach to cash-flow timing assumptions in other regulated industries

662. Our solution is consistent with our approach to cash-flow timing assumptions for the EDBs and GPBs regulated under Part 4.
663. In our 2015 amendments to information disclosure determinations for EDBs and GPBs, we decided to use mid-year cash-flow timing assumptions with the exception of revenues. Suppliers provided evidence that revenues should be recognised as being received on the 20th day of each following month, which is equivalent to the aggregate annual revenue being received 148 days before year-end.³¹¹
664. Consistent with our decision for the EDBs and GPBs, our solution does also allow use of airport-specific cash-flow timing assumptions instead of applying our default assumption provided airports can give evidence why the alternative assumption is a more accurate reflection of actual cash-flows occurring for the airport.

Summary of submissions on our IM review draft decision and our response

665. In our IM review draft decision we specified mid-year timing assumptions for both revenue and expenditure.
666. In submissions on our IM review draft decision, NZAA did not oppose specifying mid-year cash-flow timing assumptions for expenditure and revenue.³¹² However, Christchurch Airport and BARNZ both pointed out that it is common practice in the industry for airports to receive payment of invoices on the 20th of the following month.³¹³ Christchurch Airport also considers that, given the default assumption for EDBs and GPBs reflects revenues being received on the 20th of the month, it would be misleading for consumers if we deviated from this approach for the airports sector.³¹⁴
667. We agree that adopting the timing assumption of 148 days before year-end for revenues creates higher accuracy in the respective profitability measures. We consider the additional compliance cost for airports, if there are any, to be minimal.

³¹¹ Commerce Commission "Amendments to information disclosure determinations for electricity distribution and gas pipeline services 2015: Final Reasons Paper" (24 March 2015), para 2.30 and Attachment A.

³¹² NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 253.

³¹³ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 17.

³¹⁴ Christchurch Airport submission on IM review draft decisions papers "IM review submission" (4 August 2016), para 27.

Chapter 11: Other adjustments to an airport's price path

Purpose of this chapter

668. This chapter discusses problems related to the transparency of airports profitability disclosures where an airport adjusts its price path, for example, to allow for a commercial concession or route incentive. This chapter also presents our solution to this problem.

Structure of this chapter

669. This chapter begins with a section on the problem definition, before going on to explain our solution to this problem. We then finish with a summary of the main comments stakeholders made in submissions on our IM review draft decision with regard to this problem and our response.

Problem definition

670. This section describes the problems that could be created in *ex-ante* and *ex-post* profitability assessments of airports due to 'other adjustments' an airport may make to its price path. To date we, and submitters, have identified two types of 'other adjustments' that have taken place:

670.1 commercial concessions; and

670.2 route incentives.

671. However, there may be additional ways that an airport may adjust its price path in the future which could give rise to transparency concerns.

Commercial concessions

672. Commercial concessions are commercial decisions made by an airport to under-recover revenue. 'Commercial concessions' is a descriptive term used in discussions between us, airports, and interested persons. It is not in our Airport IMs or ID requirement definitions. Previously, there was no requirement for airports to report on commercial concessions or whether any planned under-recovery is intended to be permanent.

673. Airports may apply commercial concessions to pricing for a number of reasons. An example we have seen is Christchurch Airport's commercial decision of a phased implementation of its long-term pricing model in order to support the economic recovery of Canterbury following the 2010 and 2011 earthquakes.³¹⁵

³¹⁵ Christchurch International Airport Limited, Price Setting Disclosure, 19 December 2012.

674. When setting prices for 2012-2017 (ie, its second price setting event, PSE2), Christchurch Airport set prices at a level that created forecast revenue temporarily lower than its long-term pricing model. This commercial concession had a present value (in 2014 dollars) of \$16 million according to Christchurch Airport.³¹⁶ Christchurch Airport stated that it does not intend to recover the concession, however, there could be other instances of commercial concessions that airports may intend to recover in future regulatory periods.
675. The principal problem with commercial concessions is that they are a complication to understanding an airport's pricing intent and may cloud any profitability assessment by interested persons. If commercial concessions are not applied in a clear and transparent way, they could lead to the double counting of the concession in profitability assessments.
676. Double counting may occur if an airport applied a commercial concession during one price setting event, did not signal that it would claim this back in a future price setting event, but subsequently did. In this case, there is the risk that in future price setting events an airport may attempt to claim some sort of a credit for past commercial concessions.
677. The consequence of this would be that the airport would benefit from a lower assessed target profitability in the year that the concession is applied. However, it may later successfully argue for the impact of the commercial concession to be ignored when the amount is claimed back in a future price setting event. This would mean that the airport would again benefit from lower assessed target profitability.

Route incentives

678. Route incentives are decisions by an airport to charge an airline less than the standard charge in order to secure new routes or additional passengers on an existing route to the airport from that airline. The Airports ID Determination previously only specified a need to disclose information on financial incentives (which can be route incentives or other incentives) on an *ex-post* basis. There was no requirement to disclose information on route incentives in price setting event disclosures.
679. While route incentives appear to be simply a lower price for a particular airline, there are benefits to other airlines. The other airlines can benefit in the long run through the fixed (if not constrained) airport costs being spread over more flights once the route incentive is lifted and the new route has established itself at the airport (or during the route incentive period, if the remaining charge is greater than the short run incremental cost). This benefit could flow through to consumers in the form of increased competition between airlines and, as a result of increased competition, lower prices.

³¹⁶ Christchurch International Airport Limited, Price Setting Disclosure, 19 December 2012.

680. A recent example of a route incentive is what Wellington Airport has offered for new routes and increased passenger numbers, as described in its publicly disclosed pricing schedule.³¹⁷ Wellington Airport has included consideration of its route incentives in the forecast of demand and revenue in its last price setting event.³¹⁸
681. In contrast to commercial concessions, route incentives are targeted towards specific airlines, so the prices for other airlines may be higher than they would be if there was no route incentives planned, so that the airport can maintain its revenue level. In the past, there generally did not appear to be sufficient publicly disclosed information for interested persons to fully understand the forecast impact of route incentives and thus understand whether the charges for other airlines were higher as a result of the incentives.
682. Route incentives were, therefore, another problem of transparency. Interested persons may have been prevented from assessing the impact of route incentives on the *ex-ante* assessment of airport profitability because there was no specific price setting event disclosure requirement for airports to report on route incentives.
683. BARNZ has supported the need to amend the ID requirements to add further detail on route incentives:³¹⁹
- "The disclosures around financial incentives are currently not clear – improved definitions and disclosure lines could provide better clarity over the relationship between the incentives and the disclosed costs and revenues and between the incentives and the published charges".
684. In contrast, NZAA said in its cross submission on our problem definition paper that "BARNZ fails to identify and fully explain any problem with the current disclosure of pricing incentives."³²⁰

Our solution in respect of this problem

685. This section provides a description of our solution for improving transparency of other adjustments that an airport may make to its price path as well as our reasoning. The solution is framed in terms of the two 'other adjustments' that we have seen to date (commercial concessions and route incentives).

³¹⁷ Wellington International Airport Limited "Schedule of Landing and Terminal Charges Effective 1 June 2014 to 31 March 2019", p.2, available at: <https://www.wellingtonairport.co.nz/corporate/financial/airport-charges/>

³¹⁸ Commerce Commission, Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport, 8 February 2013, para D40.

³¹⁹ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015).

³²⁰ NZ Airports "Cross submission on Commerce Commission's input methodologies review: invitation to contribute to problem definition" (4 September 2015).

686. There may be additional ways in which the price path may be adjusted that are yet to be identified. However, we consider that our solution is flexible enough to also deal with other adjustments to the price path that may arise.
687. In respect of the commercial concessions problem, we have not made any changes to the Airport IMs or ID Determinations. We consider that that the carry forward mechanism to adjust the forecast closing investment value in Chapters 4 and 7 could be used to make the expectations regarding commercial concessions sufficiently transparent. We explain our reasoning for this in paragraphs 690 to 698.
688. In respect of the route incentive problem, our solution is:
- 688.1 not to make any amendments to the Airport IMs Determination at this stage;
and
- 688.2 to amend the Airports ID Determination under s 52Q, as explained in paragraph 699.
689. This change is aimed at providing greater transparency to interested persons to better understand an airport's approach to pricing where it provides route incentives. This will ultimately better enable us and interested persons to assess airports' targeted returns. We explain our reasoning for this change in paragraphs 699 to 701.

Commercial concessions

690. In respect of the commercial concessions problem, we have not made any changes to the Airport IMs or ID Determinations. This is because we consider that the carry forward mechanism to adjust the forecast closing investment value discussed in Chapters 4 and 7 could be used to make the expectations regarding commercial concessions sufficiently transparent.
691. As discussed in Chapters 4 and 7, we will only accept the inclusion of a commercial concession in the carry forward mechanism to adjust the forecast closing investment value if the airport has specifically indicated in its price setting disclosure that it intends to recover the concession in the future, and the reasons for doing so.
692. Further, we do not consider that the disclosure of commercial concessions is required unless airports intend to recover the amounts in future price setting events.³²¹ In cases where an airport does not intend to recover the amount, the commercial concession can simply be viewed as relatively lower target revenue, and thus profitability will rightfully be assessed to be relatively lower.

³²¹ However, airports are always welcome to voluntarily provide additional information in their price setting event disclosures to assist interested persons in understanding their pricing approach.

693. In cases where an airport intends to recover a commercial concession it will be in the airport's interest to disclose this intention so that it can be included in the carry forward mechanism to adjust the forecast closing investment value. Therefore, our view is that an additional ID requirement would not provide any additional benefit.
694. NZAA seems to generally support this approach.³²² NZAA submitted that:
- "discounts and commercial concessions are clearly in the long-term interest of consumers, and the ID regime should not disincentivise this behaviour....This does make a case for changes to the IMs or ID requirements."
695. However, NZAA also said that "it is not necessary to alter the disclosure regime to introduce a new layer of complexity in "tracking" these concessions over time to ensure they are not clawed back."³²³ This suggests that NZAA may consider that the carry forward mechanism is not required.
696. We agree that when an airport does not intend on recovering the commercial concession in the future, it is not necessary to track it. However, when the airport does intend to recover the commercial concession, it is important for this to be transparent and for interested persons to be able to understand the impact of it. Our solution accommodates this.
697. NZAA also said that "greater clarity is required from the Commission on the principles that will guide the assessment of historical over and under-performance."³²⁴ This supports our solution, which will provide guidance on how we will treat a specific decision to under-recover due to a commercial concession. Chapter 6 provides more specific detail on *ex-post* risk allocation arrangements when actual outcomes differ from forecast.
698. BARNZ questioned in its submission on our problem definition paper how the commercial concession amount should be calculated.³²⁵ Our solution will make an airport's expected returns, including commercial concessions which an airport intends to recover at a later date, more transparent.

³²² NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 238-240.

³²³ NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015).

³²⁴ NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015).

³²⁵ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015).

Route incentives

699. Our solution is to amend the Airports ID Determination under s 52Q of the Act to improve transparency of route incentives. In particular, it requires airports to disclose the forecast total annual dollar amount of pricing incentives (which include route incentives) consistent with the *ex-post* ID requirement to disclose financial incentives.³²⁶
700. We consider that this additional information is relatively simple for airports to calculate. This is because airports already forecast the volume of flights that will meet the requirements for route incentives in order to forecast demand, revenue, and prices.
701. Requiring airports to disclose the aggregate impact of pricing incentive forecasts as part of price setting event disclosures will help interested persons understand whether or not the forecast effect of pricing incentives are included in an airport's target revenue. This will improve transparency and help interested persons assess an airport's profitability with and without any route incentives as a sensitivity test.³²⁷

Summary of submissions on our IM review draft decision and our response

702. Our final solution remains unchanged from our proposed solution outlined in our IM review draft decision. BARNZ continues to support the additional disclosure requirement regarding pricing incentives.³²⁸ NZAA disagrees with this new requirement. In particular, NZAA has the following three major concerns regarding the disclosure of forecast pricing incentives:³²⁹
- 702.1 the information disclosed could be commercially sensitive;
- 702.2 the outcome of pricing incentives may only be assessed *ex-post* or be conditional on airlines taking particular actions; and
- 702.3 incentive arrangements may not be reflected in the pricing forecasts by airports.

³²⁶ le, require airports to disclose the amount of revenue foregone compared to applying standard charges.

³²⁷ We undertook such a sensitivity test in our s 56G report on Wellington Airport to help assess the impact of the incentive scheme on the airports profitability.

³²⁸ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 15-16.

³²⁹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 253.

703. We do not consider the information provided under the new disclosure requirement to be commercially sensitive. We agree with the comment BARNZ made in its submission that "the disclosures proposed by the Commission are at an aggregate level and therefore should not be so commercially sensitive".³³⁰ For example, if the total revenues were \$100 m including pricing incentives of \$10 m, airports would only be required to disclose the total amount of pricing incentives included in its price setting event (\$10 m). The pricing incentives would not have to be split into smaller components, allocated to airlines or explained in further detail.
704. Our solution requires airports to disclose the forecast total annual dollar amount of pricing incentives. We acknowledge that this information can only be provided in the price setting event disclosure where it is quantifiable on an *ex-ante* basis and where it has been included in forecasts used to support a price setting event. We are aware that this cannot capture any incentive arrangements that can only be assessed *ex-post*, that are conditional on airlines taking particular actions or that are not reflected in the pricing forecasts by airports.
705. We therefore continue to hold the view that the additional information is relatively simple for airports to calculate given that airports already forecast the volume of flights that will meet the requirements for route incentives in order to forecast demand, revenue, and prices. Our view has been endorsed by BARNZ in its cross submission on our IM review draft decision.³³¹
706. Despite BARNZ's support for our solution, BARNZ considers the definition of 'pricing incentives' in the Airports ID Determination needs amending (both applying to information disclosed *ex-post* and *ex-ante*). In particular, BARNZ is of the view that it should be amended to reflect "what starting position pricing incentives should be measured from" as such a reference is currently missing in the Airports ID Determination. BARNZ considers "the charges set under the Airports Authorities Act" an appropriate reference point.^{332, 333}

³³⁰ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 8.

³³¹ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 8.

³³² BARNZ "Technical drafting comments on [DRAFT] Amendment to the Commerce Act (Specified Airport Services Information Disclosure) Determination 2010" (18 August 2016), p. 35.

³³³ BARNZ proposes to amend the definition as follows (words in bold added): pricing incentives means the value of incentives provided to customers by an airport that have the effect of lowering the price paid for specified airport services, **as compared to the charges set under the Airports Authorities Act**, including discounts, rebates, credits, route incentives or reimbursements.

707. We have not made such an amendment to the Airports ID Determination. This is because "the charges set under the Airports Authorities Act" are only associated with a subset of the RAB that airports have to disclose information on in their price setting event disclosures. Given that revenues which are unrelated to charges set under the AAA may also be subject to pricing incentives, we want airports to report transparently under information disclosure on those as well.

Chapter 12: Initial RAB value of land

Purpose of this chapter

708. The purpose of this chapter is to explain our solution to the problem associated with the initial RAB value of land.

Structure of this chapter

709. This chapter includes a section on the problem definition, before going on to explain our solution to this problem.

Problem definition

710. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

711. The original Airport IMs required an initial RAB value for land as at 2009. However, the High Court judgment in the merits appeals requires that the initial RAB value for land has to be assessed as at 2010. We made the Court-ordered amendments to the Airport IMs in late 2014.^{334, 335}

712. The problem is that airports currently do not have MVAU land valuations as at 2010. Airports only have MVAU land valuations for the years 2009 and 2011.³³⁶

713. The problem has been well-canvassed with interested parties since the High Court issued its judgment in December 2013. Various discussions have been held between airports, airlines and us about possible approaches to addressing the problem. Auckland Airport presented on the problem at the IM Forum.³³⁷ NZAA, BARNZ and Auckland Airport also submitted on the problem as per the views presented in this chapter.

³³⁴ Commerce Commission "Publication of Electricity, Gas, and Airport Input Methodologies Amendments ordered by the High Court" (27 November 2014).

³³⁵ *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289, para 892.

³³⁶ The value of land assets in the initial RAB for all airports must be established using the Market Value Alternative Use (MVAU) valuation approach. *Airport Services Input Methodologies Amendments Determination 2016 [2016] NZCC 28*, clause 3.2 and Schedule A.

³³⁷ Auckland International Airport Limited "Initial regulatory asset value for land" (30 July 2015), available at <http://www.comcom.govt.nz/dmsdocument/13513>.

Our solution in respect of this problem

714. This section explains our solution in respect of this problem.

Our solution

715. Our solution in order to be consistent with the High Court judgment is to amend the Airport IMs Determination:

715.1 to set the initial RAB value for airport land as at 2010 using a pragmatic proxy by interpolating 2009 and 2011 MVAU land values (net of any capex or disposals of land that occurred during the years 2009 to 2011) based on existing MVAU land valuations; and then

715.2 to add to the calculated proxy the value of any capex and disposals related to land that occurred up to the date of the interpolated value.

716. This is our solution because:

716.1 an interpolation of 2009 and 2011 MVAU land valuations will likely result in a similar value to a 2010 MVAU land valuation as the existing MVAU land valuations are from nearby dates; and

716.2 it would be inefficient for each airport to incur the cost of obtaining a 2010 MVAU land valuation considering that we expect using interpolated values would provide similar results.

Solution is consistent with the High Court judgment

717. Given that the 2009 and 2011 land valuations for each airport are consistent with the MVAU approach specified in Schedule A of the Airport IMs, we consider that our amendments are also consistent with the High Court judgment.

718. This is because an interpolated valuation will reflect the value of the land as at 2010, and still be consistent with the MVAU land valuation methodology set out in Schedule A of the Airport IMs.³³⁸

719. We consider that our approach is a pragmatic and cost-effective way to be consistent with the High Court judgment. Our solution is likely to result in a similar value to a 2010 MVAU land valuation, as the existing MVAU land valuations are from nearby dates, and our approach would not impose significant costs on airports, with little identifiable benefit.

³³⁸ For clarification, this refers to Schedule A of the Airport IMs that was in place at the time, ie, not the amended one we published in February 2016.

Impact of any capex or disposals of land that occurred after the date of the interpolated value should be removed

720. Simply interpolating 2009 and 2011 land values would result in any capex or disposals of land that occurred after the date of the interpolated land value being included in the initial RAB value for land as per 2010.
721. Therefore, we have decided not to add to the calculated proxy the value of any capex and disposals related to land that occurred after the date of the interpolated value in order to:
- 721.1 most accurately reflect the initial RAB value for land as per 2010; and
- 721.2 not to distort the initial RAB value as per 2010 by any events subsequent to the High Court-determined date of the initial RAB date.

Solution is widely accepted in industry

722. Our final solution is unchanged from our proposed solution outlined in our IM review draft decision. Both NZAA and BARNZ express their support for the proposed solution in submissions on our IM review draft decision.^{339, 340}
723. The apparent industry support for pragmatism is also consistent with the support we received from stakeholders on our proposal not to update the analysis undertaken for our s 56G reports for the High Court judgment. In the s 56G reports we concluded updating the MVAU land valuations to 2010 would not change the conclusions presented in our final reports for all airports.^{341, 342}
724. Despite the industry-wide support for our solution, BARNZ did not initially support interpolating existing 2009 and 2011 MVAU land valuations in the case of Wellington Airport.³⁴³
725. BARNZ was of the view that Wellington Airport's 2009 and 2011 MVAU land valuations were not IM-compliant, and that therefore Wellington Airport needed to provide a 2010 MVAU land valuation.

³³⁹ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 16.

³⁴⁰ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 262.

³⁴¹ Email from Ruth Nichols (Commerce Commission) Consultation on impact of IM judgement on s 56G reports for airports regulated under Part 4 of the Commerce Act (6 January 2014), available at <http://www.comcom.govt.nz/dmsdocument/11451>

³⁴² Letter from John Beckett (Executive Director, BARNZ) to Ruth Nichols (Senior Legal Counsel, Commerce Commission) regarding impact of Merits Review judgement on section 56G reports (24 January 2014), available at <http://www.comcom.govt.nz/dmsdocument/11455>

³⁴³ BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 2.

726. NZAA agreed with BARNZ that 2010 valuations could be required if the MVAU land valuations carried out by airports were found to be non-compliant, but did not consider this to be an issue. This is because NZAA considers all airports' MVAU land valuations to be IM-compliant.
727. We disagree with BARNZ's concern regarding Wellington Airport's 2009 and 2011 MVAU land valuations. In our summary and analysis of Wellington Airport's third price setting event, we concluded that Wellington Airport's approach to the 2013 MVAU land valuation was not inconsistent with the Airport IMs for land valuation.³⁴⁴
728. Given that the approach used in the 2013 MVAU land valuation did not materially differ from the approaches used in the 2009 and 2011 MVAU land valuations, we consider those valuations to be IM-compliant as well.

³⁴⁴ Commerce Commission "Summary and analysis of Wellington Airport's third price setting event" (30 June 2015), para A14.

Attachment A: Transitional arrangements

Purpose of this attachment

- A1 The purpose of this attachment is to explain our transitional arrangements for information disclosures in the Airports ID Determinations.

Information disclosure requirements

Information required in price setting event disclosure

- A2 Under the Airports ID Determination the forward-looking disclosure airports make following a price setting event must include:
- A2.1 information relating to each of the components of the airports' forecast total revenue requirement; and
 - A2.2 an explanation of the differences between the preparation of each component and the most recent corresponding historical financial disclosure.
- A3 This allows us and other interested persons to understand the extent to which and the reasons why airports have deviated from the default position in the Airports IM Determination when setting prices. It also allows us and other interested persons to understand the extent to which approaches consistent with the Airport IMs were being applied as part of the pricing decisions.

Timings of the historical financial disclosure and the IM review

- A4 The Airports ID Determination requires airports to make their historical financial disclosure within five months after the end of each disclosure year.³⁴⁵ For Auckland and Christchurch airports this means that they must make their annual historical disclosure in November of each year.
- A5 The historical financial disclosures that Auckland and Christchurch airports made in November 2016 were based on the previous Airport IMs and ID determinations (ie, they do not reflect the changes resulting from this IM review).

³⁴⁵ *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clause 2.3.

Timings of Auckland Airport's and Christchurch Airport's next price setting disclosure

- A6 The next price setting disclosure for both Auckland and Christchurch airports are due following their price setting events which are expected to occur in July 2017. Under the Airports ID Determination they are required to provide the explanation described above by comparing the information relating to their forecast total revenue requirement with the *ex-post* information disclosed in November 2016.³⁴⁶
- A7 As noted above, the November 2016 historical disclosures made by Auckland and Christchurch airports do not reflect any of the changes made as part of the IM review. Therefore, without any transitional arrangements, Auckland Airport and Christchurch Airport be required to provide significant explanation to us in their price setting event disclosures made following the July 2017 price setting events.³⁴⁷
- A8 The absence of transitional arrangements may also obscure the differences between their price setting methodologies and the Airport IMs Determination, which is undesirable since it would reduce transparency making it more difficult for us and other interested persons to assess profitability and it would add to the cost of compliance.

Our transitional arrangements for Auckland and Christchurch airports next price setting event disclosures

- A9 This section explains our approach for Auckland and Christchurch airports while we transition from the current Airport IMs and ID determinations to the amended determinations.

Transitional requirements

- A10 We have not amended the Airport IMs Determination at this stage. We have amended the Airports ID Determination to introduce transitional requirements in the Airports ID Determination to require Auckland and Christchurch airports to:
- A10.1 restate some key information provided in their November 2016 historical financial disclosure, in a manner consistent with the amended Airport IMs and ID determinations;³⁴⁸ and

³⁴⁶ *Airport Services Information Disclosure Amendments Determination 2016 [2016] NZCC 29*, clause 2.5.

³⁴⁷ This is because differences must be explained by comparison to the most recent corresponding historical financial information disclosed rather than information disclosed using the most recent Airports IMs.

³⁴⁸ ie, asset roll-forward, and the costs that are used to make up the components of their revenue requirement.

A10.2 explain the difference between the preparation of each component for pricing purposes in Auckland and Christchurch airports' next price setting event disclosure to be provided considering this transitional schedule (this means that for components where the information has changed since the most recent historical financial disclosure we would expect the comparison to be made to the transitional schedule rather than the most recent historical financial disclosure).³⁴⁹

- A11 Auckland and Christchurch airports could provide a restated transitional schedule at the same time as they report on their price setting event disclosures in order to reflect the most recent IM and ID determination requirements.
- A12 This would mean that, in the event that historic disclosures do not reflect the most recent IM and ID Determination requirements, the explanations provided would compare the components disclosed in the Schedule 18 of the price setting event disclosure template (Report on the Forecast Total Asset Base Revenue Requirements) and the corresponding information in the new transitional schedule.
- A13 We consider these transitional requirements to be appropriate as they require minimal adjustments to the way information disclosure has operated in the past. We would only request additional information in Auckland and Christchurch airports' next annual disclosures in so far as it is required to reflect the amendments resulting from the IM review.
- A14 The transitional requirements are also consistent with the approach within airport information disclosure requirements we have taken in the past.³⁵⁰ We have also requested other regulated businesses to restate past disclosures to reflect amendments to IM and ID Determinations requirements.³⁵¹

³⁴⁹ For components where the information has not changed since the most recent historical financial disclosure we would expect the comparison to continue to be made to the most recent historical financial disclosure.

³⁵⁰ For example, we included a transitional provision for disclosure of the initial RAB in a form of a transitional schedule. This schedule was only required to be produced in the first disclosure year in which airports were subject to information disclosure.

³⁵¹ For example, EDBs were required to provide restated financial information regarding the roll-forward of the RAB and deferred tax balances for the years 2010-2012 in the 2013 annual disclosures after IMs came into effect in 2012. In addition, we required EDBs to provide restatements of the previous two years' ROI calculations in 2015 after we amended the ID disclosure requirements for ROIs to better reflect the cash-flow timings used to set prices for the DPP.

Summary of submissions on our IM review draft decision and our response

A15 Our final decision remains unchanged from our proposed solution outlined in our IM review draft decision. Stakeholders have not expressed concerns about the need for transitional arrangements; however, NZAA and Auckland Airport have expressed concerns about the inclusion of a five-year restatement of its historical asset values in the transitional schedule.

A16 In particular, NZAA submitted that:³⁵²

The transitional Schedule does not raise concerns in and of itself. However, the requirement to make restatements for up to five years of historical disclosures goes beyond what is strictly required for a transitional Schedule.

A17 Auckland Airport submitted that:³⁵³

We are struggling to see the benefit in providing retrospective disclosure of what the RAB would have been for each year in PSE2 if "disclosure-only" revaluations were excluded (as per the transitional schedule 24). We have considerable doubts about the value of seeking retrospective annual precision for historically disclosed information at a year-on-year level. Instead, we think the key focus should be on getting the right disclosure starting point for forward-looking analysis.

A18 BARNZ, however, support the inclusion of historic asset values stating that it:³⁵⁴

considers that a restated RAB for each of the years in PSE2 is needed. Not restating the asset base would mean that any metrics involving the asset base would be inconsistent for the first five years of the disclosure regime. It would prevent an accurate consistent set of historical information from commencement until FY16 or FY17 in the case of Christchurch and Auckland Airports, which is not in the long-term interests of consumers.

A19 We consider that it is important for interested persons to understand the consequence of an airport restating its RAB on previously disclosed asset values. We agree with BARNZ that a historic restatement of the RAB will contribute significantly to the ability of interested persons to understand historic airport performance in light of the recent Airport IMs and ID determination changes resulting from the IM review.³⁵⁵

³⁵² NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 266.

³⁵³ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 11c.

³⁵⁴ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 4.

- A20 We also note that the disclosure of historic aggregate RAB values (as provided for in the transitional schedule) is a common information requirement in annual disclosures in other regulated sectors.³⁵⁶
- A21 The transitional schedule is a one-off disclosure requirement that we anticipate will only be completed by Auckland Airport. By requesting the information at the aggregate RAB level we do not consider the disclosure requirement to be particularly onerous and we expect that Auckland Airport will already have information available to complete this disclosure.

³⁵⁶ We collect aggregate RAB information for the most recent disclosure year and the four preceding disclosure years in each annual disclosure for EDBs, GDBs, GTBs and Transpower.

Attachment B: Stylised example

Purpose of this attachment

- B1 The purpose of this attachment is to illustrate how an airport can, in its price setting event disclosures:
- B1.1 disclose asset revaluations that are based on approaches that are not provided for by the Airport IMs; and
 - B1.2 determine un-forecast revaluation gains or losses for the purpose of establishing the opening investment value of the current pricing period.
- B2 We consider it useful for the stylised example to be looked at alongside the narrative provided in this topic paper. This is because the matters relating to the disclosure of asset revaluations based on non IM-consistent approaches and the treatment of any resulting un-forecast revaluation gains or losses in the price setting event disclosures span across several chapters of this topic paper.³⁵⁷

Problem definition as discussed in this topic paper

- B3 As explained in this topic paper, we have provided additional flexibility in the Airport IMs such that airports can roll forward their asset base in the annual *ex-post* disclosures by using CPI-indexation, an un-indexed approach or a combination of both. However, airports may, when setting prices, still use approaches to revaluing assets that are different to those specified in the Airport IMs.
- B4 As discussed in Chapter 5, this may create a transparency issue, as it can result in a situation where the value of the asset base rolled forward in the annual *ex-post* disclosures is not consistent with the value of the asset base used when setting prices and disclosed in the price setting event disclosures.³⁵⁸
- B5 Our preference is that airports use consistent approaches to revaluing assets for both pricing and disclosure purposes. This is generally supported by stakeholders.^{359, 360}

³⁵⁷ We note that Attachment B was not included in our draft topic paper. It has been added to this final topic paper to provide clarification regarding the mechanics of some of our solutions. It is a stylised example only and as such should only be looked at for illustrative purposes. This stylised example takes a similar form of the stylised examples provided during the Airports Profitability Assessment Workshop 2 and has the same base case assumptions.

³⁵⁸ We discuss this in the context of Auckland Airport's asset moratorium which was, when we performed our s 56G reviews, not consistent with the Airport IMs.

³⁵⁹ BARNZ "Submission on airports for input methodology review draft decision" (4 August 2016), p. 8.

³⁶⁰ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 215.

B6 As noted at paragraph 463, in its submission on our IM review technical consultation paper, NZAA identifies an area that requires clarification which is related to a situation where an airport, when setting prices, revalues its asset base not consistent with the approaches specified in the Airport IMs.³⁶¹ In particular, NZAA seeks clarification on how an airport can disclose un-forecast revaluation gains or losses in the carry forward adjustment to the opening investment value of the current pricing period if it had forecast asset values based on non IM-consistent approaches in the previous pricing period.

Our solutions discussed in this topic paper

B7 We discuss in this topic paper how an airport can:

B7.1 disclose asset revaluations that are based on approaches that are not provided for by the Airport IMs (see Chapter 5, paragraphs 226-230); and

B7.2 determine un-forecast revaluation gains or losses for the purpose of establishing the opening investment value of the current pricing period, provided it has disclosed those asset revaluations as discussed in Chapter 5 (see Chapter 6, paragraphs 414-418).

B8 We understand that the most likely case in which an airport forecasts asset revaluations based on approaches that are not consistent with the Airport IMs will be a scenario where it adds an increment to the forecast CPI-indexation rate that is applicable to its asset base or certain parts thereof (ie, CPI + Z).³⁶²

B9 In summary, it is our preferred approach:

B9.1 that an airport includes in the carry forward adjustment to the forecast closing investment value the difference in asset revaluations resulting from its pricing approach and an IM-consistent approach (ie, the value associated with the forecast of Z); and

B9.2 that the opening investment value will be adjusted for the un-forecast revaluation gain or loss that occurred in the previous pricing period as a result of the forecast revaluation being different from the equivalent actual revaluation (ie, the value associated with the actual out-turn of Z less the value associated with the forecast of Z).

B10 We prefer this approach because it ensures that the revaluation approaches reflected in the closing asset bases in price setting event and *ex-post* disclosures will still be the same even if an airport, for price setting purposes, revalued its asset base or parts of it by using a non IM-consistent approach.

³⁶¹ NZ Airports, Untitled submission on IM review technical consultation update paper (3 November 2016), para 20(a).

³⁶² For example, to build into the price setting event the expectation of airport land value increasing at a higher rate to that implied by the airport's estimate of CPI.

B11 In the stylised example provided below, we illustrate how this can be done in practice. In particular, we illustrate how the carry forward mechanism introduced following this IM review can be used to provide transparency in the price setting event disclosures if airports choose different approaches to revaluing assets as those specified in the Airport IMs. The stylised example also illustrates how the carry forward adjustment to the forecast closing investment value of the previous pricing period and the carry forward adjustment to the opening investment value of the current pricing period can work together when establishing un-forecast revaluation gains or losses.³⁶³

Stylised example

B12 This stylised example takes a similar form to the stylised examples provided during Workshop 2 and has the same base case assumption.³⁶⁴ These assumptions are:

B12.1 Airport target return = 7%

B12.2 Opening disclosed RAB = \$500m

B12.3 Opex per annum = \$15m

B12.4 Capex per annum = \$20m

B12.5 Average asset life = 40 years

B12.6 CPI = 2.0%

B13 Figure B1 shows the RAB roll-forward and the IRR calculation under the base case scenario. This table is identical to the base case workings included in the stylised examples provided during the Airports Profitability Assessment Workshop 2.

³⁶³ The carry forward mechanism introduced following this IM review can be used in various circumstances of which we discuss a few in this topic paper. Also, it can potentially be used as a solution to a range of yet unforeseen circumstances. We note that a situation where an airport revalued land based on non IM-consistent approaches is only one example where an airport can use the carry forward mechanism to transparently disclose the pricing intent in its price setting event disclosures.

³⁶⁴ Commerce Commission "Stylised examples – Airports profitability assessment workshop 2" (19 April 2016).

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Figure B1: Base case scenario**IRR Calculation****Base case**

	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21
Opening RAB	500					
Opening carry forward adjustment						
Opening Investment Value	500					
Revenue		65	65	65	65	65
less Opex		(15)	(15)	(15)	(15)	(15)
less Capex		(20)	(20)	(20)	(20)	(20)
less Tax		(11)	(10)	(10)	(10)	(10)
add asset disposals		-	-	-	-	-
Closing RAB						586
Closing carry forward adjustment						
Closing Investment value						586
Total cash flows	(500)	20	20	20	20	607
Effective return targeted by airport	7.0%					

Asset Base Roll Forward**Base case**

	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21
Total opening RAB		500	518	535	552	569
Total depreciation		13	13	13	14	15
Total revaluations		10	10	11	11	11
Assets commissioned		20	20	20	20	20
Asset disposals		-	-	-	-	-
Total Closing RAB	500	518	535	552	569	586

B14 If an airport were to forecast revaluations using CPI + Z the airport would be forecasting lower revenues than under the base case scenario. This is because the Airport IMs require revaluations to be treated as an offset to revenues and therefore higher revaluations result in lower revenues.³⁶⁵ The forecast asset base at the end of the pricing period would also be greater than under the base case scenario.

B15 Figure B2 shows the IRR calculation and the asset roll-forward if the airport were to project its asset roll-forward using a revaluation rate of CPI + Z.

³⁶⁵ We note that airports do not have to apply the Airport IMs when setting prices.

Figure B2: Roll forward of asset base using CPI + Z revaluations for land

IRR Calculation	Including CPI + Z revaluation rate for land					
	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21
Opening RAB	500					
Opening carry forward adjustment	-					
Opening Investment Value	500					
Revenue		60	60	60	60	60
less Opex		(15)	(15)	(15)	(15)	(15)
less Capex		(20)	(20)	(20)	(20)	(20)
less Tax		(9)	(9)	(9)	(9)	(9)
add asset disposals		-	-	-	-	-
Closing RAB						606
Closing carry forward adjustment						-
Closing Investment value						606
Total cash flows	(500)	16	16	16	17	623
Effective return targeted by airport	7.0%					

Asset Base Roll Forward	Including CPI + Z revaluation rate for land					
	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21
Total opening RAB		500	521	543	564	585
Total depreciation		13	13	13	14	15
Total revaluations		14	14	15	15	16
Assets commissioned		20	20	20	20	20
Asset disposals		-	-	-	-	-
Total Closing RAB	500	521	543	564	585	606

B16 As demonstrated above, the use of CPI + Z can be reflected in the asset base roll-forward and can be accounted for in the IRR calculation.³⁶⁶ However, this is not our preferred treatment of this particular scenario as it provides no indication of the value of the additional revaluations or the value of the reduction in the revenues as compared to using CPI-indexation. When the RAB is rolled forward in *ex-post* disclosures using only CPI-indexation, there is no information to assist interested persons in understanding the differences between what was forecast and what is being disclosed *ex-post*.

B17 In addition, when an airport sets prices for the following pricing period it will be more difficult for interested persons to predict what the opening carry forward adjustment will be.

³⁶⁶ In reality, an airport is only likely to apply CPI + Z to its land assets, therefore the above example increases the value of the revaluations by \$4m per annum as a proxy for an airport forecasting CPI + Z revaluations for land and CPI revaluations for all other assets.

- B18 An alternative approach to disclosing CPI + Z revaluations is using the closing carry forward adjustment. The closing carry forward adjustment can be used to capture the value difference of the airports forecast asset base and the forecast RAB such that the airport can continue to disclose an asset base that is IM-consistent while still appropriately reflecting its price setting methodology.
- B19 Figure B3 shows the IRR calculation and the asset roll-forward using the closing carry forward mechanism.

Figure B3: Using closing carry forward to reflect impact of CPI + Z revaluations for land

	Use closing carry forward to capture difference in airport asset roll forward compared to IMs					
	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21
IRR Calculation						
Opening RAB	500					
Opening carry forward adjustment						
Opening Investment Value	500					
Revenue		60	60	60	60	60
less Opex		(15)	(15)	(15)	(15)	(15)
less Capex		(20)	(20)	(20)	(20)	(20)
less Tax		(9)	(9)	(9)	(9)	(9)
add asset disposals		-	-	-	-	-
Closing RAB						586
Closing carry forward adjustment						20
Closing Investment value						606
Total cash flows	(500)	16	16	16	17	623
Effective return targeted by airport	7.0%					

Asset Base Roll Forward

	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	31-Mar-20	31-Mar-21
Total opening RAB		500	518	535	552	569
Total depreciation		13	13	13	14	15
Total revaluations		10	10	11	11	11
Assets commissioned		20	20	20	20	20
Asset disposals		-	-	-	-	-
Total Closing RAB	500	518	535	552	569	586

- B20 As can be seen in the above example, the IRR is still able to reflect the airport's target return and the reduction in forecast revenue. However, the asset base roll-forward is now IM-consistent which means it is now directly comparable to the RAB disclosed in an airport's *ex-post* disclosures. Interested persons can then interpret *ex-post* disclosures with knowledge of the value of the closing carry forward adjustment.
- B21 An additional benefit of this approach is that it makes the calculation of the opening carry forward adjustment in the subsequent pricing period more transparent.

- B22 The opening carry forward adjustment is made up of the closing carry forward adjustment from the previous pricing period and the un-forecast revaluation gain/loss adjustment.³⁶⁷ When an airport revalues its land using a periodic MVAU valuation, the airport will disclose the value of any revaluation gain or loss over and above CPI-indexation. The value of this gain/loss from the periodic land valuation is included in the un-forecast revaluation gain/loss adjustment in the opening carry forward adjustment of the current pricing period. It can be offset against the forecast land revaluation above CPI-indexation (ie, the value associated with Z) captured in the closing carry forward adjustment of the previous pricing period.
- B23 If an airport has forecast land valuations to be CPI + Z, we can foresee three scenarios occurring when the airport undertakes a periodic MVAU land valuation.
- B23.1 **Scenario 1:** the airport's CPI + Z valuation approach accurately reflects the periodic MVAU land valuation.
- B23.2 **Scenario 2:** the airport's CPI + Z valuation approach underestimates the periodic MVAU land valuation.
- B23.3 **Scenario 3:** the airport's CPI + Z valuation approach overestimates the periodic MVAU land valuation.
- B24 The examples below show the impact on the opening carry forward adjustment under the three possible scenarios.

Scenario 1

In the stylised examples above, an airport has forecast an additional \$20m of land revaluations over and above CPI-indexation (ie, the value associated with Z). The example below illustrates the calculation of the opening carry forward adjustment if the airport's forecast accurately reflects the periodic MVAU land valuation.

Closing carry forward adjustment from prior pricing period	\$20m
Un-forecast revaluation gain/loss adjustment	-\$20m
Opening carry forward adjustment	\$0m

- B25 Therefore, where an airport has accurately reflected a periodic MVAU land valuation through its CPI + Z forecasting approach, it will not need to make any adjustment to its opening investment value through the opening carry forward adjustment.

³⁶⁷ The opening carry forward adjustment would also include any adjustments for the difference between forecast and actuals proposed by an airport but this is not relevant to our stylised example.

Scenario 2

The example below illustrates the opening carry forward adjustment if the airport's forecast of land revaluations is over and above CPI-indexation (ie, the value associated with Z) underestimates the periodic land valuation by \$10 m.

Closing carry forward adjustment from prior pricing period	\$20m
Un-forecast revaluation gain/loss adjustment	-\$30m
Opening carry forward adjustment	-\$10m

- B26 Therefore, where an airport has underestimated the periodic MVAU land valuation through its CPI + Z forecasting approach, it will need to adjust its opening investment value using the opening carry forward adjustment. The adjustment to the opening investment value would still be less compared to only using CPI-indexation in the previous pricing period, meaning that the outstanding revaluation gain to be returned to consumers is reduced.

Scenario 3

- B27 The example below illustrates the opening carry forward adjustment if the airport's forecast of land revaluations is over and above CPI-indexation (ie, the value associated with Z) overestimates the periodic land valuation by \$10m.

Closing carry forward adjustment from prior pricing period	\$20m
Un-forecast revaluation gain/loss adjustment	-\$10m
Opening carry forward adjustment	\$10m

- B28 Therefore, where an airport has overestimated the periodic MVAU land valuation through its CPI + Z forecasting approach, it will need to adjust its opening investment value using the opening carry forward adjustment. The adjustment to the opening investment value allows an airport to catch up in future pricing periods such revenues foregone in the previous pricing period that were associated with overestimating land revaluations for that pricing period.



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Executive summary

Purpose of this paper

- X1. The purpose of this paper is to explain in relation to the airports weighted average cost of capital (**WACC**) percentile topic:
- X1.1 the problems we identified within this topic area;
 - X1.2 our solutions to these problems;
 - X1.3 the reasons for our chosen solutions; and
 - X1.4 how we have taken stakeholders' submissions into account in considering the above.
- X2. This paper relates to regulated suppliers of specified airport services, and will also be of interest to airlines, industry representatives and other stakeholders interested in information disclosure (**ID**) regulation.

Overview of the airports WACC percentile topic

- X3. The previous input methodologies (**IMs**) approach included a WACC percentile range for airports based on the 25th to 75th percentile estimates of a probability distribution of the WACC estimate.
- X4. The High Court commented that the use of the 50th percentile is a suitable starting position for ID regulation. However, as part of this review we identified two problems with the application of the previous IMs.
- X4.1 The upper limit of any range may become the de facto benchmark when assessing airport profitability.
 - X4.2 There is limited and weak rationale for the use of the 75th percentile as the upper limit of the current WACC percentile range.
- X5. Table X1 summarises where our analysis has led to changes in the IMs. There are other issues that we have considered in relation to this topic which have not resulted in changes; these issues are discussed as part of the following chapters in this paper.

Table X1: Summary of changes in relation to this topic

Change	Outcomes of the change	Chapter
<p>Remove a specific WACC percentile range for ID. Therefore, we will no longer publish the 25th and 75th percentiles. Instead we will publish the 50th percentile together with a standard error of the WACC estimate so that any required percentile can be calculated. This change will apply to all regulated airports.</p>	<p>We consider that our change will contribute to an ID framework that is best able to allow interested parties to assess whether airports are extracting excessive profits or not. As a result, this approach best promotes the long-term benefit of consumers.</p> <p>This change enables flexibility in assessing the acceptability of airport returns and will reduce the focus of any assessment on the upper limit of the WACC percentile range.</p> <p>It will also provide flexibility to enable any assessment to take into account different contextual factors affecting an airport's required return expectations, or the expectations of a particular project.</p>	<p>This change is discussed in Chapter 4.</p>

- X6. This topic paper forms part of our package of decision papers on the IM review. As part of the package of papers, we have also published:
- X6.1 a summary paper of our decisions;
 - X6.2 an introduction and process paper which provides an explanation of how the papers in our decisions package fit together;
 - X6.3 a framework paper, which explains the framework we have applied in reaching our decisions on the IM review;
 - X6.4 a report on the IM review, which records our decisions on whether and how to change the IMs as a result of the IM review overall; and
 - X6.5 amendment determinations, which give effect to our decisions.

Chapter 1: Introduction

Purpose of this paper

1. The purpose of this paper is to explain in relation to the airports weighted average cost of capital (**WACC**) percentile topic:
 - 1.1 the problems we identified within this topic area;
 - 1.2 our solutions to these problems;
 - 1.3 the reasons for our chosen solutions; and
 - 1.4 how we have taken stakeholders' submissions into account in considering the above and in deciding on our solutions to problems identified within this topic.

Where this paper fits in to our package of decisions papers

2. This topic paper forms part of our package of decisions papers on the input methodologies (**IM**) review. For an overview of the package of papers and an explanation of how they fit together, see the introduction and process paper published as part of our decisions package.¹
3. This paper explains our solutions to problems identified within the WACC percentile for airports topic. All other areas of cost of capital are covered by Topic paper 4,² and Topic paper 5 is focussed on how we assess airports profitability.³
4. To the extent our solutions involve changes to the IMs, this paper identifies how we have changed our previous IM decisions to account for our solutions to problems within this topic area. The report on the IM review then collates our changes to the previous IMs and presents them as decisions to change the IMs.⁴
5. Our amendments to the IMs, including any resulting from this topic area, are shown in the amendment determinations.

¹ Commerce Commission "Input methodologies review decisions: Introduction and process paper" (20 December 2016).

² Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

³ Commerce Commission "Input methodologies review decisions: Topic paper 5 – Airports profitability assessment" (20 December 2016).

⁴ Commerce Commission "Input methodologies review decisions: Report on the IM review" (20 December 2016).

6. The framework we have applied in reaching our decisions on the IM review is set out in a separate framework paper, published alongside this paper.⁵ The framework paper explains that we have only changed the IMs where this is likely to:
 - 6.1 promote the Part 4 purpose in s 52A more effectively;
 - 6.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
 - 6.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
7. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.

Structure of this paper

8. This paper focusses on the WACC percentile range for airports topic and is split into the following chapters:
 - 8.1 Chapter 2 explains the WACC percentile range, the issues with the previous range for airports and why we identified it as an issue to address as part of the IM review;
 - 8.2 Chapter 3 explains how we will use a regulatory WACC in the context of information disclosure (**ID**);
 - 8.3 Chapter 4 explains our decisions on the WACC percentile for airports and how they deal with the main issues that we identified; and
 - 8.4 Chapter 5 explains why we consider an airport's targeted return could legitimately be above our mid-point estimate and how that might be explained with evidence.
9. In describing the problems and assessing potential solutions, we explain how we have taken stakeholders' submissions into account and how they have helped to shape our decisions.

Introduction to this topic

10. The WACC percentile range for airports was one of the topics we discussed in our problem definition paper.⁶

⁵ Commerce Commission "Input methodologies review decisions: Framework for the IM review" (20 December 2016).

⁶ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), Topic 7.

11. The topic focusses on one element of the airports cost of capital IMs: the appropriateness of our previous WACC percentile range for airports (ie, the 25th to the 75th percentiles) and whether another approach might better promote the Part 4 purpose.⁷
12. We have focussed on the WACC percentile for airports following our previous consideration of the WACC percentile for energy businesses,⁸ and our experience of undertaking *ex-ante* profitability assessments of airports.⁹
13. Submissions on the problem definition paper provided a range of views on the appropriate use of WACC percentile estimates and a WACC range in the context of ID. We subsequently commissioned Professor Yarrow to consider the impact of our WACC percentile estimate on airports through ID regulation.¹⁰
14. After considering Professor Yarrow's advice, we published an emerging views paper in February 2016.¹¹ This paper outlined our emerging view that:
 - 14.1 we should reduce the focus on specific percentile estimates, including the 25th and 75th percentiles that are used to determine the WACC range in the existing IMs; and
 - 14.2 the rationale for airports to set prices consistent with a WACC above our mid-point estimate appears weaker than for energy businesses.
15. Submissions on the problem definition paper, submissions on our draft decisions, and stakeholder comments on the emerging views paper and Professor Yarrow's advice have informed our decision.

⁷ Commerce Act 1986, s 52A.

⁸ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014); Commerce Commission "Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services: Reasons Paper" (12 December 2014).

⁹ We undertook *ex-ante* profitability assessments when developing s 56G reports for each of the individual regulated airports. For example, see: Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Christchurch Airport – Section 56G of the Commerce Act 1986" (13 February 2014).

¹⁰ George Yarrow's expert advice on airport WACC percentile "Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector" (report to the Commerce Commission, February 2016).

¹¹ Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016).

Who does this paper apply to?

16. This paper applies to airports subject to regulation under Part 4 of the Commerce Act, being:
 - 16.1 Auckland Airport;
 - 16.2 Wellington Airport; and
 - 16.3 Christchurch Airport.
17. This paper may also be of interest to other stakeholders interested in ID regulation of the airport sector. For example, exempt electricity distributors who may see some parallels with ID for airports.¹²

¹² This is not exhaustive. Rather it is intended to provide some guidance to readers about whether this paper might be of interest to them.

Chapter 2: Context for our decision on the airports WACC percentile

Purpose of this chapter

18. This chapter explains the WACC percentile range, the issues with the previous IMs range and why we identified it as an issue to address as part of the IM review.

WACC percentile range

19. The cost of capital IM requires us to annually determine a WACC for specified aeronautical services at each regulated airport. This airport WACC is included as part of an airport's ID to help interested parties assess airport profitability. The airport cost of capital IM specifies how this WACC is determined.¹³
20. The WACC must be estimated because its components, for example the cost of equity, cannot be observed directly. This raises the prospect of estimation error since it is not possible to know the true cost of equity.
21. To illustrate the potential for estimation risk, the previous IMs included a WACC percentile range based on the 25th to 75th percentile estimates of a probability distribution of the WACC estimate.¹⁴ The probability distribution was determined from our estimate of the standard error of the WACC.¹⁵
22. The previous IMs required us to publish a WACC estimates for the 25th, 50th and 75th percentiles (WACC percentile range). However, the IMs do not specify how the WACC should be used by interested parties when assessing profitability. In the 2010 IM reasons paper we stated that the appropriate starting point for any assessment of airport profitability is the 50th percentile.¹⁶

¹³ The airport cost of capital IM specifies how the WACC is calculated. The details of this IM (along with the cost of capital IMs for other regulated sectors) are being considered in a separate Topic paper as part of the IM review. Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016).

¹⁴ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 6.7.9.

¹⁵ *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clause 5.7.

¹⁶ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para E11.2.

Problems with the use of the WACC percentile range

23. The approach as outlined in the previous airport IMs, including the use of the 50th percentile as the starting point for profitability assessment, was accepted by the High Court as appropriate for ID regulation:¹⁷

ID regulation is for disclosure only, not for the control of the Airport's prices or revenues. It remains for the Airports to determine those matters as they individually think fit. Providing them to disclose ROI by reference to the 25th and 75th percentile, in the context of the Commission pointing to the starting point of the 50th percentile, in our view will promote the purpose of ID regulation ...

The estimation of WACC is, all accept, a complex task involving significant exercising of judgement and is open not only to the possibility of error, but also to there being a range of views. We think the Commission's approach under ID regulation reflects that reality, and will provide an appropriate level and range of information to interested persons consistent with the s53A purpose.

Furthermore, there is nothing to prevent the Airports themselves reporting additionally, by reference to an alternative percentile, and disclosing their reasons for doing so.

24. We accept and agree with the Court's comments. However, we identified two related practical problems with the application of the previous IMs. These problems were that:

- 24.1 the upper limit of any range we specify may become the de facto benchmark when assessing airport profitability; and
- 24.2 there is limited and weak rationale for the use of the 75th percentile as the upper limit of the current WACC percentile range.

Use of the upper limit of the range

25. Under s 56G, we were required to review how effective ID regulation was in promoting the Part 4 purpose for airports, as soon as practicable after the 2012-13 price setting events. The development of these 's 56G reports' required an assessment of airport profitability.¹⁸
26. The existence of the WACC percentile range (25th to 75th percentile) resulted in the upper limit of the WACC percentile range (75th percentile) being used as the 'de facto' limit of an 'acceptable range' that was used to assess airport profitability. The use of the 75th percentile as a 'bright-line' limit in this way appears contrary to the purpose of ID regulation.

¹⁷ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1490-1492.

¹⁸ For example: Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport, Section 56G of the Commerce Act 1986" (8 February 2014).

Choice of the 75th percentile as the upper limit

27. The High Court outlined its scepticism about the use of a WACC percentile substantially above the mid-point when setting price-quality paths for electricity and gas businesses. It noted the lack of evidence for our choice to use the 75th percentile. This led us to reconsider the specific percentile used in that context.¹⁹
28. Similarly, in our view there is a lack of evidence for the 75th percentile previously used as the upper limit for the airport WACC percentile range. However, as noted above, the High Court did not take issue with our approach to the specification of a WACC range for airports.

Previous consideration of the airport WACC percentile

29. We commenced a process in 2014 to consider amending the WACC percentile estimates for services regulated under Part 4 as a standalone process. We completed that process in respect of electricity lines and gas pipeline services, but not for specified airport services.²⁰
30. We extended the timeframe to consider the appropriate WACC percentile for airports because we wanted to consider a number of airport-specific issues raised as part of that process.²¹
31. However, given the timing of the IM review, we proposed in February 2015 to discontinue the standalone amendment process on the WACC percentile for airports and incorporate it into the IM review. All submissions to the original WACC amendment process from parties interested in specified airport services have been considered as part of this IM review.²²
32. As part of the IM review process we published our initial views on this topic as part of the problem definition paper published in June 2015,²³ and a further emerging views paper in February 2016.²⁴ We then published our draft decisions topic paper for consultation on 16 June 2016.²⁵

¹⁹ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1479-1481.

²⁰ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

²¹ Commerce Commission "Further work on cost of capital input methodologies: Process update" (23 June 2014), para 6-7.

²² Submissions on the previous WACC percentile amendment process that we have considered as part of the IM review are those from BARNZ, NZ Airports, Air New Zealand, Auckland Airport, Christchurch Airport, Wellington Airport and Infratil.

²³ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), Topic 7.

²⁴ Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016).

²⁵ Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

Chapter 3: Use of WACC under information disclosure for airports

Purpose of this chapter

33. This chapter:
- 33.1 explains how we will use a regulatory WACC in the context of ID; and
 - 33.2 considers advice we received from Professor Yarrow on this topic.

How WACC operates in the context of information disclosure

34. The purpose of ID regulation is to provide sufficient information to interested persons so that they can assess whether the purpose of Part 4 is being met, including whether suppliers of specified airport services are limited in their ability to extract excessive profits.²⁶
35. The previous IMs required us to publish the mid-point estimate of the WACC defined by the IMs, together with the 25th and 75th WACC percentile estimates. The range covered by the 25th to 75th percentile WACC estimates form the WACC percentile range. Under ID regulation, airports are not required to apply our estimate of the WACC when setting prices.
36. The published WACC range was then used as a benchmark for assessing airport profitability. Interested persons could consider the WACC range together with airport profitability measures (for example, the actual or targeted return on investment) to assess whether individual airports are limited in their ability to extract excessive profits.
37. Airports do not have to apply our forecast of cost of capital when setting prices, or for disclosure purposes. The IM for the cost of capital is applied only by us in order to monitor and analyse information disclosed by the airports.²⁷
38. Assessment of profitability can be undertaken on either an *ex-ante* or *ex-post* basis.

Ex-ante assessment

39. As part of the s 56G review described in paragraph 25, we were required to review how effective ID regulation was in promoting the Part 4 purpose for airports. As part of that review, we undertook an *ex-ante* profitability assessment for each of the three regulated airports (ie, we sought to identify the effective returns that each airport was targeting over the forthcoming pricing period).

²⁶ Commerce Act 1986, s 52A.

²⁷ Section 52T(1)(a)(i) requires the IMs relating to a particular good or service to include an IM for the cost of capital. Airports do not have to apply the cost of capital established under the cost of capital IM for Airports (s 53F(1)). However, we can use the cost of capital IM to "monitor and analyse" information made available by regulated suppliers (s 53F(2)(a)). Airports are also required to disclose our annual published WACC in disclosures of financial information.

40. Although the s 56G review was a 'one-off' exercise, we would expect to conduct similar assessments of expected profitability over each airport's pricing period (normally five years), as part of our general summary and analysis of disclosed price setting event information (s 53B).
41. This IM review addresses a number of problems our s 56G review identified with the IMs and the ID requirements that made expected profitability assessments difficult for interested parties.²⁸ In particular, to help provide greater clarity when undertaking *ex-ante* airport profitability assessments, we will now require airports to disclose a headline 'forward-looking profitability indicator'.²⁹ This profitability indicator is intended to represent an airport's (effective) targeted return. This targeted return can be compared against the WACC to inform an assessment of an airport's expected profitability.

Ex-post assessment

42. Airports are required to provide annual IDs that contain information on their realised or actual returns. For *ex-post* (or backward-looking) profitability assessments, interested persons will be interested in the actual profitability that the airport achieved compared to its targeted return on investment, as well as to the relevant WACC at the time that prices were set.
43. *Ex-post* returns will differ from *ex-ante* targeted returns due to differences between forecast costs and revenues and actual costs and revenues. These differences can have a reasonably large effect on returns and can vary significantly from year to year. As a result, profitability assessments based on *ex-post* returns may need to take place over a sustained period of time. We have, therefore, focussed to date on *ex-ante* assessments.
44. Also, as noted in the introduction to this paper, the IM review has focussed on amendments to the airport IMs or ID requirements on a forward-looking basis. We have currently only focussed on making amendments relating to disclosures made by airports where those amendments are required to support our forward-looking profitability assessment.

Advice from Professor Yarrow

45. As part of the IM review, we commissioned independent expert advice from Professor Yarrow on our use of WACC with regards to ID and, in particular, our publication of the WACC percentile range.

²⁸ For example: Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport, Section 56G of the Commerce Act 1986" (8 February 2014).

²⁹ Commerce Commission "Input methodologies review decisions: Topic paper 5 – Airports profitability assessment" (20 December 2016).

46. Professor Yarrow's advice noted that assessing *ex-ante* and *ex-post* returns are "distinct exercises that rely on different types of information".³⁰ He also emphasised the need to consider airport-specific contexts when making judgements about whether an airport is targeting excessive profitability.³¹

47. In considering the contextual factors (as opposed to rigidly comparing the targeted returns against the WACC), Professor Yarrow noted that:³²

Any assessment exercise should properly take account of a range of relevant factors, which it is reasonable to expect will be brought to the attention of the Commission by the airports themselves, as part of any information disclosure exercise.

48. On the specific question of how the WACC should be published in the IMs he suggested:³³

Given these points, in my view the purpose of s53A would be best served by publication of the regulator's views on the relevant cost of capital, with no further judgments added. That would involve specification of such parameters of the probability distribution of the WACC as might feasibly be estimated. If legislation or administrative expediency requires a point estimate, this would amount to a single estimate of central tendency (estimate of the mean, median or mode), but additional information on parameters such as the estimated variance, upper and lower bounds, 5th and 95th deciles, skewness, etc. would be of value and would merit publication if considered sufficiently reliable.

49. Another focus of the report was a general recommendation to act proportionately when considering the impact from any deviations from the WACC. We consider that this includes:

49.1 a proportionate regulatory response as an airport's return diverges further from our estimate of the WACC; and

49.2 proportionately increasing requirements on an airport to identify and explain any divergence from our WACC estimate as the magnitude of that divergence increases.

³⁰ George Yarrow's expert advice on airport WACC percentile "Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector" (report to the Commerce Commission, February 2016), p. 1.

³¹ George Yarrow's expert advice on airport WACC percentile "Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector" (report to the Commerce Commission, February 2016), p. 10.

³² George Yarrow's expert advice on airport WACC percentile "Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector" (report to the Commerce Commission, February 2016), p. 20.

³³ George Yarrow's expert advice on airport WACC percentile "Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector" (report to the Commerce Commission, February 2016), p. 21.

Submissions on Professor Yarrow's advice

50. We received a number of submissions on Professor Yarrow's advice. Submissions from airports tended to agree with his view that a regulator needs to act proportionately, focus on contextual analysis, and to identify why there could be legitimate differences between an airports targeted return and the WACC.
51. For example, the New Zealand Airports Association (**NZ Airports**) recommend that:³⁴

In our view, if the Yarrow Report was adopted in full by the Commission, key features of profitability assessment in the context of Airport ID would include:

- (a) A proportionate contextual analysis, with the objective of seeking to identify clear cases where an airport's use of market power will harm the long term interests of consumers.
- (b) De-emphasising (in comparison to past practice) the role of the WACC IM estimate. There should be recognition in the Commission's conceptual framework that the WACC IM may not provide reliable evidence of AEEMP³⁵ (and, in particular, may not provide reliable evidence of whether airports are limited in their ability to extract excessive profits).
- (c) Maintaining a clear distinction between acceptable returns and WACC estimates (as discussed by Sapere in the enclosed WACC v ROR Report).

52. Similar views were put forward in other airport submissions.³⁶ A concern from airports was that only publishing a mid-point WACC estimate would ultimately result in that estimate becoming a new 'bright-line' limit. For example, Christchurch Airport suggested that:³⁷

the key risk is that in practice the current de facto price control simply moves to the Commission's mid-point estimate of the cost of capital. It will be important that the Commission avoid this scenario by publishing clear statements that any divergence between returns and cost of capital estimates does not indicate a presumption of excess returns, acknowledging a role for assessing the asymmetric risk of forecast error when estimating the cost of capital, and by taking care with any public guidance as to the factors relevant in assessing the performance of airports.

53. Submissions from airlines on Professor Yarrow's report focussed on his views that the complementary nature between aeronautical and non-aeronautical services was an important aspect of airport economics that can put downward pressure on the

³⁴ NZ Airports "Submission on Commerce Commission emerging views on the WACC percentile for airports" (16 March 2016), para 15. NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016) paras 62-63 also emphasised the need to convey to interested parties that the estimate of WACC is not precise.

³⁵ Adverse effects arising from the exercise of market power (AEEMP).

³⁶ Auckland Airport "Response to Commerce Commission's emerging views on the WACC percentile for airports" (16 March 2016), para 6; Wellington Airport "IM review: Professor Yarrow report and emerging views on the airport WACC percentile" (16 March 2016); Christchurch Airport "IM review – Professor Yarrow report and emerging views on the airport WACC percentile" (16 March 2016).

³⁷ Christchurch Airport "IM review – Professor Yarrow report and emerging views on the airport WACC percentile" (16 March 2016), p. 1.

required return of regulated airport revenues. On this point Air New Zealand submitted that:³⁸

Professor Yarrow discusses in some detail the “crossnetwork” and “platform” effects peculiar to airports under which “...it is quite normal to find that rates of return calculated on aeronautical assets (as calculated on a dual till basis) are below estimated costs of capital.” Due to the complementary nature of activities, investment in aeronautical activities and facilities improves the overall “attractiveness” of an airport to airlines and passengers, thereby increasing non-aeronautical revenues and resulting in overall returns in line with an appropriate return. The fact that the airports subject to Part 4 regulation earn a significant portion of their overall revenue from unregulated complementary services provides a substantial incentive to invest as “...in considering whether to cut back on an investment programme in the face of lower aeronautical revenues, an airport will tend to give consideration to factors such as the negative effects that cutbacks might have on complementary service revenues.” This is a powerful incentive, unique to the airports sector, which is only heightened as a result of the dual till approach New Zealand airports take in their approach to pricing.

54. For this reason, airlines strongly submitted that we should not set the WACC at a level higher than the mid-point when undertaking an assessment of airport profitability.
55. Airlines noted other reasons for using a mid-point WACC and the limited harm that is likely to arise (in terms of under-investment). These reasons were that airports are only subject to an ID regime, which gives airports commercial freedom, and that airports regularly discuss investment plans with airlines.³⁹

WACC vs. allowed rate of return

56. A number of airport submissions made a distinction between WACC as specified in the IMs and an acceptable rate of return. Sapere on behalf of NZ Airports noted that:⁴⁰

Losing the conceptual distinction between the acceptable rate of return and the cost of capital produces at least two forms of regulatory problem. The first problem arises where regulators place too much focus on one set of numbers – an estimate of WACC – which can lead to attempts to constrain the profitability of regulated entities to a level that is no higher, or not much higher, than the estimated WACC. The second problem arises when regulators attempt to address the first problem by amending the estimate of WACC rather than turning their minds to the acceptable rate of return.

³⁸ Air New Zealand "Emerging views on the airport WACC percentile" (11 March 2016), p. 2.

³⁹ Covec "Airport WACC: Comments on emerging views and Professor Yarrow" (report prepared for BARNZ, 9 March 2016), para 4.

⁴⁰ Sapere "The distance between the 'allowed rate of return' and the 'cost of capital'" (report prepared for NZ Airports, 16 March 2016), p. 2.

57. Sapere also noted a number of reasons why it considers a targeted return may be above a mid-point WACC.⁴¹ These reasons include:
- 57.1 increased costs from government intervention (or the threat of government intervention);
 - 57.2 that investors expect to derive a positive net benefit from investment programmes, ensuring incentives to innovate;
 - 57.3 asymmetries arising from truncation of probabilistic distributions of future rates of return; and
 - 57.4 the "option values" associated with investments.⁴²
58. We agree that care needs to be taken when using the WACC to assess profitability and our emerging views paper outlined how we are attempting to reduce the focus on specific WACC values.⁴³

A general uplift to WACC is not appropriate for airports

59. We consider there could potentially be legitimate reasons why the appropriate return targeted by airports is above the mid-point estimate of the WACC.⁴⁴ However, the key consideration for us when assessing the appropriateness of an airport targeting returns above the mid-point estimate is the extent to which it promotes the long-term benefit of consumers. Any reasoning for setting a targeted return above the mid-point needs to consider this purpose.
60. In general, we consider that the most significant costs to consumers from us setting a WACC that is too low, arise when we use our estimate of WACC to set price-quality paths, resulting in under-investment by the regulated supplier in socially valuable investment. For businesses subject to price-quality regulation, we therefore provide an uplift because we are uncertain of the actual cost of capital of regulated businesses, and there are significant asymmetric consequences from us mis-estimating WACC.⁴⁵
61. The uplift is set at a level that balances the costs to consumers of potential under-investment against the costs of the uplift, and takes into account the

⁴¹ Sapere "The distance between the 'allowed rate of return' and the 'cost of capital'" (report prepared for NZ Airports, 16 March 2016), p. 7-10.

⁴² Eg, the benefits that investors derive from an investment as a result of having the ability to expand their supply of additional services at some future date at little additional cost.

⁴³ Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016).

⁴⁴ Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016), para 7.

⁴⁵ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

asymmetric social costs from under-investment as compared to a supplier earning excessive returns or overinvesting.

62. For airports, the context is different. Airports, rather than us, determine both:
- 62.1 the estimate of WACC that is used to set prices for the pricing period (and each subsequent pricing period of the asset's life); and
 - 62.2 the estimate of WACC that determines whether and when each investment will proceed.
63. Logically, an airport would use the same approach to WACC for both purposes, thereby ensuring the prices charged for airport services reflect the returns required by the airport to cover all its costs, including its cost of capital, on its investment to provide those services. As a result of using its own estimate of WACC to set its prices, it is not apparent why an airport would defer investment because the WACC (which it sets for itself) is too low.⁴⁶
64. We acknowledge that the airport, like us, does not know the true but unobservable WACC. The airport's estimate of WACC might be an under- or over-estimate of the true WACC, but the investment ought not to be deferred because the airport considers the WACC is too low. If the airport has mis-estimated the true WACC, it may experience returns that are different from the return actually required by the market, until it can reset its prices to reflect its revised estimate of WACC.
65. Therefore, we do not consider that an airport would be able to justify a general uplift to *its own* estimate of the WACC, on the grounds that it was uncertain about its real value and that this would deter investment to socially undesirable levels. That is, we do not consider an airport could justify a general uplift equivalent to our use of the 67th percentile estimate of WACC for setting price-quality paths.

An uplift for business-specific asymmetric risks

66. When setting the previous IMs, we decided not to make any adjustments to the cost of capital due to asymmetric risk to businesses. We stated that:⁴⁷

The IMs do not make any adjustments to the cost of capital for asymmetric risk. However, the Commission does consider that it may be appropriate to deal with asymmetric risks through some other forms of adjustment or mechanisms, such as adjustments to regulatory cash flows with the use of flexible depreciation (e.g. add front-loaded depreciation profile in the event that asset standing becomes apparent).

⁴⁶ Some components of WACC vary over time, most notably the risk-free rate, and thus the WACC used to evaluate potential investments and that used to set prices could vary from time to time. Airports can manage this risk through their treasury interest rate policies, and by resetting prices from time to time.

⁴⁷ Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para E12.1.

67. There is the potential for businesses to face asymmetric risk (eg, catastrophic risk, stranding risk) and this can be compensated for in different ways. One option would be to add a margin to the allowable rate of return to compensate for asymmetric risk. This would potentially increase the targeted rate of return above the WACC estimate.
68. Although we are open to this type of approach from airports, we have often considered compensating for these types of risk through other types of adjustment mechanisms (eg, cash-flows adjustments, front-loaded depreciation, and *ex-post* pricing adjustments). Another option is to take into account asymmetric events through input forecasts (eg, adjustments to forecast demand).⁴⁸
69. Whichever method is chosen, an airport would need to demonstrate that the compensation for any asymmetric risk is consistent with the expected costs of those risks. Namely that there is a material truncation of returns on the upside and no protection for downside risks. On the whole, we consider that these asymmetric risks are limited for an airport under an ID regime.⁴⁹
70. As part of the Auckland Airport's 56G review, Auckland Airport suggested that it faced asymmetric risks due to "natural disasters, pandemics and terrorist threats".⁵⁰ Auckland Airport also provided a report from Uniservices which suggested that we make an allowance for asymmetric risks and that a 1% margin to the WACC would not be unreasonable where "the cash-flows are upward biased" and inadequate allowance is made for all asymmetric risks and other market frictions".⁵¹
71. We do not consider that any evidence has been presented that would justify such an uplift. A 1% margin to WACC for asymmetric risk would be broadly equivalent to there being a 10% chance that by the end of ten years all of the airport's assets would have become worthless.⁵² Airports will also have insurance which covers some asymmetric risk.

⁴⁸ For example, the Civil Aviation Authority (CAA) adjusts forecast demand for expected 'demand shocks'. See: Civil Aviation Authority "Economic regulation at Heathrow from April 2014: Notice granting the licence" (February 2014), para B12-B25. Available at: <http://www.caa.co.uk/Commercial-industry/Airports/Economic-regulation/Licensing-and-price-control/Economic-licensing-of-Heathrow-Airport/>

⁴⁹ When considering Orion's application for a CPP, we considered that the materiality of demand risk from one-off infrequent events (Type I risks) would be limited to a well-diversified investor. See: Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para C23.2.

⁵⁰ Auckland Airport "Section 56G review of Auckland airport post-conference submission" (15 March 2013), p. 36-37.

⁵¹ Uniservices "The Commerce Commission's Section 56G Review of Auckland International Airport Ltd: Asset Beta for Aeronautical Pricing and Treatment of Asymmetric Risk" (15 March 2013), p. 12.

⁵² Or an equivalent partial stranding that takes place earlier. This is the implicit hazard rate for a 1% margin to WACC on the expectation of a reduced ten year asset life: $10\% = 1 - \exp(-0.01 \times 10)$. See Commerce Commission, "Further draft pricing review determination for Chorus' unbundled copper local loop

72. We also note that the High Court's comments, as part of its judgment on the merits appeal to the setting of the previous IMs, agreed with our view that limited evidence had been presented to date on how additional compensation for asymmetric risks would provide long-term benefits to consumers:⁵³

[1742] As for Type II asymmetric risks, sight seems to have been lost of the fact that this is a risk to consumers: the risk that socially desirable investment will be delayed. No evidence was provided about how the ID regime could adversely affect the timing of airport investment. We accept the Commission's reasons, set out in [1722] above, for making no allowance in the IM. ...

[1743] The challenge by the Airports is in some ways curious, since what they can charge is not directly constrained by regulation. Indeed, the AAA empowers an airport to set such charges as it from time to time thinks fit. Moreover, no case was made that the existence of asymmetric risks raises the Airports' actual cost of capital above the estimates made in the usual way.

[1744] We have two final comments. First, this is not the only instance where economic experts have proposed an adjustment, in this case 1.0% – 2.0%, where it is clear that there is no basis for that specific magnitude. We do not accept that this type of expertise provides a basis for making such an estimate or proposal. No-one, economic expert or otherwise, can credibly state that the WACC should be increased by some specific magnitude to account for a given factor except by reference to hard evidence. We consider the 1.0% – 2.0% proposal to be without foundation.

service" (July 2015), para 1362 and Dixit, A.K, and Pindyck, R.S., "Investment under Uncertainty" (1994) Princeton University Press, p. 205.

⁵³ *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1742-1744.

Chapter 4: Our decisions on the WACC percentile for airports

Purpose of this chapter

73. This chapter explains our decisions on the WACC percentile for airports and how they deal with the main issues that we have identified.
74. It explains how and why we have decided to just publish the mid-point WACC estimate together with an estimate of the standard error of the WACC. It also explains alternative solutions that we considered.

Problems with the current approach

75. As discussed in Chapter 2, we consider that there were two related practical problems with the application of the previous IMs regarding the WACC percentile for airports. These problems were that:
- 75.1 our publishing of a WACC range led to the de facto use of the upper limit of the WACC range to assess airport profitability in practice;⁵⁴ and
 - 75.2 there is limited and weak rationale for the use of the 75th percentile as the upper limit of the former WACC percentile range.
76. This raised the danger that the 75th percentile acts as a de facto target, so that where it is used without any justification for pricing purposes, consumers may be paying more with no resultant benefit.

Solution in respect of these problems

77. Our emerging views paper outlined how we consider that the most appropriate change to the IMs is to no longer focus on specific WACC percentiles other than the mid-point.⁵⁵
78. We consider that a precisely defined WACC percentile range applied to all airports in all situations is not appropriate for the IMs. Airport-specific factors should be

⁵⁴ For example, we have stated "for the purpose of assessing the effectiveness of information disclosure regulation, we consider an acceptable range for targeted returns to lie between the mid-point and 75th percentile estimate of the airport's cost of capital, because that is generally consistent with limiting the ability of the airport to earn excessive profits, while allowing it to achieve at least a normal return. As such, information disclosure would in most cases be seen as effective for expected returns that are targeted within this range. However, even such a conclusion would still require an exercise in judgement, for instance, if a clearly inefficient airport were to consistently target returns at, or close to, the 75th percentile", see Commerce Commission, "Final report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Auckland Airport", (July 2013), para 29.

⁵⁵ Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016), para 18.

considered when undertaking an assessment of whether individual airports are meeting the purpose of Part 4.⁵⁶

Our solution – Publication of the mid-point and standard error

79. Our solution for the airport WACC percentile is to maintain our draft decision to publish our mid-point estimate of the cost of capital together with our view of the standard error of that estimate.⁵⁷ The standard error can be used to determine the probability distribution of the WACC estimate and any individual WACC percentile required.
80. This approach will be combined with modifications to ID requirements to require airports to publish:
- 80.1 their own estimate of WACC;
 - 80.2 the effective rate of return they targeted (ie, the new forward-looking profitability indicator); and
 - 80.3 evidence that provides an explanation for differences between their WACC and our estimate of the WACC; and their targeted return and their WACC.
81. Airports may now also choose to calculate and provide the equivalent percentiles of our mid-point WACC estimate for their targeted return and own WACC estimate.
82. Therefore, we will no longer publish the 25th and 75th percentile estimates of the WACC. Instead the IMs will provide the WACC standard error from which any WACC percentile can be calculated.
83. We have also made changes to the timing of our airport WACC determinations as part of the IM review. These timing issues are considered in the separate cost of capital topic paper.⁵⁸

Reasons for preferring this solution

84. Having considered the pros and cons of this and other solutions (including maintaining the status quo), we consider that this approach contributes to an ID regime that is best able to allow interested parties to assess whether airports are limited in their ability to extract excessive profits or not.

⁵⁶ For example, taking into account their customer investment requirements, or the extent of their complementary unregulated revenues.

⁵⁷ The standard error of the WACC is a fixed value (0.0146 for airports) in the IM determination.

⁵⁸ Commerce Commission "Input methodologies review decisions: Topic paper 4 – Cost of capital issues" (20 December 2016), Chapter 8.

85. NZ Airports submitted that our draft decision to publish just the mid-point and standard error is:⁵⁹
- ...likely to create a misleading impression for interested parties about the reliability and accuracy of the mid-point estimate because it fails to adequately highlight the uncertainty and judgment associated with either the mid-point estimate or the standard error estimate itself.
86. NZ Airports also considered that without statistical knowledge, interested parties are “likely to resort to the mid-point as a “hard” number”,⁶⁰ and there is a risk that “instead of the 75th percentile being the focus of any assessment, it will become the midpoint”.⁶¹
87. We consider the mid-point WACC represents our starting point when assessing returns for profitability analysis. However we continue to consider that there may be legitimate reasons for an airport to target returns that are different to our mid-point WACC estimate and, as mentioned in paragraph 80.3, we now require airports to provide evidence to explain such differences. This too will form part of such an assessment.
88. However, we do not agree that without statistical knowledge, interested parties will assume the mid-point as a hard number. To make it easier for airports and interested parties to use our published standard error to calculate any percentile estimate, we will include a formula in the WACC determination spreadsheets that automatically calculates what percentile a WACC estimate equates to.
89. We note there is nothing preventing airports from publishing other percentile increments or distribution curves as part of their pricing consultation process.
90. We consider that our approach enables a certain amount of flexibility in assessing the acceptability of airport returns and reduces the focus of any assessment on the upper limit of the WACC percentile range. Such a focus on the upper limit might lead to unjustified over-pricing, which would not best promote the long-term benefit of consumers. It is also consistent with the original intentions of the IMs to start any assessment at the mid-point estimate of the WACC.
91. This solution provides flexibility to enable any assessment to take into account different contextual factors affecting the airport’s required return expectations, or the expectations of a particular project. These factors could include whether the assessment is taking place on an *ex-ante* or *ex-post* basis, airport-specific

⁵⁹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 65.

⁶⁰ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 66.

⁶¹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 67.

circumstances, or other factors that should be taken into account in assessing airport profitability.

92. Wellington Airport supported our decision to take into account contextual factors that may cause differences between our mid-point WACC estimate and an airport's targeted return.⁶²

The Commission has agreed it will adopt a contextual assessment. We strongly support that change. We believe this can result in well informed interested persons, which is the objective of ID regulation. We are conscious airports will have to explain their performance and the market context in a transparent and fair way, and we are committed to doing that.

93. Auckland Airport also supported the added flexibility and assessment of specific airport factors that our solution will allow.⁶³

We are therefore encouraged that the Commission has indicated that it will take a broader approach to profitability assessment in the future, and will engage with the airport-specific and wider factors that have informed our target return.

94. This solution does not prevent airports targeting (*ex-ante*) returns above the mid-point when they have legitimate reasons for doing so. However, the airports will be required to provide information and evidence to explain those reasons to interested parties. This explanation will then be considered in light of the s 52A(1)(d) requirement to limit the ability of airports, as regulated suppliers, to earn excessive profits.
95. We consider that our approach is consistent with both the High Court's view provided in paragraph 23 and with Professor Yarrow's view that there should be an expectation that the airports will provide information on any relevant factors that need to be considered in a profitability assessment.⁶⁴
96. Such evidence will also be relevant to *ex-post* assessments of airport profitability, although we recognise there are a wider range of reasons for *ex-post* profits varying from the mid-point WACC (and targeted returns).
97. Although the onus will be on airports to provide evidence on any relevant factors, ultimately we, and any interested parties, will consider whether those factors are sufficient reasons to justify a targeted return that is higher than our mid-point estimate of WACC.

⁶² Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 59.

⁶³ Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 48.

⁶⁴ George Yarrow's expert advice on airport WACC percentile "Responses to questions raised by the Commerce Commission concerning WACC estimates for information disclosure purposes in the airports sector" (report to the Commerce Commission, February 2016), p. 20.

98. In its submission on our draft decisions, NZ Airports suggested that when assessing profitability:⁶⁵

... the onus will be on the Commission to prove that targeted returns that happen to be above the regulatory WACC estimate are not in the long-term interests of consumers (ie are contrary to the purpose of Part 4).

99. We do not consider that this is correct. Airports will now be required to submit evidence that provides an explanation for differences between their WACC and our estimate of the WACC; and their targeted return and their WACC. The onus, therefore, is on the airports to provide sufficient reasoning why their targeted returns may happen to be above the regulatory WACC. As we note above in paragraph 87, our starting point for profitability analysis will be the mid-point WACC while remaining open to reasons and evidence for why returns should be above or below this.

100. Air New Zealand disagreed with the view that the onus should be on us, rather than the airports, to prove that targeted returns above the mid-point WACC are in the long-term interests of consumers:⁶⁶

Air New Zealand completely disagrees with this, and notes that this contradicts NZ Airports acceptance (at para 202 of its submission) of the need for airports to articulate reasons why a return in excess of the Commission's estimated WACC is appropriate. As noted by BARNZ, in any case, airports will need to demonstrate how their target level of returns promote the long term interests of consumers.

101. The Board of Airline Representatives New Zealand (**BARNZ**)'s cross submission on our draft decisions also agreed that the onus should fall on the airports to explain with evidence why their targeted return may be different to our mid-point WACC estimate:⁶⁷

If an airport exercising its right to set prices as it thinks fit under the AAA chooses to adopt a different target return, then the onus is on that airport, as the decision-maker, to provide sufficient information to justify either why its cost of capital differs from the Commission's estimate of a normal level of return or, alternatively, why it is in the long-term benefit of consumers using that airport, to pay that airport a return above a normal level.

102. We have not provided comprehensive guidance on the type of factors that might justify a targeted return higher than the mid-point estimate. We do, however, discuss in Chapter 5, analytical approaches that the airports might adopt. This

⁶⁵ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 111.

⁶⁶ Air New Zealand "Input methodologies review draft decision – Cross submissions input methodologies review draft decision – Cross submissions" (18 August 2016), p. 2.

⁶⁷ BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 10.

appears to be consistent with the views from submissions. For example, Wellington Airport submitted that:⁶⁸

We do not see the need for the Commission to publish a list of factors (even if non-exhaustive) that are relevant to assessing airport returns ex ante and ex post, because the relevance of factors will vary depending on the context and over time.

103. Submissions from airlines suggested that there are no reasons to depart from the mid-point,⁶⁹ and Covec (on behalf of BARNZ) noted that:⁷⁰

It would be unwise to attempt in advance to set out possible good reasons that airports might have for disagreeing with the Commission's WACC analysis.

Assessment of other potential solutions to these problems

104. As discussed above, our solution for the IMs is to publish a mid-point estimate together with a standard error. Therefore, any WACC percentile can be calculated as required.

105. We consider that the two problems identified in paragraph 75 are sufficiently material to justify a change in approach. No submission suggested that we should retain the status quo. Sapere (on behalf of NZ Airports) suggested that there would be "administrative expediency from retaining the existing IM unchanged." However, it ultimately proposed an alternative approach that published the WACC at regular percentile estimates.⁷¹

106. We also considered two alternative potential solutions to the identified problems. These alternatives were to:

106.1 determine one specific point estimate that would act as the benchmark; and

106.2 publish a wide range of WACC percentile estimates (eg, every 5th percentile).

Alternative option 1 – Determine a specific point estimate

107. One alternative option that was considered was to publish a specific WACC percentile point estimate in addition to the current WACC percentile range.
108. The specific point estimate would be the percentile that appropriately balances the relative costs to consumers of under- and over-investment, in light of the overall purpose of Part 4. This would be analogous to the use of the 67th percentile used for

⁶⁸ Wellington Airport "IM review: Professor Yarrow report and emerging views on the airport WACC percentile" (16 March 2016), p. 3.

⁶⁹ Air New Zealand "Emerging views on the airport WACC percentile" (11 March 2016), p. 3.

⁷⁰ Covec "Airport WACC: Comments on emerging views and Professor Yarrow" (report prepared for BARNZ, 9 March 2016), para 40.

⁷¹ Sapere "The distance between the 'allowed rate of return' and the 'cost of capital'" (report prepared for NZ Airports, 16 March 2016), p. 12.

energy businesses but would be estimated for the airports to take into account differences between the sectors.

109. Submissions from airlines generally supported this approach on the basis that the specific percentile chosen would be the mid-point estimate. For example BARNZ suggested that.⁷²

There is no case for justifying targeting returns in excess of the WACC mid-point. Doing so would not be consistent with the purpose of Part 4.

Because there is no case for departing from the mid-point of the WACC distribution Covec sees no reason or merit to develop quantitative models for estimating a WACC percentile other than the mid-point, or a probability distribution.

110. However, it is not necessarily the case that the specific percentile chosen would be the 50th percentile. Any percentile would have to balance relative costs to consumers of under- and over-investment, which could result in a higher percentile than the mid-point.
111. We consider that determining a specific percentile in this way is not consistent with our view that the appropriate percentile is potentially different for each airport and potentially differs between particular projects. It is also unlikely to be consistent over time.
112. We consider that allowing flexibility in how a WACC applies to the assessment of airport profitability is a more appropriate approach. Evidenced explanations for adopting an estimate of the WACC above the mid-point estimate should be made on a case-by-case basis. We, therefore, consider that a focus on a specific percentile is not an appropriate solution for airports.

Alternative option 2 – Publishing a wider range of percentile estimates or a distribution curve

113. We suggested in our emerging views paper that one potential solution would be to publish a wider range of percentile estimates. For example, we could publish every 5th percentile (ie, 5th, 10th, 15th etc).⁷³

⁷² BARNZ "Emerging views on airport WACC percentile" (11 March 2016), p. 2.

⁷³ Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016).

114. Submissions from airports strongly agreed with this option.⁷⁴ For example NZ Airports submitted:⁷⁵

Accordingly, NZ Airports supports the Commission's proposal to simply publish WACC estimates at every 5th percentile (eg 5th to 95th). This is the best way for the published WACC to signal that it is an uncertain estimate, while discouraging comparisons between returns and any defined percentile estimates.

115. NZ Airports maintained its support for this option in its submission on our draft decision:⁷⁶

Publication of regular percentile estimates (potentially from the 5th to 95th percentile, but possibly at greater intervals of, say, every 10th percentile), to provide a clear signal to interested persons that the estimate of WACC is uncertain and that it is wrong to focus on any particular percentile. We think that this provides interested parties with the most meaningful information about the distribution of the regulatory WACC estimate. It also appropriately conveys the uncertainty that the Commission acknowledges is inherent in that estimate.

116. We continue to agree that publishing a wider range of estimates provides flexibility and would help convey the view that a single WACC percentile may not be appropriate for all situations. It would give us the ability to choose the most appropriate percentile estimate to use in a profitability assessment.

117. However, we have continued to reject this approach, compared to our solution, because it maintains a focus on numerical percentile estimates. Consistent with Professor Yarrow's advice, we wish to de-emphasise the specific WACC percentiles and encourage airports to fully disclose the specific evidence and reasoning behind each divergence from the mid-point estimate. Instead, we wish to focus more on the reasoning for any difference with an airport's targeted return – albeit with the ability to calculate any percentile estimate as required. It could also result in the upper limit of a wider range (such as the 95th percentile) becoming the new de facto estimate.

118. We acknowledge that estimates of WACC are uncertain, but the mid-point is the estimate that we are most confident in.

⁷⁴ Auckland Airport "Response to Commerce Commission's emerging views on the WACC percentile for airports" (16 March 2016), para 13; Wellington Airport "IM review: Professor Yarrow report and emerging views on the airport WACC percentile" (16 March 2016), p. 3.

⁷⁵ NZ Airports "Submission on Commerce Commission emerging views on the WACC percentile for airports" (16 March 2016), para 22.

⁷⁶ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 72.

119. Covec, on behalf of BARNZ, agreed with this point in its cross submission on our draft decision, and suggested that publishing a wider range of estimates would give a false impression of precision:⁷⁷

Unless separate standard errors or confidence intervals were reported for each of these percentile estimates, interested persons would be misled rather than properly informed.

120. NZ Airports also suggested that we should publish a distribution curve because our solution “requires manipulation of the data that requires a level of technical expertise and will not be straightforward for all interested parties”.^{78, 79}
121. We do not consider that publishing a distribution curve with every WACC determination would provide any more useful information for interested parties. Assuming that our WACC estimate follows a normal distribution, the entire probability distribution can be estimated using the mid-point and the standard error, without the need for us to publish a distribution curve.
122. As discussed in paragraph 88, we will include a formula which automatically calculates the equivalent percentile of any WACC estimate, in the spreadsheet that we publish with the WACC determinations. We consider that this will make it straightforward for interested parties to assess any WACC estimate against our mid-point estimate.
123. We note the concerns airports have around the potential for interested parties to misinterpret our approach as moving to a ‘bright-line test’ based on the mid-point estimate of the WACC.⁸⁰
124. We agree with submissions that the mid-point estimate is not supposed to be a bright-line test. However, we consider that the concern about the potential for misinterpretation of our approach is overstated when compared to the disadvantages of calculating a large number of different percentile estimates. We consider that our reasoning is clear and our solution that allows specific percentile estimates to be calculated when required will become embedded over time.
125. NZ Airports also suggested that our solution would breach the Act because “The proposed amendments require the airports to apply the WACC IM to calculate and

⁷⁷ Covec (report prepared for BARNZ) "Economic commentary on airport WACC submissions" (18 August 2016), para 22.

⁷⁸ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 78.

⁷⁹ We note Figure 1 in the NZ Airports submission includes a 90% confidence interval, which differs to the percentiles we have previously published, the upper bound of this confidence interval is the 95th percentile. We consider publishing confidence intervals, while potentially relevant, also has the potential to cause confusion.

⁸⁰ Auckland Airport "Response to Commerce Commission's emerging views on the WACC percentile for airports" (16 March 2016), para 12.

disclose the percentile equivalents.”⁸¹ We disagree that this is the case. Our solution does not require airports to use our mid-point estimate of WACC, simply to compare their targeted returns with our estimate. Using the standard error that we have published in our determination would appear to be the simplest way, because it allows any equivalent percentile to be calculated. We will now also include a formula in our WACC determination spreadsheets that will calculate this automatically.

126. However, we have not included a specific requirement for airports to disclose the percentile equivalent of their targeted returns when comparing it to our mid-point WACC. Airports are still required to compare their targeted returns with our mid-point WACC estimate, and may use the standard error to report the equivalent percentile, but they may also use alternative methods for the comparison.
127. BARNZ’s cross submission on our draft decisions shared our view that our solution does not require airports to apply the WACC IM:⁸²

The Commission’s proposal does not equate to requiring the airports to apply the Commission’s cost of capital IM. Rather, the Commission is proposing that the airport compare the airport’s own targeted return or IRR to the Commission’s cost of capital IM. The airport’s right to target its own individual level of desired return using its AAA right to set prices has been left undiluted and it has not been required to apply the Commission’s cost of capital IM.

⁸¹ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 69.

⁸² BARNZ "Cross submission by BARNZ responding to airport submissions on the Commerce Commission proposed changes to the input methodology and information disclosure determinations in relation to the airport topic" (18 August 2016), p. 9.

Chapter 5: Consideration of the rationale for an uplift

Purpose of this chapter

128. This chapter explains:
- 128.1 why an airport's targeted return could legitimately be above our mid-point estimate and how that might be explained with evidence;
 - 128.2 why we consider the ability of the WACC to constrain airport investment is more limited than for energy businesses;
 - 128.3 why our consideration focusses on the potential asymmetric consequences to consumers from us mis-estimating the WACC; and
 - 128.4 how we consider a quantitative model could be used to inform what percentile estimate appropriately balances the costs to consumers of under-investment against the costs to consumers of over-investment and/or price increases.

Airports' targeted return

129. An airport's return on investment may differ from the specified mid-point estimate of the WACC outlined in the IMs because:
- 129.1 an airport's own estimate of the cost of capital is different from that estimated by us; and/or
 - 129.2 an airport is targeting returns above (or below) its estimate of the WACC.⁸³
130. We also consider that a key aspect of our approach is for airport disclosures to separately identify the different factors that result in an airport's targeted return on investment being above (or below) our mid-point estimate for the cost of capital.
131. In particular, airports will need to identify factors which result in different mid-point estimates of the cost of capital (eg, due to a different methodological approach) from factors that could justify an uplift to a mid-point estimate (eg, any asymmetric risks (such as catastrophic risk) or factors that warrant a further margin to arrive at the targeted return).
132. We also expect greater explanation, reasoning and evidence to be required as any divergence from the mid-point increases. Such reasoning and evidence should be specific to the circumstances of the airport or specific project at the time of the

⁸³ We describe in paragraphs 62-65 why we do not consider that an airport should be necessarily targeting returns above its own estimate of the cost of capital given the information it has to inform its estimate. However, as also noted it is possible that there may be other justifiable reasons for targeting a return above the mid-point (for example, a potential margin due to asymmetric risks not incorporated in the WACC calculation).

estimate. Relying on generic arguments concerning other airports or other time periods will not be considered sufficient, in our view.

Potential for our estimate of the WACC to constrain airport investment

133. Our rationale for providing a WACC uplift for energy businesses is based on the potential for negative consequences for consumers from under-investment which arises as a direct result of the risk that our WACC estimate of the actual cost of capital of regulated suppliers used to set price-quality paths is too low.
134. The link between the WACC under ID and the impact on airport behaviour is a more complex relationship. It depends on the expectation of potential future behaviour by the regulator if an airport's targeted return diverges from the mid-point estimate of the WACC.
135. ID and the potential threat of further regulation combine to potentially act as a constraint on airport behaviour. Clearly, the level of our estimate of WACC will have some effect on airport behaviour. For example, Wellington Airport revised its prices following our review of its performance in the s 56G report.⁸⁴ We recognise this could, potentially, adversely affect investment where we have mis-estimated the WACC.
136. However, we do not consider the link between our mid-point estimate of WACC and investment is as strong as the case of a supplier subject to a price-quality path. Under price-quality regulation there is a specific revenue allowance based on our estimate of the WACC. Airports are only subject to ID – this means that the regulated WACC is not as strong a binding constraint on the airport's pricing and investment decisions.
137. This linkage will also be related to our approach to ID and assessment of airport conduct. As we lay out in this paper, we accept there may be reasons why a departure from our mid-point WACC could be justified. We would expect the airport would be well placed to evidence the reasons to both its customers and us as to why a targeted return in excess of the mid-point WACC is required to fund investment that is to the long-term benefit of consumers.
138. Consequently, we consider the risk of our estimate of WACC constraining investment, to the long-term detriment of consumers, is much lower for airports.
139. In addition, even where the regulatory WACC is a potentially binding constraint on an airport's targeted return, there are other airport-specific factors which may mean this has a more limited impact on investment than in the energy sector. These were

⁸⁴ Commerce Commission "Report to the Ministers of Commerce and Transport on how effectively information disclosure regulation is promoting the purpose of Part 4 for Wellington Airport – Section 56G of the Commerce Act 1986" (8 February 2013).

previously outlined in the problem definition paper and emerging views paper.⁸⁵
Namely that airports:

139.1 are subject to a dual till structure (whereby they can earn significant amounts of revenue from unregulated complementary activities) – this means that aeronautical investments are likely to take place even in instances when the regulated return is too low if the difference can be made up from complementary unregulated revenue streams;

139.2 have regular consultations with a small number of engaged customers – this engagement protects against under-investment because airlines can identify investment that they are willing to pay for (which is likely to be the majority of efficient investment in regulated airport services). NZ Airports and others have submitted that customers will seek a low WACC,⁸⁶ however, we consider such incentives will be at least partially offset by the impact on them from any resultant under-investment,⁸⁷ and

139.3 there could be other regulatory requirements (such as safety) that result in the investment being made.

140. Of these reasons, the value of complementary revenue streams perhaps provides the strongest rationale for the limited ability of our estimate of WACC to constrain airport investment.

141. The value of complementary services can be illustrated by determining the relative value of unregulated revenue streams compared to regulated investments. For example, as noted by the Major Electricity Users' Group (**MEUG**), the Auckland Airport share price implies that the value of unregulated revenue streams are equivalent to 84% of the total enterprise value of an airport.⁸⁸ However, unregulated revenue streams make up only ~30% of the total operational costs and ~48% of property, plant and equipment of Auckland Airport.⁸⁹

142. This illustrates there is a significant amount of Auckland Airport's value that is associated with unregulated, complementary revenue streams. Given the value of

⁸⁵ Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 395; and Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016), para 16.

⁸⁶ See "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 115(d), and "Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 66.

⁸⁷ Through consultation (including that required by the Airport Authorities Act), airlines can identify investment that they are willing to pay for, which is likely to be the majority of investment in regulated airport services.

⁸⁸ MEUG "Comments on advice by Dr Lally to the Commerce Commission on WACC issues" (24 March 2016), para 17-18.

⁸⁹ Auckland Airport "Specified Airport Services Annual Information Disclosure For the year ended 30 June 2015" (2015); and Auckland Airport "Specified Airport Services Annual Information Disclosure For the year ended 30 June 2015" (2016).

these revenue streams that are associated with a significant proportion of airport investment, it is less likely such investment would be constrained by us mis-estimating the mid-point WACC.

143. There may be some classes of investments in regulated services where non-regulated revenues have a limited impact on the decision to invest.^{90, 91} This could be the case where such an investment would not generate any increased passenger numbers and, therefore, not generate additional revenue from non-regulated services. However, we have little evidence on how significant this may be. In at least some cases where the investment provides operational benefits to airlines, but not directly to passengers, the impact on revenue from non-regulated services may still be potentially significant because it is likely to increase the attraction for airlines to use the airport and thus increase passenger numbers (or prevent a decrease).

144. NZ Airports submitted that:⁹²

NZ Airports believes that using complementary revenue streams as a reason to risk setting regulatory WACC too low fails to properly apply Part 4 of the Act because:

(a) Part 4 directs the Commission to focus on incentives for regulated activities through the methodologies and Determinations that apply to those activities only;

(b) Part 4 attempts to limit the situations in (and purposes for) which the Commission can have regard to a company's unregulated businesses eg cost allocation IMs must not affect investment in unregulated businesses and where consolidated financial information is required this can only be used to monitor compliance of the regulated business with ID requirements; and

(c) Taken as a whole, Part 4 does not allow the Commission to make decisions that will not promote the Part 4 purpose statement in relation to the regulated business, on the basis that such regulatory failure will be offset by other naturally occurring incentives.

145. We disagree that we have failed to properly apply Part 4 of the Act. Complementary revenue schemes could directly impact incentives to invest in regulatory services. Accordingly, ignoring those impacts is inconsistent with our obligation to promote in regulated services, outcomes that are consistent with those that are promoted in workably competitive markets. When we are assessing airports under the ID regime and considering whether it is in the long-term interest of consumers to increase returns above the mid-point WACC, it is highly relevant that we understand the

⁹⁰ Dr Harry Bush and John Earwaker suggest some examples of investments on which unregulated revenue streams will have little or no impact. These include in: investments which deliver operational benefits to airlines or better facilitation of freight. Dr Harry Bush and John Earwaker's submission on the problem definition paper "Evidence relating to the assessment of the WACC percentile for Airports" (report prepared for NZ Airports), 21 August 2015), p. 37.

⁹¹ Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 72-78 may also be another example.

⁹² NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 128.

actual risk of under-investment. This cannot be done if we ignore the reality that airports are dual till.

Are there asymmetric consequences from us mis-estimating the airport WACC?

146. Under the circumstances in which our estimate of WACC *is* deemed to have an influence on investment decisions made by airports, then an uplift could be justified if the benefits to consumers from the higher WACC outweighed the costs of the higher prices that will result from an additional uplift on the WACC. This was the rationale used to determine an uplift for energy businesses.
147. For energy businesses we applied an uplift because there is a potential for us to mis-estimate the WACC (because it cannot be observed) and it can result in a material asymmetry of outcomes. The extent to which we expected to mis-estimate the WACC is defined by our estimate of the WACC standard error.
148. For electricity and gas businesses we concluded that there were significant asymmetric consequences from this potential mis-estimation (ie, the losses to consumers were significantly greater from underestimating the WACC than from overestimating the WACC) and so we provided an uplift to the mid-point estimate of the WACC to mitigate that effect. The WACC for price-quality paths was set at the 67th percentile.⁹³
149. The choice of this percentile was informed by our view on how much lower than actual WACC our estimate of WACC for energy businesses under price-quality paths would need to be to constrain investment. We considered this deviation could be in the order of a 0.5% before investment was affected (this value has sometimes been called the 'margin of error').⁹⁴ The costs to consumers associated with the risk of under-investment were assumed to relate to major supply outages in particular. Therefore, to determine the potential cost to consumers we estimated the cost of major supply outages.
150. For airports the context again appears different. Given the factors given in paragraphs 138-139 there are strong drivers for certain types of investment. Any under-investment that does occur is also less likely to result in major supply outages. In general, we expect any under-investment to instead result in delays to capacity expansion which is likely to lead to a lower quality of service (such as delays at peak time or shifting of demand out of peak periods).

⁹³ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), Chapter 6.

⁹⁴ Ie, we assumed that underinvestment would only take place if our estimate of the WACC was lower than the true WACC by a margin of more than 0.5%.

151. We note that while there is potential for under-investment of this type to reduce service quality, we consider the costs to consumers are likely to be lower than in the energy sector. For example:
- 151.1 the under-investment generally results in lower quality, not complete removal of service (though increased congestion does result in additional costs to some end-users); and
 - 151.2 the potential for some users to adapt travel arrangements (eg, alternative timing or transport).⁹⁵
152. The general deterioration in quality (including congestion) is likely to build up steadily over time and be visible to consumers. This provides opportunities for airports and airlines to find solutions to problems before the total cost to consumers becomes too large. This contrasts with energy businesses, where under-investment may only become apparent after an extended period of under-investment and is revealed by an event (such as a major outage) that can cause large costs to consumers.
153. As a result, we consider that these considerations mean the case for an uplift seems significantly weaker for airports than for energy businesses.

Application of a quantitative framework

154. There are potentially a number of reasons why an airport's targeted return may be appropriately higher than our mid-point WACC. Similarly, there are different methods by which any uplift could be demonstrated and quantified by an airport.⁹⁶
155. We have previously considered one possible reason for an uplift, namely the uncertainty over the estimation of the WACC which can potentially lead to under-investment with an asymmetric risk on consumers. In considering this issue, we have previously applied a quantitative framework approach to help inform us in determining the most appropriate percentile for energy businesses.⁹⁷
156. We also considered using this type of analytical framework to help determine whether an uplift was appropriate for the cost of capital for a hypothetical telecommunications operator when setting the UCLL and UBA final pricing

⁹⁵ This could include alternative airports for some customers.

⁹⁶ We recognise the difference between an airport's targeted rate of return and our mid-point estimate of WACC may comprise several factors. For example, a difference in view on what the WACC is as well as a view that an uplift to the WACC is required to justify investment. We would expect each element of difference to be separately explained and evidenced.

⁹⁷ This framework was originally developed as part of the WACC percentile amendment project for energy businesses. See: Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), para 5.18-5.29.

principles.⁹⁸ However, we ultimately determined that the link between the WACC and the effect on investment was not sufficient to justify any uplift.⁹⁹

157. If we were to apply a similar approach to airports, the steps would be as follows.
- 157.1 Estimate the direct costs of a WACC uplift from an increase in regulated prices.
- 157.2 Estimate the potential benefits of a WACC uplift using two key inputs:
- 157.2.1 the potential for our estimate of the WACC to affect the airport's targeted return and for this to constrain airport investment; and¹⁰⁰
- 157.2.2 the size of net annual lost benefits from investments that are not undertaken in the absence of a WACC uplift.
- 157.3 Using these two inputs, estimate the total net annual lost benefits to consumers from using a particular WACC percentile estimate.¹⁰¹
- 157.4 Alternatively, the framework can determine the value of total net annual lost benefits (as a proportion of the regulated asset base) that would be required to justify an uplift.
158. This quantitative framework is less applicable to airports under an ID regime. Where an airport knows the targeted rate of return it requires to undertake investment, it does not follow that quantifying the cost of mis-estimating the WACC is the most relevant evidence. Rather, evidence on why the targeted return needs to be higher than the Commission's mid-point estimate of WACC in the airport's specific circumstances and evidence on the long-term benefits to consumers from the specific investment being considered, is more relevant. We would then consider this evidence when forming any view about an airport's targeted returns.
159. NZ Airports submitted that airports also need to estimate their WACC and can mis-estimate this, opening the risk of failing to attract investor and shareholder support to fund investments.¹⁰² Nonetheless, we consider these risks are significantly lower than for a regulator setting direct price controls in the face of asymmetric information. Our expectations are that an airport will better know and have greater

⁹⁸ Commerce Commission "Agenda and topics for the conference on the UCLL and UBA pricing reviews" (2 April 2015), Attachment C.

⁹⁹ Commerce Commission, "Cost of capital for the UCLL and UBA pricing reviews: Final decision" (15 December 2015), para 279.

¹⁰⁰ When considering this uncertainty for energy businesses, Oxera considered that a 0.5–1.0% difference between the actual and assumed WACC would be likely to result in a move away from capital investment in energy networks. See: Oxera "Input Methodologies: Review of the '75th percentile' approach" (23 June 2014), p. 5. The 0.5-1% value was subsequently described as the 'margin of error'.

¹⁰¹ The 'margin of error'.

¹⁰² NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 105.

direct regular communication with its investors and shareholders.¹⁰³ Further, the airport's estimate of WACC might be an under- or over-estimate of the true WACC, but the investment ought not to be deferred because the airport considers the WACC is too low.

160. Given the importance of contextual factors, we consider airport-specific evidence is very relevant when making judgements in this area. Nonetheless, under an ID regime it is down to the airports to decide what evidence is most relevant to support the returns they are targeting and whether this includes significant limitations of the airport's information on the returns their current and prospective investors require.

Evidence from submissions

161. This section considers the evidence from submissions for the assumptions for the two key inputs outlined above that would be needed to apply the quantitative framework outlined in the section above:

161.1 the ability of the regulatory WACC to constrain airport investment; and

161.2 the size of net annual lost benefits from investments that are not undertaken in the absence of a WACC uplift.

Submissions on the potential for the airport WACC to constrain investment

162. NZ Airports submitted that it disagreed with the three main reasons why we considered that our estimate of the airport WACC is likely to have a lower impact on airport investment than for the equivalent impact on energy businesses subject to a price-quality path.¹⁰⁴
163. In particular NZ Airports considered that airline consultation does not guard against under-investment.^{105, 106}

The Commission's proposition is in fact the opposite of what typically occurs in practice, as airlines may have:

(a) a strong incentive to lobby against additional investment; and

(b) neither the incentive, nor the ability, to encourage an airport to undertake additional investment.

In other words, while airline consultation plays an effective role in guarding against over-investment, it is unlikely to mitigate the risk of under-investment. In terms of the former,

¹⁰³ In either case it would not follow that the standard error in our WACC determinations is relevant here where we would expect the degree of uncertainty to be lower.

¹⁰⁴ These are described in paragraphs 138-139.

¹⁰⁵ NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 143-144.

¹⁰⁶ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016) reiterated this point.

there are numerous cases of where airlines have sought to delay or prevent investment from proceeding.

164. NZ Airports also outlined how it considered that the current regulation places a strong limit on returns:^{107, 108}

The WACC IM presents a very real limit on airport pricing decisions, as the Commission has adopted the approach that all returns in excess of the WACC range are excessive. The s56G reviews also suggest that it would be unsafe for an airport to assume that there will be no adverse consequences from targeting returns in excess of those implied by the WACC IM.

165. On the dual till aspect NZ Airports considered:¹⁰⁹

In summary, if such an approach resulted in the WACC for regulated activities being lower than it otherwise would (it is far from clear this is the correct outcome), then it would mean that the presence of non-regulated activities has a punitive or adverse impact on the regulated activities, contrary to the separation established by the statutory dual till.

There will always be a need for airport investments that are for aeronautical facilities, and which will have no major impact on passenger throughput or flow-on effects to non-aeronautical profits. The dual till thus has limited relevance to these types of investments (ie safety-related investments such as runway-end safety areas, asset and airfield maintenance and improvements, and facilities for the servicing of aircraft).

Moreover, competition will often force non-aeronautical services to be supplied at a price that reflects a normal return.

166. BARNZ's cross submission disagreed with NZ Airports' conclusions. On the dual till point it considered that:¹¹⁰

In BARNZ's view, the presence of the ability for airports to earn additional revenue from the provision of these complementary services already provides additional incentive to airports to invest in maintaining or adding aeronautical capacity. It is not necessary for airports to set charges above the mid-point estimate of a normal return in order to be incentivised to innovate and invest.

¹⁰⁷ NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 149.

¹⁰⁸ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016) reiterated this point.

¹⁰⁹ NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 156.

¹¹⁰ BARNZ "Cross-submission on problem definition submissions" (5 September 2015), p. 5.

167. On the impact of airline consultation, BARNZ suggested that airlines do in fact support projects when they are justified.¹¹¹

NZ Airports has alleged that far from guarding against under-investment, airlines actually have a strong incentive to lobby against additional investment, and have in 'numerous cases' sought to delay or prevent investment from occurring.

This allegation of airlines engaging in anti-competitive behaviour in order to keep facilities at a constrained level and exclude new entrants from the market is a theme which the airports have repeated in a number of their previous submissions.

BARNZ strongly refutes it. In our experience, when a project is justified, current airlines operating into the New Zealand airports support it and are willing to pay the resulting charges. Congestion or capacity constraints do not just affect new entrants. They also prevent current operators from adding new services, upgauging or increasing frequencies. Moreover, even if an existing airline was not planning to increase capacity or services, congestion or capacity constraints would have negative operational impacts on all existing carriers, resulting in increased operating costs, a lower level of service or delays to on time departure.

168. NZ Airports, Wellington Airport, and Auckland Airport continued to disagree that complementary revenue streams limit the ability of our estimate of WACC to constrain airport investment in its submission on our draft decisions. It stated that we are:¹¹²

... creating a regulatory risk that the monitoring point for airport returns is set too low, potentially leading to airport pricing that is too low, and is refusing to provide regulatory compensation/protection for that risk. By doing so, it is effectively requiring airports to use their unregulated businesses as a buffer or risk offset to protect itself, and consumers, against the potential consequences of a regulatory risk on investment in regulated services. This then risks constraining unregulated investment because the returns that can be achieved are not sufficient to meet commercial objectives and compensate for low regulated returns.

169. However, NZ Airports, Wellington Airport and Auckland Airport did not provide any persuasive evidence that their investment has been constrained as result of our WACC estimate. NZ Airports acknowledged that as "This should be a light-handed ID regime" and "The Commission is committed to placing less emphasis on numerical comparisons between airport returns and its estimate of WACC" that compiling such evidence would be "highly disproportionate" to the resource it would require to do so.¹¹³

¹¹¹ BARNZ "Cross-submission on problem definition submissions" (5 September 2015), p. 6.

¹¹² NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 129; Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 5; and Auckland Airport "Review of input methodologies – Submission on Commerce Commission draft decision" (4 August 2016), para 57.

¹¹³ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), para 132.

170. As discussed throughout this paper, we recognise that there may be legitimate reasons for an airport to target returns different from our mid-point estimate of WACC. We will assess these reasons and evidence of specific circumstances, when presented by airports alongside their targeted return. We do not suggest that there is no risk that our mid-point estimate of WACC is too low (or too high), but we continue to consider, based on the evidence before us, that the case for providing an uplift above our mid-point estimate is significantly weaker for airports than for energy businesses.
171. We also agree with airports that there can be *some* investments that may not be influenced by the revenue of complementary services and there may be *some* investments in which the interests of airlines and end consumers are not aligned. However, when considering the total amount of investment undertaken by airports, we currently consider that there is only a limited amount of investment that is not subject to these factors. In addition, the nature of ID regulation, and the ability of airports to set their own prices, further reduces the chances of the WACC having a significant impact on airport investments.
172. While NZ Airports, Wellington Airport and Auckland Airport pointed to examples in the UK and Australia of the impact of under-investment,¹¹⁴ it is far from clear that the cause of the under-investment has been the level of returns at the respective airports. For example the ACCC report quoted also noted.¹¹⁵

An unconstrained monopolist would be expected to exercise its market power to increase prices and provide lower service quality outcomes over time. All monitored airports have seen their earnings increase in real terms over the past decade, while quality of service outcomes have declined slightly.

173. When assessing the justification for an uplift, the direct costs of an uplift need to be assessed against the cost of under-investment. If only a low proportion of total investment is deemed to be influenced by the regulatory WACC, then the costs to consumers of that investment not proceeding need to be higher to justify any uplift.
174. Sapere provided a report applying a similar quantitative framework approach that we have used to consider the appropriateness of an uplift in the energy and telecommunications sectors.¹¹⁶ Sapere maintained the value of 0.5% as the assumed divergence between the estimated and actual WACC that would lead to

¹¹⁴ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016), paras 134-136.

¹¹⁵ ACCC, "Airport Monitoring Report 2014-15"(23 March 2016), p. xiv and p. 1.

¹¹⁶ Sapere made some minor changes to the framework (ie, to the estimate of the standard error and the costs of additional investment), however we do not think these changes are sufficiently material impact on the overall conclusions. Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016).

under-investment. This was the value that was used for energy businesses in the model provided by Oxera. Sapere noted that:¹¹⁷

Oxera provided no evidence to support their contention that setting a regulatory WACC up to 0.5% below actual WACC would have no impact on investment in the energy sector. There are many reasons why the relationship between the risk of underestimating WACC and the risk of outages may not hold in the manner assumed by Oxera. However, we carry these assumptions forward without amendment. This allows us to test the Commission's presumption that the potential asymmetric impact on consumers from underinvestment are likely to be weaker for airports compared to electricity and gas businesses using the Oxera framework. As noted earlier, we do not consider in this report the relative likelihoods of under versus over investment (that is, the second step in determining the asymmetry).

175. We disagree with this assumption. We consider that there is a strong rationale for assuming that this 'margin of error' (ie, the difference between the regulatory WACC and the true WACC that would lead to a material impact on investment) would be higher for airports than for energy businesses. In particular the complementary revenues earned on non-aeronautical activities may increase this 'margin of error' required to impact investment decisions on aeronautical activities.
176. In other words, we consider that our estimate of the WACC would have to be lower than the true WACC by a more significant degree for airports than for energy businesses in order to significantly impact investment.

Size of net annual lost benefits from investments

177. The second key input required to assess whether an uplift is justified is an evaluation of the lost benefits (costs) to consumers from under-investment.
178. Sapere's report provided an estimate of these costs using two different methods. The first method was to use existing studies on the costs of airport delays, while the second method undertook a bottom-up analysis of estimated costs.¹¹⁸
179. The first method resulted in two separate estimates based on different studies.
- 179.1 The first estimate was derived from US studies that suggested the economic cost of air traffic delays was between 0.2-0.3% of GDP. Their conversion to an equivalent New Zealand cost resulted in an annual cost to consumers of \$472m to \$618m.¹¹⁹
- 179.2 The second estimate (of the first method) used a UK study that estimated the cost of failing to alleviate capacity constraints at the UK airports. A New

¹¹⁷ Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 32.

¹¹⁸ Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 53.

¹¹⁹ Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 55.

Zealand estimate of \$90m p.a. is estimated by assuming similar costs in New Zealand as a proportion of GDP.¹²⁰

180. The second method applied a bottom-up approach to the cost of delay. It assumed that:
- 180.1 under-investment in airports results in a 5 minute delay for all flights;
 - 180.2 an estimate of the number of passengers affected; and
 - 180.3 a Value of Travel Time (VoTT) of ~\$59 per hour for each passenger affected.
181. Using these assumptions the annual cost of delay from under-investment was estimated as \$350m.
182. After estimating these costs, Sapere calculated the ratio between the estimated costs to consumers from under-investment against a range of different percentile estimates.
183. Two of the estimates (using the US study and the bottom-up approach) implied higher asymmetric impacts from under-investment in the airport sector. They implied that these estimated costs would justify a higher uplift than for the energy sector. The other estimate (using the UK study) resulted in lower asymmetric effects and, therefore, potentially a lower uplift.
184. From this Sapere concluded that:¹²¹

Taken as whole, the illustrative estimates suggest that the asymmetry in the airport sector would appear to be stronger, rather than weaker, than the asymmetry the Commission observed in relation to electricity network investment.

Assessment of Sapere cost estimates

185. We do not consider that the evidence is sufficient to arrive at the conclusion reached by Sapere. Estimating the costs to consumers from airport under-investment is a difficult exercise that relies on a number of assumptions. However, our high level consideration of the assumptions indicates reasons why these relevant costs are likely to be lower than suggested.
186. Firstly, we do not think it is appropriate to consider the total cost of airline delays without considering the reasons for the delay. Under this framework, only delays that are a direct result of airport under-investment are of interest. Many delays covered by the cost estimates are likely to be caused by airline issues (plane

¹²⁰ Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 58.

¹²¹ Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 82.

maintenance/replacement, staffing issues, etc.) and so would have nothing to do with airport investment.

187. This assessment is also borne out by data from the US Bureau of Transportation Statistics, which suggests that in 2015 only 22.9% of delays were caused by 'National Aviation System Delays' which included (amongst other issues) airport operations.¹²² Restricting the costs to those delays actually caused by airport under-investment would be likely to significantly reduce the cost estimates based on airline delays.
188. A more relevant method would, therefore, be to focus more specifically on costs directly linked back to under-investment. This is the approach taken by the UK study used by Sapere. Sapere's estimate of costs using this study implies lower asymmetric costs from under-investment in airports than for energy businesses. This is consistent with our view, but contrary to Sapere's overall conclusion.
189. Even the cost estimate derived from the UK study may need to be further refined. For example:
- 189.1 Airport capacity constraints in the UK are much more significant than in New Zealand (mostly due to planning/environmental issues) and have built up over a long period of time.¹²³ It is not clear that similar long-term under-investment would arise in New Zealand without resulting in a response from airports or wider stakeholders.
- 189.2 The data in the UK report refers to all UK airports and the wider economic costs of constraints—it might be less here as we are only considering three New Zealand airports and are focussed on the costs to end-users.¹²⁴ In general we consider it is important that any cost estimates of this type are shown to apply in the New Zealand context.
- 189.3 The costs outlined in the UK report are based on alleviating capacity constraints to increase passenger numbers and these increased passenger numbers will generate additional non-aeronautical revenue. Therefore the costs outlined are not relevant to the types of investment that NZ Airports

¹²² U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, Delay Cause data, available at: <http://www.rita.dot.gov/bts/help/aviation/html/understanding.html> (Accessed 20 May 2016).

¹²³ NZ Airports have suggested that costs would likely progressively increase over time, the expected costs over the next 10-20 years are probably much lower in NZ. If this is true, it may not be in the interests of consumers to apply an uplift to prices today, but instead it should only be applied if capacity constraints become a more significant issue at some point in the future. NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 135.

¹²⁴ The overriding purpose that provides context for our decision on the WACC percentile for energy businesses is promoting the long-term benefit of consumers of the relevant regulated service, and this purpose reduces the emphasis on wider economic impacts. See: Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014), para 2.33.

have previously submitted require an uplift to the WACC because they will not result in complementary revenue streams.¹²⁵

190. NZ Airports, Wellington Airport, and Auckland Airport have further submitted that the impact of under-investment is less obvious and harder to evidence than for energy but is still significant and can be lengthy and difficult to remedy.¹²⁶ NZ Airports also referenced its earlier submitted report by Dr Harry Bush CB and John Earwalker.¹²⁷
191. In relation to the impact of under-investment in airports the Bush/Earwalker report noted their views on the costs of delayed investments drawing on case studies from London. As they noted, these airports differ significantly from New Zealand airports. They noted various ways under-investment may occur and the impacts that might eventuate. However none of this evidence is directly related to New Zealand airports or specific investment at New Zealand airports.
192. Wellington Airport has noted that the Commission views that power outages are more costly to consumers than airport delays.¹²⁸
- ...suggests a lack of understanding of the economic effects of under-investment in airport infrastructure. For example, rather than the cost to consumers being lower because a consumer makes alternative arrangements, the need to make alternative arrangements typically increases the cost. A consumer who catches an earlier flight (perhaps the previous evening) or who decides to overnight because they cannot be confident a flight will depart or arrive on time incurs considerably more cost than simply the number of minutes the flight is delayed multiplied by an hourly rate
193. In our view this comes down to how the costs of delays are valued. We remain open to considering any further evidence on the cost of passenger delays as part of airport IDs.
194. After considering submissions and re-assessing the rationale for a WACC uplift, we continue to consider that the rationale for applying an uplift in the airport sector on the grounds of the asymmetric costs arising from under-investment linked to our estimate of WACC is weaker than for other sectors. We have not been provided with any evidence in submissions that changes our view on this point.
195. However, we recognise this has not been the focus of the review for airport percentile and we continue to be open to reasoning from airports as part of ID as to

¹²⁵ NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 159.

¹²⁶ NZ Airports "Submission on Commerce Commission's input methodologies review draft decision" (4 August 2016); Auckland Airport "Review of input methodologies – Submission on commerce commission draft decision" (4 August 2016), para 54; and Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), paras 67-71.

¹²⁷ Dr Harry Bush CB and John Earwalker, "Evidence relating to the assessment of the WACC percentile for Airports", (August 2015).

¹²⁸ Wellington Airport submission on IM review draft decisions papers "IM review" (4 August 2016), para 69.

why they consider an uplift to WACC is necessary when making a comparison against their targeted or actual return. This will include further views and evidence they disclose on asymmetric social costs they consider are relevant to their pricing decisions.

