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## **Input methodologies review draft decisions**

**Summary paper**

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| 22 June 2016<br>(expected) | 978-1-869455-16-3 | Input methodologies review draft decisions: Report on the IM review   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Electricity Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 26                              |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 27                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input Methodologies Determination 2012</i> [2012] NZCC 28                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010</i> (Decision 709, 22 December 2010)    |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies Determination 2012</i> [2012] NZCC 17   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport Services Information Disclosure) Determination 2010</i> (Decision 715, 22 December 2010) |



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## Purpose of this paper

1. The purpose of this paper is to provide an overview of our draft 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 draft findings. The paper summarises our draft 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 draft findings

3. We propose a small number of substantive changes to the existing 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, which 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:<sup>1</sup>
  - 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.

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<sup>1</sup> Commerce Act 1985, s 52A(1)(a)-(d).

7. We set the original IMs in December 2010 after extensive engagement with interested parties.<sup>2</sup> 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. The current IM review is being conducted 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.<sup>3</sup> 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); or
  - 9.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
10. Our current draft decisions package presents draft decisions on all IMs within the scope of the review except the IMs for:
  - 10.1 the Transpower Incremental Rolling Incentive Scheme (**IRIS**);<sup>4</sup>
  - 10.2 the customised price-quality path (**CPP**) information requirements for gas;<sup>5</sup>  
and
  - 10.3 the related party transactions provisions.<sup>6</sup>
11. While these areas are still within the scope of the IM review, we have not yet reached draft decisions on them.
12. In the case of the three areas noted above where we have not yet reached draft decisions, it is possible that, once we have defined the relevant problems or reached a draft decision, we may need to extend our final decision dates on those areas beyond December 2016. We will update interested parties on our timing for draft and final decisions on these areas in our anticipated September 2016 process update.

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<sup>2</sup> 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.

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

<sup>4</sup> As discussed below and in Part 2 of the Report on the review, which we expect to publish on 22 June 2016.

<sup>5</sup> As discussed below and in Topic paper 2: CPP requirements.

<sup>6</sup> As discussed below and in Topic paper 7: Related party transactions.

13. 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 impact on the price and quality of services consumers receive will generally not be evident until the next price setting events. These are in:
  - 13.1 2017 for gas pipeline businesses (**GPBs**), Christchurch Airport and Auckland Airport;
  - 13.2 2019 for Wellington Airport; and
  - 13.3 2020 for electricity distribution businesses (**EDBs**) and Transpower.
14. As such, we are still aiming to complete the IM review by December 2016.

#### **Our focus on engaging with stakeholders**

15. Through the IM review process, we have strongly focussed on involving our stakeholders and seeking stakeholders' views. We sought input in a number of ways, including through workshops, forums and written consultation. We have appreciated stakeholder engagement and contributions to these processes.
16. We have tried to be transparent about our decision-making approach from early in the process, and to reveal our emerging thinking as it develops. We welcome your feedback on whether you have found our engagement and consultation approaches useful, as well as how we can improve.
17. We have tried to communicate our draft decisions in a way that will allow you to engage with our views and provide your own perspectives. We look forward to hearing your views.

#### **Overview of draft findings relating to emerging technology**

18. 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.
19. What this changing technology means for electricity lines businesses 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.
20. We have reviewed our IMs 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 think that major changes to IMs are needed.

21. We do not think 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.
22. We have identified two possible concerns with emerging technology:
  - 22.1 if enough consumers may 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
  - 22.2 EDBs may have a significant competitive advantage in emerging energy markets.
23. In our judgement, the available evidence is inconclusive on whether the risk of partial capital recovery for EDBs regulated business has increased, and 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.
24. As a precautionary measure, consistent with our concern about increased uncertainty, we propose to 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.
25. 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.
26. Our review of emerging technologies has highlighted concerns from some stakeholders (mainly energy retailers) 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 markets (either existing or new), and that our cost allocation rules would not adequately deal with this.
27. Our current 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 current cost allocation IM is largely fit for purpose. However, we propose to amend the IMs to lower the revenue materiality threshold for EDBs or GPBs deciding on the cost allocation approach from the current 20% to 10%. The objective is to ensure that when EDBs or GPBs use the avoidable cost allocation methodology (**ACAM**), this does not result in increases to regulated revenue greater than 1-2%, compared to the use of the accounting-based allocation approach (**ABAA**).

28. 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 (EA) may be more appropriately handled by policy makers than through adjustments to the IMs.

### **Overview of draft findings relating to cost of capital**

29. We have reviewed our cost of capital IM and consider it remains broadly fit for purpose. Our review included:
- 29.1 reviewing key parameter estimates such as the tax-adjusted market risk premium (TAMRP);
  - 29.2 updating our estimates of beta in light of new information;
  - 29.3 considering whether any adjustment to beta is required in light of our proposed changes to the form of control for EDBs;
  - 29.4 re-examining the case for a trailing average cost of debt in response to the substantive stakeholder submissions on this;
  - 29.5 examining a proposal by MEUG for a cross-check with the Black's Simple Discounting Rule (BSDR); and
  - 29.6 examining the issues raised by the High Court (ie, alternative models, split cost of capital, and the term credit spread differential (TCSD)).<sup>7</sup>

### **Our key draft findings relating to cost of capital**

30. Most aspects of our cost of capital IM remain unchanged in our draft decisions.
31. We have updated our asset beta estimates for EDBs, Transpower and GPBs using more recent data. We estimate that the average unadjusted asset beta for the electricity and gas businesses is 0.34 (unchanged from our 2010 estimate). This estimate is based on a sample of 73 overseas electricity and gas companies and Vector.
32. We have also reviewed the uplift to asset beta that we currently apply for GPBs, given questions raised as to its appropriateness. We consider that based on the available evidence, removing the uplift would improve the accuracy of our asset beta and WACC estimate for gas businesses, better promoting the long-term benefit of consumers.

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<sup>7</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289.

33. We already recognise the possibility of estimation error through our estimate of the standard error of the WACC, and use of the 67<sup>th</sup> percentile when setting price-quality paths. We consider that also applying an 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.
34. We considered the following evidence in reaching our draft decision to remove the asset beta uplift for GPBs:
  - 34.1 Our empirical analysis of our comparator sample does not provide clear support for a difference in asset betas between gas and electricity businesses.
  - 34.2 The empirical analysis of income elasticity of demand estimates suggests a small difference between gas and electricity asset betas. However, this evidence may not be relevant to the systematic risk faced by New Zealand businesses exposed to price or revenue cap regulation.
  - 34.3 The comparator sample includes gas company betas, and therefore already reflects any higher systematic risk faced by gas businesses. If an asset beta uplift were applied for GPBs, this may suggest a downwards adjustment to the asset beta for the EDBs and Transpower (given the weighted average estimate for the comparator sample of 0.34).
  - 34.4 Although gas is a discretionary fuel, this does not necessarily suggest greater exposure to systematic risk.
  - 34.5 Overseas regulators generally do not derive different asset betas for gas and electricity businesses.
35. In our view, there is not robust empirical evidence to support making an adjustment to the asset beta based on the form of control.
36. We propose to adopt an asset beta of 0.34 for EDBs, GPBs and Transpower.
37. We have updated our asset beta estimate for airports from 0.60 to 0.58. This reflects a change in the average asset beta of our comparator companies (from 0.65 to 0.63) and the continued application of a 0.05 adjustment to reflect the lower risk of the regulated airport activities.
38. Other proposed changes to the cost of capital IM are to:
  - 38.1 remove the separate weighted average cost of capital (**WACC**) for CPPs so we do not dis-incentivise CPPs where they are in the long-term benefit of consumers;
  - 38.2 make minor changes to some aspects of the cost of debt, including simplifying the TCSD, to reduce complexity in light of experience and new information;
  - 38.3 modify our debt premium methodology, including extending the averaging period to three months;



- 38.4 reduce the allowance for debt issuance costs in light of new information but include an allowance for entering two interest rate swaps; and
  - 38.5 amend estimates of leverage slightly, taking into consideration changes in leverage for comparable companies.
39. We also considered proposals regarding the use of a trailing average cost of debt, split cost of capital and BSDR, but do not propose any changes in response.
- 39.1 We do not consider that a trailing average cost of debt would be an improvement to our current prevailing rate approach.
  - 39.2 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 75<sup>th</sup> 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.
  - 39.3 We consider that 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 benefits in our regulatory regime. As a result, we do not propose to use BSDR as a cross-check on the WACC until some of the identified issues have been resolved.

## **Overview of draft findings for electricity line services**

### **Our key draft findings for EDBs**

- 40. We propose a number of improvements to the way we set default price-quality paths (**DPPs**), evaluate customised price-quality paths (**CPPs**), and provide for reopeners to price-quality paths, all intended to ensure that the DPP/ CPP regime as a whole for EDBs (and GPBs) delivers greater long-term benefits to consumers.
- 41. For EDBs, we have proposed changes to the detailed CPP proposal requirements in the IMs to reduce complexity and compliance costs and improve effectiveness, such as:
  - 41.1 removing the separate WACC for CPPs so we do not dis-incentivise CPPs where they are in the long-term benefit of consumers, as mentioned above;
  - 41.2 removing the quality-only CPP and instead providing for a quality reopener in the DPP;
  - 41.3 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);

- 41.4 better aligning information requirements for a CPP to information already disclosed under ID;
  - 41.5 clarifying expectations around consumer consultation (eg, require CPP applicants to notify consumers of the price and quality impact of any alternative investment options in their CPP proposal); and
  - 41.6 clarifying the role and purpose of the verifier.
42. We propose that non-exempt EDBs be regulated under a revenue cap rather than a price cap, as this would remove:
- 42.1 the quantity forecasting risk, which may lead to inappropriate cut backs or deferral in expenditure and investment;
  - 42.2 potential disincentives on EDBs to shift to more efficient pricing, resulting from the current price cap and associated compliance requirements; and
  - 42.3 potential disincentives on EDBs to pursue energy efficiency and demand-side management initiatives.<sup>8</sup>
43. Both we and the EA consider that there are very significant long-term benefits to consumers from reforming the pricing of the services that EDBs deliver. Given the EA's responsibility for EDB pricing, the IMs do not contain specific requirements relating to pricing.
44. However, our proposed change to the form of control for EDBs was adopted in part because we consider this may remove a potential barrier to EDBs reforming their tariffs.
45. We have published a letter from the EA, which explains the EA's view that the form of control may have an impact on the incentives for EDBs to adopt efficient pricing. We welcome submissions on this letter as part of our draft decision consultation.
46. As noted above, we have not yet reached a draft decision on whether to change the related party transactions IMs. We propose to further explore whether there is a problem with the related party transactions regime that extends beyond issues raised with the IMs, and further consider what the best solution to any such problem might be.<sup>9</sup> We aim to update stakeholders in early September 2016 on our timing for draft and final decisions in respect of the related party transactions IMs.<sup>10</sup>

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<sup>8</sup> 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.

<sup>9</sup> Any changes to the ID requirements would be consulted on and made under s52Q of the Act, rather than under s 52Y.

<sup>10</sup> As discussed in the Introduction and process paper, we anticipate providing a general process update at this time.

47. There were other areas where having considered proposals suggested by stakeholders, or raised in our emerging views papers, we do not propose making a change, such as:
- 47.1 introducing a DPP reopener for constant price revenue growth (**CPRG**), where the supplier is on a weighted average price cap (**WAPC**);
  - 47.2 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);
  - 47.3 allowing expenditure, above what is allowed for in a DPP, incurred prior to the submission of a CPP to be recovered.

#### **Our key draft findings for Transpower**

48. We consider no significant changes are needed to the IMs for Transpower.<sup>11</sup> However, there are two areas where we remain open to possible improvements on existing decisions.
49. Firstly, Transpower has raised concerns about the operation of the IRIS. We intend doing further analysis to determine whether possible problems with the current scheme, might justify changes to the IMs. We aim to reach a final decision on any changes to the Transpower IRIS IM at the same time as the rest of the IM review (ie, December 2016). Prior to then, we will consult on a draft decision on whether to make changes to the Transpower IRIS. We will update interested parties on our timing for draft and final decisions on the Transpower IRIS IM in our anticipated September 2016 process update.
50. Secondly, we consider that continuing to not index the value of Transpower's regulatory asset base (**RAB**) for inflation, remains appropriate. However, the current approach exposes Transpower and its consumers to inflation risk. We consider it would be straightforward to introduce a mechanism to protect both from this risk, and are interested in whether interested parties consider the benefits are sufficiently large to justify doing so.

#### **Overview of draft findings for gas pipeline services**

51. 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.
52. As stakeholders will be aware, the processes of reviewing the IMs and resetting the DPPs for gas pipelines businesses are running in parallel. On 28 June 2016, we expect to publish a paper discussing how our draft changes to the IMs for GPBs (as proposed in our draft decisions on the IM review) would be implemented through the gas DPP reset.

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<sup>11</sup> As noted above, the Transpower Capex IM is outside the scope of the current IM review.

53. We recognise that the IM review and the 2017 reset, along with the transactions in the sector and the Gas Industry Company's work programme, provide opportunities to address some important regulatory design issues for the sector (eg, pricing reform, operating code alignment, security of supply matters). We will continue to work closely with stakeholders so that progress can be made on these issues.

**Our key draft findings for gas pipeline services**

54. We propose to adopt a 'pure' revenue cap for gas transmission businesses which will adjust year on year for previous under- or over- recovery of revenue. We consider that changing from a lagged revenue cap to a pure revenue cap would:
- 54.1 avoid any windfall gains and losses due to the lagging mechanism; and
  - 54.2 remove any existing compliance barriers for gas transmission businesses to offer more innovative tariffs, and in particular it should allow for capacity auction-based pricing to be more readily introduced.
55. We propose maintaining the weighted average price cap for gas distribution businesses (**GDBs**). Our reasons for this proposal are:
- 55.1 unlike for EDBs, there have not been significant concerns raised about continuing to use CPRG forecasting for GDBs;
  - 55.2 unlike for EDBs, we do not think the WAPC creates concerns about tariff restructuring or efficient pricing for GDBs; and
  - 55.3 the WAPC provide incentives for GDBs to pursue new gas connections and we consider this to be a more important factor for GDBs than EDBs.
56. As noted above, we have proposed as a precautionary measure allowing EDBs to recover the cost of assets more quickly. We are open to views on whether a similar mechanism would be beneficial for gas consumers.
57. As noted above, we have deferred our draft decisions on the CPP information requirements for GPBs until after recent transactions in the sector have been completed, and parties are better placed to fully engage with the process. We will continue to liaise with relevant stakeholders in order to establish an appropriate timeline for this work. We will update interested parties on our timing for this work in our anticipated September 2016 process update.
58. 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.
59. We propose not to implement an IRIS for operating expenditure (**opex**) or capex for gas transmission or distribution services under a DPP, and to remove 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 draft findings for regulated airports

60. We have identified a number of specific areas where we consider that the disclosure requirements and associated IMs for airports could be changed to improve the transparency and timeliness of the information disclosed about airport charging.
61. We expect to complete these changes ahead of the next price setting events for Auckland and Christchurch Airports that are due in 2017. Wellington Airport is not due to reset prices again until 2019.

## Our key draft findings for regulated airports

62. We have proposed 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.
63. When airports release information following a price setting event, we propose to require that they disclose a forward-looking profitability indicator (on the regulated assets, and on the pricing asset base). We have set a number of requirements to operationalise this requirement.
64. The disclosure of target profitability would provide stakeholders with an early indication of each airport's pricing intentions. It would 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.
65. We also propose providing airports greater flexibility to disclose information in a way that best reflects their pricing approach. This includes:
  - 65.1 allowing them to disclose land revaluation information on the basis of an un-indexed approach, which is Auckland Airport's current approach; and
  - 65.2 allowing them to apply either a CPI-indexation or an un-indexed approach to parts of the asset base separately.
66. We are also proposing that airports disclose additional information to facilitate stakeholder understanding. For example, we propose to require airports to disclose additional information:
  - 66.1 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
  - 66.2 explaining how revaluation gains will be treated in the next pricing period.
67. We propose to no longer publish the 25<sup>th</sup> and 75<sup>th</sup> percentile of our WACC estimate. Instead we propose to publish our mid-point estimate of WACC along with an estimate of the standard error.
68. Airports are free to set their own WACC and target return. However, we propose to require them to explain why their target return differs from our WACC estimate.

69. We have also proposed:
- 69.1 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.
  - 69.2 in order to reduce complexity and compliance costs, to set the initial RAB value of land using a pragmatic proxy of land as at 2010 by interpolating 2009 and 2011 market value alternative use (**MVAU**) land values based on existing MVAU land valuations.
70. We expect that these proposed changes, in combination with amendments we are proposing to the Airports ID Determination, will ensure stakeholders have access to the information they require about the airport's target returns, as well as increasing the likelihood that airports will provide additional information to assess whether those target returns are acceptable.

### **Our draft decisions package**

71. Our draft decisions package comprises a number of papers, which are listed in the associated documents page at the beginning of this paper.
72. This paper provides a summary of our key findings. Alongside this paper, we have also published the following:
- 72.1 An introduction and process paper, which describes the IM review process to date and explains the structure of the package of draft decisions papers.
  - 72.2 A framework paper, which describes the decision-making framework and key economic principles we have applied in reaching our draft decisions.
  - 72.3 Seven topic papers which, for each of the key topics for the review, explain the problems we have identified and our proposed solutions for addressing those problems. Each topic paper begins with an executive summary, which includes a table summarising our proposed changes in that topic area.
73. On 22 June 2016, we expect to publish the remaining papers in our draft decisions package:
- 73.1 The Report on the IM review, which records our draft decisions on whether and how to change the IMs as a result of the IM review. Our draft 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.<sup>12</sup>

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<sup>12</sup> Our effectiveness review is explained in the Introduction and process paper. The findings of our effectiveness review are presented as draft decisions in the Report on the IM review, which we expect to publish on 22 June 2016.

- 73.2 The draft amendments to the IM determinations (as well as draft ID amendments for airports), which demonstrate the drafting amendments that we propose for giving effect to our draft decisions.

### **Invitation to make submissions**

74. In respect of our draft decisions papers (including the Report on the IM review, but excluding draft determinations), we invite:
- 74.1 submissions by **5pm on 28 July 2016**; and
- 74.2 cross submissions by **5pm on 11 August 2016**.
75. In respect of our draft determinations, we invite submissions by **5pm on 11 August 2016**.<sup>13</sup>
76. Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
77. Please clearly indicate within your submission which paper or topic it relates to.
78. More information about the submissions process and next steps for the IM review is set out in the Introduction and process paper.<sup>14</sup>

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<sup>13</sup> Rather than providing for cross-submissions on the draft determinations, we have instead provided an extended period for primary submissions on those drafts.

<sup>14</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).







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Public version

## **Input methodologies review draft decisions**

### **Introduction and process paper**

**Date of publication:** 16 June 2016

## Associated documents

| Publication date           | Reference          | Title  |
|----------------------------|--------------------|--|
| 16 June 2016               | 978-1-869455-08-8  | Input methodologies review draft decisions:<br>Summary paper   |
| 16 June 2016               | 978-1-869455-10-1  | Input methodologies review draft decisions:<br>Framework for the IM review   |
| 16 June 2016               | 978-1-869455-11-8  | Input methodologies review draft decisions:<br>Topic paper 1 – Form of control and RAB indexation for<br>EDBs, GPBs and Transpower                     |
| 16 June 2016               | 978-1-86 9455-18-7 | Input methodologies review draft decisions:<br>Topic paper 2 – CPP requirements  |
| 16 June 2016               | 978-1-869455-12-5  | Input methodologies review draft decisions:<br>Topic paper 3 – The future impact of emerging<br>technologies in the energy sector                      |
| 16 June 2016               | 978-1-869455-13-2  | Input methodologies review draft decisions:<br>Topic paper 4 – Cost of capital issues  |
| 16 June 2016               | 978-1-869455-14-9  | Input methodologies review draft decisions:<br>Topic paper 5 – Airports profitability assessment   |
| 16 June 2016               | 978-1-869455-15-6  | Input methodologies review draft decisions:<br>Topic paper 6 – WACC percentile for airports  |
| 16 June 2016               | 978-1-869455-17-0  | Input methodologies review draft decisions:<br>Topic paper 7 – Related party transactions  |
| 22 June 2016<br>(expected) | 978-1-869455-16-3  | Input methodologies review draft decisions:<br>Report on the IM review   |
| 22 June 2016<br>(expected) | 1178-2560          | Draft amendments to <i>Electricity Distribution Services<br/>Input Methodologies Determination 2012</i> [2012] NZCC 26                                 |
| 22 June 2016<br>(expected) | 1178-2560          | Draft amendments to <i>Gas Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 27   |
| 22 June 2016<br>(expected) | 1178-2560          | Draft amendments to <i>Gas Transmission Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 28   |
| 22 June 2016<br>(expected) | 1178-2560          | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Input Methodologies) Determination 2010</i><br>(Decision 709, 22 December 2010)    |
| 22 June 2016<br>(expected) | 1178-2560          | Draft amendments to <i>Transpower Input Methodologies<br/>Determination 2012</i> [2012] NZCC 17  |
| 22 June 2016<br>(expected) | 1178-2560          | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Information Disclosure) Determination 2010</i><br>(Decision 715, 22 December 2010) |

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 draft decisions on the input methodologies review (**IM review**);
  - X1.2 explain the package of papers we have released to communicate our draft decisions on the IM review; and
  - X1.3 provide details of the next steps in the IM review process, including how to submit on our draft 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 lines services, gas pipeline services, specified airport services and Transpower.
- X3. We determined the original IMs on 22 December 2010.<sup>1</sup> 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**).<sup>2</sup> In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.<sup>3</sup> 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.<sup>4</sup>
- X5. We commenced the current review of IMs (except the Transpower Capex IM) on 10 June 2015 by issuing a notice of intention.<sup>5</sup> 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.

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

<sup>2</sup> See footnote 9.

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

<sup>4</sup> Section 52Y of the Act.

<sup>5</sup> Commerce Commission "Notice of intention: Input methodologies review" (10 June 2015).

- X6. The review will be complete when the final review decision is made on all IMs within the scope of the review and any immediate resulting IM changes (amendments or replacements) are made.
- X7. Based on our review so far, we have reached draft decisions on whether, and if so how, to change all IMs within the scope of the review, except as noted at paragraph 69.

#### **Our process for reviewing the IMs**

- X8. We have adopted a tailored, fit for purpose approach to reviewing the IMs and reaching our draft decisions. Our approach to the review so far has 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 may be 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 draft decisions on whether and how to change the IMs have drawn on both of these components.

#### **Our draft decisions package of papers**

- X10. Our draft 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 draft decisions:
  - 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 review, explain the problems we have identified and our proposed solutions for addressing those problems;
  - X10.3. the Report on the IM review, which presents our draft decisions on whether and how to change the IMs as a result of the IM review so far;<sup>6</sup> and
  - X10.4. the draft amendments to the IM determinations.<sup>7</sup>

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<sup>6</sup> We expect to publish the Report on the IM review on 22 June 2016.

<sup>7</sup> We expect to publish the draft amendments to the IM determinations on 22 June 2016.

**Next steps**

X11. We are still aiming to complete the IM review by December 2016. An overview of the anticipated process for reaching our final decisions is set out in Table X1.

**Table X1: Anticipated process steps between now and reaching final decisions**

| Step  | Date                            |
|---|---------------------------------|
| Draft decisions papers published, except for the Report on the IM review  | 16 June 2016                    |
| Report on the IM review published   | 22 June 2016                    |
| Draft determinations (including draft ID amendments for airports) published   | 22 June 2016                    |
| Submissions on draft decisions papers due (including the Report on the IM Review, but excluding draft determinations)       | 28 July 2016                    |
| Cross submissions on draft decisions papers due (including the Report on the IM Review, but excluding draft determinations) | 11 August 2016                  |
| Submissions on draft determinations (including draft ID amendments for airports) due  | 11 August 2016                  |
| Process update  | September 2016<br>(anticipated) |
| Targeted technical consultation on updates to draft determinations  | October 2016<br>(anticipated)   |
| Final decisions on IM review  | December 2016                   |



## **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 draft decisions on the IM review;
  - 1.2 explain the package of papers we have released to communicate our draft decisions on the IM review; and
  - 1.3 provide details of the next steps in the IM review process, including how to submit on our draft decisions.

### **Where this paper fits in to our package of papers on our draft decisions**

2. This paper provides an introduction to our package of draft decisions papers. It explains the structure of the package of draft 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 IMs are and what the IM review is.
5. Chapter 3 then explains the process that we have followed in arriving at our draft decisions on the IM review.
6. Chapter 4 explains the package of papers that make up our draft decisions, how to navigate them, and which papers are likely to be of interest to which sectors.
7. Chapter 5 explains our proposed next steps on the IM review, including how to make submissions on our draft decisions.
8. Attachment A lists the key steps to date in the IM review process.
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.<sup>8</sup> 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).<sup>9</sup> In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.<sup>10</sup> Some of these IMs have also been subject to amendment pursuant to s 52X.
13. IMs thus currently 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.

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<sup>8</sup> 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.

<sup>9</sup> 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>.

<sup>10</sup> *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 have been alert to the general desirability of taking a cross-sectoral approach when determining which IMs should be subject to the IM review 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. An end date of December 2016 would allow 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 distributors (**EDBs**) and Transpower must be determined by 30 November 2019. Completing the review by December 2016 would provide increased certainty for electricity distributors and Transpower on the input methodologies which would 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 review by December 2016 enables us to address issues with the current input methodologies 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 consider 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.

19. The IMs that form part 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):<sup>11</sup>
- 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;
  - 19.5 *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26.
20. Once we decided 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.
21. We must review all IMs within the scope of the notice of intention.
22. The review will be complete when the final review decision is 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 to 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 to change s 52P determinations;
  - 22.4 to publish guidance; or
  - 22.5 a combination of the above.

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<sup>11</sup> Commerce Commission “Amended notice of intention (further amending the notice of intention dated 10 June 2015): Input methodologies review” (2 December 2015).

## Chapter 3: The IM review process

### Purpose of this chapter

23. The purpose of this chapter is to explain the process that we have followed in arriving at our draft decisions on the IM review.
24. A table summarising the key steps in the IM review process to date is provided at Attachment A.

### The process we have followed in reaching draft decisions on the IM review

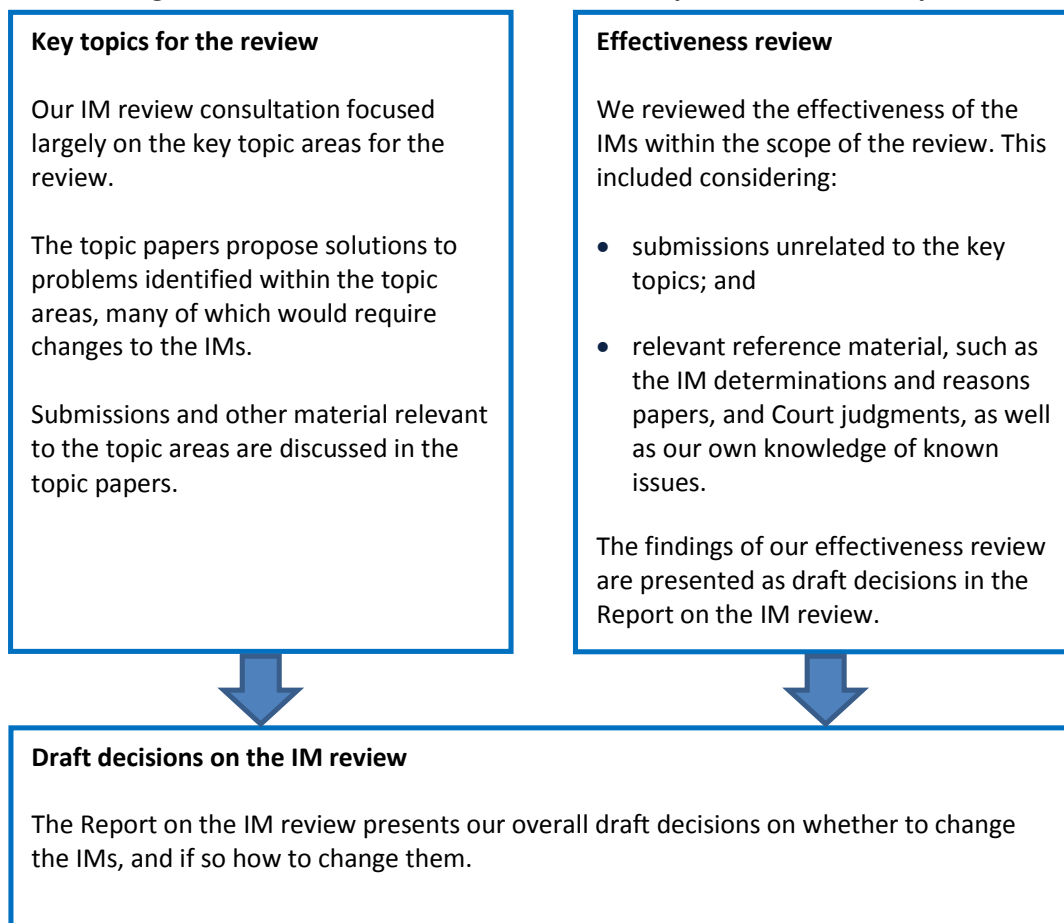
25. Today we published our draft decisions on the IM review. We have reached draft decisions on whether and how to change all existing IMs within the scope of the review, except for those areas noted at paragraph 69.<sup>12</sup>
26. We have adopted a tailored, fit for purpose approach to reviewing the IMs and reaching our draft decisions. We have reviewed the IMs for effectiveness,<sup>13</sup> while drilling down into a number of specific topics identified by us and stakeholders as potentially containing problems that could be addressed by the IMs.
27. Our approach to the review so far has involved two main components:
  - 27.1 **Our effectiveness review** – a review of the effectiveness of all input methodologies subject to review.
  - 27.2 **Our consultation on the key topics for the review** – where stakeholders or our internal review suggested there may be 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.
28. As illustrated by Figure 1, our draft decisions on whether and how to change the IMs have drawn on both of these components.

---

<sup>12</sup> These are the Transpower IRIS, the CPP information requirements for gas, and the related party transactions provisions.

<sup>13</sup> With the exceptions noted at paragraph 69.

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



29. We go on to describe each of the two main components of the review so far in turn.

*Our effectiveness review of the IMs*

30. We have reviewed the IMs for effectiveness based on:

30.1 stakeholder submissions on the IM review; and

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

31. The framework paper discusses the types of questions we considered when reviewing the IMs.<sup>14</sup>

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<sup>14</sup> Commerce Commission “Input methodologies review draft decisions: Framework for the IM review” (16 June 2016).

32. 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 has also led us to propose a number of minor changes that are generally outside the scope of the key topics for the review. The bulk of the changes are aimed at clarifying the existing rules, removing ambiguities, correcting errors, or reducing unnecessary complexity and compliance costs.
33. As shown in Figure 1, the findings of our effectiveness review are presented as draft decisions in the Report on the IM review.

*Consultation on the key topics for the review*

34. 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:
  - 34.1 focus stakeholder efforts on the most significant problems that the review might be able to address, and on which we needed the most input;
  - 34.2 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;
  - 34.3 only make changes to the IMs where doing so appears likely to:
    - 34.3.1 promote the Part 4 purpose in s 52A more effectively;
    - 34.3.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
    - 34.3.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
35. 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.<sup>15</sup> These key topic areas have largely remained the same as we have moved through the review, although the key topics and their scope have been refined through the various consultation processes we have been through to date.
36. Within the key topic areas, we have sought to identify and define the specific problems that we could seek to address through the IM review. Our problem definitions have been influenced by both our effectiveness review, and topic-focused consultation with stakeholders.

---

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

37. Stakeholders have also played an important role in shaping our proposed solutions to the problems identified within the key topic areas. Our proposed solutions to problems identified within the key topic areas are explained in the topic papers released today as part of our draft decisions package.
38. To the extent they involve changes to the IMs, our proposed solutions to topic-based problems have informed our draft decisions on whether and how to change the IMs as part of the IM review.

#### **Some issues were fast tracked as part of the IM review**

39. A number of specific issues relating to airports and customised price-quality paths (CPPs) have been fast tracked and progressed at a faster pace to the rest of the review.<sup>16</sup> This occurred:
  - 39.1 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
  - 39.2 to provide benefits for CPP applications anticipated to be received before the scheduled completion of the IM review in December 2016.
40. We published our decision on the fast track CPP amendments on 12 November 2015,<sup>17</sup> and the airports fast track amendments on 24 February 2016.<sup>18</sup>
41. These amendments have since been rolled back into the overall IM review.

#### **Keeping a record for the review**

42. We are reviewing 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.<sup>19</sup>
43. While the review has a number of focussed topic areas (some of which are sector specific), we consider this to be consistent with a cross-sectoral approach to reviewing the IMs (by reviewing all IMs at the same time and considering alignment issues where appropriate).

---

<sup>16</sup> As advised on 9 October 2015, the former Limb 2 of the CPP fast track amendments (which concerned the alignment of the WACC for CPPs with the prevailing WACC for DPPs) is no longer following a fast track process. (See Commerce Commission "Input methodologies review process update paper: Second update on CPP fast track amendments" (9 October 2015)). Instead, the WACC alignment issue is part of the main review on the same timetable as the rest of the cost of capital work, and is discussed in Topic paper 4: Cost of capital.

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

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

<sup>19</sup> Commerce Commission "Open letter on our proposed scope, timing and focus for the review of input methodologies" (27 February 2015), para 9.



44. Table 1 indicates which papers apply to which sectors. However, stakeholders should be aware of all papers in the review.
45. Any material provided in the course of the IM review, including in any engagement planned on any topic, will form part of the record for the IM review. We have a record of all workshops available on our website.
46. The record will therefore include any material provided during Commission workshops or other engagements in the course of the IM review, including any material that may cover matters wider than the IMs. For instance, the airports profitability topic considers changes to both the IMs and the airports information disclosure (ID) Determination, and our consultation on the 2017 gas DPP reset might also highlight matters relevant to the IM review. We consider that this is appropriate because it is impractical to separate IM review material and material that may be wider than the IMs. It is also beneficial to engage on these topics with a wider view as it is a pragmatic approach to the process and allows consideration of how the IMs are implemented in practice.
47. As previously indicated,<sup>20</sup> we consider that any submissions or material provided in relation to the gas DPP reset that is also relevant to the IM review, and received before we reach our final decisions on the IM review, will also form part of the record for the IM review.
48. In reaching our draft decisions, we have only taken into account written, published material.<sup>21</sup> This includes:
  - 48.1 published written submissions; and
  - 48.2 published transcripts and minutes from forums, workshops and other stakeholder meetings.

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<sup>20</sup> 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.

<sup>21</sup> Except where information is explicitly identified as confidential.

## Chapter 4: The draft decisions package of papers

### Purpose of this chapter

49. The purpose of this chapter is to explain the package of papers we have released to communicate, and seek your views on, our draft decisions on the IM review.

### Our draft decisions package of papers

50. Our draft 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 draft decisions:
- 50.1 the overarching papers, being the summary paper, this introduction and process paper, and the framework paper;
  - 50.2 topic papers, which for each of the key topics for the review, explain the problems we have identified and our proposed solutions for addressing those problems;
  - 50.3 the Report on the IM review, which presents our draft decisions on whether and how to change the IMs as a result of the IM review so far;<sup>22</sup> and
  - 50.4 the draft amendments to the IM determinations.<sup>23</sup>
51. 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 draft decisions package of papers**

| Paper name                     | Applies to  |
|--------------------------------|-------------|
| <b>Overarching papers</b>      |             |
| Summary paper                  | All sectors |
| Introduction and process paper | All sectors |
| Framework for the IM review    | All sectors |

<sup>22</sup> We expect to publish the Report on the IM review on 22 June 2016.

<sup>23</sup> We expect to publish the draft amendments to the IM determinations on 22 June 2016.

| <b>Topic papers</b>   |  |
|---|--|
| 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"> <li>• Electricity distribution businesses</li> <li>• Gas transmission businesses</li> <li>• Gas distribution businesses</li> <li>• Transpower<sup>24</sup></li> </ul>   |
| Topic paper 2: CPP requirements   | Applies to the following sectors: <ul style="list-style-type: none"> <li>• Electricity distribution businesses</li> <li>• Gas transmission businesses</li> <li>• Gas distribution businesses</li> </ul>  |
| Topic paper 3: The future impact of emerging technologies in the energy sector  | All of the proposed solutions and changes to IMs described within this paper apply to electricity distribution businesses, and the proposed 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   |
| Topic paper 7: Related party transactions                                       | The issues described in this paper and our proposed approach to addressing them apply to electricity distribution businesses, gas distribution businesses, and gas transmission businesses   |
| <b>Report on the IM review</b>  | All sectors  |

<sup>24</sup> For Transpower, we only discuss RAB indexation, not the form of control.

|   |                                     |
|---|-------------------------------------|
| <b>Draft IM amendments</b>              |                                     |
| Draft EDB IM amendments                 | Electricity distribution businesses |
| Draft Transpower IM amendments          | Transpower                          |
| Draft GDB IM amendments                 | Gas distribution businesses         |
| Draft GTB IM amendments                 | Gas transmission businesses         |
| Draft airports IM amendments            | Airports                            |
| <b>Draft ID amendments for airports</b> | Airports                            |

52. In addition, we intend to publish a paper as part of our consultation for the 2017 gas DPP reset on 28 June 2016. That paper will discuss how a number of our draft changes to the IMs for gas distribution and transmission businesses (as proposed in our draft decisions on the IM review) would be implemented through the gas DPP reset. While the gas DPP reset is a separate process from the IM review, as noted above at paragraph 47, some submissions and material provided in relation to the gas DPP reset may also be relevant to the IM review.

**How the draft decisions papers fit together**

*Summary paper*

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

*Introduction and process paper*

54. This paper:
- 54.1 describes the process we have followed in reaching our draft decisions on the IM review;
  - 54.2 explains the package of papers we have released to communicate our draft decisions on the IM review; and
  - 54.3 provides details of the next steps in the IM review process, including how to submit on our draft decisions.

*Framework paper*

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

*Topic papers*

56. We have published seven topic papers, one for each of the key topics for the review. These papers explain the problems we have identified within each topic area and our proposed solutions for addressing them. In doing so, these papers:
- 56.1 explain how we arrived at the particular problems we have identified in each topic area; and
  - 56.2 explain why we favour our proposed solutions to these problems, as opposed to other alternative solutions considered.
57. As our consultation to date has been aligned with the key topics for the review, these papers provide the most comprehensive discussion of, and response to, submissions.

*Report on the IM review*

58. The Report on the IM review records our draft decisions on whether and how to change the existing IMs as part 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.<sup>25</sup>
59. The Report on the IM review presents our draft decisions against the existing IM decisions.<sup>26</sup> 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 existing IM decisions allows us to illustrate where our draft decisions involve changes to:
- 59.1 the policy intent of an existing IM decision; and/or
  - 59.2 the way an existing decision is implemented.

*Draft amended determinations*

60. We will also publish marked-up versions of the current consolidated IM determinations for each sector to demonstrate the drafting amendments that we propose for giving effect to our draft decisions.
61. We expect to publish the draft amended IM determinations on 22 June 2016.
62. We also expect to publish draft ID amendments for airports on 22 June 2016.<sup>27</sup>

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<sup>25</sup> We expect to publish the Report on the IM review on 22 June 2016.

<sup>26</sup> As discussed in the Report on the IM review, we have derived the existing IM decisions from our previous IM reasons papers. The set of existing IM decisions are given effect to through the IM determinations.

<sup>27</sup> These draft ID amendments are made under s 52Q, rather than under s 52Y. However, these ID amendments support some of our proposed solutions to problems identified within the airports

## Chapter 5: Next steps

### Purpose of this chapter

63. The purpose of this chapter is to explain the next steps on the IM review and how to make submissions on our draft decisions.

### Next steps on the IM review

64. We are still aiming to complete the IM review by December 2016. An overview of the anticipated process for reaching our final decisions is set out in Table 2 below.

**Table 2: Anticipated process steps between now and reaching final decisions**

| Step  | Date                         |
|---|------------------------------|
| Draft decisions papers published, except for the Report on the IM review  | 16 June 2016                 |
| Report on the IM review published   | 22 June 2016                 |
| Draft determinations (including draft ID amendments for airports) published   | 22 June 2016                 |
| Submissions on draft decisions papers due (including the Report on the IM review, but excluding draft determinations)       | 28 July 2016                 |
| Cross submissions on draft decisions papers due (including the Report on the IM review, but excluding draft determinations) | 11 August 2016               |
| Submissions on draft determinations (including draft ID amendments for airports) due  | 11 August 2016               |
| Process update  | September 2016 (anticipated) |
| Targeted technical consultation on updates to draft determinations  | October 2016 (anticipated)   |
| Final decisions on IM review  | December 2016                |

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profitability assessment topic for the IM review. Commerce Commission “Input methodologies review draft decisions: Topic paper 5 – Airports profitability assessment” (16 June 2016).

*Submissions on our draft decisions*

65. The process for submissions on our draft decisions is discussed below at paragraphs 72 to 83.

*Process update*

66. Following consideration of submissions and cross submissions received in response to our draft decisions, we will provide a process update on remaining engagement steps for our review process. At this stage, we anticipate providing this update in early September 2016.
67. We are open to adding additional engagement steps if, as we continue our analysis, we identify that there would be value in doing so.<sup>28</sup>

*Targeted technical consultation on updates to draft determinations*

68. As shown in Table 2, we anticipate having targeted technical consultation on our draft determinations in October 2016. This may be targeted at those areas of the draft determinations that we consider would benefit from further technical consultation.

**Areas of the IMs where we have not yet reached draft decisions**

69. Our current draft decisions package presents draft decisions on all IMs within the scope of the review except the IMs for:<sup>29</sup>
- 69.1 the Transpower Incremental Rolling Incentive Scheme (**IRIS**),<sup>30</sup>
  - 69.2 the CPP information requirements for gas,<sup>31</sup> and
  - 69.3 the related party transactions provisions.<sup>32</sup>
70. While these areas are still within the scope of the IM review, we have not yet reached draft decisions on them.

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<sup>28</sup> For example, as noted in Topic paper 4: Cost of capital issues, we are open to holding a workshop on whether an asset beta adjustment should apply for GPBs if, following consideration of submissions, we consider that this would be a useful addition to our process for reaching final decisions. Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016).

<sup>29</sup> All IMs are within the scope of the IM review, except for the Transpower Capex IM. See: Commerce Commission "Amended notice of intention (further amending the notice of intention dated 10 June 2015): Input methodologies review" (2 December 2015).

<sup>30</sup> As discussed in Part 2 of the Report on the review, which we expect to publish on 22 June 2016.

<sup>31</sup> As discussed in Commerce Commission "Input methodologies review draft decisions: Topic paper 2 – CPP requirements" (16 June 2016).

<sup>32</sup> As discussed in Commerce Commission "Input methodologies review draft decisions: Topic paper 7 – Related party transactions" (16 June 2016).

71. In the case of the three areas noted above where we have not yet reached draft decisions, it is possible that, once we have defined the relevant problems or reached a draft decision, we may need to extend our final decision dates on those areas beyond December 2016. We will update interested parties on our timing for draft and final decisions on these areas in our anticipated September 2016 process update.

### **Invitation to make submissions**

#### *Timeframes for submissions*

72. In respect of our draft decisions papers (including the Report on the IM review, but excluding draft determinations), we invite:

72.1 submissions by **5pm on 28 July 2016**; and

72.2 cross submissions by **5pm on 11 August 2016**.

73. In respect of our draft amended determinations (including draft ID amendments for airports), we invite submissions by **5pm on 11 August 2016**.<sup>33</sup>

74. The project timelines are set to allow a reasonable time for both interested parties and ourselves to engage with submissions. If submissions are received late it makes it difficult for them to be considered in full by all concerned. On that basis extensions may be granted on a case-by-case basis if requested by parties within a reasonable time and if such requests are accompanied by a proper explanation from the relevant chief executive.

75. Please also bear in mind that in a project this size that involves many interested parties, it might not be practical to grant extensions within a week before submissions/cross submissions are due except in exceptional circumstances.

76. Material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions.

#### *Address for submissions*

77. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)

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<sup>33</sup> Rather than providing for cross submissions on the draft determinations, we have instead provided an extended period for primary submissions on those drafts.



*Focus of submissions*

78. Please clearly indicate within your submission which aspects of our draft decisions package it relates to.
79. For submissions on our draft determinations:
  - 79.1 We encourage you to provide detailed comments on any concerns with the drafting proposed in our draft determinations; for example, where our proposed determination drafting is ambiguous to the reader or does not clearly give effect to our described draft decisions to change the IMs.
  - 79.2 In addition to indicating any errors or issues with the drafting of the draft determinations, we would value examples of alternative drafting that might address those errors or issues.
  - 79.3 We are also interested in your views on the timing for amendments coming into effect, and whether transitional arrangements may be required for some provisions. In particular, we seek your views on whether certain proposed changes to the IMs for ID should only take effect from the next regulatory period (ie, to maintain alignment between the IMs for ID and price-quality regulation for those suppliers subject to both types of regulation).
  - 79.4 As noted in paragraph 68 above, any further technical consultation on our draft determinations following the receipt of cross submissions may be limited to specific areas where we consider that it would be helpful.

*Format for submissions*

80. We prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format.
81. Submissions on our determination drafting may be provided in a combination of your written submission, your mark ups of a MS Word copy of the draft determination, and a tabular form in an unlocked MS Excel spreadsheet.

*Requests for confidentiality*

82. We encourage full disclosure of submissions so that all information can be tested in an open and transparent manner. However, we offer the following guidance where you wish to provide information in confidence:<sup>34</sup>
- 82.1 if you include confidential material in a submission, both confidential and public versions of the submissions should be provided; and
  - 82.2 the responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.
83. We request that you provide multiple versions of your submission if it contains confidential information or if you wish for the published electronic copies to be 'locked'. This is because we intend to publish all submissions and cross submissions on our website. Where relevant, please provide both an 'unlocked' electronic copy of your submission, and a clearly labelled 'public version'.

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<sup>34</sup> You can also request that we make orders under s 100 of the Act in respect of information that should not be made public. Any request for a s 100 order must be made when the relevant information is supplied to us, and must identify the reasons why the relevant information should not be made public. We will provide further information on s 100 orders if requested by parties. A benefit of such orders is to enable confidential information to be shared with specified parties on a restricted basis for the purpose of making submissions. Any s 100 order will apply for a limited time only as specified in the order. Once an order expires, we will follow our usual process in response to any request for information under the Official Information Act 1982.

## Attachment A: Key steps in the IM review process

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

**Table A1: Key steps in the IM review process**

| <b>Date</b>       | <b>Process step</b>  |
|-------------------|--|
| 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)  |

**Attachment B: List of all IM determinations and reasons papers**

85. Table B1 lists the current, consolidated versions of the IM determinations. These include all IM amendments made as at 16 June 2016. As such, these consolidated versions represent the current IMs, which are the subject of the IM review (with the exception of the Transpower Capex IM Determination).
86. Tables B2–B7 list all IM determinations and reasons papers published by the Commission.<sup>35</sup> It also includes a brief description of each.

**Table B1: List of current consolidated IM determinations for all sectors**

| Sector                   | Current consolidated IM determination  | Date published   |
|--------------------------|--|------------------|
| Electricity distribution | <a href="#"><i>Electricity Distribution Services Input Methodology Determination 2012 [2012] NZCC 26 – consolidated as of 15 December 2015</i></a> | 3 February 2016  |
| Gas distribution         | <a href="#"><i>Gas Distribution Services Input Methodology Determination 2012 [2012] NZCC 27 – consolidated as of 15 December 2015</i></a>         | 3 February 2016  |
| Gas transmission         | <a href="#"><i>Gas Transmission Services Input Methodology Determination 2012 [2012] NZCC 28 – consolidated as of 15 December 2015</i></a>         | 3 February 2016  |
| Transpower               | <a href="#"><i>Consolidated Transpower Input Methodologies Determination 2012 [2012] NZCC 17 – consolidated as at 12 February 2016</i></a>         | 12 February 2016 |
| Transpower Capex         | <a href="#"><i>Transpower Capital Expenditure Input Methodology Determination 2012 [2012] NZCC 2 – consolidated as at 5 February 2015</i></a>      | 5 February 2015  |

<sup>35</sup> 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 the tables in Attachment B.



|          |   |                  |
|----------|---|------------------|
| Airports | <a href="#"><u>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010, decision number 709 (22 December 2010) – consolidated as of 29 February 2016</u></a> | 29 February 2016 |
|----------|---|------------------|

**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   |
|--|---|--|
| <a href="#"><u>Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010, decision number 710 (22 December 2010)</u></a> | <a href="#"><u>Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</u></a> | Original IMs determination for electricity distribution services.  |
| <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No. 1) 2012 [2012] NZCC 18 (29 June 2012)</u></a>                     | <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</u></a> | 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 information disclosure and customise price-quality path proposals. |

|   |   |   |
|---|---|---|
| <p><a href="#"><u>Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 (28 September 2012)</u></a></p>   | <p><a href="#"><u>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons Papers (28 September 2012)</u></a></p>                     | <p>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.</p> |
| <p><a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No. 2) 2012 [2012] NZCC 34 (15 November 2012)</u></a></p>   | <p><a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012: Reasons paper (15 November 2012)</u></a></p>  | <p>Amendments relating to the assumptions of the timing of cash-flows used to determine customised price-quality paths for electricity distribution businesses, gas distribution businesses and gas transmission businesses.</p>  |
| <p><a href="#"><u>Electricity Lines Services Input Methodologies Determination Amendment 2014 [2014] NZCC 24 (26 September 2014)</u></a></p>  | <p><a href="#"><u>Amendment to the WACC determination date for electricity lines services, including Transpower: Reasons paper (29 September 2014)</u></a></p>                        | <p>Amended the date by which we must determine the estimates of WACC for electricity distributors and Transpower.</p>   |
| <p><a href="#"><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></a></p> | <p><a href="#"><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></a></p> | <p>This amendment gives effect to the Commission's decision to move from using the 75<sup>th</sup> percentile estimate of WACC to the 67<sup>th</sup> percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p>  |

|  |   |   |
|--|---|---|
| <p><a href="#"><u>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</u></a></p> | <p><a href="#"><u>Wellington International Airport Ltd &amp; Ors v Commerce Commission [2013] NZHC 3289 [11 December 2013]</u></a></p>  | <p>Amendments by the High Court following merits appeal.</p>  |
| <p><a href="#"><u>Electricity Distribution Input Methodology Amendments Determination 2014 [2014] NZCC 31 (27 November 2014)</u></a></p>             | <p><a href="#"><u>Input methodology amendments for electricity distribution services: Default price-quality paths (Reasons paper) (27 November 2014)</u></a></p>  | <p>Amendments primarily relating to changes to the input methodologies for default price-quality paths. However, they also include related amendments which affect the input methodologies for information disclosure and customised price-quality paths.</p> |
| <p><a href="#"><u>Incremental Rolling Incentive Scheme Input Methodology Amendments Determination 2014 [2014] NZCC 32 (27 November 2014)</u></a></p> | <p><a href="#"><u>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (Reasons paper) (27 November 2014)</u></a></p> | <p>Amendments to the IRIS in the input methodologies for electricity distribution services and Transpower New Zealand. The amendments will affect incentives to control expenditure under default and individual price-quality paths.</p>                     |

|   |  |   |
|---|--|---|
| <p><a href="#"><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></a></p> | <p><a href="#"><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></a></p>                   | <p>Sets out our decision not to amend the 25<sup>th</sup> to 75<sup>th</sup> 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 67<sup>th</sup> percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p> |
| <p><a href="#"><u>Electricity and Gas (Customised Paths) Input Methodology Amendments Determination 2015 [2015] NZCC 28 (12 November 2015)</u></a></p>  | <p><a href="#"><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></a></p>                 | <p>Amendments to the input methodologies 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><a href="#"><u>Electricity Distribution Services (Incremental Rolling Incentive Scheme) Input Methodology Amendments Determination 2015 [2015] NZCC 32 (25 November 2015)</u></a></p>                                      | <p><a href="#"><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></a></p> | <p>Amendments to the input methodologies affecting the incentives electricity distributors have to control expenditure when their prices are regulated.</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  |
|--|---|--|
| <a href="#"><u>Commerce Act (Gas Distribution Services Input Methodologies) Determination 2010, decision number 711 (22 December 2010)</u></a> | <a href="#"><u>Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper (22 December 2010)</u></a>                          | Original IMs determination for gas distribution businesses.  |
| <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No. 1) 2012 [2012] NZCC 18 (29 June 2012)</u></a>             | <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</u></a>                         | 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 information disclosure and customise price-quality path proposals.   |
| <a href="#"><u>Gas Distribution Services Input Methodologies Determination 2012 [2012] NZCC 27 (28 September 2012)</u></a>                     | <a href="#"><u>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper (28 September 2012)</u></a> | 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. |
| <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No. 2) 2012 [2012] NZCC 34 (15 November 2012)</u></a>         | <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012: Reasons Paper (15 November 2012)</u></a>                     | Amendments relating to the assumptions of the timing of cash-flows used to determine customised price-quality paths for electricity distribution businesses, gas distribution businesses and gas transmission businesses.  |

|   |   |  |
|---|---|--|
| <p><a href="#"><u>Gas Pipeline Services Input Methodologies Determination Amendment (No. 1) 2013 [2013] NZCC 3 (25 February 2013)</u></a></p>   | <p><a href="#"><u>Amendments to input methodologies for gas distribution and transmission services: Reasons paper (26 February 2013)</u></a></p>                                      | <p>Amendments to the IMs that apply to default price-quality paths for suppliers of gas pipeline services, including error corrections.</p>  |
| <p><a href="#"><u>Gas Distribution Services Input Methodologies Determination Amendment 2013 [2013] NZCC 23 (3 December 2013)</u></a></p>   | <p><a href="#"><u>Implementing the change to Powerco's disclosure year: Technical briefing paper on amendments to gas input methodologies (3 December 2013)</u></a></p>               | <p>Amendments to the IMs for gas distribution services. 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><a href="#"><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></a></p> | <p><a href="#"><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></a></p> | <p>This amendment gives effect to the Commission's decision to move from using the 75<sup>th</sup> percentile estimate of WACC to the 67<sup>th</sup> percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p> |
| <p><a href="#"><u>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</u></a></p>  | <p><a href="#"><u>Wellington International Airport Ltd &amp; Ors v Commerce Commission [2013] NZHC 3289 [11 December 2013]</u></a></p>  | <p>Amendments by the High Court following merits appeal.</p>   |

|   |  |   |
|---|--|---|
| <p><a href="#"><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></a></p> | <p><a href="#"><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></a></p>   | <p>Sets out our decision not to amend the 25<sup>th</sup> to 75<sup>th</sup> 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 67<sup>th</sup> percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p> |
| <p><a href="#"><u>Electricity and Gas (Customised Paths) Input Methodology Amendments Determination 2015 [2015] NZCC 28 (12 November 2015)</u></a></p>  | <p><a href="#"><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></a></p> | <p>Amendments to the input methodologies 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>  |

**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  |
|--|---|--|
| <a href="#"><u>Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010, decision number 712 (22 December 2010)</u></a>           | <a href="#"><u>Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper (22 December 2010)</u></a>                          | Original IMs determination for gas transmission businesses.  |
| <a href="#"><u>Commerce Act (Gas Transmission Services Input Methodologies) Amendment Determination 2011, decision number 744 (19 December 2011)</u></a> | 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.  |
| <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No. 1) 2012 [2012] NZCC 18 (29 June 2012)</u></a>                       | <a href="#"><u>Electricity and Gas Input Methodologies Determination Amendments (No.1) 2012: Reasons Paper (29 June 2012)</u></a>                         | 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 information disclosure and customise price-quality path proposals.   |
| <a href="#"><u>Gas Transmission Services Input Methodology Determination 2012 [2012] NZCC 28 (28 September 2012)</u></a>                                 | <a href="#"><u>Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths: Reasons paper (28 September 2012)</u></a> | 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. |



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

|   |  |   |
|---|--|---|
| <p><a href="#"><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></a></p> | <p><a href="#"><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></a></p>                    | <p>Sets out our decision not to amend the 25<sup>th</sup> to 75<sup>th</sup> 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 67<sup>th</sup> percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p> |
| <p><a href="#"><u>Electricity and Gas (Customised Paths) Input Methodology Amendment Determination 2015 [2015] NZCC 28 (12 November 2015)</u></a></p>   | <p><a href="#"><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></a></p> | <p>Amendments to the input methodologies 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>  |

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

| IM determination  | Associated reasons paper  | Brief description                                |
|---|---|--|
| <p><a href="#"><u>Commerce Act (Transpower Input Methodologies) Determination 2010, decision number 713, (22 December 2010)</u></a></p> | <p><a href="#"><u>Input Methodologies (Transpower) Reasons Paper (22 December 2010)</u></a></p> | <p>Original IMs determination for Transpower</p> |

|   |  |  |
|---|--|--|
| <p><a href="#"><u>Commerce Act (Transpower Input Methodologies) Amendment Determination (No. 1) 2011, Decision number 736 (1 November 2011)</u></a></p> | <p>Explanatory note provided in the determination.</p>   | <p>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.</p> |
| <p><a href="#"><u>Commerce Act (Transpower Input Methodologies) Determination 2010 [2012] NZCC 17 (29 June 2012)</u></a></p>                            | <p><a href="#"><u>Input Methodologies (Transpower) Supplementary Reasons Paper for Leverage in Cost of Capital (29 June 2012)</u></a></p>                      | <p>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.</p>                                   |
| <p><a href="#"><u>Transpower Input Methodologies Amendments Determination 2014 [2014] NZCC 22 (28 August 2014)</u></a></p>                              | <p><a href="#"><u>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</u></a></p>  | <p>Amendments to address issues relevant to the determination of Transpower's individual price-quality path (IPP) to apply from 1 April 2015.</p>  |
| <p><a href="#"><u>Electricity Lines Services Input Methodologies Determination Amendment 2014 [2014] NZCC 24 (26 September 2014)</u></a></p>            | <p><a href="#"><u>Amendment to the WACC determination date for electricity lines services, including Transpower: Reasons paper (29 September 2014)</u></a></p> | <p>Amended the date by which we must determine the estimates of WACC for electricity distributors and Transpower.</p>  |

|   |   |  |
|---|---|--|
| <p><a href="#"><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></a></p> | <p><a href="#"><u>Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper (30 October 2014)</u></a></p>     | <p>This amendment gives effect to the Commission's decision to move from using the 75<sup>th</sup> percentile estimate of WACC to the 67<sup>th</sup> percentile estimate of WACC for the purposes of price-quality regulation for electricity lines services and gas pipeline services.</p> |
| <p><a href="#"><u>Incremental Rolling Incentive Scheme Input Methodology Amendments Determination 2014 [2014] NZCC 32 (27 November 2014)</u></a></p>  | <p><a href="#"><u>Amendments to input methodologies for electricity distribution services and Transpower New Zealand: Incremental Rolling Incentive Scheme (27 November 2014)</u></a></p> | <p>Amendments to the Incremental Rolling Incentive Scheme (IRIS) in the input methodologies for electricity distribution services and Transpower New Zealand. The amendments will affect incentives to control expenditure under default and individual price-quality paths.</p>             |
| <p><a href="#"><u>Transpower Input Methodologies Amendments Determination 2014 (No. 2) [2014] NZCC 34 (27 November 2014)</u></a></p>  | <p><a href="#"><u>Amendments to input methodologies for Transpower to provide a listed project mechanism: Reasons paper (27 November 2014)</u></a></p>                                    | <p>Provides a listed project mechanism through amendments to the input methodologies for electricity lines services supplied by Transpower.</p>  |

|   |  |   |
|---|--|---|
| <p><a href="#"><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></a></p> | <p><a href="#"><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></a></p> | <p>Sets out our decision not to amend the 25<sup>th</sup> to 75<sup>th</sup> 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 67<sup>th</sup> percentile estimates so that these are available to ourselves and other interested persons to be used in analysing the performance of suppliers.</p> |
| <p><a href="#"><u>Transpower Input Methodologies Amendment Determination 2015 [2015] NZCC 3 (5 February 2015)</u></a></p>   | <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>   |
| <p><a href="#"><u>Transpower Input Methodologies Amendment Determination 2015 (No.2) [2015] NZCC 27 (21 October 2015)</u></a></p>   | <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>   |

**Table B6: List of IM determinations and reasons papers published by the Commission in respect of Transpower’s capex<sup>36</sup>**

| IM determination  | Associated reasons paper  | Brief description  |
|---|---|--|
| <a href="#"><u>Transpower Capital Expenditure Input Methodology Determination 2012 [2012] NZCC 2 (31 January 2012)</u></a>    | <a href="#"><u>Transpower Capital Expenditure Input Methodology: Reasons Paper (31 January 2012)</u></a>  | 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).                         |
| <a href="#"><u>Transpower Input Methodologies Amendments Determination 2014 [2014] NZCC 22 (28 August 2014)</u></a>           | <a href="#"><u>Amendments to input methodologies for Transpower 2014: Reasons paper (28 August 2014)</u></a>                                    | Amendments to address issues relevant to the determination of Transpower’s individual price-quality path (IPP) to apply from 1 April 2015. |
| <a href="#"><u>Transpower Input Methodologies Amendments Determination 2014 (No. 2) [2014] NZCC 34 (27 November 2014)</u></a> | <a href="#"><u>Amendments to input methodologies for Transpower to provide a listed project mechanism: Reasons paper (27 November 2014)</u></a> | Provides a listed project mechanism through amendments to the input methodologies for electricity lines services supplied by Transpower.   |

<sup>36</sup> 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.

|   |  |   |
|---|--|---|
| <p><a href="#"><u>Transpower Input Methodologies Amendment Determination 2015 [2015] NZCC 3 (5 February 2015)</u></a></p> | <p>Explanatory note provided in the determination.</p> | <p>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.</p> |
|---|--|---|

**Table B7: List of IM determinations and reasons papers published by the Commission in respect of Airports**

| IM determination   | Associated reasons paper  | Brief description   |
|--|---|---|
| <p><a href="#"><u>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010, decision number 709 (22 December 2010)</u></a></p> | <p><a href="#"><u>Input Methodologies (Airport Services): Reasons Paper (22 December 2010)</u></a></p>  | <p>Original IMs determination for airports.</p>   |
| <p><a href="#"><u>Publication of Electricity, Gas, and Airport Input Methodology Amendments ordered by the High Court (27 November 2014)</u></a></p>   | <p><a href="#"><u>Wellington International Airport Ltd &amp; Ors v Commerce Commission [2013] NZHC 3289 [11 December 2013]</u></a></p>  | <p>Amendments by the High Court following merits appeal.</p>  |
| <p><a href="#"><u>Airport Services (Land Valuation) Input Methodologies Amendments Determination 2016 [2016] NZCC 3 (24 February 2016)</u></a></p>     | <p><a href="#"><u>Input methodologies review: Amendments to input methodologies for airports land valuation – Final reasons paper for the airports fast track review (24 February 2016)</u></a></p> | <p>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.</p> |







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## **Input methodologies review draft decisions**

**Framework for the IM review**

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## Associated documents

| Publication date           | Reference         | Title   |
|----------------------------|-------------------|---|
| 16 June 2016               | 978-1-869455-08-8 | Input methodologies review draft decisions:<br>Summary paper  |
| 16 June 2016               | 978-1-869455-09-5 | Input methodologies review draft decisions: Introduction<br>and process paper   |
| 16 June 2016               | 978-1-869455-11-8 | Input methodologies review draft decisions:<br>Topic paper 1 – Form of control and RAB indexation for<br>EDBs, GPBs and Transpower                  |
| 16 June 2016               | 978-1-869455-18-7 | Input methodologies review draft decisions:<br>Topic paper 2 – CPP requirements   |
| 16 June 2016               | 978-1-869455-12-5 | Input methodologies review draft decisions:<br>Topic paper 3 – The future impact of emerging<br>technologies in the energy sector                   |
| 16 June 2016               | 978-1-869455-13-2 | Input methodologies review draft decisions:<br>Topic paper 4 – Cost of capital issues   |
| 16 June 2016               | 978-1-869455-14-9 | Input methodologies review draft decisions:<br>Topic paper 5 – Airports profitability assessment  |
| 16 June 2016               | 978-1-869455-15-6 | Input methodologies review draft decisions:<br>Topic paper 6 – WACC percentile for airports   |
| 16 June 2016               | 978-1-869455-17-0 | Input methodologies review draft decisions:<br>Topic paper 7 – Related party transactions   |
| 22 June 2016<br>(expected) | 978-1-869455-16-3 | Input methodologies review draft decisions:<br>Report on the IM review  |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Electricity Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 26                              |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 27                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 28                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Input Methodologies) Determination 2010</i><br>(Decision 709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies<br/>Determination 2012</i> [2012] NZCC 17   |

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 draft decisions on the input methodologies review (**IM review**).
- X2. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.

### Context for the IM review

- X3. 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.<sup>1</sup>
- X4. 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.<sup>2</sup>
- X5. The following services are currently regulated by Part 4:
  - X5.1. electricity lines services;
  - X5.2. gas pipeline services; and
  - X5.3. suppliers of specified airport services.
- X6. 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.
- X7. We determined the original IMs on 22 December 2010.<sup>3</sup> 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.<sup>4</sup> In addition, following merits review of the original IMs, specific

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

<sup>2</sup> Section 52A of the Act.

<sup>3</sup> 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.

<sup>4</sup> 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>.

aspects of a small number of IMs were amended.<sup>5</sup> Some of these IMs have also been subject to amendment pursuant to s 52X.

- X8. The Act requires us to review all IMs no later than 7 years after their publication.<sup>6</sup>
- X9. We commenced the current review of IMs (except Transpower's Capex IM) on 10 June 2015 by issuing a notice of intention.<sup>7</sup> 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.
- X10. This document describes the framework that we have applied in reaching our draft decisions. This consists of two main components:
- X10.1. decision-making framework – describes our approach to reaching draft decisions on the IM review, including how we decided whether and how we propose to change the IMs; and
- X10.2. 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**

- X11. There are two major conceptual elements to the approach we have taken to reaching draft decisions on the IM review:
- X11.1. **Review element:** Reviewing the IMs and identifying which IMs we should consider changing and why; and
- X11.2. **Change element:** Deciding whether, and if so how, to change to an IM following the review element.
- X12. These two elements are conceptual steps, rather than temporal steps: consideration of the two elements is not a purely linear process.

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

- X13. In short, in reviewing each existing IM, this element of 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 existing IM.

---

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

<sup>6</sup> Section 52Y of the Act.

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

- X14. This can be expanded to a series of more specific questions which we have considered where relevant, including:
- X14.1. Is the policy intent behind the IM still relevant and appropriate?
  - X14.2. Is the current IM achieving that intent?
  - X14.3. Could the current IM achieve the policy intent better?<sup>8</sup>
  - X14.4. 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?
  - X14.5. 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?*

- X15. In addition to guiding us in identifying which IMs to consider changing, our decision-making framework guided us in reaching draft decisions on whether and how to change the IMs.
- X16. In reaching our draft decisions, we have only proposed changing the current IMs where this appears likely to:
- X16.1. promote the Part 4 purpose in s 52A more effectively;
  - X16.2. promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
  - X16.3. significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
- X17. We have also considered, where relevant, whether there are alternative solutions to the identified problem with the IM that do not involve changing the IMs as part of the review.

#### **Application of key economic principles**

- X18. 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.

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<sup>8</sup> As discussed further below at para 94 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.

X19. We consider there are three key economic principles which are relevant to the Part 4 regime:

X19.1. **Real financial capital maintenance (FCM):**<sup>9</sup> 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.

X19.2. **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.

X19.3. **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.

X20. 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 progress the wider framework for making IM changes at a later date**

X21. We propose to progress the discussion draft framework for making IM changes beyond the IM review, which was included in our discussion draft paper at Attachment B,<sup>10</sup> in 2017 following the IM review.

X22. We remain of the view that a wider framework for making changes beyond the IM review would be useful. However, we also consider there is value in delaying the further development of this draft framework. The draft has served its immediate purpose in the review by assisting us and submitters to contextualise the current review within the other avenues that exist for making IM changes beyond the review. It will be useful to further consider this framework following the current review, particularly in light of the continuing focus on emerging technologies as part of the review.

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

<sup>10</sup> 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).



## Chapter 1: Introduction

### Purpose of this paper

1. The purpose of this paper is to explain:
  - 1.1 the decision-making framework that we have applied in reaching our draft decisions;
  - 1.2 the key economic principles we have applied in reaching our draft decisions; and
  - 1.3 how we have taken submissions on our discussion draft frameworks paper into account.<sup>11</sup>

### 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 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 draft 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.

### Invitation to make submissions

5. We invite submissions on this paper (including on the decision-making framework we have applied, and economic principles that have guided us, in reaching our draft decisions) by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
6. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
7. Please clearly indicate within your submission which aspects of this paper it relates to.

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<sup>11</sup> 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).

8. The Introduction and process paper contains further details about the submissions process. This includes:<sup>12</sup>
  - 8.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
  - 8.2 providing guidance on requesting an extension to the submissions timeframes;
  - 8.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
  - 8.4 providing guidance on making confidential submissions.

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<sup>12</sup> Commerce Commission “Input methodologies review draft decisions: Introduction and process paper” (16 June 2016), chapter 5.

## Chapter 2: Context for the IM review framework

### Purpose of this chapter

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

### The Part 4 regime

10. Part 4 of 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.<sup>13</sup>
11. 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:<sup>14</sup>

... 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*

12. 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.<sup>15</sup>

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<sup>13</sup> Section 52 of the Act.

<sup>14</sup> Section 52A of the Act.

<sup>15</sup> 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, paras 18-22.

13. 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.<sup>16</sup> In our view, consumers may be direct or indirect acquirers of regulated services.<sup>17</sup>
14. 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.<sup>18</sup> 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.
15. 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.<sup>19</sup> Rather, we must balance the s 52A(1)(a)-(d) outcomes,<sup>20</sup> and must exercise judgement in doing so. When exercising this judgement we are guided by what best promotes the long-term benefit of consumers,<sup>21</sup> and must not treat any of the s 52A(1)(a)-(d) outcomes as paramount.<sup>22</sup>
16. 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.

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<sup>16</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 222.

<sup>17</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.4.9.

<sup>18</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 25-27.

<sup>19</sup> Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), para A7.

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

<sup>21</sup> See the discussion of our decision to adopt of the 75<sup>th</sup> percentile for WACC in *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 1391-1492.

<sup>22</sup> *Ibid*, para 684.

*Who is subject to Part 4 regulation?*

17. 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:
- 17.1 *Electricity lines services:*<sup>23</sup> 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.<sup>24</sup> Electricity lines services are provided by three groups of suppliers:
- 17.1.1 Transpower – which is subject to information disclosure (**ID**) regulation and individual price-quality (**IPP**) regulation;
- 17.1.2 seventeen non-exempt electricity distributors – which are subject to ID regulation and default/customised price-quality regulation (**DPP/CPP regulation**);<sup>25</sup> and
- 17.1.3 twelve exempt electricity distributors – which are subject to ID regulation only.<sup>26</sup>
- 17.2 *Gas pipeline services:*<sup>27</sup> Gas pipeline services means the conveyance of natural gas by pipeline and includes the assumption of responsibility for losses of natural gas.<sup>28</sup> Small scale conveyance is excluded from the definition (and Part 4 regulation). There are currently four regulated gas distribution businesses and two gas transmission businesses,<sup>29</sup> 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.
- 17.3 *Suppliers of specified airport services:*<sup>30</sup> 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.

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<sup>23</sup> Section 54E of the Act.

<sup>24</sup> Section 54C of the Act.

<sup>25</sup> Sections 54F and 54G of the Act.

<sup>26</sup> 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.

<sup>27</sup> Section 55B of the Act.

<sup>28</sup> Section 55A of the Act.

<sup>29</sup> First Gas is currently in the process of purchasing of Maui Development Limited's gas transmission assets, following which there would only be one gas transmission business.

<sup>30</sup> Section 56B of the Act.

18. 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.<sup>31</sup>

*How are these suppliers regulated?*

19. Part 4 regulatory control involves a two-step process which requires us:
- 19.1 first, to determine, pursuant to s 52T, IMs that will be of general application to the supply of particular services; and
- 19.2 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*

20. IMs are the upfront rules, processes and requirements of Part 4 regulation.<sup>32</sup> 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.

21. 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

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<sup>31</sup> Sections 52H-52Q of the Act.

<sup>32</sup> Sections 52R and 52C of the Act.

- (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.

22. We determined the original IMs required by s 52T(1) on 22 December 2010.<sup>33</sup> 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).<sup>34</sup> In addition, following merits review of the original IMs, specific aspects of a small number of IMs were amended.<sup>35</sup> 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.<sup>36</sup>
23. 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.<sup>37</sup>
24. However, some uncertainty remains inevitable.<sup>38</sup> As the Court of Appeal observed in *Commerce Commission v Vector Ltd* “certainty is a relative rather than an absolute value”,<sup>39</sup> and:<sup>40</sup>

... 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

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<sup>33</sup> 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.

<sup>34</sup> 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>.

<sup>35</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289; *Vector Ltd v Commerce Commission* [2012] NZCA 220.

<sup>36</sup> Commerce Commission “Input methodologies review draft decisions: Introduction and process paper” (16 June 2016), Attachment A.

<sup>37</sup> *Vector Ltd v Commerce Commission* [2012] NZSC 99, [2013] 2 NZLR 445, para 2, 64.

<sup>38</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 214.

<sup>39</sup> *Commerce Commission v Vector Ltd* [2012] NZCA 220, para 34.

<sup>40</sup> *Ibid*, para 60.



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.

25. 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.<sup>41</sup> 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.<sup>42</sup> 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).
26. 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:<sup>43</sup>
- 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.
27. 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. 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.<sup>44</sup>

*IMs must be reviewed every seven years*

28. 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 absolute 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).

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<sup>41</sup> *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 165.

<sup>42</sup> *Ibid.*

<sup>43</sup> 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.

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

29. 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.
30. We commenced the current review of IMs (except Transpower's Capex IM) on 10 June 2015 by issuing a notice of intention.<sup>45</sup> 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*

31. Part 4 provides for four types of regulation: ID regulation;<sup>46</sup> negotiate/arbitrate regulation;<sup>47</sup> DPP/ CPP regulation;<sup>48</sup> and IPP regulation.<sup>49</sup>
32. 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.
33. We have made s 52P determinations relating to all suppliers regulated under Part 4:
  - 33.1 All suppliers of electricity lines services, gas pipeline services and the specified airports are subject to ID regulation.
  - 33.2 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.
34. 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.

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

<sup>46</sup> Subpart 4 of Part 4 of the Act.

<sup>47</sup> Subpart 5 of Part 4 of the Act.

<sup>48</sup> Subpart 6 of Part 4 of the Act.

<sup>49</sup> Subpart 7 of Part 4 of the Act.

35. 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.<sup>50</sup> 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.
36. 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.”<sup>51</sup>
37. 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.<sup>52</sup> 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.
38. 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 ‘re-opener’.<sup>53</sup> In setting a CPP, we must apply relevant IMs,<sup>54</sup> may set any path we consider appropriate,<sup>55</sup> and the requirements in s 53P do not apply.
39. 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.<sup>56</sup>
40. 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.<sup>57</sup>

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<sup>50</sup> Section 53M of the Act.

<sup>51</sup> Section 53K of the Act.

<sup>52</sup> Sections 53O and 53P of the Act.

<sup>53</sup> We use the term ‘re-opener’ to refer to the reconsideration of a price-quality path under s 52T(1)(c)(ii) of the Act.

<sup>54</sup> 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.

<sup>55</sup> Section 53V of the Act.

<sup>56</sup> Section 53ZC of the Act.

41. Utilising our published IMs, we make s 52P determinations setting regulation for these suppliers.

#### **How the IM review framework has evolved**

42. 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.<sup>58</sup>
43. A number of submitters on our open letter requested that we develop a decision-making framework for the IM review.<sup>59</sup> 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.<sup>60</sup>
44. 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.<sup>61</sup> We also presented on the draft frameworks at the IM review forum on 29 July 2015.<sup>62</sup>
45. 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.<sup>63</sup>
46. We agree that certain key economic principles have played an important role in our past decisions and 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.

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

<sup>58</sup> Commerce Commission “Open letter on our proposed scope, timing and focus for the review of input methodologies” (27 February 2015).

<sup>59</sup> 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.

<sup>60</sup> Transpower “Input methodologies: scoping the statutory review” (31 March 2015), p. 3-4.

<sup>61</sup> 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).

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

<sup>63</sup> 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.

### **Nature of the framework**

47. 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.
48. We must also follow the process and publishing requirements prescribed by the Act.<sup>64</sup> 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.<sup>65</sup>
49. 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 ss 52A and 52R.
50. 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 on our draft decision paper emphasised the need to balance prescription and flexibility when developing a framework,<sup>66</sup> 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.

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<sup>64</sup> Section 52V of the Act.

<sup>65</sup> Section 52Z of the Act.

<sup>66</sup> 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**

51. In the problem definition paper and the discussion draft paper, 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.<sup>67</sup> This view reflects:
- 51.1 The position that we have taken previously that, after setting the initial IMs, we do not have the power to set IMs on new matters.<sup>68</sup> Section 52U gave us the power to set the IMs in 2010. We do not have the power under the Act to set any further IMs on new matters after 2010 in respect of the services currently regulated under Part 4.<sup>69</sup>
- 51.2 An additional factor relevant to the IM review context, that s 52Y only contemplates a review of existing, published IMs.<sup>70</sup>
52. Many submitters challenged this view.<sup>71</sup> Our discussion draft invited submitters to provide examples of any areas where a change to an IM is required that might cross over into creating an IM on a new matter.<sup>72</sup> Two submitters provided some examples of the kinds of matters where an IM on a new matter might be a potential solution.<sup>73</sup>
53. We acknowledge that it can be unclear as to what would constitute creation of an IM on a matter not covered by an existing published IM as opposed to an amendment to improve an existing IM. While it is possible to amend an existing published IM to address an issue where the IM is currently ineffective, we need to consider carefully in each circumstance whether this constitutes an IM on a matter not covered by an existing published IM.

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<sup>67</sup> 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; and Commerce Commission “Input methodologies review invitation to contribute to problem definition” (16 June 2015), para 44–48.

<sup>68</sup> See Commerce Commission “Clarification on SPA IM” (letter to the ENA) (20 July 2012), para 3, available at: [www.comcom.govt.nz/dmsdocument/6011](http://www.comcom.govt.nz/dmsdocument/6011).

<sup>69</sup> In the event of a Part 4 inquiry into whether to recommend regulation of goods or services that are currently not subject to regulation under Part 4, we are required to set IMs if we are satisfied that the competition and market power tests are met (see s 52U(3) of the Act).

<sup>70</sup> See Commerce Commission “Input methodologies review invitation to contribute to problem definition” (16 June 2015), para 44–48.

<sup>71</sup> 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. 5–7; Vector “Input methodologies review – Invitation to contribute to problem definition” (21 August 2015), para 13; Transpower “Input methodologies: threshold for changing IMs and the creation of new IMs” (25 June 2015), p. 4–5.

<sup>72</sup> 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 27.

<sup>73</sup> ETNZ “Submission on IM decision-making discussion draft” (21 August 2015), p. 2–3; BARNZ “Submission by BARNZ on problem definition paper for the input methodologies review” (21 August 2015), p. 4–5.

54. Having considered submitters' views and the above suggestions, we do not consider that there currently exists any identified problem that would require an IM on a new matter.
55. The question of whether or not we can create a new IM is therefore not a live issue at this point. As noted in our October 2015 process update paper,<sup>74</sup> we remain open to reconsidering our preliminary view if, as the review progresses, we consider that resolution of any identified problem would require an IM on a new matter.<sup>75</sup>

**We propose to progress the wider framework at a later date**

56. We propose to progress the draft framework for making IM changes beyond the IM review, which was included in our discussion draft paper at Attachment B, at a later date.<sup>76</sup>
57. That draft framework for making changes beyond the IM review considers, over a longer time horizon (extending beyond the current review):
  - 57.1 when we might make different types of changes to the IMs (and in doing so suggests different categories of IM changes); and
  - 57.2 what factors we might take into account in deciding whether to make a change under each of those categories.
58. We remain of the view that a wider framework for making changes beyond the IM review would be useful. However, we also consider there is value in delaying the further development of this draft framework. The draft has served its immediate purpose in the review by assisting us and submitters to contextualise the current review within the other avenues that exist for making IM changes beyond the review. It will be useful to further consider this framework following the current review, particularly in light of the continuing focus on emerging technologies as part of the review.
59. Accordingly, we propose to reconsider the wider framework in 2017 following the completion of the IM review.

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<sup>74</sup> Commerce Commission "Input methodologies review: process update paper" (30 October 2015), p. 10–11.

<sup>75</sup> Including those issues raised by ETNZ and BARNZ referred to above.

<sup>76</sup> 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).

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

#### Purpose of this chapter

60. The purpose of this chapter is to explain the decision-making framework that we have applied in reaching our draft decisions. In doing so, we:
  - 60.1 respond to submissions on our discussion draft decision-making framework;<sup>77</sup> and
  - 60.2 confirm that our decision-making framework remains largely unchanged from the discussion draft framework we published in July 2015, while elaborating on that discussion draft in a number of areas.
61. As appropriate, we have sought to apply this framework throughout our review and it has guided our consideration of, and approach to, each of the papers released as part of our draft decisions.

#### Overview of the decision-making framework

62. There are two major conceptual elements to the approach we have taken to reaching draft decisions on the IM review:
  - 62.1 **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?’)
  - 62.2 **Change element:** Deciding whether, and if so how, to change to 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?)
63. These two elements are conceptual steps, rather than temporal steps: consideration of the two elements is not a purely linear process.

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<sup>77</sup> 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.



**Figure 1: Conceptual steps in the IM review**



*We must review the existing IMs*

64. 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.<sup>78</sup> We consider this is implicit in s 52R given its direction that the

<sup>78</sup> In our WACC percentile amendment decision last year, 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 (at para 2.14).

purpose of IMs is to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying regulation under Part 4 of the Act.<sup>79</sup>

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

65. In reaching our draft decisions, we have only proposed changing the current IMs where this appears likely to:
- 65.1 promote the Part 4 purpose in s 52A more effectively;
  - 65.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
  - 65.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).
66. These high-level objectives drive this framework for the IM review, and are relevant to both the review and change conceptual elements.
67. Submitters identified a number of other statutory provisions (for example s 54Q and s 53A) which they submitted should ground additional high-level objectives.<sup>80</sup> 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 104. 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. 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.
68. Russell McVeagh, for the Electricity Networks Association and the New Zealand Airports Association, also submitted that we should replace the phrase “more effectively” in our high-level objectives with the word “better”, as:<sup>81</sup>

“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.

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<sup>79</sup> Further, the majority of IMs have been reviewed by the Court under merits appeal.

<sup>80</sup> Russell McVeagh identified ss 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)).

<sup>81</sup> 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).

69. 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 propose to continue using the phrase “more effectively”.
70. Our high-level objectives thus remain unchanged from those articulated in our discussion draft paper.
71. 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.

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

*The types of questions we considered in reviewing the IMs*

72. In short, in reviewing each existing IM, this element of 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 existing IM.
73. This can be expanded to a series of more specific questions which can be asked of each IM, including:
  - 73.1 Is the policy intent behind the IM still relevant and appropriate?
  - 73.2 Is the current IM achieving that intent?
  - 73.3 Could the current IM, if amended, achieve the policy intent better?
  - 73.4 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?
  - 73.5 Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?
74. We considered these questions, including the sub-questions which we elaborate on below, where relevant in reviewing the IMs.<sup>82</sup> 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.

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<sup>82</sup> The process we have followed in reviewing the IMs so far and reaching our draft decisions is discussed in Commerce Commission “Input methodologies review draft decisions: Introduction and process paper” (16 June 2016), chapter 3.

75. Submitters identified that s 52A and s 52R should underpin our consideration of the IMs during the review and change elements.<sup>83</sup> 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 is 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?*

76. Is the policy intent still consistent with the s 52A purpose?
77. In considering this question, examples of the factors we took into account are:
- 77.1 What was the IM attempting to achieve, either on its own or as part of the IMs as a package?<sup>84</sup>
- 77.2 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?
- 77.3 Has the relevance of the policy intent been questioned (either by stakeholders, the Court or us)?
- 77.4 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:
- 77.4.1 Has the industry changed?
- 77.4.2 Has relevant economic theory or practice developed?
- 77.4.3 Have other external circumstances changed?
- 77.5 Is the IM still required or could the policy intent be achieved without the IM?
- 77.6 Is there other evidence that suggests that the original policy is no longer promoting s 52A?

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<sup>83</sup> 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.

<sup>84</sup> 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).

78. Russell McVeagh, for the Electricity Networks Association and the New Zealand Airports Association, 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.<sup>85</sup>
79. 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 77.1) 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).

*Is the current IM achieving that intent?*

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

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

82. Could the IM be changed to more effectively achieve the policy intent behind the IM?
83. In considering this question, examples of the factors we took into account are:

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<sup>85</sup> 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.

- 83.1 Have any potential changes been identified (either by stakeholders, the Court or us) that might:
  - 83.1.1 Improve the effectiveness of the IM in achieving its policy intent? or
  - 83.1.2 Reduce any unintended consequences of the IM?
- 83.2 Have external circumstances changed in a way that means the current IM might no longer be the most effective way of achieving the policy intent behind it?
- 83.3 Is there other evidence that suggests that a change might improve the effectiveness of the IM in achieving its policy intent?
- 83.4 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 current 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?*

- 84. 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?
- 85. In considering this question, examples of the factors we took into account are:
  - 85.1 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?
  - 85.2 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?*

- 86. Do changes to other IMs require any consequential changes to the IM in question for internal consistency or effectiveness reasons?
- 87. In considering this question, examples of the factors we took into account are:
  - 87.1 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?
  - 87.2 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?

- 87.3 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?
88. Russell McVeagh for the Electricity Networks Association and the New Zealand Airports Association submitted that the sub-questions here should incorporate recognition that consequential changes may be required in order to maintain consistency with ‘core’ economic principles.<sup>86</sup> 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**). And 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.<sup>87</sup>
89. Substantive consistency between IMs is an important consideration and one which our sub-questions address (see paragraph 73.5 above). Again, as noted at paragraph 79 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 proposing changes to the IMs in our draft 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.<sup>88</sup>

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

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

90. In addition to guiding us in identifying which IMs to consider changing, our decision-making framework guided us in reaching draft decisions on whether and how to change the IMs. This involved considering proposed changes to the IMs, as well as maintaining the existing IMs and solutions that might lie outside of the IMs.
91. In considering proposed changes to IMs, we have again applied the factors set out above at paragraph 65—ie, is the proposed change likely to:
- 91.1 promote the Part 4 purpose in s 52A more effectively;
  - 91.2 promote the IM purpose in s 52R more effectively (without detrimentally affecting the promotion of the s 52A purpose); or
  - 91.3 significantly reduce compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).

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<sup>86</sup> Russell McVeagh (on behalf of ENA and NZAA) “Input methodology review: Advice on legal questions and decision-making framework” (21 August 2015), para 44.

<sup>87</sup> Note that our view on FCM is articulated in chapter 4.

<sup>88</sup> These are discussed in chapter 4.

92. We expand on how we have applied the above factors in reaching draft decisions on whether to make a change to an IM below and in chapter 4 of this paper.
93. In reaching our draft decisions, we have also considered, where relevant, whether there are alternative solutions to the identified problem with the IM that do not involve changing the IMs as part of the review. Alternative solutions may include:
- 93.1 considering whether to change the IMs at a later date under s 52X or at the next s 52Y review;<sup>89</sup> or
- 93.2 options that do not involve changing the IMs, including:
- 93.2.1 undertaking a separate process involving our summary and analysis or compliance functions;
- 93.2.2 changing s 52P determinations;
- 93.2.3 publishing guidance; and/or
- 93.2.4 a combination of the above.

*No specific statutory threshold – but we intend to only make changes that promote the high-level objectives for the review*

94. In our discussion draft framework paper, we noted our preliminary view that there is no specific statutory threshold for changing an IM as a result of the IM review.<sup>90</sup>
95. That view received considerable attention in submissions. Most submitters agreed with our preliminary view in the narrow sense that there is no *specific* statutory threshold,<sup>91</sup> but a number of submitters suggested either that:
- 95.1 there is an *implicit* statutory threshold for making changes to the IMs as part of the review;<sup>92</sup> or

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<sup>89</sup> 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.

<sup>90</sup> As discussed in Commerce Commission “Input methodologies review invitation to contribute to problem definition” (16 June 2015), para 42, no specific threshold or standard of proof is referred to in s 52Y or the s 52V process that the IM review will follow. 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.

<sup>91</sup> 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.



- 95.2 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.<sup>93</sup>
96. 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,<sup>94</sup> which could be labelled a threshold; however, we do not consider that these amount to a clear and explicit threshold.
97. Rather, our approach is to make *only those changes* that will likely promote the factors set out above at paragraph 65. 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 pros<sup>95</sup> of making a change must outweigh the cons<sup>96</sup> of making a change. While this approach, in practice, has some similarities with the thresholds suggested by submitters, we do not intend, nor consider it helpful, to adopt a practical threshold for change beyond what we describe below.

*Response to submissions on the practical threshold for changing the IMs*

98. 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.<sup>97</sup> 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.<sup>98</sup> 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

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<sup>92</sup> 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.

<sup>93</sup> See, for example: Transpower "Submission on problem definition paper regarding the threshold for changing IMs and the creation of new IMs (25 June 2015), p. 1.

<sup>94</sup> These are discussed further later in this chapter, including at paragraph 104.

<sup>95</sup> 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.

<sup>96</sup> ie, any negative impact the change has on the promotion of s 52A or s 52R purposes, compliance costs, other regulatory costs or complexity.

<sup>97</sup> See, for example: 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.

<sup>98</sup> 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 2016).

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.<sup>99</sup>

99. 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:

99.1 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,<sup>100</sup> helps inform our weighing up of pros and cons.

99.2 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.

100. We do not consider that s 52A or s 52R invariably direct against change.<sup>101</sup> Rather, when weighing the pros and cons of a change any claim that:

100.1 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

100.2 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.<sup>102</sup>

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<sup>99</sup> Powerco “Submission on input methodologies review: Invitation to contribute to problem definition” (21 August 2015), para 13.

<sup>100</sup> Suppliers have emphasised risks and benefits to investment incentives, but provided little evidence, to date. More cogent evidence, such as evidence that a particular investment did not occur due to a lack of regulatory predictability, will be given more weight than less cogent evidence, such as an assertion that incentives to invest were affected by a lack of regulatory predictability.

<sup>101</sup> 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.

<sup>102</sup> For instance, evidence that an IM is ambiguous or has been interpreted differently by different parties.

*Factors relevant to the weighing up of pros and cons*

101. Submitters requested that we elaborate on the factors we consider when determining whether to make a change.<sup>103</sup>
102. 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.
103. 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 draft decision on whether, overall, the pros outweigh the cons such that the change has an overall net long-term benefit to consumers.
104. 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:
  - 104.1 other requirements relating to input methodologies (s 52T);
  - 104.2 the purpose of ID (s 53A);
  - 104.3 the purpose of default/customised price-quality regulation (s 53K);
  - 104.4 requirements relating to energy efficiency (s 54Q);
  - 104.5 decisions made under the Electricity Industry Act 2010 (s 54V); and
  - 104.6 decisions under the Gas Act 1992 (s 55I).
105. 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 proposed a number of minor changes that fall into this category.<sup>104</sup>

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<sup>103</sup> 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.

<sup>104</sup> We expect to publish the Report on the IM review on 22 June 2016.

106. As we go on to discuss below, we also consider that:
- 106.1 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;
  - 106.2 the type of regulation the IM affects is particularly relevant to the weighing up of pros and cons; and
  - 106.3 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.
107. 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.

*The role of cost-benefit analysis*

108. As noted in our discussion draft paper, 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.<sup>105</sup> 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.
109. A number of submitters suggested that we should incorporate a formal cost-benefit analysis into our framework.<sup>106</sup> 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*

110. In considering whether the pros of making a change to the IMs outweigh the cons, the role of the IM in question in light of the type of regulation it affects, is also a relevant factor we took into account.

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<sup>105</sup> 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.

<sup>106</sup> 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 2016).

111. 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:<sup>107</sup>
- 111.1 The IMs we have determined for price-quality regulation cover:
- 111.1.1 matters particularly relevant to setting maximum allowable revenues (ie, set under s 52T(1)(a));
  - 111.1.2 regulatory processes and rules relating to the specification and definition of prices (ie, the ‘form of control’), the reconsideration of price-quality paths (ie, ‘re-openers’), the incremental rolling incentive scheme (**IRIS**), and supplier amalgamations (ie, set under s 52T(1)(c)); and
  - 111.1.3 matters relating to CPP proposals (ie, set under s 52T(1)(d)).<sup>108</sup>
- 111.2 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).
112. As such, in reaching a draft 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:
- 112.1 For an ID IM, we considered: how significant is the role of the IM in assessing the profitability of regulated suppliers?
  - 112.2 For a price-quality path IM, we considered: how significant is the role of the IM in setting the revenue of regulated suppliers?
113. 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.<sup>109</sup> Therefore, the type of regulation affected by the IM is a key consideration when weighing up the pros and cons of changing an IM.

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<sup>107</sup> See for example: Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (22 December 2010), paras 2.8.1–2.8.2.

<sup>108</sup> 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)).

<sup>109</sup> 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.

114. 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.

115. Russell McVeagh for the Electricity Networks Association and the New Zealand Airports Association submitted that the form of regulation will also influence whether a change to an IM is necessary to more effectively promote the purpose statements:<sup>110</sup>

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).

116. As noted above at paragraph 113, 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*

117. 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 might 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.

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<sup>110</sup> Russell McVeagh (on behalf of ENA and NZAA) "Input methodology review: Advice on legal questions and decision-making framework" (21 August 2015), para 32.

## Chapter 4: Application of key economic principles

### Purpose of this chapter

118. The purpose of this chapter is to:
- 118.1 describe three key economic principles that provide useful guidance to us in giving effect to s 52A when making decisions in the IM review; and
  - 118.2 respond to submissions on proposed core economic principles and their status.

### Introduction to the key economic principles

119. As noted above at paragraph 45, submitters have 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.<sup>111</sup> Some submitters have 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 based on a core economic principle.
120. Some of the core economic principles put forward by submitters include:<sup>112</sup>
- 120.1 we should err on the side of risking over compensation given the asymmetric social costs of under compensation;
  - 120.2 dynamic efficiency should be favoured over allocative efficiency where there is a trade-off; and
  - 120.3 suppliers should have the opportunity to earn normal returns.
121. 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 our view on the status that these principles have.

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<sup>111</sup> 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.

<sup>112</sup> 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

122. We consider there are three key economic principles that are relevant to the Part 4 regime:<sup>113</sup>
- 122.1 **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.<sup>114</sup> However, price-quality regulation does not *guarantee* a normal return over the lifetime of a regulated supplier’s assets.<sup>115</sup>
- 122.2 **Allocation of risk:** ideally, we allocate particular risks to suppliers or consumers depending on who is best placed to manage the risk,<sup>116</sup> unless doing so would be inconsistent with s 52A.
- 122.3 **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.<sup>117</sup>
123. We elaborate on each of these three key principles and our view of their status below. In reaching our draft decisions on the IM review, we have considered the effect of our proposed 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.

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<sup>113</sup> 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 draft decisions: Topic paper 2: CPP requirements” (16 June 2016)). The proportionate scrutiny principle is derived from good regulatory practice, rather than being an economic principle. As such, it is not discussed here.

<sup>114</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (22 December 2010), para 2.6.28, para 2.8.7.

<sup>115</sup> 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.

<sup>116</sup> *Ibid*, para 2.6.4.

<sup>117</sup> 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 (FCM)

124. 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.<sup>118</sup>
125. Price-quality regulation does not *guarantee* a normal return over the lifetimes of a regulated supplier’s assets.<sup>119</sup> However, 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.<sup>120</sup>

#### *Application of FCM in price-quality regulation*

126. In practice, we apply this principle at the beginning of each regulatory period, based on current expectations of future circumstances at that time, by:
- 126.1 recognising the asymmetric consequences to consumers over the long term of under-investment vs over-investment;<sup>121</sup>
  - 126.2 providing appropriate compensation to suppliers for the risks they are required to manage either:
    - 126.2.1 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;<sup>122</sup> or
    - 126.2.2 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;<sup>123</sup> or

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<sup>118</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (22 December 2010), para 2.6.28, 2.8.7.

<sup>119</sup> 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.

<sup>120</sup> Ibid, para 2.6.28.

<sup>121</sup> 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.

<sup>122</sup> Commerce Commission “Setting the customised price-quality path for Orion New Zealand Limited” (29 November 2013), para A33.

<sup>123</sup> Commerce Commission “Setting the customised price-quality path for Orion New Zealand Limited” (29 November 2013), para A34.

- 126.2.3 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;<sup>124</sup> and
- 126.3 using estimates/forecasts of cost of capital, prudent capex, prudent opex, and demand that are free of systematic bias.<sup>125</sup>
- 127. As a result of applying the FCM principle each regulatory period when setting price-quality paths:<sup>126</sup>
  - 127.1 suppliers have the opportunity to earn a normal return on their efficient investments, consistent with s 52A(1)(a) and (d);
  - 127.2 suppliers are rewarded for superior performance, consistent with s 52A(1)(b); and
  - 127.3 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*

- 128. We have also applied FCM when setting ID requirements.<sup>127</sup> 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.<sup>128</sup>

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<sup>124</sup> Commerce Commission "Input methodologies review: Invitation to contribute to problem definition" (16 June 2015), para 107.

<sup>125</sup> 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.

<sup>126</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.8.18.

<sup>127</sup> 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.

<sup>128</sup> 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

129. 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.<sup>129</sup> Workably competitive markets tend to manage risks efficiently by allocating identified risks to the party considered best placed to manage them.<sup>130</sup> 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.<sup>131</sup> In particular, if suppliers are not compensated for risks that are outside their control, then this might have detrimental incentives on investment.
130. This principle was not identified by submitters but is a key economic principle that we have taken into account in making regulatory decisions.
131. As explained in the problem definition paper,<sup>132</sup> managing risks includes:
- 131.1 actions to influence the probability of occurrence where possible;
  - 131.2 actions to mitigate the costs of occurrence; and
  - 131.3 the ability to absorb the impact where it cannot be mitigated.
132. 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*

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

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<sup>129</sup> Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), paras 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.

<sup>130</sup> 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. See paragraph 14 above.

<sup>131</sup> Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited" (29 November 2013), paras B31, B37.

<sup>132</sup> Commerce Commission "Input methodologies review: Invitation to contribute to problem definition" (16 June 2015), paras 105-106.

134. 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. Once risks are allocated between suppliers and consumers, we compensate suppliers and consumers<sup>133</sup> accordingly through the price-quality path we set.<sup>134</sup>
135. 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*

136. We have also applied the principle that risks are allocated to the party best placed to manage them in ID regulation.<sup>135</sup> 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.<sup>136</sup>

**Asymmetric consequences of over-/under-investment**

137. 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.<sup>137</sup> However, if suppliers are already at or past the optimal level of investment, there is no benefit to consumers in incentivising increased investment.
138. This principle has developed from the principles put forward by submitters as core economic principles that:<sup>138</sup>
- 138.1 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
  - 138.2 where there is a trade-off between dynamic efficiency and allocative efficiency we should always favour outcomes that promote dynamic efficiency.

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<sup>133</sup> Where consumers bear risks, they are, in effect, compensated through prices that are lower than they would have been had suppliers borne those risks.

<sup>134</sup> See Commerce Commission “Setting the customised price-quality path for Orion New Zealand Limited Final reasons Paper” (29 November 2013), paragraphs 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.

<sup>135</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), para 2.6.4 and 5.2.11.

<sup>136</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), footnote 200.

<sup>137</sup> 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

<sup>138</sup> Russell McVeagh (on behalf of ENA and NZAA) “Input methodology review: Advice on legal questions and decision-making framework” (21 August 2015), p. 9.

139. We applied the principles described at paragraph 138 in our 2010 IMs reasons papers, observing there, in the context of our decision to adopt the 75<sup>th</sup> percentile WACC:<sup>139</sup>

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).

140. We also observed that the:<sup>140</sup>

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.

141. In a number of IM-setting contexts we therefore reasoned that greater weight should be given to dynamic efficiency than allocative efficiency.<sup>141</sup> 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.<sup>142</sup>

142. These ideas were extensively discussed in the IMs merits review judgment and underpinned the challenge to our use of 75<sup>th</sup> percentile WACC.<sup>143</sup> 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-

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<sup>139</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), H1.31.

<sup>140</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (22 December 2010), para 2.6.28.

<sup>141</sup> 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).

<sup>142</sup> 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.

<sup>143</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, part 6.

term benefits of consumers)<sup>144</sup> and our application of that approach (favouring any higher level of investment irrespective of its nature).<sup>145</sup> The Court was doubtful that if “dynamic efficiencies are, as the Commission believes, most important” that higher expected returns will stimulate that outcome.<sup>146</sup> 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.”<sup>147</sup>

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

143. 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,<sup>148</sup> 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.<sup>149</sup>
144. 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:<sup>150</sup>

... 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.

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<sup>144</sup> 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.

<sup>145</sup> *Ibid*, para 1462.

<sup>146</sup> *Ibid*, para 1474.

<sup>147</sup> *Ibid*, para 684.

<sup>148</sup> Commerce Commission “Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper” (30 October 2014).

<sup>149</sup> We are still consulting, as part of the IM review, on whether a similar principle should apply in the context of airport ID regulation. 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 much lower for airports than for energy businesses. Nevertheless, we have proposed that airports can explain their reasons for estimating a higher WACC and a different target return at the time they disclose their price setting approaches.

<sup>150</sup> 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.

145. During consultation on the WACC percentile decision, our expert peer reviewer of our WACC percentile decision, Professor Ingo Vogelsang, had the following observation on the question of dynamic efficiency versus other dimensions of efficiency:<sup>151</sup>

... 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.

146. 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.
147. 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**

148. A number of submitters suggested that the 'core' economic principles they identified formed a "regulatory compact" between regulated suppliers, us and/or consumers.<sup>152</sup>
149. 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.<sup>153</sup>
150. Submitters suggested that the compact stemmed from our previous decisions, as described in the existing IMs and reasons papers.<sup>154</sup>

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<sup>151</sup> Vogelsang, Review of Oxera's report, Input methodologies – Review of the '75<sup>th</sup> percentile' approach, 10 July 2014, para 24.

<sup>152</sup> 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 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.

<sup>153</sup> Ibid.

<sup>154</sup> Ibid.

151. 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*

152. 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 122 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.
153. 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.
154. We have also applied FCM recognising the asymmetric consequences of over 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.
155. The Court approved of this approach in *Wellington International Airport Ltd v Commerce Commission*, observing that:<sup>155</sup>

[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.

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<sup>155</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 256.



156. 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,<sup>156</sup> 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.
157. 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 to promote 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.
158. 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.

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<sup>156</sup> *Wellington International Airport Ltd & others v Commerce Commission* [2013] NZHC 3289, para 135.





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## **Input methodologies review draft decisions**

**Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower**

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| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Electricity Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 26                              |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 27                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 28                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Input Methodologies) Determination 2010</i><br>(Decision 709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies<br/>Determination 2012</i> [2012] NZCC 17   |

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 proposed solutions to these problems;
  - X1.3 the reasons for our proposed 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 propose that non-exempt electricity distribution businesses be regulated under a revenue cap rather than a weighted average price cap (**WAPC**). This would remove the quantity forecasting risk which is associated with inappropriate incentives on suppliers to potentially underinvest. The change to a revenue cap would 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 very significant long-term benefits to consumers as a result of reforming the pricing of the services that EDBs deliver, including electricity. The IMs do not contain specific requirements relating to pricing; however our proposal 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 barrier to EDBs restructuring pricing approaches. We recognise that this may also change other incentives on EDBs to restructure prices. It is unclear what the overall balance of incentives may be as a result of this change. The EA, whose responsibility includes distribution pricing, have prepared a letter where they elaborate on some of these other incentive effects and other evolving factors that may affect EDBs incentives to reform prices. As part of the consultation on our draft decisions, we invite submitters to comment on this letter, which we have published alongside this topic paper.
- X5. We propose maintaining a revenue cap for gas transmission businesses (**GTBs**) but changing the design to move a pure revenue cap allowing for wash-up of over and under-recovery of revenue. We consider that changing from the current 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 propose to maintain a WAPC using lagged quantities for gas distribution businesses (**GDBs**). However, we propose improving the operation of the existing WAPC for GDBs by amending the current specification of price IMs to adopt the pass-through balance approach for forecasts of pass-through and recoverable costs.
- X7. We have not considered in detail whether to change the form of control for Transpower because the regime that Transpower is subject to is unique and there have been no issues raised with it.
- X8. We have not identified any 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.
- X9. 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. However, we note that a possible problem with retaining the current approach is that Transpower and consumers are exposed to inflation risk. We consider it would be appropriate and straightforward to introduce a mechanism to protect both from this risk, and we are therefore interested in whether interested parties consider the benefits are sufficiently material to justify doing so.
- X10. Table X1 summarises the areas in the form of control and RAB indexation topics where our analysis has led us to propose changes to the IMs. The issues that we have considered in relation to these topics which have not resulted in proposed changes are discussed as part of the following chapters in this paper.

**Table X1: Summary of proposed changes in relation to this topic**

| Proposed change   | Outcomes of the proposed change  | Chapter          |
|---|--|------------------|
| <p>We propose to change the form of control for EDBs from a lagged WAPC to a 'pure' revenue cap.</p>  | <p>The outcomes of this proposed change would be:</p> <ul style="list-style-type: none"> <li>• it would remove the quantity forecasting risk, and therefore any potentially detrimental effect of that risk on EDBs incentives to spend efficiently;</li> <li>• it would remove potential compliance disincentives on suppliers to restructure their tariffs to be more allocatively efficient (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</li> <li>• it would remove a potential disincentive on suppliers to pursue energy efficiency and DSM initiatives.</li> </ul> <p>The change to a revenue cap would shift some within-period demand risk to consumers. However, we consider that this negative aspect would be offset by other benefits.</p> | <p>Chapter 2</p> |
| <p>We propose 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> | <p>The outcomes of this proposed change would be that:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• 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.</li> </ul>   | <p>Chapter 3</p> |

|  |   |                  |
|--|---|------------------|
| <p>We propose to amend the treatment of forecast of pass-through and recoverable costs for GDBs to adopt the pass-through balance approach that is currently in place for EDBs under a WAPC.</p>                     | <p>The outcome of this proposed change would be that pass-through and recoverable costs would be more accurately reflected in prices earlier than the current regime.</p> | <p>Chapter 4</p> |
| <p>Our proposed change to the RAB indexation for Transpower is to deliver real FCM ex-post. We propose to create an annual capital charge adjustment through the maximum allowable revenue (<b>MAR</b>) wash-up.</p> | <p>The proposed change is intended to protect both consumers and Transpower from inflation risk.</p>  | <p>Chapter 6</p> |

X11. This topic paper forms part of our package of draft decisions papers on the input methodologies (**IM**) review. As part of the package of papers, we have also published:

X11.1 A summary paper of our draft decisions;

X11.2 An introduction and process paper which provides an explanation of how the papers in our draft decisions package fit together; and

X11.3 A framework paper which explains the framework we have applied in reaching our draft decisions on the IM review.

**Invitation to make submissions**

X12. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.

X13. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)

X14. Please clearly indicate within your submission which aspects of this paper it relates to.

## 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 have identified within these topic areas;
  - 1.2 our proposed solutions to these problems;
  - 1.3 the reasons for our proposed 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 draft decisions papers

2. This topic paper forms part of our package of draft decision 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 draft decision package.
3. This paper explains our proposed solutions to problems identified within the topics of form of control and RAB indexation.
4. To the extent our proposed solutions involve changes to the IMs, this paper identifies how we propose to change our existing IM decisions to account for our proposed solutions to problems within these topic areas.<sup>1</sup> The report on the IM review then collates our proposed changes to those existing IM decisions.<sup>2</sup>
5. Our proposed drafting changes to the IMs, including any resulting from these topic areas, are shown in the draft determinations, which will be published on 22 June 2016.
6. The framework we have applied in reaching our draft decisions on the IM review is set out in a separate paper, which is published alongside this paper.<sup>3</sup> The framework paper explains that we have only proposed changing the current IMs where this appears likely to:
  - 6.1 promote the Part 4 purpose in s 52A more effectively;

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<sup>1</sup> We have also identified in this paper where our preferred solutions lie outside (or partially outside) of the IMs, (for example, we propose to strengthen the information disclosure requirements on connections for EDBs as a result of moving to a revenue cap).

<sup>2</sup> We expect to publish the Report on the IM review on 22 June 2016.

<sup>3</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 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.
  8. Another consideration that is particularly relevant to our draft decision on the form of control for electricity distribution business (**EDBs**) is s 54Q of the Commerce Act 1986, 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 the following structure:
  - 9.1 description of the issue or problem; and
  - 9.2 explanation of our proposed solution and our reasons for proposing 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 price-quality regulation.<sup>4</sup> This topic paper picks up on this, covering the form of control and RAB indexation.<sup>5</sup>
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**). We have not considered in detail whether to change the form of control for Transpower because the regime that Transpower is

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<sup>4</sup> Commerce Commission "Invitation to contribute to problem definition paper" (16 June 2015), paras 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.

<sup>5</sup> Issues relating to RAB indexation for airports are discussed in Topic paper 5: Airports Profitability Assessment.

subject to is unique and no issues were raised with it. In February 2016 we published our emerging views on form of control to seek comments from stakeholders ahead of publishing our draft decisions. We would like to thank stakeholders for their comments on our emerging views paper; your comments have helped form our draft decisions.

13. The existing IMs specify a Weighted Average Price Cap (**WAPC**) approach for electricity and gas distribution businesses,<sup>6</sup> the option of a WAPC or revenue cap for GTBs,<sup>7</sup> and a revenue cap for Transpower.<sup>8</sup> The revenue caps we have set for Transpower and gas transmission businesses 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.<sup>9</sup> We therefore see a clear distinction between a revenue cap, which effectively guarantees allowable revenues and a revenue cap which does not. In this paper, we refer to a revenue cap which effectively guarantees allowable revenue as a 'pure' revenue cap.
14. This paper also covers our approach to RAB indexation and how it impacts EDBs, 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 how RAB indexation works, and what the impact is on returns and exposure to inflation risk.
15. We have also sought advice from Dr Martin Lally, on several topics including RAB indexation. He agrees that our approach on RAB indexation and the outcome it delivers are consistent with our policy intent (this is discussed in Chapter 6). We published Dr Martin Lally's advice on 20 May 2016 so that stakeholders could review his advice ahead of our draft decisions being published.<sup>10</sup>

*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 intend to publish a paper as part of the gas pipeline DPP reset process on 28 June 2016 (**gas DPP implementation paper**). That paper will include further

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<sup>6</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 8.3.7-8.3.13.

<sup>7</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010) para 8.3.14-8.3.21.

<sup>8</sup> Commerce Commission "Input methodologies (Transpower) reasons paper" (December 2010), para 7.3.7-7.3.10..

<sup>9</sup> Commerce Commission "Setting Transpower's individual price-quality path for 2015—2020" (29 August 2014), para C45–C49.

<sup>10</sup> 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).

implementation details on how our proposed IM changes relating to the form of control for GDBs and GTBs would, if confirmed, take effect at the DPP reset.

*Links between this topic paper and WACC*

18. Although there is a link between our draft decision on form of control and the impact on the weighted average cost of capital (**WACC**) asset beta, our draft 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.
19. We do not propose 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 propose making an adjustment, or what that adjustment should be, at this point.

**Who does this paper apply to?**

20. This paper applies to:
  - 20.1 electricity distribution businesses (EDBs);
  - 20.2 gas transmission businesses (GTBs);
  - 20.3 gas distribution businesses (GDBs); and
  - 20.4 Transpower.<sup>11</sup>

**Invitation to make submissions**

21. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
22. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
23. Please clearly indicate within your submission which aspects of this paper it relates to.

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<sup>11</sup> For Transpower, we only discuss RAB indexation, not the form of control.



24. The Introduction and process paper contains further details about the submissions process. This includes:<sup>12</sup>
- 24.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
  - 24.2 providing guidance on requesting an extension to the submissions timeframes;
  - 24.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
  - 24.4 providing guidance on making confidential submissions.

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<sup>12</sup> Commerce Commission “Input methodologies review draft decisions: Introduction and process paper” (16 June 2016), chapter 5.

## **Chapter 2: Form of control for EDBs**

### **Purpose of this chapter**

25. The purpose of this chapter is to explain the problems relating to the form of control for EDBs and our proposed solution in respect of these problems.

### **Structure of this chapter**

26. This chapter explains:
  - 26.1 the three problems that we have identified with the form of control for EDBs;
  - 26.2 our proposed solution, to move EDBs from a WAPC to a 'pure' revenue cap;
  - 26.3 our reasons for our proposed solution; and
  - 26.4 our proposed design of the 'pure' revenue cap including a wash-up mechanism for over or under-recovery of revenue.

### **Problem definition**

27. This section explains the problem definition, including how it evolved through comments from submissions.
28. 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:
  - 28.1 incentives for regulated suppliers to invest efficiently (s 52A(1)(a) and (b));
  - 28.2 incentives for regulated suppliers to price efficiently (s 52A(1)(b));
  - 28.3 incentives for regulated suppliers to invest in energy efficiency and demand-side management (s 54Q); and
  - 28.4 the allocation of demand risk between suppliers and consumers during each regulatory period.
29. For services subject to price-quality regulation under Part 4, we have primarily considered whether to apply a revenue cap or a WAPC. The existing IMs specify a WAPC for EDBs. A WAPC provides within-period average price stability for consumers but suppliers are exposed to the risk of under- or over-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 increases above forecast, average prices would fall which would benefit consumers in the short term. Conversely, when demand decreases average prices would rise.

30. There are three key problems which we have identified in relation to the WAPC for EDBs.<sup>13</sup> These are that:
- 30.1 suppliers are exposed to the quantity forecasting risk which can be unmanageable and may provide disincentives to investment;
  - 30.2 there may be a disincentive under the WAPC to pursue energy efficiency and demand-side management (**DSM**) initiatives; and
  - 30.3 the current price cap and compliance requirements may create disincentives to restructure tariffs to move from one pricing approach to another.

*Quantity forecasting risk*

31. We consider that the quantity forecasting risk is potentially a problem because, under a WAPC, it can lead to either a significant revenue loss or a revenue gain for suppliers. 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.
32. The potential for the forecast to erroneously set revenue expectations too low for suppliers over a control period could potentially lead to inappropriate cut backs or deferral in expenditure and investment in order to maintain profitability. This would not be consistent with s 52A(1)(a). On the other hand, where revenue expectations are too high, this would imply an expectation of prices that are higher than they need to be.
33. Under a WAPC, if suppliers moved to other price structures, the risk of over/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.
34. 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

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<sup>13</sup> 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).

regulatory period, we would incorporate that fall in demand into the price-path and prices would be higher to reflect that.

35. In response to our problem definition paper, Wellington Electricity (WELL) 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.<sup>14</sup> WELL 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. 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. WELL also suggested a move to a revenue cap because under a revenue cap the Commission would not need to forecast volumes and the risks to EDBs and consumers of windfall gains or losses arising under the WAPC are removed.
36. Electricity Networks Association (**ENA**) stated that “from our perspective the Commission’s forecasts have not been particularly accurate to date”.<sup>15</sup> It also noted that accurate quantity forecasting is also likely to become more difficult over time due to the uncertainty regarding the uptake of emerging technologies and how these will impact on energy volumes.<sup>16</sup>
37. 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 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 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 (para 59-67).
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 default price-quality path (**DPP**) is set, including forecasts, should be the Commission’s focus.<sup>17</sup>
39. Also, the Major Electricity Users’ Group (**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,<sup>18</sup> because it simply replaces our forecast with an EDB volume

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<sup>14</sup> Wellington Electricity's submission “Input methodologies review – Problem definition” (21 August 2015).

<sup>15</sup> ENA's submission on the problem definition paper “Response to the Commerce Commission’s input methodologies review paper” (21 August 2015), para 84.

<sup>16</sup> ENA's submission on the problem definition paper “Response to the Commerce Commission’s input methodologies review paper” (21 August 2015), para 85.

<sup>17</sup> Alpine Energy “Submission to the Commerce Commission on input methodologies review – Emerging views on form of control” (24 March 2016), para 5.

<sup>18</sup> 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.

forecast and then introduces a wash-up mechanism to allow faster response to forecasting errors.<sup>19</sup> 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 inappropriate incentives for suppliers to under-spend.

*Potential disincentive for energy efficiency and demand-side management*

40. EDBs claim that, under a WAPC they are not incentivised to undertake energy efficiency and DSM initiatives.<sup>20</sup> This is because volumes are predominantly linked to revenue under a WAPC at present; if an EDB undertakes energy efficiency or DSM initiatives, the volume of energy used by its customers will decrease resulting in lower revenues for the EDB.
41. 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. 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).<sup>21</sup>
42. We consider that 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*

43. 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.<sup>22</sup> The barriers to tariff restructuring are created because, under a WAPC, pricing restructures create volume risk where suppliers may under-recover their revenues. We consider that a pure revenue cap which does not require the use of lagged quantities would remove this potential barrier to restructuring tariffs.
44. Unison considers that revenue may be at risk for a supplier who restructures prices under the WAPC. 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

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<sup>19</sup> MEUG "Submission on emerging views on form of control – Appendix 1 NZIER report" (24 March 2016).

<sup>20</sup> 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.

<sup>21</sup> ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 79.

<sup>22</sup> 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.

pure revenue cap (removing the use of lagged quantities). This would eliminate EDBs concerns about undertaking tariff restructuring.<sup>23</sup>

45. We agree that revenue may be at risk for suppliers that restructure prices despite features put in place as part of the 2015 DPP reset to take into account behavioural response to a restructure of prices.<sup>24,25</sup> Unison considers that we could go further than what has already been provided under the 2015 DPP reset but we have not been provided with additional approaches which could apply in practice. Particular situations where revenue may be at risk occur where the behavioural response to the price restructure is larger than anticipated by the supplier and accordingly was not taken into account when setting prices, or consumers continue to respond to the incentive over an extended period of time and a supplier is unable to continue to adjust the lagged quantity used for setting prices.
46. MEUG said that a move to a revenue cap seems to encourage EDBs to persist with a volume-based charging – a pricing mechanism that it claims does not support efficient recovery of network costs and shifts the risk of over-investment to consumers.<sup>26</sup> We note that the EA also considers that a WAPC provides stronger incentives for EDBs to adopt efficient prices.<sup>27</sup>
47. Alpine Energy suggested that we need to consider the compliance test and not necessarily change the form of control to address this problem.<sup>28</sup>
48. We consider that the potential disincentive to pursue tariff restructuring under a WAPC is a problem and that changing compliance arrangements to address the issue would not be straightforward. We do, however, acknowledge the trade-off which 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 consumers do not inefficiently disconnect from the distribution network, irrespective of the form of control.

**Proposed solution: Adopt a ‘pure’ revenue cap for EDBs**

49. This section describes our proposed solution in respect of the form of control for EDBs.

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<sup>23</sup> Unison “Submission on input methodologies review invitation to contribute to problem definition” (24 August 2015), para 25-26.

<sup>24</sup> Unison Networks Limited “Submission on Input Methodologies Review Invitation to Contribute to Problem Definition” (24 August 2015), para 19 – 27.

<sup>25</sup> Commerce Commission, “Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 - Compliance requirements paper” (28 November 2014), para 6.14 – 6.24.

<sup>26</sup> MEUG “Submission on emerging views on form of control – Appendix 1 NZIER report” (24 March 2016).

<sup>27</sup> We summarise the EA’s concerns in paras 84 -86.

<sup>28</sup> Alpine Energy “Submission to the Commerce Commission on input methodologies review – Emerging views on form of control” (24 March 2016), para 11.

50. In response to all three problems, our proposed solution on the form of control for EDBs is to change from using a lagged WAPC to a 'pure' revenue cap. Our key reasons for proposing this change are that it would remove:
- 50.1 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));
  - 50.2 potential compliance disincentives on suppliers to restructure their tariffs to be more allocatively 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
  - 50.3 a potential disincentive on suppliers to pursue energy efficiency and DSM initiatives (consistent with s 54Q).
51. We also propose that the revenue cap would include an annual unders and overs wash-up mechanism with implementation features intended to:
- 51.1 be consistent with applying the ex-ante financial capital maintenance (**FCM**) principle,<sup>29</sup> 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
  - 51.2 reduce the risk that consumers are exposed to price shocks and volatility.
52. To give effect to this proposed solution, we propose to amend 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).<sup>30</sup>

### Reasons for our proposed solution

53. This section explains our assessment of the form of control for EDBs and our reasons for our proposed 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 better incentivised to invest efficiently without the risk of forecasting error, and the potential disincentive to restructure tariffs and price efficiently would be removed. We consider these effects outweigh the negative effects of shifting demand risk to consumers within the period and the potential reduction in incentives for tariff efficiency in the short term with a revenue cap.

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<sup>29</sup> 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).

<sup>30</sup> The Report on the review will capture the existing policy decisions that will change as a result of our proposed solutions. We expect to publish the Report on the IM review on 22 June 2016.

54. We considered the pros and cons of moving EDBs from a WAPC to a revenue cap from the following dimensions:
- 54.1 incentives for efficient expenditure;
  - 54.2 incentives for energy efficiency and DSM;
  - 54.3 incentives for pricing efficiency and tariff restructuring;
  - 54.4 connection incentives; and
  - 54.5 price stability.

*Incentives for efficient expenditure*

55. 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.<sup>31</sup> 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 paths are reset).
56. We now view overall demand risk as comprising of two elements:
- 56.1 'demand uncertainty risk' – the inherent uncertainty in future demand over the time period of the price-quality path; and
  - 56.2 'quantity forecasting risk' – the extent to which our forecast diverges from the supplier's own expectations.
57. Depending on whether actual revenue ends up significantly lower or higher than supplier expectations, the quantity forecasting risk may have an impact on suppliers' incentives to spend less or more than efficient levels of capital (and operating) expenditure within the regulatory period.
58. 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 shift in demand risk may be better mitigated by suppliers than consumers because suppliers can set prices to encourage demand, engage in marketing etc. However, we consider this negative aspect would be offset by other benefits. Given the potential magnitude of possible forecasting error, we think that the benefits of removing the quantity forecasting risk outweigh the fact that the demand uncertainty risk will shift further to consumers.

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<sup>31</sup> 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).



59. As part of our recent report analysing EDB profitability,<sup>32</sup> we examined the materiality of the overall demand 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. Our analysis centred on a three year period consistent with the time period we focussed on when DPPs were reset mid-period.
60. Our findings for the three year period were that:
- 60.1 our forecasts generally performed well, on average, with the aggregate impact of changes in billed quantities accounting for only -0.22 percentage points of the variance between forecast and actual returns; and
  - 60.2 alongside operating expenditure, the revenue growth assumption showed the largest variation in terms of the impact on the returns of individual distributors (ranging from -1.0 to 1.4 percentage points).<sup>33</sup>
61. As part of the modelling that accompanied the report, we also considered the impact on profitability over a five year period. Extrapolating the analysis over five years was possible because, in November 2012, we developed forecasts for a full five year period, but only applied the constant price revenue growth (**CPRG**) assumption for the time period covered by our analysis.
62. Modelling the impact on present value (**PV**) revenue over 5 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.
63. The numbers in Figure 1 are not directly comparable to the figures quoted in the profitability report, because they measure the impact on the PV of revenue rather than the impact on returns. The numbers in Figure 1 do however give a sense for the materiality of the issue. For example, as noted previously, a one percentage point change in returns is equivalent to around a 10 percent change in returns. Even over a three year period, the revenue growth forecast explains around -10% to +14% of returns in nominal terms. The impacts shown in Figure 1 would translate into even larger impacts owing to the effect described in the previous paragraph.

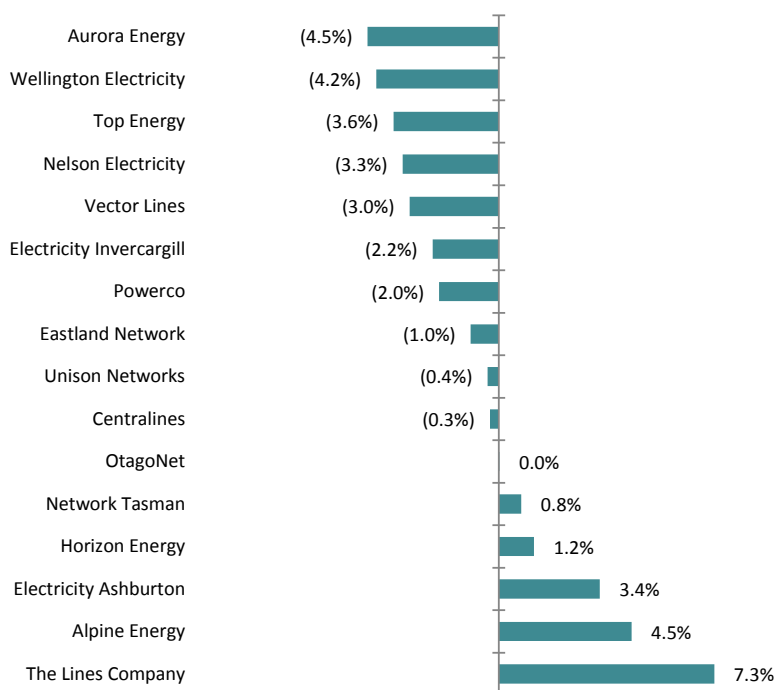
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<sup>32</sup> Commerce Commission "Profitability of Electricity Distributors Following First Adjustments to Revenue Limits" (8 June 2016).

<sup>33</sup> Notably, one percentage point of returns is equivalent to over 10% of the expected nominal return of 8.77%. The two most material effects—operating expenditure and revenue growth—generally operated in offsetting directions, but not by the same magnitude. For more explanation see Commerce Commission, Profitability of Electricity Distributors Following First Adjustments to Revenue Limits (8 June 2016), p.21-22.

- 64. 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.
- 65. The modelled impact suggests that the PV 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%).
- 66. Amongst other things, the levels of variation shown in Figure 1 are based on differences between the actual and assumed pricing structures adopted by distributors. Therefore the impacts reflect any action taken by distributors to restructure tariffs in response to any pricing incentives inherent in a WAPC.
- 67. It is also worth noting that the forecasts used in the analysis were developed midway through the five year period, in November 2012, and as a result may have been more accurate than it will be in future. This is because we relied on actual information where it was available, eg, for GDP, and number of connections.

**Figure 1: Modelled impact of CPRG assumption on PV revenue (2011-2015)**



- 68. 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 help to better promote incentives for efficient expenditure, consistent with s 52A(1)(a) and (b).

*Incentives for energy efficiency and demand-side management*

69. We consider that energy efficiency and DSM is an important dimension from which to consider the relative merits of a revenue cap. We consider that moving EDBs from a WAPC to a revenue cap will help to better promote s 54Q.
70. 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.

*Incentives for pricing efficiency and tariff restructuring*

71. We consider that pricing efficiency and tariff restructuring is an important dimension to consider. The chosen form of control may affect the flexibility regulated suppliers have to adjust their pricing levels and structures, and their incentives to price efficiently.
72. We consider that there are challenges for suppliers to set efficient prices that send the correct signals for future investments while recovering the costs of past investments in a least distortionary manner, taking into account consumer responsiveness to price changes.
73. Factors that potentially affect consumer demand, which drives network investment needs, include: the level of charges, the unit basis for charging (eg, by ICP, kWh, kW, or kVA), the relevant time period the charges relate to (eg, annually, monthly, or half-hourly), and any differences to reflect the interruptibility of supply. Other issues that may create challenges for suppliers include the extent to which the structure of distribution network tariffs are reflected in retailer tariff structures to end consumers, and concern from the general public about changes to tariff structures.
74. Although we consider that in theory the WAPC should be expected to incentivise efficient pricing (which was one of our reasons for choosing a WAPC for EDBs in 2010),<sup>34</sup> we have not seen this happening in practice. 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.
75. So our proposal 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.

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<sup>34</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 8.3.8.

76. However, recent work suggests that efficient pricing may still not be seen in practice under the WAPC, even if we resolved the compliance issue to encourage tariff restructuring. The Australian Energy Regulator (**AER**) explained that the WAPC does not necessarily create the incentive to set efficient prices in practice. It suggested that the theoretical advantages of the WAPC rely on assumptions that do not apply to electricity distributors.<sup>35</sup> These three assumptions are that:<sup>36</sup>
- 76.1 distributors have the expertise, incentive, infrastructure and independence to set prices to maximise profit;
  - 76.2 distribution network tariffs are reflected in retailer tariffs to consumers; and
  - 76.3 consumers are fully informed about price changes, and are capable of understanding and incentivised to response to price signals.
77. 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.<sup>37</sup>
78. WELL considers that under a revenue cap EDBs would have positive incentives to move towards more cost reflective tariffs.<sup>38</sup> It suggests 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 suggests 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.
79. We note 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.<sup>39</sup> We welcome views on the extent to which other factors might assist in positively promoting more efficient pricing if the disincentives to tariff restructuring provided by a WAPC were to be removed as a result of moving to a revenue cap.

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<sup>35</sup> The EA states that it does not agree with the AER that all three factors must hold fully in order for more efficient pricing to emerge under a WAPC. Electricity Authority “Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses” (30 May 2016).

<sup>36</sup> AER “Stage 1 Framework and Approach - NSW Distributors” (March 2013), p.48-49.

<sup>37</sup> Vector “Input methodologies review – emerging view on form of control” (24 March 2016), para 11.

<sup>38</sup> Wellington Electricity “Input methodologies review – Commission emerging views” (24 March 2016), p.3.

<sup>39</sup> Castalia “Review of Electricity Distribution Businesses’ 2013 Pricing Methodologies, Report to the Electricity Authority” (November 2013).

80. 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 Electricity Authority (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,<sup>40</sup> and therefore we consider that more scrutiny and/or prescription of EDBs' pricing approaches could be worthwhile for the substantial benefits available.
81. There is uncertainty around how the form of control would impact on pricing efficiency in practice. We consider that a WAPC may better promote efficient pricing in theory, but we welcome stakeholder views on the relative merits of a revenue cap or a price cap on influencing pricing efficiency in practice, and in particular stakeholder views on the questions raised in the EA's letter, as mentioned below.
82. On balance, we consider that moving EDBs from a WAPC to a pure revenue cap (without the use of lagged quantities) would remove potential compliance disincentives on suppliers to restructure their tariffs to be more allocatively 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.
83. The EA has raised some substantive questions regarding the impact of the form of control on pricing efficiency.<sup>41</sup> 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 would like to continue to work together with the EA on this issue to develop a joint view of the best arrangements that will promote the long-term benefit of consumers. We have published a letter from the EA explaining its views on pricing efficiency under a revenue cap and we invite comments on this letter as part of our draft decision consultation.<sup>42</sup>
84. The EA has 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. It suggests that EDBs are best placed to weigh up the volume risks against the costs of changing price structures. 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

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<sup>40</sup> Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016),

<sup>41</sup> 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.

<sup>42</sup> Electricity Authority "Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses" (30 May 2016).

it states is “a pricing mechanism that does not support efficient recovery of network costs and shifts the risk of over-investment”.<sup>43</sup>

85. The EA raises the issue that under a revenue cap there is a risk of inefficient pricing as suppliers may over-price on price-sensitive customers to reduce costs. It suggests that suppliers might use this approach to compel price-sensitive customers to reduce demand to deter investment inefficiently, therefore reducing costs for the supplier and maximising profit (as revenue is already agreed).
86. 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, 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.

#### *Connection incentives*

87. We considered the relative merits of a revenue cap from the dimension of the incentives created for new connections because the form of control could affect suppliers’ motivation to establish new connections for consumers, which is another aspect of incentives for efficient investment.
88. 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).
89. 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 at the following reset.
90. In response to our emerging views paper, 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.<sup>44</sup> However, we do not consider that this

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<sup>43</sup> MEUG “Submission on emerging views on form of control” (24 March 2016).

<sup>44</sup> Orion “Submission on emerging views on form of control and cost of capital” (23 March 2016), para 20; Powerco “Submission on the four emerging views papers” (29 February 2016), para 16.2; 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.

should be a recoverable cost as suppliers could relatively quickly recover the costs of new connections through their capital contributions policies. 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.<sup>45</sup> While we acknowledge that point, we note that capital contributions could be spread over a number of years.

91. Also, WELL highlighted that greater usage of the network will spread the costs across more customers and keep average prices lower.<sup>46</sup> Therefore, there remains an incentive to connect new customers to retain the value of the network long term.
92. WELL 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 WELL that EDBs have options to manage the potential connections disincentive that may be created by moving to a revenue cap.
93. As part of our proposed solution, we also propose 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 is 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.

#### *Price stability*

94. We also considered the benefits of a revenue cap from the dimension of 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.
95. A revenue cap provides suppliers with guaranteed revenue but it may lead to more price volatility within the price control period than a WAPC. However, there may be a lower likelihood of volatility between periods under a revenue cap compared to a WAPC. A WAPC would provide within-period price stability but suppliers would be exposed to the risk of under-recovery of revenue.

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<sup>45</sup> 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.

<sup>46</sup> Wellington Electricity "Input methodologies review – Commission emerging views" (24 March 2016).

96. We are proposing to provide for annual limits on pass-through of over and under-recovery to help manage within-period price volatility under the proposed revenue cap.

*Overall view of our reasons*

97. In weighing up the five dimensions from which we addressed the form of control for EDBs, we considered the quantity forecasting risk to be the most important dimension. 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.
98. We also considered that the revenue cap would allow suppliers more flexibility to restructure tariffs to be more allocatively 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 proposed revenue cap for EDBs**

99. This section explains the principles behind how the proposed 'pure' revenue cap with a wash-up mechanism would work for EDBs. Further detail of how we propose the wash-up features would take effect when setting the DPP/customised price-quality path (**CPP**) determination is discussed in the gas DPP implementation paper, to be published on 28 June 2016. Many of these features are also likely to be relevant to how we might implement a revenue cap when resetting DPPs for EDBs.
100. 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 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 would be different from the current lagged revenue cap for GTBs which requires notional revenue to be no greater than allowable notional revenue.<sup>47</sup>

*Determining the allowable revenue for each year when prices are set*

101. The allowable revenue at the beginning of each year of a regulatory period would be the sum of three components:

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<sup>47</sup> 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.



- 101.1 the “net allowable revenue”, which would provide for the recovery over the regulatory period of building blocks costs. This component would grow by forecast CPI-X from each year to the next;
  - 101.2 pass-through and recoverable costs; and
  - 101.3 the drawdown of a wash-up account which would itself be a recoverable cost.
102. The net allowable revenue for the first year of a regulatory period would be the maximum allowable revenue in that year as calculated in the financial model for the DPP.<sup>48</sup>
103. When a supplier is setting its prices, it will not be able to accurately price up to the 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’.
104. Each supplier would be required to set prices such that its estimate of revenue will be no more than the 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).
105. Overall, the wash-up mechanism will restore each supplier to the position it would have been in had the year-ahead quantity 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 perfect foresight position.

*Wash-up mechanism*

106. We propose 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 which would apply following a large demand shock, such as a catastrophic event.
107. 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

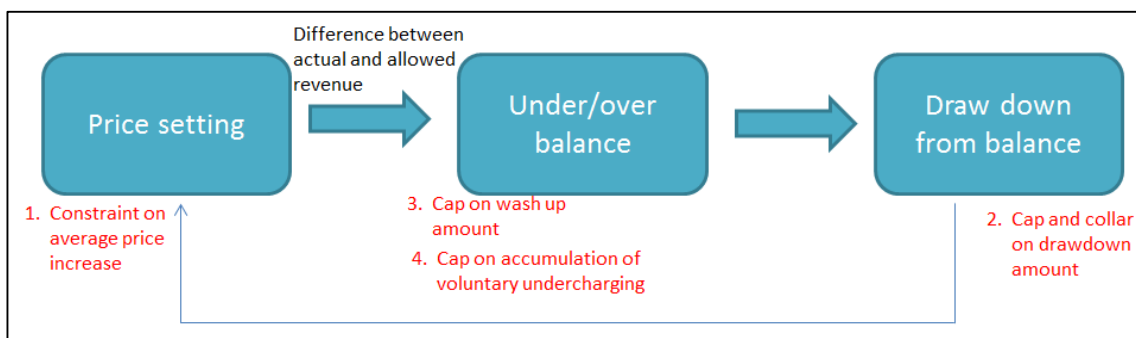
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<sup>48</sup> As set out in the Report on the IM review, we propose a capex wash-up adjustment would be implemented as a recoverable cost, as was done at the last EDB DPP reset. The purpose of this adjustment is to reverse any forecasting error for 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.

to be drawn down two years after the relevant revenue year. 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.

- 108. We also propose that the wash-up deal with differences between forecast and actual CPI. The CPI-X adjustment to 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.
- 109. We propose that the CPI adjustment to be made for the purposes of price setting be based on the Reserve Bank’s forecasts of CPI changes, and that the actual CPI change that is subsequently published by Statistics New Zealand will be factored into the wash-up.
- 110. 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. The rationale is somewhat different from that for the quantity forecast as there will be no perverse incentive on suppliers to bias forecasts – the CPI forecast will be provided by the Reserve Bank and not from suppliers. The purpose of the wash-up will be the greater accuracy available from the wash-up mechanism.
- 111. Figure 2 shows the conceptual process and the key features of the revenue cap wash-up mechanism.

**Figure 2: Conceptual diagram of wash-up mechanism process and key features**



**Features of the proposed wash-up mechanism**

- 112. The features that we have proposed to add to a simple wash-up mechanism are described below. Although we will include the provision for each of these features in the IMs, the decision on whether they will be implemented in the price-path determination or not, and the value of any parameters, will be made following consultation at the time of the DPP resets or the making of CPP determinations.

*Constraint on average price increase*

- 113. The purpose of this constraint is to address the concern, when prices are set at the beginning of each year of the regulatory period, about the potential for large

downward demand shocks that result in large price increases to consumers. We propose a limit to the percentage increase in the weighted 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, and is less likely to be relevant for EDBs. However, we propose including 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 in the future.

114. This is a forward-looking constraint, so if a supplier forecasts that there is going to be a significant demand drop the constraint might take effect when setting prices.
115. The percentage limit value would be specified in a DPP s 52P determination. This cap on average price increases applies to average line charges and not to revenues.<sup>49</sup> The cap applies to average line charges in order to mitigate consumer price shocks. 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.
116. We propose that each supplier provide its compliance report for each year after prices have been set, but prior to the prices taking effect at the commencement of that period. Our proposed process would allow each supplier to set its prices with certainty that its prices comply with the DPP Determination.<sup>50</sup>

*Cap and collar on drawdown amount*

117. The purpose of a cap and collar on the drawdown amount is to address the concern that a revenue cap may lead to price volatility within the period resulting from the wash-up process. The cap and collar aims to smooth the wash-up amounts that can be recovered across the period, to avoid large wash-up amounts affecting prices annually.
118. The cap would be the largest allowable positive drawdown balance that could be applied, expressed as a percentage of the net allowable revenue. The collar would be the largest allowable negative drawdown balance that could be applied, expressed as a percentage of the net allowable revenue. Between the cap and collar the EDBs would have the discretion to choose the drawdown amount. The percentage for the cap and the percentage for the collar would be determined as part of the DPP reset. The cap and collar would not necessarily have to be symmetric.
119. In response to our emerging views paper WELL said that introducing a capping mechanism for dealing with over or under-recoveries in a particular year is unnecessary and would introduce additional complexity. We only propose providing for the cap and collar in the IMs, and would consult on whether to implement it in a

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<sup>49</sup> Increases in average line charges refers to the increase in the weighted average price of the services for which posted prices apply or services provided through a non-standard contract. Other services, such as connections and disconnections for credit purposes would not be included.

<sup>50</sup> Further information on the proposed compliance process is included in the gas DPP implementation paper. We could adopt similar processes for EDBs at the next reset also.

price-path determination prior to any DPP or CPP reset. That consultation would also consider the appropriate cap and collar on the drawdown balance.

*Cap on accumulation of voluntary undercharging*

120. The purpose of this constraint is to address the possibility that a large credit amount may build up in the over/under balance from EDBs intentionally undercharging. A supplier might not fully charge its consumers up to the limit of its allowable revenue. 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 drawdown that balance. This feature would 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.
121. 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 amount of this difference that could be washed up, and would be a specified percentage of the allowable revenue. This will be specified as part of the DPP Determination.
122. The forecast allowable revenue referred to above is a forecast because it includes a forecast of pass-through and recoverable costs and because the CPI increment to the net allowable revenue is based on a forecast CPI. The forecast revenue referred to above is a forecast because it is based on the supplier's year-ahead forecast of quantities.
123. 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 quantities, pass-through costs or recoverable costs.
124. 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.
125. 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 drawdown amount shall be a recoverable cost.

*Cap on wash-up amount*

126. 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. The cap will limit the amount of the lost demand that could be recovered through the wash-up mechanism. The wash-up amount would be the lesser of:

- 126.1 the allowable revenue less the actual revenue; and
  - 126.2  $x\%$  of the allowable revenue, where the value for  $x$  is specified in the input methodology for specification of price.
127. The value of  $x$  would be specified in a s 52P determination. The value would be set sufficiently large that the cap would be unlikely to bind except after a major demand shock, such as might only occur as a result of a major catastrophic event.
128. 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.<sup>51</sup> 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 propose to 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 bear some of the demand risk.
129. In the Orion CPP decision,<sup>52</sup> 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:
- 129.1 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;
  - 129.2 regulated suppliers (and their investors) are generally better placed to manage the risks of catastrophic events than consumers; and
  - 129.3 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).

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<sup>51</sup> 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).

<sup>52</sup> Commerce Commission "Final decision for setting the customised price quality path of Orion New Zealand Ltd" (29 November 2013) para C14.

130. We consider 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),<sup>53</sup> and are:

130.1 suppliers would only bear the demand risk until the next reset;

130.2 the materiality of demand risk is likely to be relatively minor; and

130.3 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.

131. In our final decision for setting the customised price-quality path of Orion we explained that:

“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 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.”<sup>54</sup>

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<sup>53</sup> Commerce Commission “Final decision for setting the customised price quality path of Orion New Zealand Ltd” (29 November 2013) para C23.

<sup>54</sup> Commerce Commission “Final decision for setting the customised price quality path of Orion New Zealand Ltd” (29 November 2013) para C31-C33.

132. We also reiterated this decision in our reasons paper for the amendment to the WACC percentile for price-quality regulation.<sup>55</sup>

*Accounting for wash-up amounts in the compliance regime*

133. We propose that each supplier maintain a wash-up account to account for the following.

133.1 The wash-up balance.

133.2 Any difference between a supplier's forecast of pass-through and recoverable costs and the costs actually incurred, with due account of the time value of money.

133.3 Amounts drawn down from the wash-up account. These amounts would be recoverable costs, and could be positive or negative.

133.4 Time value of money adjustments. A balance left in the account at the end of one year would be adjusted by a discount rate to reflect the opportunity cost of holding that balance for another year.

134. The proposed 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 assessment years of a regulatory period could be washed up in the first and second assessment years of the subsequent regulatory period.

135. The revenue cap wash-up will produce a cumulative balance of under or over revenue recoveries over time. As that balance will result in the shifting of revenue over years, a discount rate will need to be applied.

136. We propose to apply a discount rate equal to the post-tax WACC at the 67<sup>th</sup> percentile for the DPP regulatory period. This approach would ensure that wash-up amounts are discounted at suppliers' opportunity cost of funds (WACC),<sup>56</sup> which is consistent with the principle of FCM, a key principle as expressed in our framework for the IM review.<sup>57</sup>

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<sup>55</sup> Commerce Commission "Amendment to the WACC percentile for price quality regulation" (30 October 2014) para 4.37.

<sup>56</sup> Further, this is consistent with the approach we follow in relation to smoothing the price path; in transforming the BBAR to the MAR we 'smooth' the price path on an NPV-neutral basis using the 67<sup>th</sup> percentile post-tax WACC.

<sup>57</sup> See Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

137. This proposed approach is similar to the approach we have used for Transpower's comparable Economic Value account. We propose using the post-tax WACC for the relevant DPP period as that is effectively the prevailing discount rate used in setting the price-path for the regulatory period.<sup>58</sup>
138. We note also the proposed discount 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.
139. 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 a DPP/CPD determination. Further details on compliance, 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 implementation paper due to be released on 28 June 2016. Although the gas DPP implementation paper focusses 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.

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<sup>58</sup> In practice, the DPP is set using a vanilla WACC.



### **Chapter 3: Form of control for GTBs**

#### **Purpose of this chapter**

140. The purpose of this chapter is to explain the problem we have identified in relation to the form of control for GTBs and our proposed solution in respect of this problem.

#### **Structure of this chapter**

141. This chapter explains:
- 141.1 the problem we have identified with the form of control for GTBs;
  - 141.2 our proposed solution to move from a lagged revenue cap to a 'pure' revenue cap;
  - 141.3 our reasons for our proposed solution; and
  - 141.4 our proposed design of the 'pure' revenue cap, including a wash-up mechanism for over or under-recovery of revenue.
142. The upcoming gas DPP implementation paper will provide more detail on how our proposed IM changes to introduce a 'pure' revenue cap would be given effect to at the 2017 gas DPP reset.<sup>59</sup>

#### **Problem definition**

143. This section explains the problem definition, including how it evolved through comments from submissions.
144. The existing 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. Currently both GTBs are subject to a revenue cap that uses lagged quantities.
145. The main issues raised by stakeholders in respect of the current revenue cap for GTBs are:
- 145.1 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.
  - 145.2 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

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<sup>59</sup> This paper is due for publication on 28 June 2016.

Commission's view in its previous decision, that gas transmission businesses had limited ability to control demand, remained sound.<sup>60</sup>

- 145.3 The Major Gas Users Group (**MGUG**) claimed that the lagged quantity revenue cap exposes customers to the majority of risks that GTBs face,<sup>61</sup> and that as a result gas customers are being exposed to increasing prices as volumes decline. We consider that gas transmission demand is difficult to forecast, and that gas demand is often impacted by factors that are out of supplier's control and therefore suppliers are not best 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.
146. 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. We have considered how best to address these problems.

**Proposed solution: Adopt a 'pure' revenue cap for GTBs**

147. This section describes our proposed solution in respect of the form of control for GTBs.

*Our proposed solution*

148. Our proposed 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:
- 148.1 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));
- 148.2 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

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<sup>60</sup> Commerce Commission "Input methodologies review - gas pipeline default price-quality path reset 2017 - Gas stakeholder meeting - 8 December 2015 - Summary of views" (22 December 2015), para 41.

<sup>61</sup> MGUG's submission on the problem definition paper "Re: Input methodologies review" (21 August 2015), para 15.

potentially inappropriate incentives for GTBs to under-spend on the network (consistent with s 52A(1)(a) and (b)); and

- 148.3 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)).
149. We also propose that the revenue cap would include an annual unders and overs wash-up mechanism with implementation features intended to:
- 149.1 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
- 149.2 reduce the risk that consumers are exposed to price shocks and volatility.
150. 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 think 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).
151. 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.
152. We consider that the concern that the two GTBs should be subject to different forms of control may only be transitional because the two businesses will have a common owner and the Gas Industry Company (**GIC**) is also working to align the operating codes for the two gas transmission pipelines.<sup>62</sup> We also consider that removing the choice of form of control for GTBs from the IMs would provide more certainty for stakeholders.<sup>63</sup>

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<sup>62</sup> GIC, "Transmission Access; Options for Improvement, Paper #2" (May 2015).

<sup>63</sup> 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.

153. We propose amending 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 the wash-up mechanism.<sup>64</sup> The amendments have been drafted to reflect the changes:

153.1 moving to a pure revenue cap as the form of control; and

153.2 providing for the wash-up process as described below.

#### **Reasons for our proposed solution**

154. This section explains our assessment of the form of control for GTBs and our key reasons for our proposed solution.

155. We considered the pros and cons of changing the form of control for GTBs from the following dimensions:

155.1 incentives for efficient expenditure;

155.2 price stability; and

155.3 incentives for pricing efficiency and tariff restructuring.

156. These are the same dimensions that we considered the form of control for EDBs against, except that two of the dimensions that were relevant to EDBs are not relevant here. The reasons why we consider these dimensions are important are noted in the previous chapter and so are not repeated here.

#### *Incentives for efficient expenditure*

157. One of our key economic principles is that risks should be allocated to those best placed to manage them.<sup>65</sup> 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, and therefore we do not think GTBs have a comparative advantage in bearing the demand risk. 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)).

158. 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.<sup>66</sup> Maui Development Limited (**MDL**) and First State Investment responded

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<sup>64</sup> The Report on the IM review will capture the changes we would make to existing policy decisions as a result of our proposed solutions.

<sup>65</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>66</sup> MGUG "Submission on emerging views on form of control paper: 29 February 2016" (24 March 2016).

in cross submissions to our gas DPP process and issues paper, stating that they disagreed with MGUG.<sup>67</sup> 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.<sup>68</sup>

159. As gas transmission demand is subject to significant variability 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 2A(1)(a) and (b)).
160. 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*

161. As explained for EDBs, a pure revenue cap could mean more price volatility within a price control period compared to a WAPC. 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.
162. We consider that the proposed pure revenue cap would create less volatility than the current revenue cap by introducing features with the wash-up mechanism to target this concern. We are proposing to provide for a cap and collar on the annual drawdown amount from the wash-up balance to help manage within-period price volatility resulting from a revenue cap. We are also proposing to provide for a constraint on average price changes to address MGUG's concerns about large price shocks for consumers when demand significantly changes.<sup>69</sup>

#### *Incentives for pricing efficiency and tariff restructuring*

163. The current revenue cap design using lagged quantities creates a barrier to suppliers offering more innovative tariffs or implementing auction-based pricing.

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<sup>67</sup> First State Investments "Gas Default Price-Quality Path: General Matters Cross-submission" (13 April 2016) page 3; MDL "Untitled cross-submission on gas DPP process and issues paper" (13 April 2016).

<sup>68</sup> First State Investments "Gas Default Price-Quality Path: General Matters Cross-submission" (13 April 2016) page 3.

<sup>69</sup> 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) .

164. 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*

165. 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.
166. Price stability is also an important dimension 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 volatility (a cap and collar on the drawdown amount and a constraint on average price increases).

**Design of the amended revenue cap for GTBs**

167. This section explains how the amended revenue cap and wash-up mechanism would work for GTBs.
168. 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.
169. The features of the wash-up mechanism are the same as the features described earlier for EDBs (Chapter 2), except that we consider GTBs should be required to drawdown the full balance subject only to the cap and collar. For GTBs we consider that the cap on average price increases 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 cap on average price would share the adjustment to the demand shock between suppliers and consumers, although ultimately consumers will have to make up the full amount in the long term. For GTBs we propose not providing for the "cap on voluntary undercharging" feature in the GTB IMs. This feature is designed only to mitigate the risk of EDBs deliberately under-pricing and building up a large credit balance.
170. The wash-up drawdown amount shall drawdown the wash-up account to a nil balance each year. In other words, the balance of the account prior to drawdown shall be the drawdown amount, and this amount shall be the revenue wash-up recoverable cost.

*Capacity auctions*

171. 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.<sup>70</sup>
172. 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 drawdown 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.

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<sup>70</sup> 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.

## **Chapter 4: Form of control for GDBs**

### **Purpose of this chapter**

173. The purpose of this chapter is to explain our proposals relating to the form of control for GDBs.

### **Structure of this chapter**

174. This chapter explains:
- 174.1 why we considered changing the form of control for GDBs but have decided to maintain the WAPC for GDBs; and
  - 174.2 why we suggest amending the specification of price IM for GDBs to allow the wash-up of pass-through and recoverable costs

### **We considered the benefits of moving GDBs to a revenue cap**

175. This section explains why we considered changing the form of control for GDBs.
176. 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.
177. Stakeholders have highlighted that we need to consider the differences between the electricity and gas (distribution) sectors. The key difference is that gas is a discretionary fuel for the majority of consumers, giving suppliers an incentive to drive volumes to increase their revenues, and that this is best accommodated under a WAPC.
178. Although quantity forecasting was raised as a significant issue for EDBs, it has not been highlighted as a specific problem under the WAPC by GDBs. However, 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 be refined.<sup>71</sup> We are engaging with stakeholders regarding CPRG forecasting as part of the gas DPP process.
179. 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.

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<sup>71</sup> Powerco "Submission on the four emerging view papers (29 February 2016)" (24 March 2016) para 20.



**We propose maintaining a WAPC for GDBs**

180. We propose maintaining a WAPC for the form of control for GDBs and continuing to use lagged quantities. Our reasons for this proposal are:
- 180.1 unlike for EDBs, there have not been any significant concerns raised about continuing to use CPRG forecasting for GDBs;
  - 180.2 unlike for EDBs, we do not think the WAPC creates concerns about tariff restructuring or efficient pricing for GDBs; and
  - 180.3 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.
181. However, as we discuss further below, we propose improving 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. This would be consistent with improvements to the operation of a WAPC introduced for EDBs at the most recent EDB DPP reset.

**Reasons for not changing the WAPC for GDBs**

182. This section explains our assessment of the form of control for GDBs and our reasons for proposing not to change from a WAPC.
183. We considered the pros and cons of changing the form of control for GDBs from the following dimensions:
- 183.1 connection incentives;
  - 183.2 incentives for efficient expenditure;
  - 183.3 incentives for pricing efficiency and tariff restructuring; and
  - 183.4 price stability.

*Connection incentives*

184. Our main reason for favouring 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 gas demand consumers have more choice in respect of gas, because they can choose whether to use gas and electricity or only electricity for their energy supply.
185. We consider that the 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 ensuring 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.

186. Concept Consulting's report on the relative long-term demand risks between electricity and gas networks, indicated that the discretionary nature of gas versus the essential nature of electricity has been reflected in rates of customer connection/disconnection to the respective networks.<sup>72</sup> 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 discretionary fuel.
187. Stakeholders are also supportive of maintaining the WAPC because it incentivises GDBs to promote gas consumption and new connections between resets.<sup>73</sup> 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.<sup>74</sup> MGUG explained that generally distribution demand is growing which makes WAPC a logical choice for GDBs because they can aim to outperform the price-path.<sup>75</sup> GasNet is also supportive of the WAPC because it is already in place and understood by GDBs and is straightforward to audit and operate.<sup>76</sup>

#### *Incentives for efficient expenditure*

188. A revenue cap would remove the quantity forecasting risk from GDBs and consumers but the risk of unexpected changes in demand would be borne by consumers. Under the WAPC the risk that demand differs from forecast during the regulatory period is borne by suppliers. Consumers are exposed to expected/forecast changes in demand both within-period and between periods. Both consumers and suppliers are exposed to the quantity forecasting risk. There have not been any significant problems raised with the CPRG forecasting for gas distribution, which suggests there is not a significant concern that the WAPC is creating incentives for under-investment for GDBs.

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<sup>72</sup> 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).

<sup>73</sup> 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)

<sup>74</sup> Powerco "Gas pipeline default price-quality path reset 2017" (28 January 2016), para 29.

<sup>75</sup> MGUG "Submission on emerging views on form of control paper: 29 February 2016" (24 March 2016), para 27.

<sup>76</sup> GasNet "Submission on DPP from 2017 for gas pipeline services, process and issues paper – Public version" (24 March 2016), para 8.

189. 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 circumstance by promoting gas.<sup>77</sup> 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.<sup>78</sup> We consider that GDBs do have more influence over demand than GTBs. Gas transmission demand is subject to factors that are outside the suppliers control, such as global commodity prices, whereas GDBs can influence gas demand through working with retailers and liaising with subdivision builders to influence new gas connections.
190. We consider that for 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 outperform the price-path.

*Incentives for pricing efficiency and tariff restructuring*

191. 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.<sup>79</sup>
192. In its Consumer Energy Options report,<sup>80</sup> 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

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<sup>77</sup> Powerco "Gas pipeline default price-quality path reset 2017" (28 January 2016), para 31.

<sup>78</sup> First State Investments "Input Methodologies Review: Form of Control" (24 March 2016).

<sup>79</sup> First State Investments "Input Methodologies Review: Form of Control" (24 March 2016).

<sup>80</sup> Concept Consulting "Consumer Energy Options in New Zealand – 2016 Update" (7 March 2016).

prices to mitigate this volatility. It suggests that fixed charges may not promote efficient usage decisions because gas is a discretionary fuel for most customers.<sup>81</sup>

193. However, Concept 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 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.<sup>82</sup> Therefore, we do not think that the current implementation of the WAPC for GDBs dis-incentivises GDBs from introducing efficient price structures.

#### *Price stability*

194. 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*

195. In weighing up the above dimensions from which we considered the form of control for GDBs, we consider that the incentives on connections is important for gas distribution because gas is a 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**

196. We propose maintaining the same WAPC design as is currently in place for GDBs and continuing to use lagged quantities.
197. However, we propose 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

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<sup>81</sup> 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.

<sup>82</sup> Concept Consulting “Consumer Energy Options in New Zealand – 2016 Update” (7 March 2016), p.52.

trail to an invoice, a local authority rates notice or similar source document for the cost to be taken into account when pricing.

198. An advantage of this suggested change is that pass-through and recoverable costs would be more accurately reflected in prices earlier than in the current regime.

## **Chapter 5: RAB indexation and inflation risk – EDBs and GPBs**

### **Purpose of this chapter**

199. 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 this approach protects the regulatory value of suppliers' investment in real terms.

### **Structure of this chapter**

200. 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 problem, and, as such, we do not propose to make any changes in this area.
201. Please refer to Attachment A for a stylised explanation of RAB indexation, including worked examples.

### **Issues raised by suppliers**

202. There are three main issues that suppliers raised in submissions:
- 202.1 a lack of understanding of the impact of RAB indexation under different inflation scenarios;<sup>83</sup>
  - 202.2 a fundamental disagreement that we should target real FCM rather than nominal returns;<sup>84</sup>
  - 202.3 a view that EDBs are exposed to inflation risk which they cannot manage. This risk materialises when forecast and outturn inflation differ, which results in suppliers under/over recovering their efficient costs.<sup>85</sup>
203. Attachment A aims to explain and clarify how RAB indexation to inflation works, and what the impact is on returns and exposure to inflation risk. 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.
204. As we explain in this chapter and Attachment A, we do not consider the other two issues raised to be problems, and therefore do not propose to make any IM changes in response.

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<sup>83</sup> See for example ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 100.

<sup>84</sup> Vector "Input methodologies review – Update paper on the cost of capital topic" (9 February 2016), para 5.

<sup>85</sup> Vector "Submission to Commerce Commission on the Default Price-Quality Paths from 1 April 2015: Process and issues paper" (30 April 2014), para 6.

*How stakeholders have articulated the issues*

205. 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.

206. The ENA summarised the issue as follows:

The relationships between WACC, indexation of the asset base, CPI forecasting and DPP price setting are complex and some parties consider the current balance to be inappropriate. It would be useful for the IM review to consider the allocation of risk arising from the current settings.

The problem definition paper suggests that changes in WACC due to changes in inflation expectations would be broadly offset by changes in the forecast of asset revaluations. As a first step we suggest the Commission publish a worked example to support its view that there is a natural hedge at present as the effects of actual inflation differing from forecast will apply in different directions to different building block items, potentially offsetting each other. A worked example would help promote a common understanding of the issue and would be a useful basis for the debate.<sup>86</sup>

207. Vector, during the 2015-2020 DPP reset, expressed it as:

Inflation is outside the control or influence of EDBs. In our view there is no reason for EDBs to be exposed to the forecast inflation risk that is associated with revaluations as they cannot take steps to mitigate it...Where actual inflation is lower (or higher) than the forecasts used when setting the starting price for the regulatory period, the revenue adjustment embedded in starting prices (and therefore reflected in each subsequent year's actual revenues) will not be equivalent to the revenue uplift based on the indexed RAB in future regulatory periods. This means that FCM will not be achieved.<sup>87</sup>

208. More recently, Vector's February 2016 submission on the WACC update paper says:

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.<sup>88</sup>

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<sup>86</sup> ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), para 99, 100.

<sup>87</sup> Para 6 and 7 here: <http://www.comcom.govt.nz/dmsdocument/11824>

<sup>88</sup> Vector "Input methodologies review – Update paper on the cost of capital topic" (9 February 2016), para 5.

209. PwC, in a report for Vector, said:

The use of CPI forecasts to determine the revaluation rate used in setting the price-path means that EDBs and GPBs are exposed to inflation risk. If outturn inflation differs from that forecast, EDBs/GPBs may over- or under-recover an efficient level of costs.<sup>89</sup>

210. CEG, in its February 2016 report commissioned by the ENA said:

This creates a potential for a material mismatch between the nominal cost of capital inputted into the Commission's financial model... and the final nominal compensation....<sup>90</sup>

**We do not consider these issues amount to a problem requiring IM changes**

211. In relation to RAB indexation and inflation risk, we agree that there is a lack of understanding of:

211.1 our policy intent;

211.2 our approach to implementation; and

211.3 the outcomes that our approach produces.

212. We consider that no change is needed, just further explanation, which we provide in this chapter and Attachment A.

213. We have sought advice from Dr Martin Lally, who agrees that our approach and the outcome it delivers is consistent with our policy intent, which is ensuring 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').<sup>91</sup> 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.<sup>92</sup>

214. Overall, Dr Lally concludes that:

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

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<sup>89</sup> PwC "A wash-up mechanism for the DPP revaluation rate: A report prepared for Vector" (April 2014), p. 2. Available here: <http://www.comcom.govt.nz/dmsdocument/11823>

<sup>90</sup> CEG "Inflation: Revaluations and revenue indexation" (report prepared for ENA, February 2016), para 12. Available here: <http://www.comcom.govt.nz/dmsdocument/14069>

<sup>91</sup> We intend to further assess the interaction between CPI indexation of the price path and the RAB, and the impact on real returns for different inflation scenarios. We welcome stakeholders' views on this interaction.

<sup>92</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016), paras 124-128



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.<sup>93</sup>

215. Attachment A clarifies these three areas. In short:

215.1 Our policy intent in the IMs is to provide suppliers 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; and

215.2 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) but not in nominal terms (unless actual inflation equals forecast inflation). This results in an outcome where both consumers and suppliers are protected from inflation risk. However, to the extent that suppliers issue nominal debt, they may be exposed to a likely small bankruptcy risk when outturn 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.

216. 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. Furthermore, we consider that the residual bankruptcy risk associated with the issuance of nominal debt is small, with an underlying symmetric driver (ie, actual inflation can be above or below forecast)<sup>94</sup> so it is likely that suppliers can either bear it, or efficiently manage it (eg, by issuing inflation-indexed debt).

217. We consider that suppliers' claims that they may over or under-recover when inflation outturn and forecast differ suggest that real FCM should not be our underlying principle.<sup>95</sup> We consider that our approach ensures that they are made whole in real terms, which is more consistent with expectations in a workably competitive market.<sup>96</sup>

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<sup>93</sup> 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 outturn inflation.

<sup>94</sup> Bankruptcy is not a symmetric matter.

<sup>95</sup> 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.

<sup>96</sup> 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**

218. Here is how we see the impact of inflation on revenues and RAB revaluations, which make up total returns (see Table A1 in the Attachment A):

218.1 revenues: when outturn inflation is lower (higher) than forecast, their nominal revenues are unchanged, while their real revenues are higher (lower); and

218.2 RAB revaluations: when outturn 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.

219. Because the expected revaluation gains are deducted from allowed income in setting the price-path, the result is that the revenue/price-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/CPP - with actual nominal compensation arrived at by adding actual outturn inflation over the DPP/CPP period to the estimated real cost of capital at the beginning of the DPP/CPP period.<sup>97</sup>

#### **We are not proposing any changes in this area**

220. We have not identified any problems in relation to our approach. Therefore, in our judgement, no change is needed to our existing approach to RAB indexation for EDBs and GPBs.

221. 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. 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.

222. Furthermore, as presented in Attachment A, our current approach to RAB indexation, as provided for in the IMs, is consistent with our policy intent. It effectively delivers real FCM, protecting consumers and suppliers from inflation risk.

223. The only potential problem with the current arrangements is the bankruptcy risk. 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

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**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).

<sup>97</sup> CEG "Inflation: revaluations and revenue indexation" (February 2016), para 9.

mitigate it (eg, by issuing inflation-indexed debt). Therefore, we consider that it does not warrant an IM change. In this respect, Dr Lally concludes that:<sup>98</sup>

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.

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<sup>98</sup> 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.

## **Chapter 6: RAB indexation and inflation risk - Transpower**

### **Purpose of this chapter**

224. This chapter explains the issues we identified in relation to Transpower's exposure to inflation risk and the time profile of capital recovery. It also discusses one potential problem we have identified with our current approach to inflation risk for Transpower, and our proposed solution.

### **Structure of this chapter**

225. 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. It then describes a potential problem we have identified with maintaining this approach, and our proposed solution.

### **We considered whether we should index Transpower's RAB to inflation**

226. Stakeholders have not raised problems with the approach to inflation risk that applies under the current IMs for Transpower. However, we identified and considered the following issue.

#### *Time profile of capital recovery*

227. 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.

### **We are not proposing to change the IMs to index Transpower's RAB to inflation**

228. On balance, we propose to maintain the current 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.
229. 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.<sup>99</sup>

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<sup>99</sup> 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

230. 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.
231. We consider that these reasons justify maintaining a different approach than for EDBs.
232. As with all proposals presented in this paper, we welcome stakeholders' views on this.

### **Inflation risk**

233. Although we propose to maintain our current approach for Transpower—which is not indexing its RAB to inflation—we consider that there is a potential improvement we could make to this approach. All other things being equal, the current approach delivers ex-post nominal returns, which exposes both consumers and Transpower to the risk that outturn inflation differs from the inflation expectation inherent in the nominal WACC used.

#### *Possible change to deliver real FCM ex-post*

234. Our proposed change is 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 propose to create an annual capital charge adjustment through the MAR wash-up.
235. The adjustment would be equal to the difference between the actual less 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.
236. This is our proposed solution and we have drafted changes in Transpower's draft Determination to show how this solution might be implemented. We consider this change would better promote incentives to invest, consistent with s 52A(1)(a). However, we are open to maintaining the status quo because we consider 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.

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current approach. The RAB would be revalued by this same amount (where outturn inflation equals forecast).

## Attachment A: RAB indexation worked examples

237. The purpose of this attachment is to:

- 237.1 provide some simple examples to illustrate how our choice of approach regarding RAB indexation and revaluations expose suppliers' to inflation risk, or how it protects the regulatory value of suppliers' investment in real terms; and
- 237.2 note some of the submissions we have received on what the appropriate returns target should be – real or nominal.

### A simple illustrative example of real vs nominal returns

238. Consider two bank savings accounts. Savings account A promises an 8% annual *nominal* interest rate (ie, it promises nominal returns) while savings account B promises an 8% *real* interest rate (ie, it promises real FCM or real returns). On 1 January 2016 I deposit \$100 in each account. Inflation during the year is 2%. In 31 December 2016 I look at my accounts and this is what I see:

- Savings account A: \$108 → So I earned \$8, but since inflation was 2%, my \$100 capital only increased by 6% in real terms (ie, real = nominal - inflation).<sup>100</sup> That is an 8% nominal return in an environment of 2% inflation.
- Savings account B: \$110.16 → I earned \$10.16, so my final capital of \$110.16 is 8% higher than the inflation-adjusted value of my initial capital – \$102. That is an 8% real return in an environment of 2% inflation.

239. What would happen if instead of 2% inflation we had 0% inflation? Well, both savings accounts would have \$108 in 31 December 2016. This is because the real and nominal interest rates are equal when inflation is zero.

### Our approach to EDBs and GPBs both allows an expectation of and delivers real FCM

240. Our implementation of RAB indexation provides an *ex-ante* expectation of real returns (or real FCM), and delivers an *ex-post* real return.

241. Our price setting process at the time of resetting price paths is as follows:

1. WACC: use a nominal WACC (which inherently incorporates inflation expectations at the time it is calculated);
2. Forecast RAB revaluations: forecast inflation for each year of the regulatory period, then annually revalue the RAB by the forecast inflation;

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<sup>100</sup> Formally, the Fisher equation gives the relation between real and nominal interest rates:  $1+i = (1+r)(1+\pi_e)$ , where  $i$  and  $r$  are the nominal and real interest rates respectively, and  $\pi_e$  is the expected inflation. However, for readability we have simplified the illustrative examples in this attachment.

3. Forecast revaluations as income: deduct the forecast annual RAB revaluation (based on forecast CPI) from the annual allowed revenue (ie, revaluations treated as income). This ensures that EDBs are not compensated for inflation twice (ie, once by the use of a nominal WACC, and twice by revaluing the RAB);
  4. RAB roll forward: under ID, the RAB is revalued using actual rather than forecast inflation. Therefore, at the time of the next price reset, opening RAB values have been maintained in real terms.
242. We considered CEG's example to see if our approach adheres to the principle of real FCM:
- “Let there be a one year regulatory period and a perpetual (non-depreciating) asset in the RAB with a value of \$100. Let the nominal WACC be 8% and let forecast inflation be 2% over the regulatory period and let the tax rate be zero. In this stylised example allowed revenues generated by this asset will be \$6 – comprised on 8% return on \$100 less 2% (\$2) forecast revaluation.
- If inflation turns out to be 2% then the asset owner will receive an actual \$2 revaluation of their asset at the end of the one year regulatory period. Consequently, their total return comprising both revenues within the regulatory period and revaluation at the end of it will be equal to the 8% estimated cost of capital at the beginning of the regulatory period (6% in the form of revenues and 2% in the form of revaluation).
- However, if actual inflation turns out to be 0% then the asset owner will receive 0% actual revaluation under the IMs at the beginning of the next regulatory year. Consequently, **the asset owner's nominal return will be 6% and not the estimated 8% at the beginning of the previous regulatory year. Similarly, if actual inflation turns out to be 4% then the asset owner will receive nominal compensation of 10% (6% in revenues and 4% in revaluations)** [emphasis added].”<sup>101</sup>
243. CEG's example is correct. Fundamentally, that is how our price setting approach works – ie, it delivers a real return. Table A1 below demonstrates this by showing the real and nominal impact of inflation shocks on the components that make up owners' total returns (ie, revenue and capital gains in the form of RAB revaluation).

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<sup>101</sup> CEG “Inflation: revaluations and revenue indexation” (February 2016), paras 6-8.

**Table A1: Stylised breakdown of returns at end of regulatory period in CEG’s example**

| <i>Opening RAB = \$100<br/>Nominal WACC = 8%</i> | Forecast $\pi = 2\%$<br>Outturn $\pi = 2\%$ | Forecast $\pi = 2\%$<br>Outturn $\pi = 0\%$ | Forecast $\pi = 2\%$<br>Outturn $\pi = 4\%$ |
|--|---|---|---|
| Nominal revenue <sup>1</sup>                     | \$6 (or 6%)                                 | \$6 (or 6%)                                 | \$6 (or 6%)                                 |
| Real revenue <sup>1</sup>                        | \$4 (or 4%)                                 | \$6 (or 6%)                                 | \$2 (or 2%)                                 |
| Actual RAB revaluation <sup>2</sup>              | \$2 (or 2%)                                 | \$0 (or 0%)                                 | \$4 (or 4%)                                 |
| Total nominal return                             | \$8 (or 8%)                                 | \$6 (or 6%)                                 | \$10 (or 10%)                               |
| <b>Total real return</b>                         | <b>\$6 (or 6%)</b>                          | <b>\$6 (or 6%)</b>                          | <b>\$6 (or 6%)</b>                          |

Notes:  $\pi$  denotes inflation; 1 - includes forecast revaluations treated as (ie, deducted from) income; 2 - revaluations based on outturn inflation applied at the end of the period to the closing RAB in the RAB roll forward equation. Real and nominal revaluations are equal because they are applied at the end of period 1, so before the impact of period 2’s inflation.

244. Let’s consider the emboldened text in CEG’s example: when inflation is 2%, the real return is 6%; when inflation is zero, the real return is also 6% (which equals the nominal return); and when inflation is 4%, the real return is also 6%.

245. In this example, an ex-ante normal return in real terms is one which equals the real WACC. The real WACC in the example is 6%.

246. If the owner received an 8% nominal return when inflation was zero, which is what CEG’s example seems to imply should happen, then it would be earning 2% above-normal returns in real terms. Similarly, if the owner received an 8% nominal return when inflation was 4%, then it would be earning 2% below-normal returns in real terms. This would violate the principle of real FCM.

247. CEG, considers that our approach:

“creates a potential for a material mismatch between the nominal cost of capital inputted into the Commission’s financial model and the final nominal compensation provided”.<sup>102</sup>

248. And that’s right – there may be a nominal mismatch, but there is a ‘real match’.

249. Therefore, we can characterise our implementation of RAB indexation as providing an ex-ante expectation of a real return (or real FCM), and delivering an ex-post real return.

<sup>102</sup> CEG “Inflation: revaluations and revenue indexation” (February 2016), para 12.



250. It is worth clarifying one of Dr Martin Lally’s conclusions in its February 2016 advice, which conveniently uses a very similar example to CEG:

“inflation shocks in the first regulatory cycle do not affect nominal revenues in the first cycle but raise [in the case of a positive inflation shock] subsequent revenues in proportion to the inflation shock. However, in real terms, **REV<sub>1</sub> is down and REV<sub>2</sub> is unchanged** [emphasis added].”<sup>103</sup>

251. The reader may wonder how real FCM can be reconciled with the emboldened text, which could be interpreted as suggesting that real FCM may be breached since, in real terms, period 1 revenue is down and period 2 revenue is unchanged.
252. The key is to realise that, in this example of a positive inflation shock, the *total returns* (ie, revenue *plus* RAB revaluation) to the owner at the end of the regulatory period 1 are maintained in real terms. The last column of the above table shows this: while the real revenue at the end of period 1 is lower (\$2 instead of \$4), this is offset by a higher RAB revaluation based on outturn inflation of \$4 (instead of \$2). This delivers a real return of \$6. Furthermore, the higher opening RAB value for period 2 maintains the ex-ante expectation of normal returns going forward.

#### **Our approach to EDBs and GPBs may expose them to bankruptcy risk**

253. This happens when inflation is lower than forecast and to the extent that suppliers issue nominal debt. 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. Lally explains:

“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.”<sup>104</sup>

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<sup>103</sup> 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.

<sup>104</sup> 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.

254. CEG’s view is different to Lally’s judgement that our inflation forecast errors are likely to be uncorrelated over time and therefore will tend to offset over time. CEG, considers that:

“In this context, it is reasonable to expect that investors perceive an asymmetry in the probability that inflation will be above/below the RBNZ’s target, at least in the medium term... there is more downside than upside risk to inflation.”<sup>105</sup>

**Our approach to Transpower allows an expectation of real FCM but delivers nominal returns**

255. Our price setting process for Transpower at the time of resetting price paths is as follows:

1. WACC: use a nominal WACC (which inherently incorporates inflation expectations at the time it is calculated);
2. RAB revaluations: not applied;
3. Revaluations as income: not applied;
4. RAB roll forward: inflation has no role in rolling forward Transpower’s RAB.

256. A consequence of this approach is that Transpower’s returns are maintained in *nominal* terms ex-post. They are only maintained in real terms when the inflation expectations inherent in the nominal WACC equal outturn inflation. Using the same example as before, the table below shows this:

**Table 2: Stylised breakdown of Transpower’s returns at end of regulatory period**

| <i>Opening RAB = \$100<br/>Nominal WACC = 8%</i> | Expected $\pi = 2\%$<br>Outturn $\pi = 2\%$ | Expected $\pi = 2\%$<br>Outturn $\pi = 0\%$ | Expected $\pi = 2\%$<br>Outturn $\pi = 4\%$ |
|--|---|---|---|
| Nominal revenue                                  | \$8 (or 8%)                                 | \$8 (or 8%)                                 | \$8 (or 8%)                                 |
| Real revenue                                     | \$6 (or 6%)                                 | \$8 (or 8%)                                 | \$4 (or 4%)                                 |
| Actual RAB revaluation                           | N/a   | N/a   | N/a   |
| Total nominal return                             | \$8 (or 8%)                                 | \$8 (or 8%)                                 | \$8 (or 8%)                                 |
| <b>Total real return</b>                         | <b>\$6 (or 6%)</b>                          | <b>\$8 (or 8%)</b>                          | <b>\$4 (or 4%)</b>                          |

Notes:  $\pi$  denotes inflation. I use the term “expected” instead of “forecast” since we do not use explicit inflation forecasts for Transpower, but rather a nominal WACC that has inherent inflation expectations in it.

<sup>105</sup> CEG “Inflation: revaluations and revenue indexation” (February 2016), para 35.

257. Therefore, we can characterise Transpower's regime as providing an ex-ante expectation of a real return (or real FCM)<sup>106</sup>, and delivering an ex-post nominal return.
258. Referring to the approach we apply to Transpower, Lally concludes that "Following the same type of analysis presented above, it can be shown that this too does not violate the NPV=0 principle."
259. NPVs are forward-looking and therefore deal with expected future outcomes rather than their actual outcomes. Therefore, it is consistent to say that the Transpower regime provides an ex-ante expectation of a real return and that it does not violate the ex-ante NPV=0 principle, even though it delivers an ex-post nominal return that may differ from the NPV=0 expectation.<sup>107</sup>

### Should the IMs provide an ex-ante expectation of real FCM or nominal returns?

260. This section presents our view when setting the IMs in 2010, and some extracts from different stakeholders on the topic.

#### *Our current view – expectation of real FCM*

261. The IM reasons paper for EDBs and GPBs states that our policy is to offer suppliers the expectation of real FCM:

"Over the lifetime of its assets, a typically efficient firm in a workably competitive market would expect *ex ante* to earn at least a normal rate of return (ie, its risk-adjusted cost of capital). Because allowing a firm the expectation of being able to earn normal returns over the lifetime of an investment provides it with the chance to preserve its 'financial capital' **in real (not nominal) terms**, such an outcome is often referred to as 'financial capital maintenance' or 'FCM'." In a regulatory context, FCM is achieved, on an *ex ante* basis. This is comparable to expectations in competitive markets that are conducive to promoting investment. It is not, however, possible to guarantee that regulated suppliers earn a normal return over the life of assets, because any analysis used to monitor profitability, or to set regulated prices, will typically be conducted part way through the lifetimes of the assets utilised in supplying regulated services. Some information about past performance may not be known. Further, the allocation of risks between suppliers and consumers will usually mean that, although suppliers might have expected to earn a normal return *ex ante*, such a return is not earned *ex post*.

...it is important to reiterate that, in the context of price-quality regulation, FCM is applied on an *ex ante* basis.<sup>108</sup>

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<sup>106</sup> This is because the approach delivers a real return when expected and outturn inflation are equal.

<sup>107</sup> An ex-post nominal return is equivalent to ex-ante NPV=0 only when expected and outturn inflation are equal.

<sup>108</sup> IM reasons paper for EDBs and GPBs, para 2.6.28.

262. In relation to inflation risk, later in the same reasons paper we say:

“FCM requires that regulated suppliers are compensated for the impact of economy-wide inflation over time.”<sup>109</sup>

263. In 2010, Vector agreed with our policy intent and indexation approach for EDBs and GPBs:

“The Commission's draft decision is that CPI indexation, when combined primarily with straight line depreciation, is the best method of revaluing the RAB as it meets the Part 4 Purpose Statement.

Vector accepts the Commission's proposal as a reasonable method of rolling forward the RAB. Specifically, Vector considers that the proposed approach is:

(a) consistent with suppliers receiving a relatively smooth real return on capital from the RAB in each period, which assists meeting 52A(1) (a), (b) and (d);

(b) consistent with attaining allocative efficiency, which assists meeting 52A(1)(b);

(c) reflective to some extent of changes to replacement costs and productivity in the economy as a whole, which assists meeting 52A(1) (a), (b) and (d); and

(d) consistent with smaller price shocks to consumers when assets need to be replaced, which assists meeting 52A(1)(c).”<sup>110</sup>

264. Our reasons for EDBs and GPBs indexed approach were:

“Where regulators are attempting to limit a regulated supplier's profits to close to a normal return, revaluation gains (and losses) will need to be taken into account for **consistency with FCM**. This is why the revaluation gains (or losses) that are in the roll forward equation (paragraph 2.8.11) are netted off (or added to) the building blocks allowable revenue (paragraph 2.8.10). Doing so is **consistent with a workably competitive market, in which returns are provided by both income and growth (ie, capital gains)**. Capital gains themselves reflect an expectation of higher cash-flows in the future, either through expected cash-flows from revenue generated by employing assets to supply services, and/or through the sale of those assets.

**Maintaining FCM in this manner will provide incentives for investment**, consistent with s 52A(1)(a), while **limiting excessive profits**, consistent with s 52A(1)(d). Nevertheless, it is important to reiterate that, in the context of price-quality regulation, FCM is applied on an *ex ante* basis. Allowing regulated suppliers the opportunity to achieve a higher levels of profits over the short to medium term as a reward for efficiency gains, provides the incentives for those gains to be made in the first place, consistent with s 52A(1)(b). Those efficiency gains are then shared with

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<sup>109</sup> IM reasons paper for EDBs and GPBs, para 2.8.14.

<sup>110</sup> Vector “Submission in response to the Commerce Commission's Draft Reasons Paper for Electricity Distribution Businesses and Gas Pipeline Businesses: Asset Valuation” (23 August 2010), paras 216, 217

consumers, consistent with s 52A(1)(c), when the price-path is reset at the end of each regulatory period (paragraphs 2.7.3-2.7.4)."<sup>111</sup>

265. In Transpower's case, we explain the reasons for preferring an un-indexed approach as follows:

"Transpower should continue to value its RAB using an un-indexed approach under Part 4. No indexation will be applied. The Commission considers an un-indexed approach is appropriate for Transpower for the following reasons [we formatted the below reasons for brevity and clarity]:

- **[Large investment programme];**
- [Age structure of asset base means an un-indexed approach likely to lead to **higher revenues in the near term**. That better matches the investment needs].

Some of the above factors might be more relevant over the short to medium term than over the long-term (eg, because of Transpower's current tranche of investment). In the case of EDBs, the Commission considers the greater protection against inflation risk that is afforded by CPI-indexation is sufficient reason to prefer such an approach over an un-indexed approach. In Transpower's case this factor is currently outweighed by the factors discussed above. In the longer term, some of the differences between Transpower and EDBs might become less significant, in which case consideration of greater alignment in some of the approaches for electricity distribution services and electricity transmission services might be warranted.

In the longer term, after the current tranche of investment comes to an end, moving to a CPI-indexed approach, consistent with the other sectors regulated under Part 4, may be appropriate."<sup>112</sup>

266. In the past, Jeff Balchin (acting for Powerco) has argued for an indexed approach:

"An important objective of inflation indexation in a CPI-X regime is to protect investors in long-lived assets from the risk of inflation being higher or lower than forecast. This implies that the same real return must be expected, irrespective of the level of inflation that is observed."<sup>113</sup>

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<sup>111</sup> IM reasons paper for EDBs and GPBs, para 2.8.17, 2.8.18.

<sup>112</sup> IM reasons paper for Transpower paras 4.3.12 – 4.3.15.

<sup>113</sup> PWC "2010-2015 default Price-Quality Path Starting Price Adjustments Update Paper: Importance of the Forecast of Inflation" (13 May 2011), page 1. Available here: <http://www.comcom.govt.nz/dmsdocument/518>

267. An older NERA report also articulates the advantages (or necessity) of real FCM:

“As Byatt et al. explain: “Investors will want to calculate the real rate of return after the maintenance of the real value of their capital for comparison with returns available elsewhere.”<sup>114</sup>

FCM therefore provides the standard by which investors effectively measure whether the regulatory regime is allowing them to recover their costs including a rate of return comparable with that offered by other companies and sectors...Similarly, regulators must ensure that the rate of return they allow regulated companies to earn is consistent with the FCM standard. The 1986 Byatt Report recognised that **investors would only expect to recover their costs if the allowed rate of return is sufficient to cover the cost of capital and after maintaining the real financial value of their investments: “No commercial competitors 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 on investment after recovery of funds sufficient to maintain the real value of the financial capital they had invested.”**<sup>115</sup>

This extract sets out certain conditions for entry into competitive markets. Those conditions apply equally to regulated businesses, which must offer a rate of return comparable to that in other sectors, in order to attract capital into the sector. **The compensation for investment must cover all declines in the real value of the assets, whether caused by depreciation of the asset or by revaluations at less than the rate of inflation.**<sup>116</sup> FCM is the appropriate way to measure depreciation and profits, so as to achieve this aim.”<sup>117</sup>

268. In its latest February 2016 submission, Vector seems to argue for both an ex-ante expectation and an ex-post delivery of nominal returns:

“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.”<sup>118</sup>

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<sup>114</sup> Byatt et al., “Accounting for Economic Costs and Changing Prices”, Volume 1, HMSO, 1986, para 87.

<sup>115</sup> Byatt et al., “Accounting for Economic Costs and Changing Prices”, Volume 1, HMSO, 1986, para 19.

<sup>116</sup> By recovering “decline in real values of their assets”, investors are effectively maintaining the real value of their capital, since they receive cash from revenues in exchange for depreciation of asset values. This principle is effectively a definition of a property right akin to the rights underlying US regulatory practice and law.

<sup>117</sup> [http://www.ceer.eu/portal/page/portal/ERGEG\\_HOME/ERGEG\\_PC/ARCHIVE1/GAS/Principles%20gas%20tariff%20calculation/GTS.pdf](http://www.ceer.eu/portal/page/portal/ERGEG_HOME/ERGEG_PC/ARCHIVE1/GAS/Principles%20gas%20tariff%20calculation/GTS.pdf)

<sup>118</sup> Vector “Input methodologies review – Update paper on the cost of capital topic” (5 February 2016), paras 5, 6.

269. CEG, in its February 2016 report to the ENA, argues that the decision on whether to provide an expectation of real or nominal returns depends on our view of what are businesses' efficient funding practices. They say that if we consider it efficient that suppliers issue nominal debt, then the objective should be to deliver nominal returns:

“Whether any amendment to the role of forecast inflation in the IMs is appropriate depends on whether the objective is to deliver a target real or a target nominal return to regulated businesses. In our view this, in turn, depends on how businesses are assumed to efficiently fund their investments. Moreover, the answer may be different for that part of the RAB funded by debt to that part of the RAB funded by equity.”<sup>119</sup>

270. Regarding equity remuneration, CEG, considers that it does not matter whether we target a real or nominal return, since a business does not enter into any binding contract to deliver a specified return (real or nominal):

“there are no assumed contractual obligations for the model of regulatory compensation to mirror. It is therefore ambiguous if the compensation for the cost of [equity] should target a nominal or a real return.”<sup>120</sup>

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<sup>119</sup> CEG “Inflation: revaluations and revenue indexation” (February 2016), para 35.

<sup>120</sup> CEG “Inflation: revaluations and revenue indexation” (February 2016), para 28.







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| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 27                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input Methodologies Determination 2012</i> [2012] NZCC 28                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010</i> (Decision 709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies Determination 2012</i> [2012] NZCC 17  |

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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 proposed changes to areas where improvements might be made; and
  - X1.2. proposed changes to the detailed requirements for customised price-quality paths (**CPP**) 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. At this stage, we have not considered changes to the CPP information requirements specific to gas distribution or transmission businesses.<sup>1</sup>

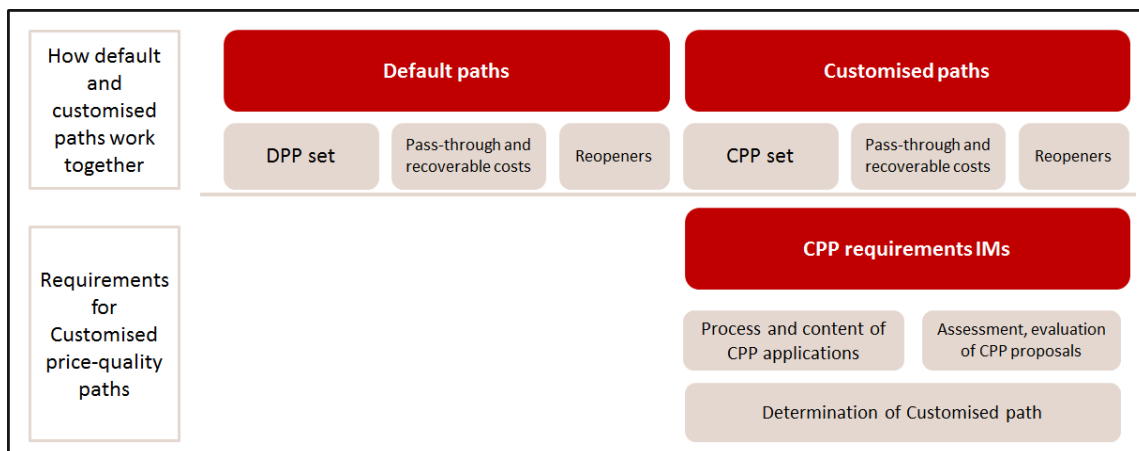
### Overview of the CPP requirements topic

- 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.

---

<sup>1</sup> As noted at paragraph 40 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 will continue to liaise with stakeholders in order to establish an appropriate timeline for this work. We will update interested parties on our timing for this work in our anticipated September 2016 process update.

**Figure X1: Overview of the components of the review of CPP requirements topic**



X6. This paper follows 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.

**Summary of changes proposed as part of the CPP requirements topic**

X7. The changes proposed as part of this topic 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 proposed to be improvements aimed at giving better effect to this intent.

X8. Accordingly, the majority of our proposed changes are to reduce cost and complexity, and improve the certainty provided by how we specify the IMs.

X9. A summary of the proposed changes 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.<sup>2</sup>

<sup>2</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016).

**Table X1: Summary of proposed changes in relation to how DPP and CPP work together**

| <b>Topic</b>                         | <b>Proposed change</b>   | <b>Outcome of the proposed change</b>  | <b>Chapter</b>                         |
|--------------------------------------|--|--|--|
| Quality-only CPP                     | Option for EDBs to apply for a quality-only CPP removed and replaced by a quality-only DPP reopener.   | 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                   | 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. | 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 determined.   | Promotion of 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.   | Topic paper 4 – Cost of capital issues |



**Table X2: Summary of proposed changes to information requirements for EDBs**

| <b>Topic</b>   | <b>Proposed change</b>   | <b>Outcome of the proposed change</b>  | <b>Chapter</b> |
|--|--|--|----------------|
| Modifications and exemptions                         | Exemption and modification provisions (completed November 2015 as part of IM review) will specify scale as an explicit consideration for the approval of exemption and modification requests. This change will also apply to GPBs. | 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.   | 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.              | Certainty – deliverability expectations now clearer for applicants upfront.  | Chapter 5      |
| Asset disaggregation                                 | Simplifying the requirement for forecasting capex projects disaggregated by asset type.  | Cost and complexity – applicants not required to spend time allocating asset forecasts at a more detailed level.   | Chapter 5      |
| Related party transactions and capital contributions | Changing the requirements for related party transactions and capital contributions to an aggregate level of capex, rather than a project level.  | Cost and complexity – applicants not required to spend time allocating related party transactions at a more detailed level.  | Chapter 5      |
| Disaggregation of service categories                 | Removing the requirement for expenditure to be disaggregated by service categories.  | Cost and complexity – applicants not required to spend time allocating expenditure at a more detailed level.   | Chapter 5      |

**Table X3: Summary of proposed changes to verification requirements**

| <b>Topic</b>                               | <b>Proposed change</b>  | <b>Outcome of the proposed change</b>   | <b>Chapter</b> |
|--|---|---|----------------|
| 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.  | 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.   | 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 regarding communication, and to allow meeting minutes to be used as the evidential basis for any verifier technical opinions. | Certainty – provides certainty to applicant that they can have confidence that they can engage openly with knowledge Commission will not view draft material.         | Chapter 6      |
| Flexibility in number of projects assessed | Allowing the verifier greater flexibility in the number of projects that are verified, the extent of their verification, and the content of the CPP proposal that we review.  | Cost and complexity – applicants not required to allocate expenditure into a specific number of projects where they may not have them.                                | Chapter 6      |
| Non-standard depreciation                  | Removing the obligation for the verifier to consider non-standard depreciation.   | 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).  | 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 proposed changes to audit requirements**

| Topic                                       | Proposed change  | Outcome of the proposed change  | Chapter   |
|---|--|---|-----------|
| Audit report                                | Clarifying the requirement for the auditor to provide a report setting out the auditor’s opinion on specified matters.                     | Certainty – now clear the auditor must provide a report as part of the audit process where previous this was ambiguous.               | 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. | 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.   | Certainty – now clear the specific type of assurance the auditor is expected to provide in respect of different types of information. | Chapter 7 |
| Clarified role – proper records             | Clarifying the requirement on the auditor to provide a view in respect of proper records being kept.                                       | Certainty – the scope of audit requirements is now more clear.  | Chapter 7 |

**Table X5: Summary of proposed changes to consumer consultation requirements**

| Topic  | Proposed change  | Outcome of the proposed 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 (EDBs) impact of any alternative investment options in their CPP proposal.                                 | Certainty – applicants have more information upfront on our expectations for the consumer consultation process.  | Chapter 8 |
| 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 consultation. | 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 draft decision package**

- X10. This topic paper forms part of our package of draft decisions papers on the IM review. As part of the package of papers, we have also published:
- X10.1. a summary paper of our draft decisions;
  - X10.2. an introduction and process paper which provides an explanation of how the papers in our draft decisions package fit together; and
  - X10.3. a framework paper which explains the framework we have applied in reaching our draft decisions on the IM review.

### **Invitation to make submissions**

- X11. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
- X12. Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
- X13. Please clearly indicate within your submission which aspects of this paper it relates to.

## **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 proposed changes to improve the requirements for customised price-quality paths set out in the input methodologies.
2. In respect of the CPP requirements, it explains:
  - 2.1 the problems we have identified within this topic area;
  - 2.2 our proposed solutions to these problems;
  - 2.3 the reasons for our proposed 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 papers on our draft decisions**

3. This topic paper forms part of our package of draft 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 draft decision package.<sup>3</sup>
4. To the extent our proposed solutions involve changes to the IMs, this paper explains how we propose to change our existing IM decisions to account for our proposed solutions to problems within this topic area.
5. Our proposed drafting changes to the IMs, including any resulting from this topic area, are shown in the draft determinations, which we expect to publish on 22 June 2016.

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<sup>3</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).

6. The framework we have applied in reaching our draft decisions on the IM review is set out in a separate paper, published alongside this paper.<sup>4</sup> The framework paper explains that we have only proposed changing the current IMs where this appears 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.

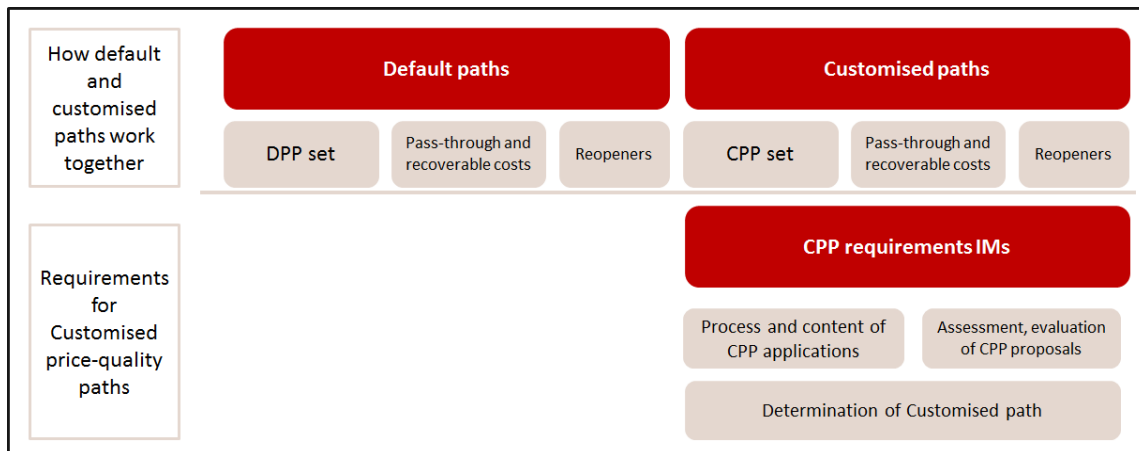
#### **Introduction to this topic**

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 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 come to us for a more tailored price-quality path that better meets their individual circumstances.
9. This topic 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.

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<sup>4</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

**Figure 1.1: Overview of the components of the default customised price-quality regime**



10. This paper follows consultation on this topic:
  - 10.1 Topic 8 of our IM review problem definition paper in June 2015<sup>5</sup>;
  - 10.2 CPP fast track amendments in November 2015<sup>6</sup>;
  - 10.3 Emerging views paper in February 2016 on opportunities to improve the way DPPs and CPPs work together;<sup>7</sup> and
  - 10.4 Technical workshop on CPP information requirements in April 2016.
  
11. Note, the CPP fast track amendment process originally considered issues relating to the differences in WACC between DPP and CPP. They were discontinued as part of the fast track process in October 2015 to be considered alongside other cost of capital issues as part of the main IM review. This paper includes the proposed changes for this issue in summary form as it is an important feature of the total package of improvements to how DPP and CPP work together. The cost of capital paper provides detailed discussion of the specific issue and our proposed solution.<sup>8</sup>

**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).

<sup>5</sup> Commerce Commission “Invitation to contribute to problem definition” (16 June 2015).  
<sup>6</sup> 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).  
<sup>7</sup> Commerce Commission “Emerging views on opportunities to improve the way default and customised price-quality paths work together” (29 February 2016).  
<sup>8</sup> Commerce Commission “Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues” (16 June 2016).

13. In the second part of the paper, the specific CPP discussions are part of a broader, iterative, longer term set of refinements we are considering for the DPP/ CPP regime. Importantly, not all of these refinements will come through IM changes, but should also occur through the processes by which we engage with prospective and actual CPP applicants.
14. We do, however, propose some 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:
  - 14.1 evaluation of proposals (Chapter 4);
  - 14.2 information requirements (Chapter 5);
  - 14.3 verification requirements (Chapter 6);
  - 14.4 audit requirements (Chapter 7); and
  - 14.5 consumer consultation requirements (Chapter 8).
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 it is changing 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 are not proposing to make any changes to the detailed information requirements for either gas distribution businesses (**GDBs**) or gas transmission businesses (**GTBs**).<sup>9</sup>

#### **Invitation to make submissions**

17. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.

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<sup>9</sup> 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 40.



18. Please address submissions and cross submissions to:  
  
Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
19. Please clearly indicate within your submission which aspects of this paper it relates to.
20. The Introduction and process paper contains further details about the submissions process. This includes:<sup>10</sup>
  - 20.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
  - 20.2 providing guidance on requesting an extension to the submissions timeframes;
  - 20.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
  - 20.4 providing guidance on making confidential submissions.

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<sup>10</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016), chapter 5.

## **Chapter 2: Overview of the default/customised price-quality regime**

### **Purpose of this chapter**

21. 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 changes proposed as part of the IM review.

### **Structure of this chapter**

22. This chapter is split into two sections:
  - 22.1 overview and evolution of the DPP/ CPP regime; and
  - 22.2 overview of the current regulatory settings and proposed IM changes.

### **Overview and evolution of the default/customised price-quality regime**

23. This section illustrates how the default/customised regime has evolved over time, and can continue to evolve given the discretion afforded to us under Part 4.

#### *The legislative context for DPP/ CPP regulation*

24. Electricity distributors, gas distributors, and gas transmission businesses are subject to default/customised price-quality regulation under Part 4.<sup>11</sup>
25. The purpose of default/customised price-quality regulation is:<sup>12</sup>

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.
26. 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.

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<sup>11</sup> Some electricity distributors are exempt from default/customised price-quality regulation where they meet the requirements set out in s 54G of the Act.

<sup>12</sup> Commerce Act 1986, s 53K.

**Table 2.1: Key statutory characteristics of DPPs and CPPs**

| DPP (as set)   | DPP pass-through/<br>recoverable costs   | DPP reopener<br>(reconsideration)  | CPP (as set)  | CPP pass-through/<br>recoverable costs   | CPP reopener<br>(reconsideration)  |
|--|--|--|---|--|--|
| <ul style="list-style-type: none"> <li>• Relatively low-cost.</li> <li>• Commerce Commission (CC) bears the cost of determination (passed on to industry through general levies).</li> <li>• Section 53P limitations on how the CC sets a DPP – eg, restriction on benchmarking.</li> <li>• IMs must specify key inputs, eg, asset valuation, cost of capital.</li> <li>• 4-5 year regulatory period.</li> </ul> | <ul style="list-style-type: none"> <li>• Costs that can be passed through to prices must be specified in the IMs.</li> </ul> | <ul style="list-style-type: none"> <li>• Circumstances in which DPPs can be reconsidered within a regulatory period must be specified in the IMs.</li> <li>• Only affects path for the remainder of the DPP period.</li> <li>• Should accommodate issues affecting multiple suppliers (4+) that arise after the DPP is set (per High Court in Wellington International Airport Ltd &amp; Ors v CC).</li> <li>• Potentially supplier, CC, or consumer initiated.</li> <li>• We bear the cost of reconsidering the DPP (passed onto industry through levies).</li> </ul> | <ul style="list-style-type: none"> <li>• IMs must set out relevant scrutiny requirements and key inputs.</li> <li>• New regulatory period can be 3-5 years.</li> <li>• Only suppliers can apply and only once during a DPP period.</li> <li>• Cannot withdraw CPP proposal once submitted.</li> <li>• CC can agree with supplier on IM variations.</li> <li>• Applicant bears the cost of determining CPP.</li> <li>• CPP can extend across two DPP periods.</li> </ul> | <ul style="list-style-type: none"> <li>• Costs that can be passed through to prices must be specified in the IMs.</li> </ul> | <ul style="list-style-type: none"> <li>• Circumstances in which CPPs can be reconsidered within a regulatory period must be specified in the IMs.</li> <li>• Only affects path for the remainder of the CPP period.</li> <li>• Changes will only affect path for the remainder of the CPP period.</li> <li>• Potentially supplier, CC, or consumer initiated.</li> </ul> |

27. 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:
- 27.1 periodic resets of default paths;
  - 27.2 mid-period reconsideration of price paths triggered by reopener provisions; and
  - 27.3 general engagement and guidance in reset processes and during the regulatory period.

*Our approach to setting default paths has evolved over time*

28. 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,<sup>13</sup> noting that suppliers have the option to apply for a customised path where the default path does not meet their particular circumstances.
29. 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:
- 29.1 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.<sup>14</sup> 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.<sup>15</sup>
  - 29.2 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.<sup>16</sup>

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<sup>13</sup> 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.

<sup>14</sup> 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.

<sup>15</sup> 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.

<sup>16</sup> We initially only allowed a DPP to be reopened for either an error, or misleading information.

*Lessons from setting the first customised path*

30. Setting a customised path more naturally lends itself to a more intensive and complex process when compared to the default path.<sup>17</sup> To support this process we are required to set the requirements for customised path applications as IMs.
31. 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:<sup>18</sup>
  - 31.1 building on information that is required under information disclosure obligations;
  - 31.2 targeting the provision of more detailed information on proposed expenditure which is expected to be material to the proposal;
  - 31.3 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 (except for certain verification and audit requirements);
  - 31.4 focusing on requiring information that would be required for all CPP proposals;
  - 31.5 allowing some flexibility in how the applicant engages with consumers prior to submitting a proposal; and
  - 31.6 including audit and verification requirements, only where audit and verification will add value.
32. 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.<sup>19</sup>
33. 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

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<sup>17</sup> Act requires us to specify verification, consumer consultation, and information requirements, and step change in expenditure is more suited to a higher level of scrutiny etc.

<sup>18</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), at 9.2.5.

<sup>19</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), at 9.2.8.

process.<sup>20</sup> This feedback has informed our problem definitions and the CPP changes that are proposed in this topic paper.<sup>21</sup>

*We intend to continue to refine the regime over time*

34. As highlighted by the changes proposed in this paper, there are opportunities for improvement in the DPP/CPP regime. While we consider the proposed changes go some way to improving the regime, we do not consider final changes as part of the IM review will eliminate the need for future changes.
35. 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 solution for the DPP/CPP regime that will hold true over time.
36. As we continue to reset DPPs and receive CPP proposals we will identify further opportunities for improvement and continue to refine solutions to issues. Longer term we also expect scope for change to suit a landscape where we have better knowledge of performance and are able to rely more on existing information.
37. 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*

38. We have also identified the following areas for further investigation:
  - 38.1 the materiality of scale effects for smaller suppliers; and
  - 38.2 upfront engagement and the use of flexibility in the CPP process.
39. We discuss each of these of areas of focus in more detail in Chapter 4.
40. In addition, we have not yet reached draft decisions on the CPP information requirements IMs for GPBs. This work remains within the IM review and we will continue to liaise with stakeholders in order to establish an appropriate timeline for this work. We will update interested parties on our timing for this work in our anticipated September 2016 process update. As noted in our 29 February 2016 process update paper the reasons why we are not currently proposing draft decisions on these IMs are:<sup>22</sup>
  - 40.1 there are no GDBs contemplating a CPP application in the near future;

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<sup>20</sup> A summary of this feedback, as well as individual submissions, is available at:

<http://www.comcom.govt.nz/regulated-industries/electricity/cpp/orion-cpp/>.

<sup>21</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015) at paras 416-435; and [Commerce Commission "Summary of feedback on Orion customised price-quality path process" \(4 August 2014\)](#).

<sup>22</sup> Commerce Commission "Input methodologies review - Process update paper" (29 February 2016) at paras 59-65.

- 40.2 the GTB will be in a better position to engage following the ownership changes; and
- 40.3 the modification and exemptions provisions will allow for flexibility if needed.

### **Overview of the current regulatory settings and proposed IM changes**

- 41. In presenting our draft decisions for the IM review, we think it is useful to explain how we have approached the review of the CPP requirements, 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*

- 42. The review of the IMs has provided us with an opportunity to consider what improvements can be made to the DPP/ CPP regime.
- 43. In particular, we have considered:
  - 43.1 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
  - 43.2 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.
- 44. To provide context for the changes proposed, we consider it important to provide our view of the package of IMs underlying the DPP/ CPP regime.
- 45. Our view is that fundamentally the IMs for DPPs and CPPs are sound, and our proposed changes are incremental improvements aimed at giving better effect to our intent since setting the IMs in 2010.
- 46. 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 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.<sup>23</sup>
- 47. 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.

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<sup>23</sup> Commerce Commission "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020 – Main policy paper" (28 November 2015).

- 48. 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. Despite time pressures and teething issues with the CPP process, we were able to successfully set a path for Orion.
- 49. 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 proposed IM changes*

- 50. Table 2.2 presents, at a high level, the package of IM changes proposed for the DPP/ CPP regime.
- 51. 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.<sup>24</sup>

**Table 2.2: Summary of package of IM changes proposed for the default/customised regime**

| <b>How DPP and CPP work together</b> |   |
|--------------------------------------|---|
| Quality-only CPP                     | Option for EDBs to apply for a quality-only CPP removed and replaced by a quality-only DPP reopener.  |
| Pass-through costs                   | 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 determined.  |
| 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 should 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. |

<sup>24</sup> Commerce Commission “Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues” (16 June 2016).



| <b>Information requirements for EDBs</b>    |   |
|---|---|
| Modifications and exemptions                | Exemption and modification provisions (completed November 2015 as part of IM review) will specify scale as an explicit consideration for us to approve exemption and modification requests. This change will also apply to GPBs.  |
| Duplication                                 | Removing the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements.  |
| 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.   |
| Asset disaggregation                        | Simplifying the requirement for forecasting capex projects disaggregated by asset type.   |
| Related party transactions                  | Changing the requirements for related party transactions to an aggregate level of capex, rather than a project level.   |
| Disaggregation of service categories        | Removing the requirement for expenditure to be disaggregated by service categories.   |
| <b>Verifier</b>                             |   |
| 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.   |
| 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 projects assessed  | Allowing the verifier greater flexibility in the number of projects that are verified, the extent of their verification, and the content of the CPP proposal that we review.  |
| Non-standard depreciation                   | Removing the obligation for the verifier to consider non-standard depreciation.   |
| 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).  |
| <b>Audit</b>                                |   |
| 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.  |

| <b>Consumer consultation</b>                           |  |
|--|--|
| 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 any alternative investment options in their CPP proposal.                                 |
| 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 consultation. |

- 52. The majority of these proposed changes are to reduce cost and complexity, and to improve the certainty provided by how we specify the IMs.
- 53. 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:
  - 53.1 greater tailoring for individual suppliers when setting default paths; and
  - 53.2 upfront engagement and additional guidance for intending CPP applicants.

### **Chapter 3: Improvements to the way the DPP and CPP work together**

#### **Purpose of chapter**

54. This chapter picks up on our emerging views on opportunities to improve the way default and customised price-quality paths work together paper and sets out our proposed IM changes to flow on from those emerging views.<sup>25</sup>

#### **Structure of this chapter**

55. This chapter starts by explaining the background to our work on how the DPP and CPP work together. It sets out the emerging views we published in February 2016 on potential improvements to the way the DPP and CPP work together to accommodate supplier-specific circumstances. It then addresses the feedback that we received from stakeholders on those emerging views and sets out our response and introduces our proposed changes to the IMs.

#### **Early emerging views**

56. In our problem definition paper, Topic 8 focussed on exploring opportunities to reduce the cost involved in making and assessing a CPP application.<sup>26</sup>
57. 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 proposed decisions on these opportunities are set out in the second part of this paper (Chapters 4-8).
58. 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.
59. 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**

60. 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.

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<sup>25</sup> Commerce Commission "Emerging views on opportunities to improve the way default and customised price-quality paths work together" (29 February 2016).

<sup>26</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).

61. 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:
- 61.1 greater scrutiny can impose higher costs on both us and regulated suppliers, which can ultimately be passed on to consumers; but
  - 61.2 greater scrutiny can also benefit consumers by ensuring that regulated suppliers deliver services at more cost reflective price levels for the quality demanded.
62. 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.<sup>27</sup> 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 proposed 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.
63. There are also a number of other factors we will take into account when considering the appropriate level of scrutiny that include:
- 63.1 The level of confidence we already have that the proposed tailoring delivers long-term benefits to consumers. This could be increased by:
    - 63.1.1 the extent to which the supplier's previous forecasts were fit for purpose;<sup>28</sup>
    - 63.1.2 scrutiny already applied – for example through summary and analysis, or under a previous CPP;
    - 63.1.3 the extent to which a forecast departs from historical trends; and
    - 63.1.4 the level of control the supplier has over a cost.<sup>29</sup>

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<sup>27</sup> 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.

<sup>28</sup> 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.

<sup>29</sup> 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**

64. 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.<sup>30</sup> 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:
- 64.1 Taking a more tailored approach to setting the DPP where this can be done without significantly increasing cost.
  - 64.2 'Single-issue' CPPs are not appropriate.
  - 64.3 Expanding the role of DPP reopeners.
  - 64.4 The quality-only CPP option should be replaced with a DPP reopener.
  - 64.5 Considering a CPP reopener for contingent and unforeseen projects.
  - 64.6 Considering approval of costs incurred prior to CPP approval.
  - 64.7 Providing for the expansion of the range of pass-through costs that can be added when setting the DPP.
  - 64.8 Applying a proportionate scrutiny principle in continuing to refine the CPP requirements and in assessing CPP proposals.
65. Submissions were generally supportive of our views, though some argued that they did not go far enough.
66. We set out our draft decisions in relation to the emerging views in the sections below, along with consideration of relevant submissions.

### **A more tailored approach to setting the DPP where this can be done without significantly increasing cost**

67. We expressed the emerging view that we would look to take a more tailored approach to setting the DPP where it could be done without significantly increasing cost.
68. Suppliers generally agreed with this view. Vector and Wellington Electricity submitted that we should not exclude the possibility that it may be appropriate to tailor a DPP for a subset of EDBs in some circumstances.<sup>31</sup>

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<sup>30</sup> Such as the need to ensure that DPP mechanism is low-cost.

<sup>31</sup> 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/>.

69. 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).
70. We have recently signalled that, as part of the 2017 DPP reset for GPBs, we are considering an approach where we use supplier's forecasts as a starting point for setting expenditure allowances.<sup>32</sup>
71. 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**

72. Our emerging view was that single-issue CPPs are problematic due to:<sup>33</sup>
- 72.1 problems with DPP/PPP regulatory period alignment;
  - 72.2 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;
  - 72.3 interdependencies of inputs with other aspects of the path; and
  - 72.4 suppliers using their one CPP opportunity for the regulatory period to tailor a single parameter.
73. Submissions generally agreed with our view. However some suppliers thought there would still be a place for single-issue CPPs unless there were satisfactory reopener provisions available to compensate for not providing the option of a single-issue CPP.
74. Having considered submissions, nothing has been presented to change our emerging view.
75. We still consider that single-issue CPPs are problematic and there are other mechanisms (such as the DPP quality standard reopener) that we can develop to address some issues instead. In some cases, however, a CPP will be the appropriate mechanism to address the issue, and while we consider that it is appropriate for all

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<sup>32</sup> Commerce Commission "Default price-quality paths for gas pipeline services from 1 October 2017 – process and issues paper" (29 February 2016), para 3.2.

<sup>33</sup> 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).

CPPs to be full scope, we will look to adjust the depth of our scrutiny in line with the proportionate scrutiny principle.<sup>34</sup>

76. 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 propose to remove the provisions in the IMs that allow EDBs to apply for a quality-only CPP (although we propose replacing that option with a new DPP reopener).<sup>35</sup>

#### **Expanding the role of DPP reopeners**

77. Our emerging view explained that we were open to expanding the range of circumstances in which we make DPP reopeners available.
78. Specifically, we expressed the view that we thought that new reopener provisions could be appropriate to adjust the quality standards in certain circumstances (replacing the option for a quality-only CPP), and to adjust constant price revenue growth (**CPRG**), early in the DPP period, where new evidence could be provided that the CPRG forecast was inappropriate (for suppliers under a weighted average price cap).
79. Suppliers were generally supportive of expanding the scope of reopener provisions provided for in the IMs, and adding CPRG and quality standard reopeners.
80. A number of suppliers submitted that we should introduce DPP contingent and unforeseen project reopeners.<sup>36</sup> Others expressed concern that the Commission would have the ability to initiate a reopener, which would create regulatory uncertainty.
81. We address the following reopeners in turn:
- 81.1 contingent and unforeseen projects for EDBs;
  - 81.2 contingent and unforeseen projects for GTBs;
  - 81.3 quality standard for EDBs; and
  - 81.4 constant price revenue growth.

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<sup>34</sup> 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.

<sup>35</sup> We discuss in more detail under the ‘Quality standards for EDBs’ sub-section of the following section on DPP reopeners.

<sup>36</sup> 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.

82. For completeness, we note that we are also proposing to introduce several other reopeners:
- 82.1 expanded error;
  - 82.2 workability;
  - 82.3 major transactions; and
  - 82.4 DPP/ CPP WACC alignment.
83. These reopeners are not linked to our emerging views and are therefore discussed in the Report on the IM review or the topic paper they relate to.<sup>37</sup> We provide a summary of these at the end of this sub-section.

*Contingent and unforeseen projects for electricity distribution businesses*

84. A number of electricity distribution businesses suggested including contingent and unforeseen project reopeners under the DPP.<sup>38</sup>
85. Generally, we do not consider that reopeners for incremental capex are appropriate. This is because:
- 85.1 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;
  - 85.2 capex is likely to be strongly linked with other inputs such as opex. As such, it would be difficult to adjust in isolation; and
  - 85.3 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.

*Contingent and unforeseen projects for gas transmission*

86. Maui Development Limited (MDL) submitted that we should introduce DPP contingent and unforeseen project reopeners for gas transmission businesses along with greater tailoring of the base DPP.
87. They suggest 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.

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<sup>37</sup> We expect to publish the Report on the IM review on 22 June 2016.

<sup>38</sup> See comments from Wellington Electricity Lines Limited, Orion New Zealand Limited, the Electricity Networks Association 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/>.



88. We disagree. MDL is effectively requesting that we move to a regime where a DPP will accommodate almost any need for tailoring of a supplier's path.
89. 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 – which are expressly required to be provided for under a CPP.
90. There is also the issue of who pays for the tailoring under each mechanism. The Commission's 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 the Commission's costs must be billed back to the applicant.<sup>39</sup>

*Quality standards for EDBs*

91. Suppliers were generally supportive of expanding the scope of reopener provisions provided for in the IMs by adding a quality standard reopener under a DPP.
92. However a number of submitters expressed concern at our suggestion in the emerging view paper that the Commission would have the ability to initiate a reopener as well as the supplier. Suppliers were concerned that this would create material regulatory uncertainty.
93. There is a natural tension with this issue between offering regulatory certainty over the period, and reducing asymmetry – that is, allowing suppliers to reopen the path to tailor unfavourable elements, without allowing the Commission or consumers the ability to reopen the path to better tailor overly favourable elements.
94. With regards to quality, we consider it appropriate to only allow the path to be reopened on application from a supplier. This is consistent with our proposal to replace the quality-only CPP with a reopener (CPPs can only be initiated by the supplier). We consider that the circumstances in which the Commission would be likely to need to reopen the quality path will be covered by the new "expanded error" reopener that we are proposing.<sup>40</sup>
95. Accordingly, under the proposed quality standard reopener, we may, based on an application from a supplier, reopen the DPP path to vary the quality standards applying to an EDB where:
  - 95.1 a supplier can demonstrate that the quality standards set under the DPP do not reflect the realistically achievable performance of the EDB over the regulatory period; and
  - 95.2 the EDB submits a quality standard variation proposal that complies with the requirements that will be set out in the IM.

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<sup>39</sup> Refer section 53Y(1).

<sup>40</sup> Introduced below at para 103, and explained in more detail in the Report on the IM review.

96. These requirements will be similar to those currently 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.
97. We propose requiring the supplier to provide evidence of the consumer consultation it has undertaken in respect of the proposed standards and the results of that consultation. We are not proposing to prescribe 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.
98. 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.

*CPRG*

99. In the emerging views paper we identified CPRG as an input that could potentially be adjusted independently of others, and reopened in certain circumstances under a DPP.
100. Suppliers were supportive, though thought our suggestion of allowing the Commission to initiate this reopener would create material regulatory uncertainty.
101. 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. This is because:
- 101.1 The issue it was designed to address (ie, where new information comes to light early in the DPP period which demonstrates that the CPRG forecast is inappropriate) would largely be fixed by changing the form of control to a revenue cap for EDBs.<sup>41</sup>
- 101.2 Our draft decisions on form of control means that only GDBs would be subject to a weighted average price cap, following the next reset. We are not aware of any significant issues specifically related CPRG forecasting for GDBs.

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<sup>41</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Risk allocation under price-quality paths" (16 June 2016).

*Expanded error*

102. We propose expanding the current error provision to address the situation where the price-quality path was set on the basis of any type of error. This could include such cases as the data used was incorrect, or the data was correct, but was applied incorrectly. At present, the error provisions are limited to incorrect data and cannot be used to fix cases where, for example, the data was incorrectly or mistakenly applied.<sup>42</sup>

*Workability*

103. We propose to introduce a mechanism that will allow us and suppliers to apply the “next closest alternative” approach where an IM becomes unworkable. 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) the reopener would allow us to reopen the path where necessary, to enable suppliers to be able to implement the alternative approach.<sup>43</sup>

*Major transactions*

104. The purpose of this change is to provide for a DPP reopener to address the consequences of a major transaction which makes the price path unworkable.<sup>44,45</sup>

*DPP/ CPP WACC alignment*

105. As discussed in Topic paper 4 – Cost of capital issues, we are proposing changes to align the CPP and DPP WACC rates for suppliers on a CPP. To implement this we are proposing a reopener of a CPP where there is a DPP WACC change.

**Replacing the quality-only CPP option with a DPP reopener**

106. As discussed above, we expressed the emerging view that the quality-only CPP option should be replaced with a DPP reopener.
107. Submissions agreed with this proposal, provided the quality standard reopener could achieve the same effect as a quality-only CPP.
108. Details of the proposed quality standard reopener are outlined above under sub-section ‘Quality standards for EDBs’.

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<sup>42</sup> This proposed change applies to both DPP and CPPs, and is discussed in more detail in the Report on the IM review at decision RP01.

<sup>43</sup> This proposed change applies to both DPP and CPPs, and is discussed in more detail the Report on the IM review at decision RP01.

<sup>44</sup> This would use the definition of Major Transaction set out in the amalgamations provisions. There would be no materiality threshold.

<sup>45</sup> This proposed change applies to both DPPs and CPPs, and is discussed in more detail in the Report on the IM review at decision RP01.

### **Introducing a CPP reopener for contingent and unforeseen projects**

109. We expressed the view that we were open to introducing CPP reopeners for contingent and unforeseen projects, for gas and electricity distribution businesses.<sup>46</sup>
110. Submissions were supportive, although a number of suppliers suggested that these reopeners should also be available under a DPP as well.
111. As set out above, we do not consider that it is appropriate to provide for contingent and unforeseen project reopeners under a DPP.
112. However, we propose to introduce contingent and unforeseen project CPP reopeners for gas and electricity distribution. 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.<sup>47</sup>

### *Allowing contingent and unforeseen projects to include opex*

113. Under the GTB IMs, contingent and unforeseen projects are currently 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 consider that the same contingent and unforeseen project provisions should apply where major operating expenditure is required as well.
114. 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.
115. We have drafted the new contingent and unforeseen project provisions in the draft IM determinations for EDBs and GDBs to allow for this and we also propose expanding the existing provisions for GTBs to include operating expenditure.

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<sup>46</sup> 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.

<sup>47</sup> 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), paras 9.5.25 - 9.5.37.

### **Approval of costs incurred prior to CPP approval**

116. We expressed the view that we are open to considering ways in which additional net costs (over and above those provided for in a DPP determination), prudently incurred in response to an urgent project after a CPP has been submitted but prior to the beginning of the CPP period, can be recovered during a CPP period.
117. Submissions were supportive, though a number of suppliers requested that we should also allow for the recovery of prudently incurred expenditure, in response to an urgent project, that is incurred before a CPP is submitted.
118. 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.
119. We consider that the best way to implement this policy is through using a new recoverable cost allowance. This cost will allow suppliers to recover prudently incurred costs in response to an urgent project where:
- 119.1 the costs are incurred between the submission of a CPP application and the determination of a CPP;
  - 119.2 the CPP is accepted for consideration by the Commission; and
  - 119.3 the Commission approves the cost by specifying it in the CPP determination.
120. 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.

### **Expanding the range of pass-through costs that can be added when setting the DPP**

121. We expressed the view that we should widen the criteria-based pass-through costs,<sup>48</sup> which can currently only be specified during the regulatory period, to also be able to be specified in a DPP or CPP determination at the time the DPP or CPP is determined. We also suggested that we would 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.
122. Submissions were supportive of this proposed change.
123. Accordingly, in our draft amended IM determinations, we have redrafted these provisions to implement these proposed changes.

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<sup>48</sup> The current IMs also 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).

*Costs of preparing a CPP*

124. 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 costs of consumer consultation, costs of developing a financial model, consultant reports and project management.<sup>49,50</sup>
125. 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.
126. We also note that, following the introduction of an incremental rolling incentive scheme (**IRIS**) that applies to suppliers 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.<sup>51</sup>

**We have applied the proportionate scrutiny principle in continuing to refine the CPP requirements and in assessing CPP proposals**

127. 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:
- 127.1 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);<sup>52</sup> and
- 127.2 the extent to which we have confidence in the supplier's own forecasts.<sup>53</sup>

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<sup>49</sup> See: 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), and PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015).

<sup>50</sup> We currently allow audit, verification and independent engineer fees to be recovered.

<sup>51</sup> Commerce Commission "Further amendments to input methodologies for electricity distributors subject to price-quality regulation - Incremental Rolling Incentive Scheme" (25 November 2015).

<sup>52</sup> 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.

<sup>53</sup> 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.

128. We explained that the proportionate scrutiny principle has also guided our approach to the proposed changes to reduce unnecessary cost and complexity in the CPP requirements by:
- 128.1 making improvements to the scope and specificity of the information requirements for CPPs;
  - 128.2 clarifying the roles of the independent verifier, auditor and independent engineer, consistent with s 52R; and
  - 128.3 clarifying our consumer consultation expectations, also consistent with s 52R.
129. Submissions were 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. There were a number of suggestions by submitters that are dealt with in turn below.
130. 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*

131. 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).<sup>54</sup> The supplier could then tailor their proposal accordingly and only incur significant costs in preparing those aspects of the application that are most material.
132. 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.<sup>55</sup> 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.
133. 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.
134. 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

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<sup>54</sup> Orion "Submission on emerging views on opportunities to improve the way default and customised price-quality paths work together" (23 March 2016), para 15.

<sup>55</sup> Vector "Emerging views on customised and default price paths" (24 March 2016), para 9.

– not the detailed information that needs to be provided for the identified projects).  
This is because we consider:

134.1 this information should, generally, be relatively easy to compile (does not contribute significantly to cost); and

134.2 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 up front, rather than to request it during the assessment process.

135. We also consider that it is appropriate to apply the modification and exemption provisions,<sup>56</sup> in line with the proportionate scrutiny principle, on a case by case basis, as intended – where it will not materially detract from our ability to assess a proposal.<sup>57</sup>

*Rolling over information requirements for subsequent CPP applications*

136. 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.<sup>58</sup> They suggest that in these cases the supplier would not need to replicate the original application. Rather, the application would focus only on updating the information supplied in the original application.

137. 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,<sup>59</sup> to the extent that it doesn't materially detract from our ability to assess a proposal.

138. 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.

139. We consider this to be a practical approach to the issue, taking advantage of our existing provisions that allow for flexibility.

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<sup>56</sup> 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.

<sup>57</sup> For example where specific information requirement is not readily available, but adds little to our assessment of the proposal.

<sup>58</sup> Vector "Emerging views on customised and default price paths" (24 March 2016), para 10.

<sup>59</sup> The IM requirements for information, consumer consultation, audit and verification, as well as how we assess an application.



140. 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).
141. 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.<sup>60</sup>
142. As explained in our paper on Orion's transition to the 2015-2020 DPP,<sup>61</sup> we do not consider that it is necessary to include a prescriptive process for the transition from CPPs to DPPs in the IMs.
143. 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.<sup>62</sup>

*Aims and benefits of a proportionate scrutiny principle*

144. 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.
145. 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 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 proposed approach in Chapter 4.
146. 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:
  - 146.1 the scope and specificity of information requirements;
  - 146.2 verification and audit requirements;
  - 146.3 consumer consultation expectations; and

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<sup>60</sup> Orion (Orion New Zealand Limited "Submission on the IM Review" 21 August 2015, paragraph 37), ENA (Electricity Networks Association "Response to the Commerce Commission's Input Methodologies review paper" 21 August 2015, paragraph 124).

<sup>61</sup> Commerce Commission "Orion's transition to the 2015-2020 DPP – Key considerations and possible approaches" (14 March 2016).

<sup>62</sup> Refer paragraphs 28-35 of: Commerce Commission "Orion's transition to the 2015-2020 DPP – Key considerations and possible approaches" (14 March 2016).

- 146.4 our evaluation of the CPP proposal to satisfy the evaluation criteria.
147. We have looked to apply the proportionate scrutiny principle to CPPs, where possible, through our design of the CPP requirements and our proposed changes.
148. Exercising our discretion and judgement, particularly in relation to the flexibility provided for under our modifications and/or exemptions provisions (introduced in the fast track part of this review) will be an ongoing requirement.

## **Chapter 4: Evaluation of CPP proposals**

### **Purpose of this chapter**

149. 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**

150. 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 are proposing to make to the CPP requirements to better achieve our objectives and better support our evaluation and determination of CPP proposals. We also explain our proposed changes to address the possible challenges that a smaller supplier might face when applying for a CPP.

### **Objectives for CPPs**

151. This section sets out our current and forward-looking high level objectives in respect of CPPs.
152. We consider that CPPs should be used where they can better promote the long-term benefits of consumers than a DPP.
153. When a supplier applies for a CPP we have the opportunity to set a more tailored price-quality path than under a DPP.<sup>63</sup> This allows us to better match the path to the supplier's specific circumstances and better promote long-term benefits for consumers.
154. 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 make efficient expenditures 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.
155. 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 62).

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<sup>63</sup> 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.

156. To support a CPP regime that gives effect to these objectives:
- 156.1 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.<sup>64</sup> These IM amendments were aimed at improving the cost-effectiveness of preparation, assessment and determination of CPP applications by allowing:
    - 156.1.1 modifications or exemptions to the process for preparing, and content of, CPP proposals;
    - 156.1.2 the use of alternative methodologies with equivalent effect (**AMWEEs**) for certain elements of CPP proposals; and
    - 156.1.3 allowing us to accept CPP applications for consideration if they comply with the process and content IMs “in all material respects”.
  - 156.2 We consider it important that we provide clarity as to the role and purpose of the verifier, auditor, and our expectations for consumer consultation.
  - 156.3 We will focus our evaluation, where possible, on the drivers and most material elements of proposals (in line with the proportionate scrutiny principle).
  - 156.4 We are making a change to ensure there are no perverse incentives created through a misalignment between the DPP and CPP WACC rates (our proposed solution to the DPP CPP WACC misalignment issue is discussed in Topic paper 4 – Cost of capital issues).
157. 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:
- 157.1 Clarifying for suppliers the opportunities for tailoring provided by the CPP option and other available tailoring mechanisms, through ongoing engagement;
  - 157.2 Building on the lessons learned during the Orion CPP process, and improving our internal processes for the next CPP application we receive; and
  - 157.3 Through improving and encouraging upfront engagement with suppliers considering and preparing CPP proposals.

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<sup>64</sup> 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**

158. This section explains our approach to how we evaluate CPP proposals. Our approach 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*

159. At any time after a DPP is set,<sup>65</sup> a supplier that is (or is likely to be) subject to a DPP may make a proposal to the Commission for a CPP.<sup>66</sup>
160. 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.<sup>67</sup> This means that once we have received a CPP proposal there are two steps we must undertake:
- 160.1 evaluating the applicant’s proposal; and
- 160.2 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.<sup>68, 69</sup>
161. 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.
162. A proposal to support a building blocks approach for determining a CPP broadly is comprised of three parts:
- 162.1 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.
- 162.2 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. Higher forecast levels of capital and/or operating expenditure will typically be the driver of a CPP application, and as such, will require specific focus when evaluating a CPP.

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<sup>65</sup> Within the application windows specified in a 52P determination, and not in the final year of a DPP.

<sup>66</sup> Commerce Act 1986, s 53(Q)(1).

<sup>67</sup> Unless a variation to the IMs has been agreed with the supplier, under section 53V(2)(c) of the Act.

<sup>68</sup> Commerce Act 1986, s 53V.

<sup>69</sup> This will involve determining and explaining what we consider to be an appropriate level of expenditure that meets the expenditure objective.

162.3 Quality variation information – where a quality standard variation is proposed, information to justify the variation must also be provided.

### **Assessment of expenditure**

163. A key component of our evaluation of a CPP proposal is the assessment of the applicant's expenditure forecasts.
164. 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.<sup>70</sup> Forecasting appropriate levels of expenditure will require the exercise of judgement by both the supplier as well as the Commission.
165. 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.<sup>71</sup>

### *What we are trying to establish when assessing expenditure*

166. Broadly, we need to be satisfied that the proposed expenditure is consistent with what would, and could, be delivered by a prudent supplier – 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).<sup>72</sup>
167. 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 appropriate to meet consumer demands,<sup>73</sup> (including quality) and regulatory requirements, (outside of Part 4 regulation) that the supplier must meet.<sup>74</sup>
168. Our assessment will consider whether:
- 168.1 the proposed investments align with the service outcomes;

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<sup>70</sup> In line with s 52A(1)(b) of the Commerce Act 1986.

<sup>71</sup> Explained above under sub-section 'We should apply a proportionate scrutiny principle in continuing to refine the CPP requirements and in assessing CPP proposals'.

<sup>72</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), p. iv.

<sup>73</sup> Meeting consumer demands means that the supplier will deliver appropriate service (quality) standards, to meet expected demand.

<sup>74</sup> Suppliers must also be able to meet any regulatory requirements outside Part 4 – such as health and safety regulations.

- 168.2 the projects can be delivered at the right time, within the bounds of the planning uncertainties;<sup>75</sup>
- 168.3 the processes for delivering the expenditure are efficient; and
- 168.4 the supplier has adequate strategies for accessing the necessary resource to undertake an increased level of expenditure.<sup>76</sup>

*Our approach*

- 169. While we consider that it is appropriate to obtain assurance that the proposed expenditure is consistent with the efficient costs that would be incurred by a prudent supplier facing the same circumstances as the applicant, 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.
- 170. The top-down approach initially focuses 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.
- 171. 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.
- 172. 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.
- 173. 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 focuses 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

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<sup>75</sup> 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.

<sup>76</sup> We would not consider it appropriate to increase prices to consumers if the investments are unlikely to occur due to resource constraints.

timeframes for evaluating CPP proposals, by highlighting which areas of a proposal we should focus on.

174. 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.
175. 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*

176. 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.
177. 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.
178. As discussed in the verification chapter, the proportionate scrutiny principle is also applied by the verifier as part of their choice of projects that require more specific information on and which have a greater level of scrutiny applied.

#### **Evaluation of price path information**

179. 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.
180. 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.
181. 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.
182. 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**

183. 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.
184. As part of our evaluation of a proposed quality standard variation we are likely to focus on:
  - 184.1 the extent that the quality standard variation and the cost (trade-off) is supported by consumers (and if not, why not);
  - 184.2 the components of reliability that are driving the change in quality performance;<sup>77</sup>
  - 184.3 any historical reasons for the deterioration in the drivers;
  - 184.4 an assessment of whether the applicant made prudent historical decision to manage any deterioration;
  - 184.5 the extent to which the proposed quality standards align with the level of investment proposed in the proposal; and
  - 184.6 statistical analysis of past SAIDI and SAIFI performance.

#### **CPP requirements that support our evaluation using this approach**

185. 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*

186. 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.

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<sup>77</sup> For example: failure rates due to vegetation, equipment failure, or human error.

187. 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:
- 187.1 Appropriate scope and specificity of information (specifying information requirements helps ensure this);
  - 187.2 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
  - 187.3 Evidence of how the supplier has determined the services required by consumers (as specified in the consumer consultation requirements).
188. We discuss each of the above requirements below.

*Information requirements – appropriate scope and specificity of information*

189. 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.
190. We consider that there is a place for both flexibility and prescription in the IM requirements.
- 190.1 Prescription helps us ensure that we have the information we need in a CPP proposal to determine a path in the short statutory time frame.
  - 190.2 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.
191. The following paragraphs explain how we provide for both flexibility and prescription in our information requirements.

*Base information – prescription*

192. 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).
193. 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*

194. 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.
195. 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.
196. 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.
197. We also consider that it will be appropriate to use the modification and exemption provisions to take account of supplier scale (discussed below in para 204).

*Detailed information – flexibility*

198. We already also provide for flexibility in the more specific detailed information which we require from a sample of “identified” projects in order to ensure that high level policies and strategies are implemented (discussed at paras 323-328). 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.
199. 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 appropriately determine the appropriate level of expenditure proposed in a CPP.

*The relevance of supplier scale*

200. 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.

201. 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.
202. 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).<sup>78</sup>
203. On reflection, we acknowledge the increased burden that a CPP could potentially be for small suppliers.
204. 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.<sup>79</sup> 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.
205. 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).
206. Looking forward, we will also 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).

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<sup>78</sup> 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 \$1 million (possibly a conservative estimate), this would be a regulatory cost of \$120 per consumer, across Centralines' 8,500 strong consumer base.

<sup>79</sup> 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).

*Information that we can rely on – verification and audit*

207. 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.
208. 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*

209. 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.
210. The key tasks assigned to the verifier are to:
- 210.1 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;
  - 210.2 ascertain whether these policies, strategies, and procedures have been applied in practice;
  - 210.3 review the material aspects of the proposed CPP to ensure that it is sufficiently complete in content and that it supports the expenditure objective,<sup>80</sup> prior to the Commission review; and
  - 210.4 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.
211. The verifier also has a role in selecting a sample of “identified” projects for which more detailed information is required (as discussed in Chapter 6).

*Audit*

212. 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.

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<sup>80</sup> The expenditure objective is one of the evaluation criteria discussed in paras 221-223.

### *Consumer consultation*

213. Setting a price-quality path that reflects consumer demands is an important consideration in determining a CPP that delivers long-term benefits to consumers.
214. 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.
215. The current 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.
216. 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.
217. 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**

218. 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**

219. 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.
220. 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*

- 221. 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.
- 222. We are not proposing any changes to the evaluation criteria as set out in the current IMs.
- 223. We have also provided additional clarification as to how we intend to evaluate CPP proposals against these criteria.

*Information requirements*

- 224. At a high level, the changes we are proposing 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.<sup>81</sup> Where possible, our intent is for the information required in CPP applications to leverage off existing regulatory disclosures under ID, including AMPs. At this stage, our proposals relate to EDBs only, as we are deferring consideration of changes to the detailed information requirements for GPBs.
- 225. We are proposing the following changes to Schedules D and E:
  - 225.1 To reduce the cost and complexity of preparing a CPP proposal we are:
    - 225.1.1 removing the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements;
    - 225.1.2 removing superfluous information;
    - 225.1.3 aligning the expenditure tables in Schedule E with the ID requirements, where appropriate;
    - 225.1.4 removing the requirements for forecasting capex projects disaggregated by asset type; and
    - 225.1.5 changing the requirements for related party transactions to an aggregate level of capex, rather than a project level.
  - 225.2 To ensure we have the necessary information to be able to effectively evaluate a CPP proposal we are:
    - 225.2.1 including new requirements for a deliverability plan for the proposed expenditure; and

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<sup>81</sup> This approach is consistent with the proportionate scrutiny principle set out at para 62.

225.2.2 requiring both real and nominal prices to be included in the forecast tables.

226. We also propose clarifying that the information presented in the financial spreadsheets referred to in the IMs does not need to be duplicated.
227. These proposed changes are discussed in more detail in Chapter 5.

*Verifier*

228. The changes we are proposing to the verifier requirements clarify the verifier's role, and simplify the way suppliers and the Commission engage with the verifier.
229. The specific changes we propose are:
- 229.1 adding a new section to the verifier's Terms of Reference that defines the verifier's role, purpose, and obligations;
  - 229.2 removing the obligation for the verifier to consider non-standard depreciation;
  - 229.3 requiring the CPP applicant to provide us with a high level summary of their application;
  - 229.4 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;
  - 229.5 allowing the verifier greater flexibility in the number of projects that are verified, the extent of their verification, and the content of the CPP proposal that we review; and
  - 229.6 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).
230. These proposed changes are discussed in more detail in Chapter 6.

*Audit*

231. 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
232. This proposed change is discussed in more detail in Chapter 7.

*Consumer consultation*

233. 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.

234. This proposed change is discussed in more detail in Chapter 8.

## Chapter 5: Information requirements

### Purpose of this chapter

235. This chapter explains the problems we have identified with the information requirements for CPP proposals, and our proposed solutions in response to them.
236. These problems and proposed solutions relate only to the EDB CPP IMs, because we are deferring consideration of changes to the detailed information requirements for GDBs and GTBs.<sup>82</sup>

### Structure of this chapter

237. The first section of this chapter summarises the changes we are proposing to the CPP information requirements. The remaining sections focus on specific problems we have identified with the information requirements, and our proposed solutions to those problems. The problems are:
- 237.1 the misalignment of CPP information requirements and information disclosure (**ID**) requirements;
  - 237.2 applicants are not required to demonstrate that they are able to deliver their proposed expenditure at a business-wide level;
  - 237.3 duplication of price path information within the application;
  - 237.4 inappropriate disaggregation of certain information; and
  - 237.5 insufficient flexibility for suppliers providing the information, particularly for smaller suppliers.

### Summary of proposed changes

238. At a high level, we consider that the intent behind the information requirements which we set out in 2010 remains relevant.<sup>83</sup> The intent behind the information requirements is for the applicant to provide the information that will allow us to test whether the CPP application meets our evaluation criteria and is consistent with all the relevant IMs.
239. The changes we are proposing are intended to reduce the cost and complexity of the CPP information requirements, and to focus these requirements on what are most material to 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 AMPs.

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<sup>82</sup> Commerce Commission "Input methodologies review – Process update paper" (29 February 2016), paras 59-66.

<sup>83</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.3.14-15.

*Changes discussed in this chapter*

240. We are proposing the following changes to address the problems we have identified through reviewing the CPP information requirements IMs, namely:
- 240.1 removing the need to duplicate information between documents, by aligning Schedules D and E with the relevant information disclosure requirements;
  - 240.2 including new requirements for a deliverability plan for the proposed expenditure;
  - 240.3 simplifying the requirement for forecasting capex projects disaggregated by asset type;
  - 240.4 changing the requirements for related party transactions to an aggregate level of capex, rather than a project level;
  - 240.5 removing the requirement for expenditure to be disaggregated by service categories; and
  - 240.6 improving the way in which applicants demonstrate the deliverability of their proposed expenditure.
241. We have clarified that our interpretation of the existing IMs means that information presented in the financial spreadsheets does not need to be duplicated.<sup>84</sup>

*Other changes*

242. For consistency, and to improve ease of use, we also propose:
- 242.1 changing the information requirements in Schedule D that relate to quality of service to bring these requirements in line with the disclosures required under ID;<sup>85</sup> and
  - 242.2 requiring expenditure forecast tables in Schedule E to be disclosed in real terms as well as in nominal terms.<sup>86</sup>

**Misalignment of qualitative CPP information requirements and ID requirements**

243. Qualitative information allows the supplier to provide context, reasoning, and justification for the quantitative data used in its proposal.<sup>87</sup> The requirements for the qualitative information are set out in Schedule D of the IM Determination.

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<sup>84</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clauses 5.4.7 and 5.4.8.

<sup>85</sup> *Electricity Distribution Services Default Price-Quality Path Determination 2015* [2014] NZCC 33, clause 9 and schedules 4A, 4B and 5B; Commerce Commission *“Electricity Distribution Information Disclosure Determination 2012 (consolidated in 2015) – 24 March 2015*, clause 2.6.2.

<sup>86</sup> While forecasts in nominal terms are appropriate for setting the price path, forecasts in real terms are more appropriate for engineering assessment purposes.

244. Schedule D's structure currently allows for a narrative of the applicant's governance and management practices in relation to asset management and information on the policies, assumptions, data, planning standards and processes used to develop the different categories of expenditure.

*Problem definition*

245. Currently the information requirements in Schedule D are not aligned with the requirements for AMPs. For example, information provided in the AMPs is required to be recast and re-grouped in order to comply with the CPP IMs. This creates an unnecessary compliance burden for applicants, with limited benefit in terms of scrutiny.

246. In feedback on the Orion process, the Electricity Networks Association (ENA) submitted that:

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.<sup>88</sup>

247. PwC, submitting on behalf of 20 EBDs on our Problem Definition paper, made a similar comment:<sup>89</sup>

[W]e consider that the CPP IMs should... enable EBDs 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.

248. 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.<sup>90</sup>
249. In other words, the information we require to evaluate a CPP application is wider in scope than an asset management plan (**AMP**), which is focussed on asset management planning.

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<sup>87</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para K3.7.

<sup>88</sup> 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.

<sup>89</sup> PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), para 121.

<sup>90</sup> Minutes from the workshop will be published alongside our determinations on 22 June 2016.

*Proposed solution*

250. Our proposed solution is to follow an ‘AMP-plus’ approach to Schedule D. To implement the AMP-plus approach, we propose amending Schedule D to:
- 250.1 align its structure with the AMP requirements in Schedule A of the ID requirements; and
  - 250.2 require additional information over and above the AMP requirements where it is necessary to justify the expenditure proposed in the CPP.
251. This proposal 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.<sup>91</sup>
252. The proposal we presented at the 19 April workshop set out Schedule D so the information on strategies, policies, assumptions, data, planning standards, and process used to develop each of the categories of expenditure was presented in one clause. Feedback from stakeholders at the workshop was that our proposed method of presentation did not allow applicants to easily engage with the requirements and may not reduce complexity.
253. Following the workshop, ENA proposed a structure that was more in line with Attachment A of the ID Determination. ENA considers that the revised presentation would make the CPP process more accessible to smaller suppliers.
254. The structure proposed by the ENA is an improvement over the current structure in terms of reducing cost and complexity. However, we consider that the scope of the information we presented at the CPP workshop is necessary for us to properly scrutinise an applicant’s CPP proposal.
255. The scope of the information we propose requiring is set out in the table below.

**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. | 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. |

<sup>91</sup> PwC on behalf of ENA “CPP IM Reducing Cost and Complexity - Schedule D” (6 May 2016).

|  |  |
|--|--|
| 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 projects.  | 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.   | For confirming completeness with the demand forecasts.   |
| 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.  |
| 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. |

256. As these changes draw an explicit link between Schedule D of the IMs and Appendix A of the ID Determination, adopting this AMP-plus approach will also have the following flow-on effects:
- 256.1 we will have to reconsider and potentially amend the IM Schedule D when we review the ID Determination (increasing our resource requirement at that time);
  - 256.2 there will be a degree of uncertainty for a prospective CPP applicant during any period when we review the ID Determination; and
  - 256.3 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.<sup>92</sup>

**Deliverability is not considered at an aggregate level**

257. The current CPP information requirements require suppliers to explain the deliverability of each opex and capex category and identified programme.<sup>93</sup> This requirement was included in the current 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 proposed.<sup>94</sup>

*Problem definition*

258. The current CPP information requirements do not require the supplier to report on deliverability at a whole-of-business level. While each category or programme of expenditure may be deliverable, when taken as a whole the proposal may not be.
259. There is a significant risk that expenditure is approved for work that is both prudent and efficient, yet due to insufficient resources is not delivered. The result of non-delivery is that consumers pay for beneficial outcomes that are not realised.

*Proposed solution*

260. Our proposed solution to this problem is to require applicants to report on deliverability in a single deliverability report. This proposed report will require a deliverability risk assessment that takes account of:
- 260.1 consenting;
  - 260.2 accommodating a step change in workload above historical levels;

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<sup>92</sup> The applicant could reduce this by thorough cross-referencing and presenting the AMP in manner suitable for assessing completeness.

<sup>93</sup> Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, Schs D7(1)(b), D7(2)(b), D12(1)(b), and D12(2)(a)(ii).

<sup>94</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 9.5.12.

- 260.3 alignment of resource schedules where shared resources are utilised for different opex and capex-related tasks;
  - 260.4 the extent of outsourcing required; and
  - 260.5 contractor and skilled personnel availability and ability.
261. We expect that CPP applicants will have fully assessed the deliverability of the proposed work-plan required to achieve the objective(s) set out in their CPP application. Accordingly, the provision of this information should not require the applicant to create any additional information.

#### **Duplication of price path information within the application**

262. The current 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*

263. The current CPP requirements are 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.
264. The IMs state that the applicant must provide the calculations for BBAR and maximum allowable revenue (MAR) in spreadsheet form.<sup>95</sup> However, the IMs do not explicitly state that these spreadsheets form part of the CPP proposal.<sup>96</sup>
265. In feedback on the Orion process, the ENA indicated that the IMs are 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.<sup>97</sup>

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<sup>95</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, cls 5.4.7- 5.4.8.

<sup>96</sup> 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.

<sup>97</sup> Electricity Network Association "Feedback on setting Orion's customised price-quality path" (14 April 2014), Attachment 1, Section 3.



*Proposed solutions*

266. Our proposed solution to this problem is to clarify that the information included in the spreadsheets does form part of the CPP proposal. This does not require a change to the IMs. Applicants will have the option of relying on information provided elsewhere, provided the following usability criteria are met. Applicants must:
- 266.1 include clear cross-references to the information in the CPP proposal;
  - 266.2 provide clear references to the IM requirements they are fulfilling in the spreadsheet and the CPP proposal;
  - 266.3 use the technical terms and labels described in the IMs;
  - 266.4 clearly identify and explain all of the source inputs and outputs in separate worksheets and in their required formats;
  - 266.5 produce all of the intermediate outputs set out in the IMs; and
  - 266.6 demonstrate the links and interdependencies between source inputs, intermediate calculations, and outputs in a transparent and auditable manner.
267. Making these criteria clear and transparent should avoid, or significantly reduce, the need for us to request further information from the applicant. It should also help to ensure that the supplier's information can be more readily assessed and used by us.

**Unnecessary disaggregation of quantitative information**

268. The current CPP IMs require several kinds of information to be provided on a disaggregated basis.

*Problem definition*

269. Specifically, we are concerned with suppliers needing to provide:
- 269.1 forecasts of capex disaggregated by asset type, for the purposes of asset valuation and regulatory tax;<sup>98</sup>
  - 269.2 expenditure forecasts disaggregated by service categories;
  - 269.3 opex disaggregated into controllable and uncontrollable opex;<sup>99</sup> and
  - 269.4 related party transaction information that must be disclosed by forecast capex programmes and projects.<sup>100</sup>

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<sup>98</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, cl 5.4.12.

<sup>99</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, cl 5.4.30(3); Schedule D16; Schedule E, Table 3(b).

270. Across all these elements of the information requirements, the level of disaggregation imposes additional cost, with little benefit in terms of determining the price path.

*Disaggregating capex by asset type*

271. Forecasting on an asset type basis adds complexity to CPP proposals, and increases the cost to applicants. However this level of disaggregation is consistent with the requirements under ID regulation, but this is ex-post. Those requirements are necessary for ex-post reporting of commissioned assets. Since the CPP information requirements work on an ex-ante basis, the value of forecasting to such detail is questionable given its complexity.

272. Orion suggests 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.<sup>101</sup>

273. The ENA echoes 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.<sup>102</sup>

274. We are proposing a breakdown by a subgroup of assets that is included in the forecasts provided under Schedules 11(a)(iii) and 11(a)(iv) of ID.<sup>103</sup>
275. We consider that the general categories we are proposing will still provide a reasonable estimate of forecast depreciation and tax for the purpose of determining the price path.
276. 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

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<sup>100</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, Sch E, Table 4 and Table 5.

<sup>101</sup> Orion "Orion feedback on customised price quality path process 14 April 2014" (August 2014), para 41.

<sup>102</sup> ENA "ENA feedback on Orion customised price quality path process" (August 2014), para 6.1 (b).

<sup>103</sup> *Electricity Distribution Information Disclosure Determination 2012* [2012] NZCC 22, Schedules 11(a)(iii)-(iv).

commission a given power transformer, and using an estimate will not make the resulting calculations any more accurate.<sup>104</sup>

277. In coming to this proposed solution, we also considered the following alternatives:
- 277.1 using the DPP approach of assuming a 45 year asset life to estimate the value of depreciation of forecast commissioned assets;
  - 277.2 disaggregating by asset type at an aggregate value of commissioned assets level rather than at a project level; and
  - 277.3 disaggregating by asset expenditure categories at aggregate value of commissioned assets level.<sup>105</sup>

*Controllable and uncontrollable opex*

278. 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.
279. We propose removing the requirement on suppliers to disaggregate based on service categories or into controllable and uncontrollable opex. These proposed 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*

280. 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.<sup>106</sup> 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.
281. We propose removing the requirement to disaggregate forecasts project-by-project, and instead to require forecasts on an aggregated basis across the business.

*Capital contributions*

282. 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 forecast capital contributions at an aggregate level. The proposed changes to information requirements in Schedule E has simplified the information requirements for forecast capital contributions by netting them off against forecast total values of the capex expenditure categories.

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<sup>104</sup> 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.

<sup>105</sup> These alternatives were discussed at our CPP information requirements workshop (held 19 April).

<sup>106</sup> The exception is if there is a long term service agreement with the related party.

### **Insufficient flexibility in providing information**

283. As mentioned in Chapter 4 there is significant diversity in the size of price-quality regulated EDBs, which has practical implications for the viability of CPP applications specific to the information requirements.<sup>107</sup>

#### *Problem definition*

284. The IMs specify the provision of expenditure information, policies, procedures, and strategies at scope and depth that may exceed the levels of information that a prudent supplier for that size would maintain.
285. 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.
286. Requiring suppliers to create expenditure information, policies, procedures, or strategies solely to apply for a CPP is unlikely to 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 is not likely to improve the scrutiny we can apply, or to benefit consumers.
287. 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.<sup>108</sup>

288. However, in contrast to PwC's observation, we are commonly asked to be more specific about the information we require.
289. 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.

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<sup>107</sup> Other issues related to supplier scale and CPP applications, not limited to the information requirements are discussed in Chapter 4.

<sup>108</sup> PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015).

*Proposed solutions*

290. We consider that greater flexibility for suppliers, in particular smaller ones, is warranted. The extent of the flexibility we propose providing depends on the specific circumstances of an application.
291. 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 current IMs do not require this.
292. 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.
293. 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.
294. We consider that the Limb 1 CPP fast track amendments that introduced provisions, which allow for exemptions and modifications from the CPP information requirements, will also help mitigate the challenges facing smaller suppliers.<sup>109</sup>
295. To make this intent clear, we propose amending the IMs to expressly specify that we will consider the scale of businesses when deciding whether to approve an exemption or modification.

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<sup>109</sup> 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).

## **Chapter 6: Verification requirements**

### **Purpose of this chapter**

296. This chapter explains the problems we have identified with the verification requirements for CPP proposals, and our proposed solutions in response to them.<sup>110</sup>

### **Structure of this chapter**

297. The first section of this chapter summarises the changes we are proposing to the CPP verification requirements. The next section addresses the common problems we have identified with the verifier's role and purpose.

298. The subsequent sections focus on specific problems we have identified with the verifier requirements, and our proposed solutions to them. These problems relate to:

298.1 the way the applicant and the verifier communicate;

298.2 the number of projects the verifier scrutinises;

298.3 the role of the independent engineer; and

298.4 the verification of non-standard depreciation.

299. The final section responds to other issues raised by stakeholders, where we consider no change to the IMs is required. These issues are:

299.1 the way the verifier is selected and engaged; and

299.2 the time available for verification.

### **Summary of proposed changes**

300. We consider that the intent behind the verifier requirements set out in 2010 remains appropriate.<sup>111</sup> 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.

301. The changes we are proposing to the verifier requirements 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 suppliers – consistent with the s 52R purpose – while at the same time reducing the cost and complexity of CPP proposals.

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<sup>110</sup> Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, cl 5.5.2 and Schedule F.

<sup>111</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras 9.5.13 and 9.6.3.

302. The specific changes we propose are:
- 302.1 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;
  - 302.2 requiring the CPP applicant to provide us with a high level summary of their application by the time the verifier is engaged;
  - 302.3 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;
  - 302.4 allowing the verifier greater flexibility in the number of projects that are verified, the extent of their verification, and the content of the CPP proposal that we review;
  - 302.5 removing the obligation for the verifier to consider non-standard depreciation; and
  - 302.6 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).

**Verifier's purpose and role**

303. 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.
304. The way we explained the purpose of the verifier IMs in 2010 had two key limbs:
- 304.1 ensuring we can rely on the information supporting the CPP; and
  - 304.2 an intention to avoid duplication of effort by highlighting the key issues we should focus on during our assessment.
305. We explained the reliability point in our 2010 IMs reasons paper saying:

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’).<sup>112</sup>

306. In addition, we explained that:

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.<sup>113</sup>

307. We also stated that where possible, we would not seek to duplicate the effort expended in the verification of a CPP proposal:

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.<sup>114</sup>

#### *Problem definition*

308. 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 work as possible in preparing and reviewing the CPP. 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, 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.

309. Submissions on the Orion CPP process show the importance of frontloading and avoiding duplication, with several submissions questioning the necessity of the verification process where there was a duplication of effort by the Commission.<sup>115</sup>

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<sup>112</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para 9.6.3.

<sup>113</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para 9.5.13.

<sup>114</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para 9.6.14.

<sup>115</sup> 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), paras 19-20.



310. For example, Vector submitted:<sup>116</sup>

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.

311. 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.

312. 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 he considered the draft to be confidential.<sup>117</sup>

*Proposed solution*

313. Our proposed 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.

314. The proposed new schedule of the IMs will explain that the role of the verifier is to:

314.1 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;

314.2 ascertain whether these policies, strategies, and procedures have been applied in practice;

314.3 review the material aspects of the proposed CPP to ensure that it is sufficiently complete in content and that it supports the applicant's expenditure objective, prior to the Commission review;

314.4 assess and report on the reliance that can be placed on input data and 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 (particularly

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<sup>116</sup> Vector "Feedback on Orion customised price-quality path process" (14 April 2014), para 13.

<sup>117</sup> 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), pp 252.

if the content is material to the nature of the proposal and likely to be central to the Commission’s decision-making); and

- 314.5 to report on the extent and effectiveness of the supplier’s consultation with consumers.
315. The proposed schedule will also allow for the CPP applicant to engage with the verifier, where necessary, during the development phase of the CPP proposal in order to ensure that the proposal meets the necessary evidential requirements of the IMs. For example, where the verifier identifies that the applicant does not appear to have followed its own planning standards for network or asset replacement, it would highlight this area to the applicant. This type of engagement should not adversely affect the verifier’s ability to remain independent.
316. In addition, we propose that the applicant provide us with a high level proposal summary when it engages the verifier, sufficient to enable our preliminary resource planning. The high level proposal summary would contain such information as:
- 316.1 the reasons for the CPP proposal and information pertaining to its priority;
- 316.2 the likely anticipated change/effect on consumers;
- 316.3 the supplier's proposed approach to engaging with consumers on the proposal;
- 316.4 the scope and indicative dollar value of the proposal (eg, capex, opex and reliability changes); and
- 316.5 the likely nature and number of projects, and the rationale for seeking the CPP.

### **Communication between the applicant and verifier**

#### *Problem definition*

317. 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.<sup>118</sup>
318. 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.

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<sup>118</sup> 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), pp 254.

*Proposed solution*

319. 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.
320. 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.
321. We propose amending 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.
322. The main reason for this change is that will result in a more efficient and cost-effective verification process.

**Number of projects the verifier scrutinises**

*Problem definition*

323. Submitting on the Orion CPP, stakeholders suggested that the IMs should allow the verifier to pre-select sample projects 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.<sup>119</sup>
324. 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.<sup>120</sup>
325. 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.<sup>121</sup> Additionally, MDL commented that some businesses simply will not have this many projects in total.<sup>122</sup>

*Proposed solution*

326. Our proposed solution is to allow a level of flexibility in the number of identified projects that are verified in detail as part of verification process. We will do this by

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<sup>119</sup> Orion "Feedback on Orion customised price-quality path process" (14 April 2014), para 30(d).

<sup>120</sup> Orion "Feedback on Orion customised price-quality path process" (14 April 2014), paras 25-28.

<sup>121</sup> ENA "Feedback on Orion customised price-quality path process" (14 April 2014), paras 13-14.

<sup>122</sup> MDL, Untitled submission on problem definition paper" (21 May 2015), para 12.

allowing the verifier to judge on a case by case basis the appropriate number of identified projects for which more detailed information must be provided (also forming part of the CPP proposal), and which will be verified in greater depth. The current number of identified projects required will remain as the maximum.

327. Specifically, we propose introducing the following criteria in the IMs that will guide the verifier when selecting a lesser number of projects. The verifier will consider:
- 327.1 whether the number of identified projects is sufficient to provide a view on the extent to which the proposed expenditure is consistent with the applicant's policies and strategies;
  - 327.2 whether the issue the CPP intends to resolve can be adequately represented with the number of projects;
  - 327.3 the extent to which the proposed projects in the proposal reasonably reflects the information from previous Asset Management Plans of the business if this is relevant;<sup>123</sup>
  - 327.4 the best interests of consumers; and
  - 327.5 our ability to test the proposal against the expenditure objective.
328. This change will directly reduce the cost and complexity of CPP applications for the verifier, the applicant, and the Commission, and be consistent with the proportionate scrutiny principle, by allowing the verifier's detailed assessment to be targeted at the projects that most affect the price, quality, and investment aspects of the applicant's business.

### **Role of the independent engineer**

#### *Problem definition*

329. 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.
330. The IMs require 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.<sup>124</sup>

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<sup>123</sup> For example, where a number of projects are proposed in a CPP proposal that had not been previously signalled in a AMP, the verifier is more likely to require these projects to be reviewed in detail.

<sup>124</sup> 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.

*Proposed solution*

- 331. We propose allowing the applicant to prepare its own quality standard variation report, and to have the verifier assess the report.
- 332. 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 is well placed to provide.
- 333. The proposal to merge the roles of the verifier and the independent engineer is not appropriate as an 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.

**Verification of non-standard depreciation**

*Problem definition*

- 334. 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.
- 335. 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.<sup>125</sup> Additionally, Orion has said that insurance costs should not be within the scope of the verifier's report.<sup>126</sup>

*Proposed solution*

- 336. Our proposed solution is remove non-standard depreciation from the verifier's terms of reference, but to retain the requirements related to cost allocation and insurance.
- 337. Our main reason for this proposed 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.
- 338. However, we propose retaining the cost allocation requirements, as cost allocation may involve matters the verifier is in a better position to assess, such as capitalisation of overheads and related party costs.

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<sup>125</sup> ENA "Feedback on Orion customised price-quality path process" (14 April 2014), Attachment 1, p. 16.

<sup>126</sup> 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.

339. Insurance costs should be assessed by the verifier as these costs are CPP opex – a key aspect of a CPP proposal. A specialist insurance report will form a component aspect of a CPP report. The verifier is better placed than the Commission to comment on:

339.1 level of cost versus risk that the applicant is exposing certain assets to, and

339.2 balance between self-insurance and external insurance has been adequately made.

#### **Other issues raised by stakeholders**

340. 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*

341. 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.

342. 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.

343. 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.<sup>127</sup>

344. Orion previously submitted the approval process could benefit from being “streamlined”, possibly by the use of a pre-approved verifier list.<sup>128</sup> They also commented that the small number of potential verifiers in New Zealand posed a practical issue for CPP applicants.<sup>129</sup> This sentiment was echoed by the ENA in its feedback on the Orion process, who characterised the process as “complex”.<sup>130</sup>

345. 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.<sup>131</sup>

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<sup>127</sup> Orion's submission on the problem definition paper “Submission on the IM review” (21 August 2015), para 66.

<sup>128</sup> Orion “Feedback on Orion customised price-quality path process” (14 April 2014), para 24.

<sup>129</sup> Orion “Feedback on Orion customised price-quality path process” (14 April 2014), para 21.

<sup>130</sup> ENA “Feedback on Orion customised price-quality path process” (14 April 2014), para 18.

<sup>131</sup> 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), pp 245-246.

346. 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 changes outside the IMs that submitters have suggested, specifically:
- 346.1 introducing a template tripartite deed; and
  - 346.2 introducing a pre-approved verifier list in future, should this problem persist.
347. 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.
348. We are open to developing a template or “benchmark” tripartite deed. The deed used in the Orion process could form the basis of this, but the specifics of any template require input from stakeholders.
349. Regarding a pre-approved list of verifiers, our view is that the cost of engaging the verifier would be largely the same if the Commission was responsible for engaging or pre-approving the verifier. Additionally, allowing the applicant to appoint their own verifier has advantages:
- 349.1 the applicant can take comfort that the verifier is independent from perceived influence by the Commission; and
  - 349.2 the applicant is better placed than we are to judge the experience and qualifications relevant to its industry.
350. Nevertheless, should the issue of finding an appropriate verifier persist in future CPP applications, we are open to introducing a pre-approved list.

*Time available for verification*

351. For EDBs, the time allowed for the verifier to carry out their work is limited by the timing of the CPP WACC Determination in September and the CPP application windows in February and May. This leads to a compressed timeframe for the verifier to prepare their report, consequently reducing the quality of the CPP application.
352. Our proposal 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 not only with this specific issue, but with many of the problems outlined in previous sections.

## **Chapter 7: Audit requirements**

### **Purpose of this chapter**

353. This chapter explains our proposed solutions to the problems we have identified with the audit requirements for CPP proposals.

### **Structure of this chapter**

354. This chapter begins with a summary of our proposed changes to the audit requirements for CPP proposals. Following this, we review the policy intent of the audit requirements. The following sections then identify specific problems with implementing that intent, and set out our proposed solutions for each.

### **Summary of proposed changes**

355. The changes we are proposing to make are intended to provide greater certainty for CPP applicants around our expectations for the audit requirements, consistent with s 52R. These are:

355.1 clarifying the requirement for the auditor to provide a report setting out the auditor's opinion on specified matters;

355.2 differentiating the role of the auditor with respect to historical financial information and forecast financial information;

355.3 removing ambiguity around quantitative information provided in spreadsheets; and

355.4 clarifying the requirement on the auditor to provide a view in respect of proper records being kept.

### **Policy intent of the audit requirements**

356. 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.<sup>132</sup>

357. One of the means by which we gain confidence over the quality of financial and quantitative information provided by CPP applicants is to require the information to be subject to examination by independent auditors (ie, audit).

358. The policy intent behind the audit IM requirements relating to CPPs is to require CPP applicants to ensure financial and quantitative information provided is robust, reliable, and in compliance with applicable IMs.

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<sup>132</sup> 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.



359. Overall, we consider that the audit IM requirements relating to CPPs are fundamentally fit for purpose, but that they require clarifications and refinements to better meet their intent. In particular, references to professional standards, and terminology can be clarified to better align with the audit profession and our expectations of their role.
360. Our review of the IMs and submissions on the Orion CPP process have identified three problems related to the audit requirements. Specifically:
- 360.1 an audit must be conducted, but no audit report is required to be provided by the auditor;
  - 360.2 audit standards and quantitative accuracy are confusing; and
  - 360.3 audit requirements extend beyond information requirements.

**An audit must be conducted, but no audit report is required to be provided by the auditor**

*Problem definition*

361. 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.
362. At present the audit IMs state that CPP proposals must be audited by an auditor, but do not explicitly require the auditor to provide a report setting out the auditor's view 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).
363. 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, is not being made as clear as it could be.

*Proposed solution*

364. The preferred 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 auditor's opinion on specified matters set out in those clauses. This will:
- 364.1 more easily enable us to assess the reliability of the financial and quantitative information provided in the CPP proposal;
  - 364.2 make it clear to stakeholders and auditors what output is required under the IMs; and
  - 364.3 improve the link between those IMs and clauses 5.1.1(2)(a) and 5.1.4.

## **Audit standards and quantitative accuracy are confusing**

### *Problem definition*

365. The role of the auditor can vary depending on the nature of that information and the type of engagement sought. The professional standards that govern auditors reflect these differences:<sup>133</sup>

365.1 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.

365.2 There are other engagements that may be undertaken involving a lesser standard of comfort, which may be performed under applicable assurance engagement standards. These engagements may include, for example, a review of an organisation's procurement practices.

366. A CPP proposal contains a range of information. However, the current audit IMs refer only to an audit, which has been interpreted to mean a high standard of assessment that does not allow the flexibility in approach that audit professionals are accustomed to.

367. Orion highlighted this problem, particularly with respect to what is required under the IMs in relation to historical information and forecast information. Orion stated that:<sup>134</sup>

...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.

368. The problem also manifests in relation to audit IMs that require a professional opinion as to whether quantitative information provided in spreadsheets is 'accurately presented':

368.1 First, the expression "accurately presented" is arguably not appropriate 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).

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<sup>133</sup> Auditing and Assurance Standards as issued by the External Reporting Board or the New Zealand Auditing and Assurance Standards Board (NZAuASB).

<sup>134</sup> Orion New Zealand Ltd "Feedback on setting Orion's customised price-quality path", 14 April 2014, p. 6.

- 368.2 Second, the expression “accurately presented” is unclear as to what dimension it is focusing 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.
369. 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 happen *ex-post*).

*Proposed solution*

370. Our proposed solution is that the audit IMs in respect of CPPs be modified 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).<sup>135</sup>
371. We also propose to remove ambiguity around assessing quantitative information provided in spreadsheets by removing the expression “accurately presented” from the audit IM requirements relating to CPPs.
372. The effect of these changes will result in the following:
- 372.1 historical financial information will be audited in accordance with applicable audit engagement standards issued under the Financial Reporting Act 2013 (or applicable successor);
  - 372.2 forecast financial information will be examined in accordance with applicable assurance engagement standards issued under the Financial Reporting Act 2013 (or applicable successor), or other appropriate standards;
  - 372.3 quantitative historical information provided in spreadsheets will be properly compiled on the basis of the relevant underlying source documentation; and
  - 372.4 quantitative forecast information provided in spreadsheets will be properly compiled on the basis of relevant and reasonable disclosed assumptions.
373. 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.

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<sup>135</sup> 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.

### **Audit requirements extend beyond information requirements**

#### *Problem definition*

374. In order 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.
375. The IMs set out a requirement for an auditor to audit a CPP proposal as to whether or not proper records have been kept to enable the complete and accurate compilation of information by the applicant.
376. However, this requirement does 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.
377. Accordingly, given that the information may need to be created, the references to “proper records” and “complete and accurate compilation of information” can cause confusion and difficulty for applicants and auditors in terms of complying with the IMs.

#### *Proposed solution*

378. We propose to add exemptions and modifications to record-keeping under the IMs relating to information requirements. 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.
379. Our proposed 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”.
380. Our main reason for this change is to provide clarity on the scope of audit requirements.

## **Chapter 8: Consumer consultation requirements**

### **Purpose of this chapter**

381. This chapter explains our proposed solutions to the problem we have identified with the consumer consultation requirements for CPP proposals.

### **Structure of this chapter**

382. This chapter begins with a summary of our proposed changes to the consumer consultation requirements. Following this, we review the policy intent of the consumer consultation requirements. We then discuss the lack of clarity in those requirements, and set out our proposed solutions to this problem.

### **Summary of proposed changes**

383. We are proposing two changes to the IMs to provide greater certainty about our expectations for consumer consultation, consistent with s 52R:

383.1 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

383.2 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 consultation.

### **Intent of the consumer consultation requirements**

384. Having reviewed the consumer consultation requirements for CPP proposals, we consider that the intent behind them remains appropriate.

385. 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.

386. 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.

387. Some suppliers sought clarification of what is considered 'adequate'. The Commission has intentionally left it broad to allow suppliers to exercise some

discretion as to the proposed channel of communication, given the nature of their consumer base.<sup>136</sup>

388. Under Part 4, we must ensure that suppliers have incentives to supply services at a quality consumers demand.<sup>137</sup> The requirement that suppliers consult with consumers on a CPP application is a clear means of promoting this outcome.

389. A similar sentiment was expressed by the Major Electricity Users Group (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...

390. That may require more costs for both EDB and consumers in the CPP process but the benefits for both suppliers and consumers, may be commensurately higher and/or achieved earlier.<sup>138</sup>

391. We consider that the way in which the IMs implement this intent could provide greater certainty for suppliers, while at the same time reducing the cost and complexity of CPP applications for suppliers as well.

### **There is a lack of clarity about our expectations concerning consumer consultation**

#### *Issues identified by stakeholders*

392. In both feedback on the Orion CPP process, and submissions on the IM review, stakeholders have identified the following issues related to the consumer consultation requirements:

392.1 a lack of clarity about what we expect from consumer consultation;

392.2 duplication between Orion's consultation and our consultation process; and

392.3 a lack of time for adequate consultation due to the relative timing of the CPP WACC Determination and the CPP application windows for EDBs.

393. The ENA said that in the Orion process, the Commission expected a more comprehensive consultation than specified in the IMs. The ENA suggested that a review of consultation IMs was required.<sup>139</sup>

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<sup>136</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras 9.6.16 and 9.6.17.

<sup>137</sup> Commerce Act 1986, s 52A(1)(b).

<sup>138</sup> MEUG "Submission on emerging views on opportunities to improve the way default and customised price-quality paths work together" (24 March 2016), p. 2.

<sup>139</sup> ENA "Feedback on Orion customised price-quality path process" (14 April 2014), para 26.

394. Orion has said 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 recommended that the CPP IMs set out clearly what is required in this regard.<sup>140</sup> Other submitters have expressed similar views.<sup>141</sup>
395. Submissions further argued that this lack of clarity was one cause of the excessive cost of the CPP application process.
396. Powerco have further stated that there are challenges with consumer consultation, particularly for residential consumers such as a lack of knowledge, complexity of options, negative perceptions about the wider industry and price of electricity, unrealistic expectations amongst consumers, and widespread consumer apathy.<sup>142</sup>
397. 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 pre-engagement with the supplier could help ensure the consultation process will meet the needs to both parties.<sup>143</sup>
398. Orion questioned whether the Commission was best placed to present the CPP proposal to consumers, and whether this duplication was necessary.<sup>144</sup> The ENA echoed this view, further suggesting that any overlap should be avoided, as it may confuse consumers, and impose unnecessary cost.<sup>145</sup>
399. 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) limits the timeframe in which applicants can consult with

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<sup>140</sup> 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.

<sup>141</sup> 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.

<sup>142</sup> Powerco “Feedback on Orion customised price-quality path process” (14 April 2014), para 15.

<sup>143</sup> Vector “Feedback on Orion customised price-quality path process” (14 April 2014), para 5.

<sup>144</sup> Orion “Feedback on Orion customised price-quality path process” (14 April 2014), para 38.

<sup>145</sup> 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.

consumers. Stakeholders have said that this timeframe is not sufficient for adequate consultation.<sup>146</sup>

400. This last issue has been resolved by a proposed change to the cost of capital IMs, aligning the CPP WACC with the underlying DPP WACC.<sup>147</sup>

*Problem definition*

401. The problem with the current consumer consultation IMs is that they lack clarity about our expectations. In particular, that they do 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 has not clearly presented price/quality trade-offs are likely to be unreliable.
402. 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 and provide an opportunity for affected consumers to comment.
403. 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 only “adequate notification”.<sup>148</sup> This is consistent with our view that suppliers are best placed to judge the best manner of engaging with their particular customer base.
404. However, the lack of prescription in the IMs appears to have resulted in a lack of certainty about our expectations for consumer consultation.
405. We agree with stakeholders that greater certainty of applicants’ consumer consultation obligations is warranted. To provide this, we propose the solutions below.

*Proposed solution*

406. We propose to amend the IMs to explicitly require applicants to consult with consumers on the price/quality impact of any proposed investment alternatives. Further, in the case of EDBs, we propose explicitly requiring applicants to consult on the price/quality trade-offs made in arriving at their proposed investment alternatives.
407. Our main reason for this change is to provide greater clarity about our expectations for CPP consultation.

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<sup>146</sup> Genesis “Feedback on Orion customised price-quality path process” (14 April 2014), pp 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.

<sup>147</sup> Commerce Commission “Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues” (16 June 2016).

<sup>148</sup> Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, cl 5.5.1(1).



408. We consider that this change is sufficient, and are not proposing to include any further prescriptive requirements for consumer consultation. We consider that any further requirements might limit supplier's ability to tailor it's consultation to the circumstances of its customers and of their applications, or cause additional consultation costs that might provide little additional benefit.
409. The reason we are proposing treating EDBs and GPBs differently regarding quality trade-offs is that gas network quality (however measured) is not as directly linked to investment behaviour as electricity network quality.
410. We are also proposing to add a requirement to the verifiers' Terms of Reference to support the change to the consultation requirements. This proposed change will require the verifier to report on the extent and effectiveness of the supplier's consultation with consumers.

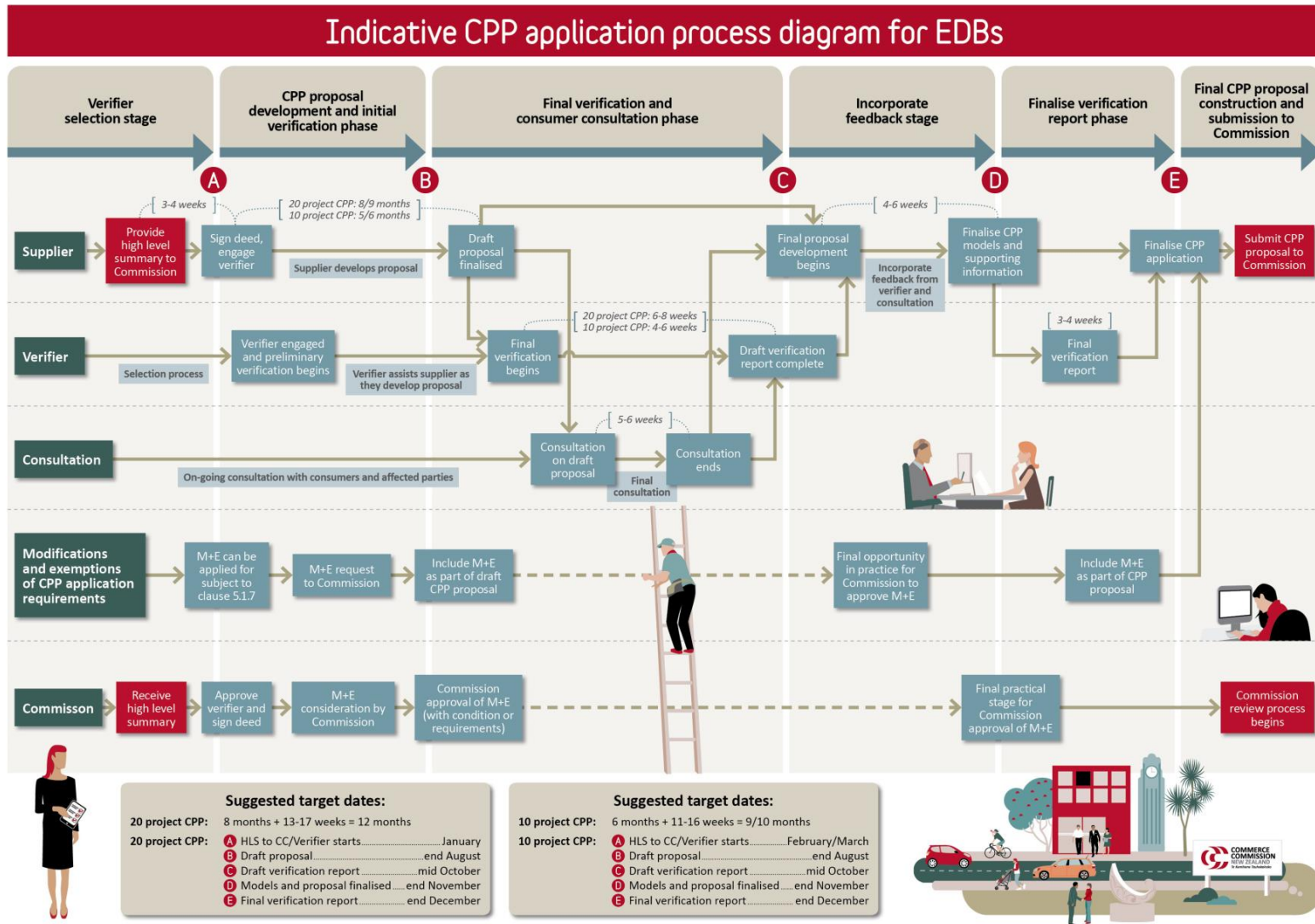
## **Attachment A: Indicative CPP application process diagram**

### **Purpose of this attachment**

411. 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.
412. 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**

413. Readers should note:
- 413.1 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.
- 413.2 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 gas pipeline businesses (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.
- 413.3 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**

414. The purpose of this attachment is to:

414.1 Present the draft 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

414.2 Summarise our draft decisions on whether to change the CPP requirements IMs, and explain our reasons for changing or not changing them.

415. 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.<sup>149</sup>

### **Relationship with the Report on the IM review**

416. The Report on the IM review is a separate paper that records our draft 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.

417. 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).<sup>150</sup> In other areas, including for the CPP requirements IMs, we have extracted the existing decisions from descriptions in the text of the relevant reasons papers.

### **Why we have presented our draft decisions in respect of the CPP IMs separately**

418. Rather than being included in the Report on the IM review, our draft decisions on the CPP requirements IMs are instead covered by this attachment, so that all information about our draft decisions regarding the CPP requirements is in one place.

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<sup>149</sup> We expect to publish the Report on the IM Review on 22 June 2016.

<sup>150</sup> 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**

419. We have structured the decisions relating to the CPP requirements IMs as follows:
  - 419.1 Content of CPP applications;
  - 419.2 Process relating to CPP proposals;
  - 419.3 Assessing and evaluating CPP proposals; and
  - 419.4 Determining a CPP.
420. As in the Report on the IM review, we have assigned each existing decision with a unique code (eg, CP01) and presented each existing decision in the same tabular format.
421. For each existing decision, this attachment indicates whether or not we propose to change it (either at a policy level, or in terms of the implementation of the decision).
422. For those existing 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.
423. It also presents those existing decisions that, having considered them in light of our framework, submissions on the IM review so far, and all other relevant information before us, we do not propose changing.

**Review of existing decisions relating to the content of CPP applications**

**Price path information**

|   |   |
|---|---|
| <b>Decision CP01</b><br><b>Price path information</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>            | EDB/GDB/GTB   |

*We propose an implementation change for this decision*

- 424. We do not propose to change to this decision or the way it is implemented.
- 425. We have clarified in this paper that our interpretation of the existing IMs is that the quantitative information required in the spreadsheets and repeated in narrative can be provided in the spreadsheets with appropriate cross referencing to the narrative.
- 426. Further details are set out in Chapter 5 – Information requirements.

**Expenditure information – qualitative**

|  |  |
|--|--|
| <b>Decision CP02</b><br><b>Expenditure information – qualitative</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>                           | EDB/GDB/GTB  |

*We propose an implementation change for this decision*

- 427. We propose an implementation change to this decision as it applies to EDBs. We have yet to consider whether a change is required for GPBs at this stage.<sup>151</sup>

<sup>151</sup> 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 40.

428. We propose to:

428.1 better align the information requirements set out in Schedule D of the IMs with Attachment A of the information disclosure Determination; and

428.2 remove some of the complexity created by the level of disaggregation.

429. 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.

**Expenditure information – quantitative**

|   |   |
|---|---|
| <b>Decision CP03</b><br><b>Expenditure information – quantitative</b> | <b>Original 2010 decision</b><br>CPP application must include information on capex, opex, demand and network in quantitative form.<br><br>This information is quantitative and must be provided in spreadsheet format contained in schedule E.<br><br>See section 9.5 and Appendix K3 of 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                            | EDB/GDB/GTB   |

*We propose an implementation change for this decision*

430. We propose an implementation change to this decision as it applies to EDBs. We have yet to consider whether a change is required for GPBs at this stage. <sup>152</sup>

431. We propose to:

431.1 align the capex and opex categories in the CPP requirements IMs with those defined in the ID Determination;

431.2 align the CPP information requirements with information disclosure requirements, by asking for forecasts in real and nominal terms and ask for demand forecasts in tabular form;

431.3 align the CPP information requirements with information disclosure requirements, by removing the assignment of projects and programmes to service categories;

431.4 remove the requirement to disaggregate opex into controllable and uncontrollable categories; and

<sup>152</sup> 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 40.

431.5 refine the requirements for forecasts on related party transactions so these will be at an aggregate level rather than by project.

432. 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**

|   |   |
|---|---|
| <b>Decision CP04</b><br><b>Period of information required</b> | <b>Original 2010 decision</b><br>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.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                    | EDB/GDB/GTB   |

*We are not proposing any changes to this decision*

433. We do not propose any change to this decision or the way it is implemented.

**Detail on material projects and programmes**

|   |  |
|---|--|
| <b>Decision CP05</b><br><b>Detail on material projects and programmes</b> | <b>Original 2010 decision</b><br>CPP application must include detailed information on the most material projects and programmes relating to the CPP proposal.<br><br>See section 9.5 and Appendix K3 of 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                                | EDB/GDB/GTB  |

*We propose an implementation change for this decision*

434. We propose an implementation change for this decision as it applies to EDBs and GPBs.

435. We propose to allow a level of flexibility in the number of identified projects for which more in depth information is required, forming part of the CPP proposal (these projects are then able to be verified in greater detailed). The verifier will judge on a case by case basis the appropriate number of “identified projects”.

436. We consider that these changes 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 projects in a CPP proposal.

437. Further details are set out in Chapter 6 – Verification requirements.



**Information relevant to prices**

|   |  |
|---|--|
| <b>Decision CP06</b><br><b>Information relevant to prices</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>                    | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

438. We do not propose any change to this decision or the way it is implemented.
439. We note that we are 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**

|  |  |
|--|--|
| <b>Decision CP07</b><br><b>Verification report</b> | <p><b>Original 2010 decision</b></p> <p>CPP application must include a verification report, all information provided to the verifier, and the verifier's certificate of approval.</p> <p>See section 9.6 and Appendix K4 of 2010 EDB-GPB IM reasons paper:</p> <p><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>         | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

440. We do not propose any change to this decision or the way it is implemented.
441. We note that we have proposed changes to the verification process, set out in below in CP21.

**Audit and assurance**

|   |  |
|---|--|
| <b>Decision CP08</b><br><b>Audit and assurance report</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>                | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

442. We do not propose any change to this decision or the way it is implemented.

443. We note that we have proposed changes to the audit process, set out in below in CP22.

**Consumer consultation**

|   |  |
|---|--|
| <b>Decision CP09</b><br><b>Consumer consultation evidence</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>                    | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

444. We do not propose any change to this decision or the way it is implemented.

445. We note that we have proposed changes to the consumer consultation process, set out in below in CP23.

**Certification**

|  |  |
|--|--|
| <b>Decision CP10</b><br><b>Certification</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>   | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

- 446. We do not propose any change to this decision or the way it is implemented.
- 447. We note that we have proposed changes to the certification process, set out in below in CP24.

**Modifications and exemptions of CPP application requirements**

|  |   |
|--|---|
| <b>Decision CP11</b><br><b>Modification or exemption of CPP application requirements (2015 decision)</b> | <b>Original 2015 decision (as part of IM review fast track)</b><br>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.<br><br><a href="#">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)</a> |
| <b>This decision applies to (sectors):</b>   | EDB/GDB/GTB   |

*We are not proposing any changes to this decision*

- 448. We do not propose any change to this decision or the way it is implemented.

**Information regarding quality**

|  |   |
|--|---|
| <b>Decision CP12</b><br><b>Information regarding quality</b> | <b>Original 2010 decision</b><br>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).<br><br>See section 9.3 and Appendix K2 of 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                   | EDB   |

*We are not proposing any changes to this decision*

- 449. We do not propose change to this decision or the way it is implemented.

**Cost allocation information**

|  |  |
|--|--|
| <b>Decision CP13</b><br><b>Cost allocation information</b> | <b>Original 2010 decision</b><br>CPP application must include information on the allocation of operating costs and RAB values.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                 | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

450. We do not propose any change to this decision or the way it is implemented.

**Asset valuation information**

|  |  |
|--|--|
| <b>Decision CP14</b><br><b>Asset valuation information</b> | <b>Original 2010 decision</b><br>CPP application must include information on RAB roll forward, depreciation, revaluations, commissioned assets, asset disposals, and works under construction.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                 | EDB/GDB/GTB  |

*We propose implementation and policy changes for this decision*

451. We propose changes in policy and implementation as it applies to EDBs.

452. We propose to:

452.1 group projects and programmes by asset categories and simplify the calculation of depreciation for forecast commissioned assets; and

452.2 amend the depreciation information requirements to reflect that depreciation is calculated using asset expenditure category which is a more aggregated category than asset types.

453. 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**

|  |  |
|--|--|
| <b>Decision CP15</b><br><b>Tax information</b> | <p><b>Original 2010 decision</b></p> <p>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.</p> <p><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>     | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

454. We do not propose any change to this decision or the way it is implemented.

**Information relevant to alternative methodologies**

|  |   |
|--|---|
| <b>Decision CP16</b><br><b>Information relevant to alternative methodologies</b> | <p><b>Original 2015 decision (as part of IM review fast track)</b></p> <p>CPP application must include information demonstrating alternative methodologies have equivalent effect.</p> <p><a href="#">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)</a></p> |
| <b>This decision applies to (sectors):</b>                                       | EDB/GDB/GTB   |

*We are not proposing any changes to this decision*

455. We do not propose any change to this decision or the way it is implemented.

**Cost of capital information**

|  |  |
|--|--|
| <b>Decision CP17</b><br><b>Cost of capital information</b> | <p><b>Original 2010 decision</b></p> <p>CPP application must include information regarding WACC.</p> <p><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>                 | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

456. We do not propose any change to this decision or the way it is implemented.

**Gas pricing methodology to be submitted with CPP proposals – GDBs and GTBs**

|  |   |
|--|---|
| <b>Decision CP18</b><br><b>Gas pricing methodology to be submitted with CPP proposal – GDBs and GTBs</b> | <b>Original 2010 decision</b><br>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.<br><br>See section 9.3 and Appendix I of 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>   | GDB/GTB   |

*We are not proposing any changes to this decision*

457. We do not propose any change to this decision or the way it is implemented.

## Review of existing decisions relating to processes for CPP proposals

### General matters

|  |  |
|--|--|
| <b>Decision CP19</b><br><b>General matters</b> | <b>Original 2010 decision</b><br>A supplier may seek a CPP by submitting a CPP application that complies with the requirements specified in the IMs.<br>CPP application must include the reasons for the proposal, information on priority of the proposal, and duration of the CPP period sought.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>     | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

458. We do not propose any change to this decision or the way it is implemented.

### Quality-only CPP

|   |  |
|---|--|
| <b>Decision CP20</b><br><b>Quality-only CPP</b> | <b>Original 2010 decision</b><br>A supplier may seek a quality-only CPP which doesn't require verification. The quality only CPP must be reviewed by an independent engineer (EDBs only).<br><br>See section 9 and Appendix K2 of the 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>      | EDB  |

*We propose changes in policy and implementation*

459. We propose a policy change to remove the option for EDBs to apply for a quality-only CPP.

460. 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.

461. 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**

|  |  |
|--|--|
| <b>Decision CP21</b><br><br><b>Verification requirements</b> | <b>Original 2010 decision</b><br>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.<br><br>See section 9.6 and Appendix K4 of 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This original decision applies to (sectors):</b>          | EDB/GDB/GTB  |

*We propose implementation changes for this decision*

- 462. We propose implementation changes for this decision as it applies to EDBs and GPBs.
- 463. Our proposed changes aim to clarify the role of the verifier, improve the verification process and allow a degree of flexibility in the verification process.
- 464. We propose to:
  - 464.1 add 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;
  - 464.2 require the CPP applicant to provide us with a high-level summary of their application by the time the verifier is engaged;
  - 464.3 amend 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;
  - 464.4 allow the verifier greater flexibility in the number of identified projects that are selected;
  - 464.5 remove the obligation for the verifier to consider non-standard depreciation; and
  - 464.6 remove 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).
- 465. Further details are set out in Chapter 6 – Verification requirements.



**Audit and assurance requirements**

|   |  |
|---|--|
| <b>Decision CP22</b><br><b>Audit and assurance requirements</b> | <b>Original 2010 decision</b><br>An auditor must be engaged and the CPP proposal must be audited.<br><br>See section 9.6 of 2010 EDB-GPB IM reasons paper:<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This original decision applies to (sectors):</b>             | EDB/GDB/GTB  |

*We propose an implementation change for this decision*

- 466. We propose an implementation change to this decision as it applies to EDBs and GPBs.
- 467. Our proposed changes would 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.
- 468. We propose to:
  - 468.1 modify the audit requirements to differentiate the role of the auditor with respect to historical financial information and forecast financial information; and
  - 468.2 clarify that the auditor needs to provide a report as part of the audit.
- 469. Further details are set out in Chapter 7 – Audit requirements.

**Consumer consultation requirements**

|   |   |
|---|---|
| <b>Decision CP23</b><br><b>Consumer consultation requirements</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This original decision applies to (sectors):</b>               | EDB/GDB/GTB   |

*We propose an implementation change for this decision*

- 470. We propose an implementation change for this decision as it applies to EDB and GPBs.
- 471. We propose to:
  - 471.1 require CPP applicants to notify consumers of the price and quality impact of any alternative investment options in their CPP proposal;
  - 471.2 require the verifier to report on the extent and effectiveness of the applicant’s consultation; and
  - 471.3 require the applicant to provide us with its planned consultation strategy early in the CPP process
- 472. Further details are set out in Chapter 8 – Consumer consultation requirements.

**Certification requirements**

|   |  |
|---|--|
| <b>Decision CP24</b><br><b>Certification requirements</b> | <p><b>Original 2010 decision</b></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><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This original decision applies to (sectors):</b>       | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

- 473. We do not propose any change to this decision or the way it is implemented.

**Reconsideration of a CPP**

|   |  |
|---|--|
| <b>Decision CP25</b><br><b>Reconsideration of a CPP</b> | <p><b>Original 2010 decision</b></p> <p>CPP may be re-opened following catastrophic events, change events, errors, and conditions for reconsideration, and process for amending price-quality path after reconsideration.</p> <p>The CPP may also be reopened to provide for contingent or unforeseen projects for Gas Transmission businesses.</p> <p>See section 8.4 of 2010 EDB-GPB IM reasons paper:</p> <p><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <b>This decision applies to (sectors):</b>              | EDB/GDB/GTB  |

*We propose an implementation change for this decision*

- 474. We have proposed to expand the range of circumstances under which we may reconsider a CPP:
  - 474.1 Expanding the existing error provisions.
  - 474.2 Introducing a major transactions reopener.
  - 474.3 Introducing a reopener so we can align the DPP and CPP.<sup>153</sup>
  - 474.4 Introducing a reopener for where the path becomes unworkable.
  - 474.5 Introducing contingent and unforeseen project reopeners for EDBs and GDBs.
- 475. These changes are set out, along with the changes to the DPP reconsideration provisions, in the Report on the IM review.<sup>154</sup>

---

<sup>153</sup> The reasons for this reopener are explained in Topic paper 4 – Cost of capital issues.

<sup>154</sup> We expect to publish the Report on the IM Review on 22 June 2016. Our proposal to introduce contingent and unforeseen project reopeners for EDBs and GDBs is also explained in Chapter 3 - Improvements to the way the DPP and CPP work together.

**Modification or exemption of CPP application requirements**

|   |   |
|---|---|
| <b>CP26</b><br><b>Modification or exemption of CPP application requirements (2015 decision)</b> | <b>Original 2015 decision (as part of IM review fast track)</b><br>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.<br><br><a href="#">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)</a> |
| <b>This decision applies to (sectors):</b>  | EDB/ GDB/GTB  |

*We propose an implementation change for this decision*

- 476. We propose a change to the way this decision is implemented for EDBs.
- 477. We propose to make the scale of a supplier an explicit consideration when deciding on requests for modifications and exemptions.
- 478. Further details are in the Chapters 4 – Evaluation of CPP proposals; and 5 – information requirements.

**Review of existing decisions relating to processes for assessing and evaluating CPP proposals**

**Evaluation criteria**

|   |   |
|---|---|
| <p><b>Decision CP27</b><br/> <b>Evaluation criteria</b></p> | <p><b>Original 2010 decision</b></p> <p>Commission must assess all CPP proposals against the evaluation criteria specified in the IMs.</p> <p>See section 9.4 of 2010 EDB-GPB IM reasons paper:</p> <p><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <p><b>This decision applies to (sectors):</b></p>           | <p>EDB/GDB/GTB</p>  |

*We are not proposing any changes to this decision*

479. We do not propose any change to this decision or the way it is implemented.

480. Further details set out in Chapter 4 – Evaluation of proposals.

**Review of existing decisions relating to processes for determining a CPP**

**Determination of annual allowable revenues**

|   |   |
|---|---|
| <p><b>Decision CP28</b><br/><b>Determination of annual allowable revenues</b></p> | <p><b>Original 2010 decision</b></p> <p>Allowable revenue amounts by reference to building blocks components and a ‘CPI-X’ smoothing requirement.</p> <p>see section 9.3 and Appendix K of 2010 EDB-GPB IM reasons paper:</p> <p><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a></p> |
| <p><b>This original decision applies to (sectors):</b></p>                        | <p>EDB/GDB/GTB</p>  |

*We propose implementation changes for this decision*

481. We propose to amend the GDB CPP IMs to codify the approach to claw-back that we used in making Orion’s 2013 CPP determination.<sup>155</sup> In particular, we propose:
- 481.1 reflecting that the claw-back can be for historical over-recovery and under-recovery of revenue; and
  - 481.2 that the present value of claw-back amounts would be used if adjusting for claw-back in the BBAR calculation.
482. In addition, to give effect to the proposed change from a lagged revenue cap to a pure revenue cap for GTBs,<sup>156</sup> we propose removing references to the ΔQ factor in the revenue-setting formula in the GTB CPP IMs.

<sup>155</sup> 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.

<sup>156</sup> 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); and the Report on the IM review, under existing decision SPO2.

**Cost allocation and asset valuation**

|  |  |
|--|--|
| <b>Decision CP29</b><br><b>Cost allocation and asset valuation</b> | <b>Original 2010 decision</b><br>Allocation of forecast operating costs and calculation of rolled-forward asset values must largely follow rules applying to information disclosure.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>                         | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

483. We do not propose any changes to this existing decision in this paper. However, we note that this existing decision would be affected by changes we are proposing to existing decisions on cost allocation and asset valuation. These changes are discussed in the Report on the IM review at Chapter 4 – Cost allocation decisions we propose changing, and Chapter 5 – Asset valuation changes we propose changing.

**Treatment of taxation**

|  |   |
|--|---|
| <b>Decision CP30</b><br><b>Treatment of taxation</b> | <b>Original 2010 decision</b><br>Regulatory tax allowance is calculated using the modified deferred tax method for EDBs and GDBs and a tax payable method for GTBs.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>           | EDB/GDB/GTB   |

*We are not proposing any changes to this decision*

484. We do not propose any changes to this existing decision in this paper. However, we note that this existing decision would be affected by changes we are proposing to existing decisions on taxation. These changes are discussed in the Report on the IM review at Chapter 6 – Treatment of taxation decisions we propose changing.

**Cost of capital**

|  |   |
|--|---|
| <b>Decision CP31</b><br><b>Cost of capital</b> | <b>Original 2010 decision</b><br>Method of determining cost of capital uses the simplified Brennan-Lally model.<br><br><a href="#">Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper (22 December 2010)</a> |
| <b>This decision applies to (sectors):</b>     | EDB/GDB/GTB   |

*We are not proposing any changes to this decision*

485. We do not propose any changes to this existing decision in this paper. However, we note that this existing decision would be affected by changes we are proposing to existing decisions on the cost of capital. These changes are discussed in the Report on the IM review at Chapter 7 – Cost of capital decisions we propose changing.

**Alternative methodologies with equivalent effect**

|   |  |
|---|--|
| <b>Decision CP32</b><br><b>Alternative methodologies with equivalent effect (2015 decision)</b> | <b>Original 2015 decision (as part of IM review fast track)</b><br>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.<br><br><a href="#">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)</a> |
| <b>This decision applies to (sectors):</b>  | EDB/GDB/GTB  |

*We are not proposing any changes to this decision*

486. We do not propose to change to this decision or the way it is implemented.





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| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 27                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input Methodologies Determination 2012</i> [2012] NZCC 28                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010</i> (Decision 709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies Determination 2012</i> [2012] NZCC 17  |

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 have identified within this topic area;
    - X1.2.2 our proposed solutions to these problems; and
    - X1.2.3 the reasons for our proposed solutions; and
  - X1.3 explain how we have taken stakeholders' submissions into account in considering the above, in identifying problems for the IM review, and in reaching our proposed solutions to problems identified within this topic.
- X2. All of the proposed 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 we propose that the changes to the cost allocation IM presented in Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) would also apply to them;
  - X3.2 gas distribution businesses (**GDBs**) who may consider they face an increased risk of partial capital recovery, although potentially for different reasons than EDBs (discussed in Chapter 3 – Partial capital recovery);
  - X3.3 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
  - X3.4 other parties interested in emerging technologies, such as Transpower, gas transmission businesses, 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 space currently occupied by EDBs and electricity retailers), 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 currently consider that major 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 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. However, as a precautionary measure, we propose to allow EDBs to recover the cost of assets more quickly. In particular, we propose to offer EDBs the option to apply for a net present value (**NPV**) neutral shortening of their remaining asset lives. This would be capped at a 15% reduction in remaining average asset lives as compared to the situation at the time of the 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 better confidence to invest as well as avoiding subsequent "regulatory catch up", which could lead to large future price shocks. We have heard very little on the risk of partial capital recovery from GPBs and would welcome further submissions on this point.
- X11. Some stakeholders (mainly electricity retailers) expressed significant concern with electricity distributors entering unregulated energy markets. Their key concern is 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, matters of industry structure are more appropriately handled by policy makers. The current 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 current cost allocation IM is largely fit for purpose, though we have proposed changes to tighten some aspects of this IM and to gather further information which will be used in informing future monitoring and analysis. These changes are noted in Table X1 below.
- X13. Table X1 summarises the areas in this topic 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 proposed changes in relation to this topic**

| Proposed change   | Outcomes of the proposed change  | Chapter   |
|---|--|---|
| <p>We propose to amend the IMs to allow EDBs, at the time of the default price-quality path (<b>DPP</b>) reset, to apply for a discretionary NPV neutral shortening of their remaining asset lives. This would be 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 proposed 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 (<b>FCM</b>) if (and when) the downside risk of partial capital recovery becomes more likely.</p>  | <p>This proposed change is discussed in Chapter 3: Risk of partial capital recovery.</p>                                    |
| <p>We propose to amend the IMs to lower the revenue materiality threshold for EDBs or GPBs deciding the cost allocation approach from the current 20% to 10%. The objective is to ensure that when EDBs or GPBs use the avoidable cost allocation methodology (<b>ACAM</b>), this does not result in increases to regulated revenue greater than 1-2%, compared to the use of the accounting-based allocation approach (<b>ABAA</b>).</p> | <p>This proposed change would continue to 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 proposed change is discussed in Chapter 4: Regulatory treatment of revenues and costs from emerging technology.</p> |
| <p>We propose to strengthen the requirement in the IMs to make it clear that the use of proxy cost allocators must be justified when applying ABAA. We also propose to 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 proposed change will put greater onus on suppliers to better demonstrate that:</p> <ul style="list-style-type: none"> <li>• a causal relationship cannot be established; and</li> <li>• the proxy cost allocator selected is appropriate.</li> </ul> <p>We consider this would better give 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 proposed 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 draft decisions papers on the IM review. As part of the package of papers, we have also published:

X14.1 a summary paper of our draft decisions;

X14.2 an introduction and process paper which provides an explanation of how the papers in our draft decisions package fit together; and

X14.3 a framework paper which explains the framework we have applied in reaching our draft decisions on the IM review.

**Invitation to make submissions**

X15. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.

X16. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)

X17. Please clearly indicate within your submission which aspects of this paper it relates to.

## 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, the Commission's 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 have identified within this topic area;
    - 1.2.2 our proposed solutions to these problems; and
    - 1.2.3 the reasons for our proposed solutions; and
  - 1.3 explain how we have taken stakeholders' submissions into account in considering the above, in identifying problems for the IM review, and in reaching our proposed solutions to problems identified within this topic.

### Where this paper fits in to our package of draft decisions papers

2. This topic paper forms part of our package of draft 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 draft decision package.<sup>1</sup>
3. This paper explains our proposed solutions to problems identified within the topic of emerging technology.
4. To the extent our proposed solutions involve changes to the IMs, this paper identifies how we propose to change our existing IM decisions to account for our proposed solutions to problems within this topic area.<sup>2</sup> The report on the IM review then collates our proposed changes to the existing IM decisions.<sup>3</sup>
5. Our proposed drafting changes to the IMs, including any resulting from this topic area, are shown in the draft determinations, which we expect to publish on 22 June 2016.

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<sup>1</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).

<sup>2</sup> To the extent our proposed 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).

<sup>3</sup> We expect to publish the Report on the review on 22 June 2016.

6. The framework we have applied in reaching our draft decisions on the IM review is set out in a separate paper, published alongside this paper.<sup>4</sup> The framework paper explains that we have only proposed changing the current IMs where this appears 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 consider need addressing 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.
10. Each of those chapters describes the problems we have identified and our proposed solution(s), and explains how we have taken stakeholders’ submissions into account in shaping our problem definitions and our proposed solutions.
11. We also include two attachments to the paper:
  - 11.1 Attachment A contains analysis on whether the risk of partial capital recovery is likely to be a significant concern in the short term; and

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<sup>4</sup> Commerce Commission “Input methodologies review draft decisions: Framework for the IM review” (16 June 2016).

- 11.2 Attachment B contains analysis supporting the proposed change to the cost allocation IM materiality thresholds discussed in Chapter 4.

### **Introduction to this topic**

12. In our problem definition paper,<sup>5</sup> we described our initial views on the future impact of emerging technologies in the energy sector topic.
13. 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.
14. The potential problem areas we have considered within this topic are as follows:<sup>6</sup>
- 14.1 risk of partial capital recovery – increasing deployment of emerging technologies potentially changes the risk to suppliers’ ability to fully recover their invested capital;
- 14.2 regulatory treatment of revenues and costs from emerging technologies (including cost allocation):
- 14.2.1 revenue materiality threshold – the application of this threshold is no longer delivering the policy intent of the cost allocation IM as well as it could, when applied by some suppliers; and
- 14.2.2 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
- 14.3 efficient investment incentives:
- 14.3.1 the benefits of investment in emerging technologies may not accrue until future regulatory periods;
- 14.3.2 the benefits of investment in some emerging technologies are split along the value chain, which may result in under-investment; and
- 14.3.3 incentives to innovate may need to be stronger.

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<sup>5</sup> Commerce Commission “Input methodologies review invitation to contribute to problem definition” (16 June 2015).

<sup>6</sup> As we discuss in the following chapters, we consider that some of these amount to problems, while others do not.

**Who do the proposed solutions described within this paper apply to?**

15. All of the proposed solutions and changes to the IMs described within this paper apply to electricity distribution businesses (**EDBs**).
16. This paper may also be of particular interest to:<sup>7</sup>
  - 16.1 Gas pipeline businesses (**GPBs**) as we propose that the changes to the cost allocation IM presented in Chapter 4 (Regulatory treatment of revenues and costs from emerging technologies) would also apply to them.
  - 16.2 Gas distribution businesses (**GDBs**) who may consider they face an increased risk of partial capital recovery, although potentially for different reasons than EDBs (discussed in Chapter 3 – Partial capital recovery).
  - 16.3 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.
  - 16.4 Other parties interested in emerging technologies, such as Transpower, gas transmission businesses, and consumer groups.

**Invitation to make submissions**

17. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
18. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
19. Please clearly indicate within your submission which aspects of this paper it relates to.
20. The Introduction and process paper contains further details about the submissions process. This includes:<sup>8</sup>
  - 20.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;

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<sup>7</sup> 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.

<sup>8</sup> Commerce Commission “Input methodologies review draft decisions: Introduction and process paper” (16 June 2016), chapter 5.

- 20.2 providing guidance on requesting an extension to the submission timeframes;
- 20.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
- 20.4 providing guidance on making confidential submissions.

## Chapter 2: The changing energy landscape

### Purpose of this chapter

21. This chapter provides the context for the specific problems we identified in this topic area and our proposed solutions in response to those problems. Since stakeholders engaged in business or as consumers are best placed to understand their business and interests, we draw heavily on the points they have raised during the IM review process to date. Further, our relative expertise is in economic regulation, not predicting the precise impact of developing and future technologies, and we seek the perspective of others on how the electricity distribution network of the future will differ from today's.

### Structure of this chapter

22. 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?

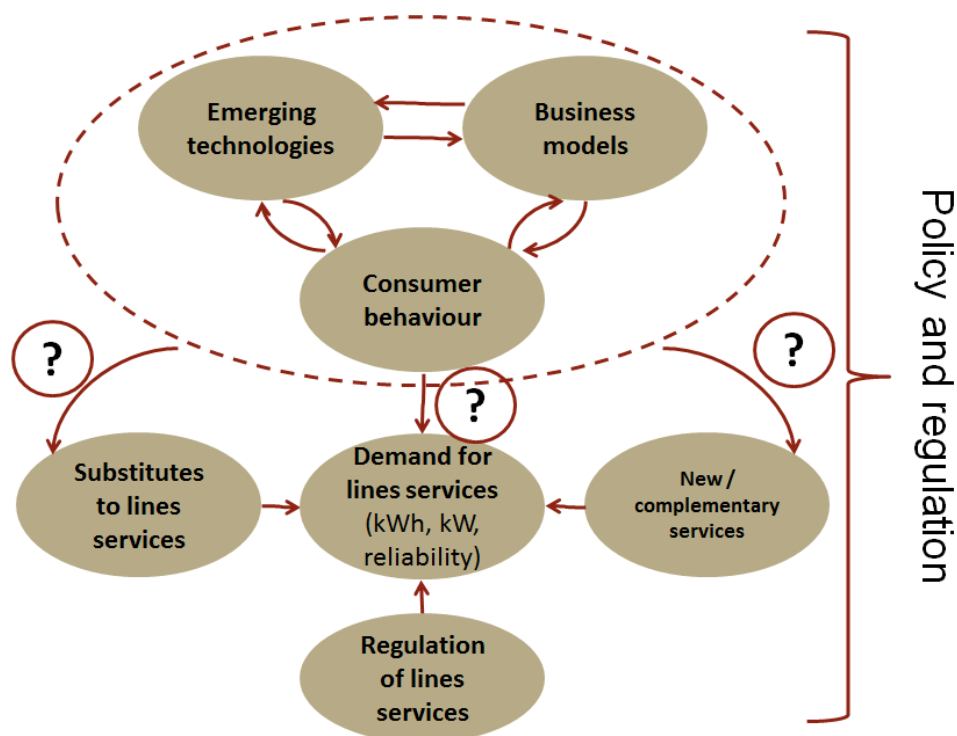
23. In reviewing the IMs, it is important to consider the wider environment within which we apply them, as the rules were not created and are not applied in a vacuum.
24. There is an exciting range of developing and emerging technologies which have the potential to shape the electricity networks of tomorrow. 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.<sup>9</sup> 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.
25. 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).

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<sup>9</sup> MBE's Smart Grid Forum defines 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>.

26. 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.

27. 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 that 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.<sup>10</sup> 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.<sup>11</sup>

<sup>10</sup> 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](http://www.rmi.org/electricity_grid_defection).

<sup>11</sup> For example, p2power is a retailer that allows for peer to peer trading of electricity. See: [www.p2power.co.nz](http://www.p2power.co.nz).



28. Several stakeholders recognised the various interrelationships between the different regulatory agencies and the wider environment within which we apply the IMs. For example:

28.1 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.<sup>12</sup>

28.2 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.<sup>13</sup>

**What is changing; what is not?**

29. There is a wide range of views about the evolving nature of the energy system and the potential impacts on electricity and gas networks.
30. 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.
31. 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 three 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).

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<sup>12</sup> Orion's submission on the problem definition paper “Submission on the IM review” (21 August 2015), para 39.

<sup>13</sup> Vector's submission “Input methodologies review – Invitation to contribute to problem definition” (21 August 2015), p. 11.

32. 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 on the energy sector. Those representatives noted that the distribution network of the future will need:<sup>14</sup>
- 32.1 to be consumer centric – providing energy choices and options to consumers;
  - 32.2 to facilitate customer and third party transactions (open access), supplementing locally generated electricity, and providing supply reliability and resilience; and
  - 32.3 the network operator to ensure:
    - 32.3.1 the safe and reliable operation of the network;
    - 32.3.2 systems stability, power quality and adequacy of supply; and
    - 32.3.3 the integrity of network assets.
33. So what in the environment is changing? Below we present a selection of stakeholder views.

*Stakeholders' views vary widely*

34. 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.
- 34.1 In its presentation to our stakeholder forum, the Smart Grid Forum identified four key changes for the providers of electricity lines services.<sup>15</sup>
    - 34.1.1 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;
    - 34.1.2 system instability from variable generation, leading to power quality issues, and potential frequency excursions;

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<sup>14</sup> 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.

<sup>15</sup> 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.

34.1.3 competing network requirements with greatly varying uptake rates for new technology, but safety and reliability remaining paramount; and

34.1.4 a need to better understand consumers and the differences between consumers.<sup>16</sup>

34.2 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.<sup>17</sup>

34.3 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.

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<sup>16</sup> We note that many of these changes are outside the scope of the IMs, and this review of the IMs.

<sup>17</sup> 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.

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.<sup>18</sup>

35. Some stakeholders consider emerging technology could have a significant impact on the electricity industry. For example:

35.1 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.”<sup>19</sup>

35.2 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.<sup>20</sup>

35.3 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.<sup>21</sup>

36. 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:

36.1 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.<sup>22</sup>

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<sup>18</sup> Vector's submission “Input methodologies review – Invitation to contribute to problem definition” (21 August 2015), p. 4.

<sup>19</sup> Solarcity's submission on the problem definition paper “Submission to Commerce Commission – Discussion paper on input methodology review” (21 August 2015), p. 2.

<sup>20</sup> Vector's submission “Input methodologies review – Invitation to contribute to problem definition” (21 August 2015), p. 7.

<sup>21</sup> 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.

36.2 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.<sup>23</sup>

36.3 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.<sup>24</sup>

37. 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:

37.1 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.<sup>25</sup>

37.2 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.<sup>26</sup>

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<sup>22</sup> Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 41.

<sup>23</sup> SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), p. 4.

<sup>24</sup> ENA's submission on the problem definition paper "Response to the Commerce Commission's input methodologies review paper" (21 August 2015), p. 23.

<sup>25</sup> 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.

<sup>26</sup> SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), p. 4.

38. Some consider the impact is imminent. For example:

38.1 SEANZ submitted:

The prevalent view is that these consumer-led technologies represent massive imminent disruption to the existing supply industry business models.<sup>27</sup>

38.2 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.<sup>28</sup>

39. 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.

39.1 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.<sup>29</sup>

39.2 Powerco considered:

We agree that emerging technologies have the capacity to dramatically alter the commercial landscape for EDBs. This may require consequential amendments to the IMs. However, the nature of the likely implications of new technologies for the market, and the timing of those developments, is currently unclear. Consequently, while it is appropriate for the Commission to consider these issues, we think it will prove inadvisable to make any substantial amendments, in response to changing technologies, as part of this IM review cycle.<sup>30</sup>

39.3 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.<sup>31</sup>

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<sup>27</sup> SEANZ's submission "Re: Input methodologies review – Problem definition" (21 August 2015), p. 3.

<sup>28</sup> Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), p. 2.

<sup>29</sup> Orion's submission on the problem definition paper "Submission on the IM review" (21 August 2015), para 38.

<sup>30</sup> Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), p. 4.

<sup>31</sup> Smart Grid Forum's submission "Input methodologies review – Invitation to contribute to problem definition" (18 July 2015), p. 2.

*The Commission's perspective*

40. 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.
41. The two key areas we identified are:
  - 41.1 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
  - 41.2 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.
42. As mentioned above, although some aspects of the environment in which the IMs were set are changing, our purpose remains the same.
43. We discuss this in more detail below.

**Our role as economic regulator**

44. As mentioned, 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.
  - 44.1 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.
  - 44.2 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.
45. In order to progress the above areas, we purposefully 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.

46. In 2015 we published two papers,<sup>32</sup> held an open forum,<sup>33</sup> and an industry workshop.<sup>34</sup> We also engaged publicly and bilaterally with several key stakeholders, including the Electricity Authority, Ministry of Business, Innovation and Employment (**MBIE**), Treasury and the Smart Grid Forum.<sup>35</sup>
47. We have found that the process so far has been valuable and consider that we have made good progress in the two areas.
- 47.1 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.
- 47.2 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, Electricity Retailers' Association of New Zealand (**ERANZ**),<sup>36</sup> SEANZ,<sup>37</sup> John Irving,<sup>38</sup> Molly Melhuish,<sup>39</sup> Bryan Leyland,<sup>40</sup> 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.<sup>41</sup>

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<sup>32</sup> 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).

<sup>33</sup> See: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/input-methodologies-review-forum-2/>.

<sup>34</sup> See: <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/emerging-technology/>.

<sup>35</sup> 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).

<sup>36</sup> ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016).

<sup>37</sup> 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).

<sup>38</sup> John Irving's submission on the problem definition paper "Topic 4: The future impact of emerging technologies in the energy sector" (13 July 2015).

<sup>39</sup> 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).

<sup>40</sup> Bryan Leyland "Submission on problem definition – Topic 4: The future impact of emerging technologies in the energy sector (Rev A)" (21 August 2015).

<sup>41</sup> 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](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 page 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>).



48. We find useful to emphasise the following two key points from the process to date.

48.1 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.

48.2 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 ones include:

48.2.1 Distribution pricing: EDB 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;

48.2.2 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.<sup>42</sup> Parliament has ultimate decision-making power should more fundamental changes to industry structure be deemed appropriate;

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<sup>42</sup> 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).

48.2.3 Boundaries of regulation and competition: more fundamentally, if new technologies erode the natural monopolistic characteristics of electricity lines services (or gas pipeline services),<sup>43</sup> 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.

49. 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.<sup>44</sup> It does this through market design, overseeing market operations, and monitoring and enforcing compliance with market rules.<sup>45</sup>
50. 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.
51. 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.

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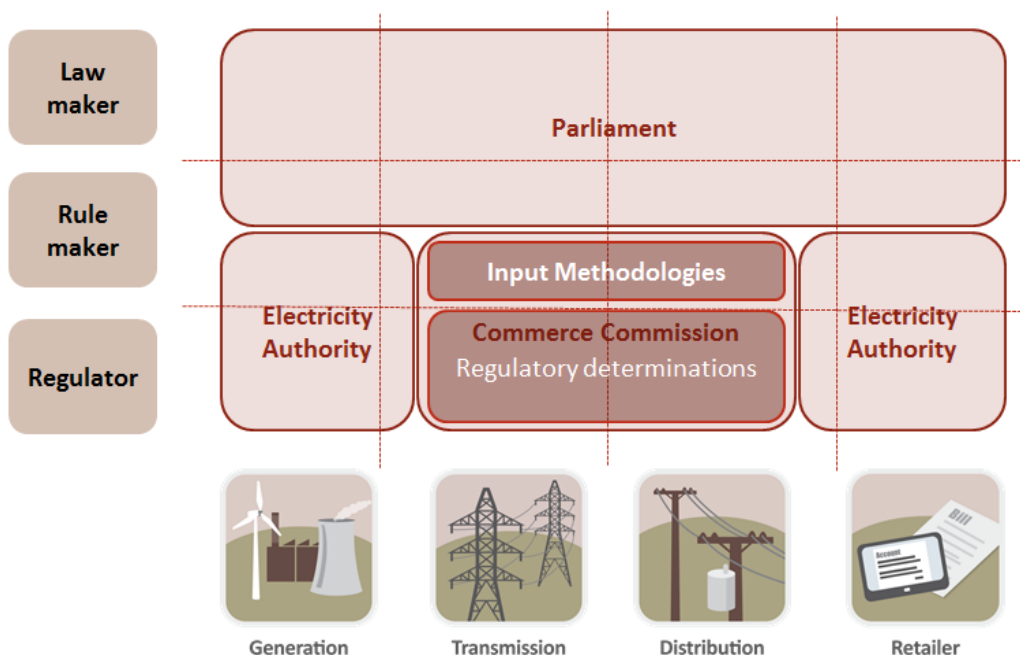
<sup>43</sup> We note that Australia's National Competition Council recently determined that that "light regulation" (ie, based on information disclosure and negotiate arbitrate arrangements) be applied to the services provided by Queensland Gas Distribution Network (QGDN). While considering that QGDN 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>.

<sup>44</sup> See: <http://www.ea.govt.nz/>.

<sup>45</sup> See: <http://www.comcom.govt.nz/dmsdocument/9673>.

**Figure 2: The regulatory context for input methodologies in the electricity sector**



**The role of the IMs in the emerging technology context**

- 52. 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.
- 53. In considering changes to the IMs, we also want to future proof them to the extent possible, given the information available to us today.
- 54. 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.
- 55. Regarding the relatively narrow remit of the IMs, we have identified the following key areas of focus for the IM review:
  - 55.1 risk of partial capital recovery (Chapter 3);
  - 55.2 regulatory treatment of revenues and costs associated with emerging technology (Chapter 4); and
  - 55.3 efficient investment incentives (discussed below).

56. Chapter 4 starts by setting out the problems we have identified and our proposed solutions to these problems. Other relevant issues raised by stakeholders, in particular the concerns raised by electricity retailers and the Electricity Authority about the participating of EDBs in related competitive markets, and our perspectives on these issues, are included in the second half of the chapter.

#### **Efficient investment incentives**

57. Regarding incentives for EDBs to efficiently invest in emerging technologies, submitters raised the following three issues:
- 57.1 that the benefits of investment in emerging technologies may not accrue until future regulatory periods;
  - 57.2 that the benefits of investment in some emerging technologies are split along the value chain, which may result in under-investment; and
  - 57.3 that incentives to innovate may need to be stronger.

#### *The benefits of investment in emerging technologies may not accrue until future regulatory periods*

58. 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.<sup>46</sup> 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.
59. We generally plan to set an efficient expenditure allowance, which should be adequate on average. We expect EDBs to make trade-offs on the timing of expenditure within that allowance. We consider that there is no reason to assume that EDBs would not earn at least a normal return on their efficient expenditure allowance during the regulatory period. Investments made during the regulatory period, even if greater than the allowance, are added to the regulatory asset base (**RAB**) and start earning the weighted average cost of capital (**WACC**) from subsequent regulatory periods.

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<sup>46</sup> 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.

*The benefits of investment in emerging technologies are split along the value chain*

60. This concern is that EDBs may not make certain investments that are in the long-term interest of consumers.<sup>47</sup> 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.
61. We acknowledge that there may be transaction costs associated with coordination and contracting between parties. 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 are not convinced this issue warrants regulatory intervention via the IMs. There may be a case for regulatory intervention if the existence of a market failure can be demonstrated. The case would also have to be made that the IMs are the best regulatory tool for the intervention.<sup>48</sup>

*Incentives to innovate should be stronger*

62. Several submitters suggested that the IMs should include specific incentives for EDBs to invest in research and development in relation to emerging technologies.<sup>49</sup>
63. Some also noted that there is a natural incentive for EDBs to favour investment in known technologies.<sup>50</sup>
64. The Smart Grid Forum submitted “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”.<sup>51</sup>

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<sup>47</sup> 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), pages 6-7.

<sup>48</sup> 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](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).

<sup>49</sup> For example: Orion “Submission on emerging technology and the IM review” (4 February 2016), paras 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.

<sup>50</sup> 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.

<sup>51</sup> Smart Grid Forum “Emerging technology pre-workshop paper” (29 January 2016), p. 4.

65. We consider that our regime places adequate incentives on EDBs to innovate.
- 65.1 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).
- 65.2 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**).<sup>52</sup> 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.
66. We are not convinced 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.
67. However, we note the government does have a contestable fund for research and development (**R&D**) into which EDBs can bid to get innovation funding.<sup>53</sup> We consider that it may be inefficient to replicate the systems and processes needed to administer another funding scheme.
68. 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.

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<sup>52</sup> 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.

<sup>53</sup> See: <http://www.callaghaninnovation.govt.nz/grants>.

69. 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.<sup>54</sup>
- 69.1 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.
- 69.2 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.
- 69.3 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.
- 69.4 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.
- 69.5 The benefits of WEL Network's smart meter programme.
- 69.6 Northpower's efforts to encourage the roll-out of electric vehicles including its own extensive electric vehicle charging network.
- 69.7 Powerco's Basepower initiative for remote regions which has been deployed to ten sites to date.

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<sup>54</sup> 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>.

### **Chapter 3: Risk of partial capital recovery**

#### **Purpose of this chapter**

70. This chapter explains the risk of partial capital recovery problem, our proposed solution in respect of this problem, and our assessment of another potential solution.

#### **Structure of this chapter**

71. This chapter begins by defining the problem for EDBs and then setting out our proposed solution in respect of this problem. It then discusses another potential solution to this problem and why we are not proposing to adopt it. Finally, the chapter discusses implications for GDBs and seeks evidence on whether there is a problem relating to risk of partial capital recovery for that sector.

#### **Problem definition for electricity distribution businesses**

72. This section explains the problem definition for EDBs, including how it evolved through comments from submissions.
73. 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:
- 73.1 more consumers to generate and store their own electricity; and/or
  - 73.2 new competitors to enter the market and bypass distributors' networks.
74. 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 assess the potential change in this risk relative to what it was in 2010, when we first set the IMs.
75. The current IMs allow for assets to stay in the RAB even though they have ceased to be used (ie, become physically stranded).<sup>55</sup> Therefore, asset stranding is not the risk under consideration. Rather, it is the risk that the network becomes economically stranded. 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').<sup>56</sup> This is

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<sup>55</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras E11.1-E11.16.

<sup>56</sup> 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.



because prices to those remaining consumers would need to rise beyond their willingness to pay given their economic alternatives (or beyond politically acceptable levels).<sup>57</sup>

76. 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. If EDBs did not expect to recover their return of and on capital, it would be inconsistent with our principle of *ex-ante* financial capital maintenance (**FCM**).<sup>58</sup>

77. Our approach to the FCM principle is explained in the framework paper:<sup>59</sup>

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 to promote 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.

78. 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.

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<sup>57</sup> See, for example, Vector's submission "Input methodologies review – Invitation to contribute to problem definition" (21 August 2015), para 42.

<sup>58</sup> As discussed in our framework paper, released alongside this paper, the principle of real FCM consists in us providing 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 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 draft decisions: Framework for the IM review" (16 June 2016).

<sup>59</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016), pages 45-46.

79. This risk, which is linked to the potential for disconnections, is probably asymmetric for EDBs' regulated business.<sup>60</sup> This is because regulation limits EDBs' ability to grow revenue beyond forecast (especially so under a revenue cap), which constrains the upside to returns.<sup>61</sup> 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 99 to 103 below, where growing connections under a weighted average price cap could result in increased revenue, and potentially higher returns within the regulatory period.
80. 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:
- 80.1 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; and
- 80.2 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.<sup>62</sup>
81. We consider that the available evidence is inconclusive on whether the risk of partial capital recovery for EDBs regulated business has increased, and 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 present the main elements of the analysis that supports this conclusion in Attachment A.
82. 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.

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<sup>60</sup> 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.

<sup>61</sup> There are of course opportunities to grow returns by reducing costs.

<sup>62</sup> 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>).

83. 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.

**Proposed solution in respect of this problem**

84. This section describes our proposed 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 proposed solution*

85. We propose 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.
86. We propose that this adjustment be capped at a 15% reduction in remaining average asset lives as compared to the situation at the time of the DPP reset. EDBs may propose a smaller reduction, but the Commission would have final say over this quantum. We note that the IMs already allow EDBs to extend their asset lives.<sup>63</sup>
87. The proposed solution would change our existing 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. Our proposed change to the IMs would then take effect at the next reset for EDBs.
88. We present the details of this asset lives adjustment in the Report on the IM review.<sup>64</sup>

*Reasons for preferring this solution*

89. Our proposed 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 became more likely. In that sense, this is a precautionary measure consistent with the nature of the problem – one of increased uncertainty. 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 live adjustments now would risk increasing the materiality of any potential future adjustment to asset lives, if the risk became 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.

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<sup>63</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras E10.33-E10.35.

<sup>64</sup> See decision AV17 in the Report on the IM review (which we expect to publish on 22 June 2016).

90. At the same time, *ex-ante* our proposed 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)).<sup>65</sup> 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)).
91. Based on the 2015-2020 DPP model, and all other things 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.<sup>66</sup>
92. Because all other things are rarely equal, where an EDB applies an asset life adjustment prior to a DPP (or CPP) being set, we propose that 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).
93. Our proposed 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,<sup>67</sup> and have the strongest incentive, to manage this risk, for example through pricing (eg, to ensure uptake of solar PV is not inefficiently incentivised). Our proposal expands their ability to mitigate this risk. We would expect EDBs to act if they genuinely see this risk increasing.
94. Given the uncertainty associated with this risk, we are open to reassessing the regulatory settings in the future, should circumstances change materially. Our proposal should clearly signal our continued adherence to the principle of *ex-ante* FCM.<sup>68</sup>

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<sup>65</sup> 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 proposed solution makes this scenario less likely.

<sup>66</sup> This assumes that distribution costs account for about a third of the average consumer’s electricity bill.

<sup>67</sup> 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.

<sup>68</sup> Commerce Commission “Input methodologies review draft decisions: Framework for the IM review” (16 June 2016), p. 37.

### **We considered ceasing RAB indexation as an alternative solution to this problem**

95. We also considered ceasing to index EDB RABs for inflation, as Vector has questioned the principle of indexing the RAB in general.<sup>69</sup>
96. Similar to shortening asset lives, this would have the effect of bringing cost recovery forward. It would be consistent with the current approach applied to Transpower. However, it would expose both consumers and EDBs to inflation risk (as explained in the Form of control and RAB indexation topic paper). In order to address this we would have to implement a consumer price index (**CPI**) wash-up as we have indicated we are open to for Transpower,<sup>70</sup> which would add further complexity.
97. Furthermore, we estimate that it would result in larger price rises (approximately a 7-10% increase in line charges depending on the EDB) than the asset lives option. This would risk worsening the problem.<sup>71</sup>

### **Implications for gas distribution businesses**

98. This section discusses implications of emerging technology for GDBs and seeks evidence on 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*

99. Some stakeholders have highlighted the risk of asset stranding for gas networks, mainly in the context of discussion about 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.
100. This risk of partial capital recovery is mainly driven by:
- 100.1 the 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;
- 100.2 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;

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<sup>69</sup> Vector "Proposed scope, timing and focus for the review of input methodologies" (31 March 2015), para 3-5.

<sup>70</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016), chapter 7.

<sup>71</sup> Source: internal analysis based on 2015-2020 DPP model.

- 100.3 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.<sup>72</sup> 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;
- 100.4 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;<sup>73</sup>
- 100.5 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
- 100.6 the higher cost of safety regulations for gas is another factor that may discourage gas use.
101. On the other hand, GDBs also have the ability and incentive to grow connections (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.<sup>74</sup> This may make the risk facing GDBs less asymmetric than for EDBs.
102. However, like EDBs, it is not clear to us whether this risk has materially increased for GDBs since 2010 when we set the IMs. We have proposed an optional shortening of asset lives for EDBs, and are open to considering it for GDBs as a way of partially mitigating the risk of partial capital recovery, if this risk has increased for GDBs (backed by evidence). We would need to model what the price implications of this might be.<sup>75</sup>
103. However, given the evidence currently available to us, we do not propose any changes to the IMs for GDBs at this stage in response to the issues outlined above.

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<sup>72</sup> CEG “Relative risk of gas transport services: A report for Vector” (March 2016), pages 3-6.

<sup>73</sup> 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.

<sup>74</sup> See for example: Powerco “Submission on the four emerging view papers (29 February 2016)” (24 March 2016), para 18.

<sup>75</sup> 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.

## **Chapter 4: Regulatory treatment of revenues and costs from emerging technology**

### **Purpose of this chapter**

104. This chapter explains the problems relating to the treatment of revenues and costs between regulated and unregulated services in respect of emerging technology, our proposed 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.
105. 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**

106. This chapter begins with the problems we have identified in this area, and then for each of these sets out the problem definition, proposed solution and assessment of other potential solutions.
107. 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**

108. 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)).<sup>76</sup> It is important to note that the focus is on the services being delivered, not the choice of assets or technologies.
109. The cost allocation IM provides for three complementary approaches for EDBs and GPBs to allocate costs that are shared between regulated and unregulated services:
  - 109.1 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;

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<sup>76</sup> 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.

- 109.2 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
  - 109.3 the avoidable cost allocation methodology (**ACAM**), where regulated and unregulated services have only a small proportion of their costs in common.<sup>77</sup>
110. We have identified the following problems which relate to the cost allocation IM:
- 110.1 problem 1 which relates to the revenue materiality threshold; and
  - 110.2 problem 2 which relates to the use of proxy cost allocators.

**Problem definition for problem 1: Revenue materiality threshold**

111. In 2010, we decided that regulated suppliers should only be permitted to use ACAM 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. This threshold was used for other issues such as the materiality threshold for re-opening price-quality paths.<sup>78</sup> For the purposes of cost allocation, this 1% threshold was interpreted as meaning approximately a 1%-2% impact.
112. As explained in Attachment B, the application of the revenue materiality threshold is no longer delivering the policy intent of the cost allocation IM, when applied by some EDBs. The current threshold for being able to apply ACAM is that total unregulated revenues must be less than 20% of total regulated revenues (from providing all types of regulated services). The problem is that the use of ACAM by some EDBs, even when under the threshold, results in regulated revenues being likely to increase by more than 1-2%, compared to applying ABAA, which we consider a material average price increase, with no corresponding benefit to consumers of regulated services.

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<sup>77</sup> 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.

<sup>78</sup> Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), para 8.4.5.



### **Proposed solution for problem 1: Revenue materiality threshold**

*Our proposed solution – lower revenue materiality threshold from 20% to 10%*

113. Our proposed solution in respect of this problem is to lower the revenue materiality threshold from the current 20% to 10%. The objective is to ensure that when EDBs or GPBs use ACAM, this does not result in increases to regulated revenue greater than 1-2%, compared to the use of ABAA.<sup>79</sup>

*Reasons for preferring this solution*

114. Consistent with the framework for the review, we consider that this proposed solution would continue to 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)).
115. We considered maintaining the status quo, as supported by ENA,<sup>80</sup> but this would allow some suppliers to continue to use ACAM where evidence suggests this is resulting in a greater than 1-2% impact on regulated revenues. Therefore, consumers of the regulated service would bear a greater proportion of shared costs, and miss out on at least some efficiency gains (which would not promote s 52A(1)(c) as effectively).
116. In addition, we considered phasing out ACAM and requiring suppliers to use ABAA instead, as proposed by Contact Energy.<sup>81</sup> However, we consider that our proposed solution minimises the additional compliance costs that might be incurred by requiring a larger number of suppliers to change their accounting systems to support the change in cost allocation approach, and delivers outcomes that are not materially different relative to the generalised use of ABAA.
117. The analysis supporting our proposed solution is set out in Attachment B.

### **Problem definition for problem 2: Use of proxy cost allocators**

118. 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.<sup>82</sup>

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<sup>79</sup> For our existing IM decision on the process for deciding the cost allocation approach, see existing decision CA03 in the Report on the review (which we expect to publish on 22 June 2016).

<sup>80</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), para 8.

<sup>81</sup> Contact Energy "Submission on Emerging Technology Pre-Workshop Paper: 30 November 2015" (4 February 2016) page 6.

<sup>82</sup> 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 6

119. 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.<sup>83</sup>
120. 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.
121. 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.
122. 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.
123. 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.<sup>84</sup> 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.
124. 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.
125. 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.
126. 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.

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staff members and the unregulated part of the business employs 4 staff members. Then 60% of office rent would be assigned to the regulated service and 40% to the unregulated service.

<sup>83</sup> See Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), section B4 for further details.

<sup>84</sup> See Commerce Commission "Input Methodologies (EDBs & GPBs) Reasons Paper" (22 December 2010), sections 3.3.17 – 3.3.22 for further details.

127. 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%).
128. While none of this necessarily indicates that EDBs are applying the IMs incorrectly, we are concerned that proxy allocators are being used so 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.

**Proposed solution in respect of problem 2: Use of proxy cost allocators**

*Our proposed solution – strengthen requirement to justify use of proxy cost allocators*

129. Our proposed 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. This will put greater onus on EDBs and GPBs to better demonstrate that:
- 129.1 a causal relationship cannot be established; and
  - 129.2 the proxy cost allocator selected is appropriate.
130. In order to implement this, we will also need to increase the quality of information we require under information disclosure. This will involve requiring additional information about why suppliers could not use a causal allocator and why their selected proxy allocator is appropriate.
131. Therefore, we also propose to require EDBs and GPBs to provide a declaration from their Chief Financial Officer that no causal allocator was available and that their selected proxy allocator was appropriate. This declaration would be similar to the managerial declaration already provided for in EDB IMs.<sup>85</sup> This information will help us assess whether the requirements need to be further tightened in future.<sup>86</sup>
132. We consider that this solution would better give 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.

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<sup>85</sup> Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, Clause 5.1.7(3).

<sup>86</sup> Especially if EDBs' involvement in unregulated activities grows, perhaps associated with greater deployment of emerging technologies.

### **Regulatory treatment of revenues and costs from emerging technology – issues raised by stakeholders**

133. 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.
134. The issues in this area have evolved over the last few months, and have been refined following the December 2015 workshop we held on the topic. We present the evolution of stakeholder views below.

#### *Stakeholder views before the December 2015 emerging technologies workshop*

135. 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.
136. 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.<sup>87</sup>

137. 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.

#### 137.1 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.<sup>88</sup>

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<sup>87</sup> Vector “Input methodologies review – Invitation to contribute to problem definition” (21 August 2015), para 10.

<sup>88</sup> Contact “Cross submissions on the Commission’s invitation to contribute to problem definition” (4 September 2015), section 1.

137.2 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.<sup>89</sup>

137.3 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.<sup>90</sup>

138. 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 proposed changes presented at the beginning of this chapter.

*Stakeholder views following the December 2015 emerging technologies workshop*

139. After the workshop, clearer stakeholder views emerged, which we have organised around the following themes:

139.1 the legal definition and interpretation of the regulated service;

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<sup>89</sup> Mighty River Power “Input Methodologies Review: Cross-submission on invitation to contribute to problem definition” (4 September 2015).

<sup>90</sup> PwC “Submission to the Commerce Commission on Input methodologies review: Invitation to contribute to problem definition” (21 August 2015), pages 20 and 28.

- 139.2 the appropriateness of the cost allocation IM and potential need for revenue allocation rules; and
- 139.3 industry structure and potential restrictions on suppliers of the regulated service delivering unregulated services using shared assets.
140. Below we present a non-exhaustive selection of representative views for each theme. We respond to these views in paragraphs 160 to 203, except for the points raised on revenue allocation rules, which we address in paragraphs 149 to 150.

The legal definition and interpretation of the regulated service

141. 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.<sup>91</sup>

142. 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.<sup>92</sup>

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.<sup>93</sup>

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<sup>91</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), para 5.

<sup>92</sup> Electricity Retailers' Association of New Zealand (ERANZ), "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 5.

<sup>93</sup> Electricity Retailers' Association of New Zealand (ERANZ), "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 7.

The appropriateness of the cost allocation IM and potential need for revenue allocation rules

143. Regarding the appropriateness of the cost allocation IM, the views of some EDBs shifted after the workshop such that there appears to be widespread support for the status quo among this group of stakeholders. For example, on the issue of whether the cost allocation IM was too flexible, Vector considered that:

The current cost allocation methodologies are fit for purpose. There is no issue with the regulatory allocation of costs and revenues in response to emerging technologies that needs to be addressed as part of this IM review.<sup>94</sup>

144. Similarly, the ENA agreed that:

The current cost allocation IM is based on a set of principled arguments, is consistent with the requirements of the Act and the current materiality thresholds are appropriate. There is no evidence that the current IM, and established materiality limits, are not fit-for-purpose with the advent of emerging technologies.<sup>95</sup>

145. On the other hand, a widely held view among electricity retailers is that instead of relying on cost allocation rules, the regime should “rely on a market price... to assign a value to the benefit an emerging technology delivers to the regulated service.”<sup>96</sup> For example, the ERANZ submitted that:

The cost allocation mechanisms are relatively blunt instruments that do not work well at the margins of burgeoning markets. While there may be (or may have been) some benefit in “assisting” regulated suppliers to invest in areas where investment might otherwise not be forthcoming (e.g. due to the scale of investment required, as for a fibre optic cable roll-out) the cost allocation methodologies also provide significant but unnecessary benefit to the regulated supplier in areas where that supplier might be competing with other parties.

Refinement to the cost allocation methodologies (as might be implemented through amendment to the cost allocation IM) are likely to be challenging and have uncertain outcomes. However, with a workably competitive market, appropriate pricing of the network benefit received as a result of investment in batteries achieves the required outcome (an appropriate cost imposition on consumers of the regulated service) in a far more reliable manner.<sup>97</sup>

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<sup>94</sup> Vector, “Submission on emerging technology pre-workshop paper: 30 November 2015” (4 February 2016), para 2.

<sup>95</sup> ENA, “Submission on IM review: emerging technologies” (4 February 2016), para 8.

<sup>96</sup> Electricity Retailers’ Association of New Zealand (ERANZ), “Submission of Emerging Technologies – Workshop and Pre-workshop paper” (4 February 2016), p. 3.

<sup>97</sup> Electricity Retailers’ Association of New Zealand (ERANZ), “Submission of Emerging Technologies – Workshop and Pre-workshop paper” (4 February 2016), p. 16.

146. Likewise, Contact expressed corresponding views favouring 'ring-fencing' in order to support the creation of a market. It nevertheless added that in the context of cost allocation, the ABAA is preferable:

Our primary submission is that ring fencing investment in emerging technologies would be a sounder approach than fine tuning the cost allocation methodologies.<sup>98</sup>

147. 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.<sup>99</sup>

148. 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.<sup>100</sup>

...

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.<sup>101</sup>

149. 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.

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<sup>98</sup> Contact, "Submission on the Commerce Commission's Emerging technology pre-workshop paper: 30 November 2015 (Workshop paper)" (4 February 2016), p. 6.

<sup>99</sup> Electricity Retailers' Association of New Zealand (ERANZ), "Submission of Emerging Technologies – Workshop and Pre-workshop paper" (4 February 2016), p. 22.

<sup>100</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), para 76.

<sup>101</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), paras 58-59.



150. 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.<sup>102</sup> 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’.<sup>103</sup>

Industry structure and potential restrictions on suppliers of the regulated service delivering unregulated services using shared assets

151. The Electricity Authority has sent a letter to us on this topic, where it outlines its thoughts and queries.<sup>104</sup> 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. We have published the letter as part of our draft decisions and welcome stakeholder comment on it.
152. 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).<sup>105</sup>

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<sup>102</sup> 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 Review (which we expect to publish on 22 June 2016).

<sup>103</sup> 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).

<sup>104</sup> 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).

<sup>105</sup> 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

153. 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 submits 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.
154. Three observations on ERANZ proposal that are relevant for our response in paragraphs 180 to 183:
- 154.1 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 to 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;
- 154.2 however, the aim of 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
- 154.3 the proposal would be implemented through the asset valuation IM, not the cost allocation IM.
155. Another stakeholder concern was 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.<sup>106</sup>

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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’.

<sup>106</sup> Contact, “Submission on the Commerce Commission’s Emerging technology pre-workshop paper: 30 November 2015 (Workshop paper)” (4 February 2016), p. 3.

156. 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.<sup>107</sup>
157. On the other side of the argument, the ENA did not consider that the Commission is best placed to impose structural restrictions:

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).<sup>108</sup>

158. 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.<sup>109</sup>

159. Finally, the ENA 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.<sup>110</sup>

### **Our perspective on the main issues raised by stakeholders**

160. 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.

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<sup>107</sup> Contact, "Submission on the Commerce Commission's Emerging technology pre-workshop paper: 30 November 2015 (Workshop paper)" (4 February 2016), p. 3.

<sup>108</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), para 10.

<sup>109</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), paras 12 and 14.

<sup>110</sup> ENA, "Submission on IM review: emerging technologies" (4 February 2016), para 12.

161. Our emerging technology pre-workshop paper contains relevant background that complements the views we present below.<sup>111</sup> For example, our view regarding the definition and interpretation of the regulated service remains unchanged (although we expand on this below). 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.

*We do not consider ERANZ's proposal promotes the long-term benefit of consumers*

162. ERANZ provided a detailed proposal which ultimately aims to deliver a market price for the services delivered by emerging technologies. It relies on restrictions on EDBs' ability to include some assets in their RAB.
163. We do not consider that ERANZ has made the case that its proposal better promotes the long-term benefit of consumers of the regulated service. 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 in the next section.
164. Aside from the interpretation of the legal definition of the regulated service, we are unconvinced that ERANZs' proposal would benefit consumers of the regulated service. This is primarily because the requirement of arms-length transactions risks undermining the incentive on EDBs to improve efficiency through diversification (ie, economies of scope), consistent with s 52A(1)(b).<sup>112</sup> The likely higher transaction costs associated with arms-length transactions is one important (and growing) factor that could cause this.
165. 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 requirement for market transactions (eg, cost efficiencies) for delivering the services (both regulated and unregulated) that some emerging technologies can deliver. However, as we explain below, we do not consider the case has been made for regulators to mandate market transactions in place of integration.
166. 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. This suggests that EDBs should be able to benefit from their existing assets and activities when providing new services.<sup>113</sup> 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).

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<sup>111</sup> Commerce Commission, "Input methodologies review: Emerging technology pre-workshop paper" (30 November 2015).

<sup>112</sup> 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.

<sup>113</sup> We note ERANZ's point that their proposal relates to the 'asset valuation IM', and therefore in ERANZ's view it is not in conflict with s 52T(3). Even so, their proposal restricts EDBs' ability to benefit from their existing assets when providing new services, by implicitly not allocating asset-related common costs to the regulated business (refer s 52T(1)(a)(iii)).

167. Recent work suggests that “economies of scope and coordination will become increasingly important” as a result of growing deployment of widespread emerging technologies.<sup>114</sup> 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.<sup>115</sup>

168. 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.<sup>116, 117</sup> These new roles have been variously characterised, but probably share the attribute of more active network management.
169. 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.

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<sup>114</sup> Lawrence Berkeley National Laboratory, “Electric Industry Structure and Regulatory Responses in a High Distributed Energy Resources Future” (November 2015), p. 1.

<sup>115</sup> 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, pp. 39, 41 and 63. Available at: <http://www.synergies.com.au/applying-the-hilmer-principles-on-economic-regulation-to-changing-energy-markets/>.

<sup>116</sup> For example, Powerco aims to evolve to a “Distribution System Integrator”. Powerco, “Delivering New Zealand’s energy future: electricity asset management plan 2016” pages 138-140.

<sup>117</sup> 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.

170. 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.<sup>118</sup>
171. 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.
- 171.1 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.
- 171.2 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.
- 171.3 Benefit: potentially appropriate pricing of the network benefit received by EDBs (and therefore appropriate cost imposition to consumers of the regulated service).
172. In other words, the benefits are conditional on the creation of a workably competitive market that does not fully exist today.
173. One way of characterising the issue is to ask whether consumers' interests are best served by regulators mandating market transactions in place of integration, rather than letting efficiency considerations determine the outcome. 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.<sup>119</sup> 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 seems to have 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 ERANZ has provided sufficient evidence to demonstrate that the factors that need to be present for a market to be the most efficient industry structure are present in the current context.

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<sup>118</sup> We regulate a service as defined by Parliament. The assets and technologies involved in delivering the regulated service may change over time.

<sup>119</sup> For example, Coase showed in its 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.

174. 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.
175. 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, consumers of unregulated services also benefit from these efficiencies.
176. 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.<sup>120</sup>
177. Furthermore, application of the ACAM, 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). In general, pricing between incremental and standalone cost is unlikely to raise competition concerns in New Zealand unless the EDB is considered to be taking advantage of its market power for an exclusionary purpose. 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.
178. 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.
179. 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.

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<sup>120</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289 at [1860]-[1861].

*Industry structure is a matter for policy makers*

180. 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 from 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 United Kingdom as support for the proposition that ring-fencing measures should be implemented.<sup>121</sup>
181. Notwithstanding our reservations with ERANZ's proposal, we view it 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. Matters of industry structure in New Zealand have in the past been decided by policy makers and implemented through legislation. 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.<sup>122</sup>
- 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.<sup>123</sup>
182. 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.
183. Therefore, our view is that structural changes, if deemed necessary (which we consider they are not at this stage), are best delivered directly by policy makers through legislation, rather than indirectly by the Commission through changes to Part 4.

*Definition of the regulated service*

184. Section 54E of the Act declares that "electricity lines services are regulated" under Part 4. The meaning of 'electricity lines services' incorporates the definition of 'lines' from the Electricity Act 1992 "unless the context otherwise requires".

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<sup>121</sup> We note that 'ring fencing' is a broad term, and different jurisdictions appear to use it to refer to different types of interventions.

<sup>122</sup> Electricity Industry Act 2010, Part 3.

<sup>123</sup> 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).



185. In our pre-workshop paper, we set out the relevant questions to consider when assessing the scope of the regulated service. These are:
- 185.1 Is what the supplier is doing part of a service where the service is the conveyance of electricity by line in New Zealand?
- 185.2 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)?
186. While we noted the exceptions from the definition of ‘line’ in the Electricity Act 1992, we explained that we do not consider these exceptions operate to exclude certain types of assets from being used to support a 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— ie, what the network is. In addition, there is no requirement for every asset used to support a regulated service to fall within the definition of a ‘line’. Thus, assets used to support the conveyance of electricity by line comprise part of the regulated service.
187. 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 that are subject to competition.<sup>124</sup>
188. 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:<sup>125</sup>

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)

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<sup>124</sup> ERANZ “Submission on emerging technologies – Workshop and pre-workshop paper” (4 February 2016), page. 4.

<sup>125</sup> Contact Energy “Submission on the Commerce Commission’s emerging technology pre-workshop paper: 30 November 2015 (workshop paper)” (4 February 2016), Appendix A.

189. Similarly, ERANZ submitted that our approach is a redefinition of the regulated service which effectively expands the scope of regulated activities,<sup>126</sup> and that, contrary to the intent of Part 4:<sup>127</sup>

[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.

190. 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:<sup>128</sup>

store energy, they do not convey it. Nor are they, in any ordinary sense of the word, a 'line'.

(emphasis in the original)

191. Thus, in ERANZ's view, batteries are 'electrical installations' which are excluded from the definition of 'line' under the Electricity Act and therefore:<sup>129</sup>

...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.

192. By contrast, other parties agreed with our approach. The ENA submitted that excluding batteries from the scope of lines would have perverse effects.<sup>130</sup> For example, other non-lines related assets would also be excluded (like office chairs) because they did not fall within the definition of 'lines'.

193. We remain of the view that our approach to defining the regulated service, as set out in detail in the pre-workshop paper, is appropriate.

194. First, it is important to note that the focus of the definition of the regulated service is on the service provided, not on specific types of assets. Although assets are relevant insofar as they are used to support the service, where an asset is used in a way that does not support the regulated service – that is, used to provide a non-regulated service – it is the use of the asset that is excluded from the service, not the asset itself.

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<sup>126</sup> ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), page. 5.

<sup>127</sup> ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), page. 6.

<sup>128</sup> ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), page. 8.

<sup>129</sup> ERANZ "Submission on emerging technologies – Workshop and pre-workshop paper" (4 February 2016), page. 9.

<sup>130</sup> ENA "Submission on IM review: emerging technologies" (4 February 2016), paras 19 and 48.

195. 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, where an EDB owns and controls a battery ‘behind the meter’ on a consumer’s premises, it could be used in both ways. Where this is the case, 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.
196. 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.
197. 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.
198. 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. Such equipment currently forms part of the RABs of EDBs (and other regulated entities).
199. Finally, even if the definition of ‘line’ in the Electricity Act operated to exclude certain assets (which we say it does not), fittings used “in association with” the conveyance of electricity by distribution lines are explicitly not excluded. This further supports our view that ‘non-lines’ assets – even those ‘beyond the meter’ – can support the regulated service.<sup>131</sup>

*Incentives on suppliers to act in the best interest of consumers*

200. 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.<sup>132</sup> 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.

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<sup>131</sup> There was some discussion at the pre-workshop about whether EDBs installing lightbulbs in consumers’ houses, eg, for the purpose of deferring capex, could be legitimately included in their RABs. While we think this may be possible in theory, at this stage it is unclear to us how the costs and revenues associated with these assets could be sufficiently evidenced to allow their inclusion in the RAB.

<sup>132</sup> This is recognised as being part of the purpose of Part 4 regulation in s 52A(1)(b) of the Commerce Act.

201. By capping revenues, EDBs are incentivised to find more cost-effective ways of delivering the regulated service.
202. Contact raised a concern that EDBs may not have incentives to realise the full value of investments, to the detriment of consumers (see paragraph 155). We do not see why an EDB would not seek to derive the full benefit from their investments, regardless of whether they are in the provision of the regulated or the unregulated service.
203. 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 156). 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.

## Attachment A: Evidence on risk of network asset stranding

### Purpose of this attachment

204. This attachment presents evidence to inform the assessment of the risk of network asset stranding, which is discussed in Chapter 3.

### Problem validation - evidence (I)



- Cost of PV and storage falling (ie potential network substitutes)

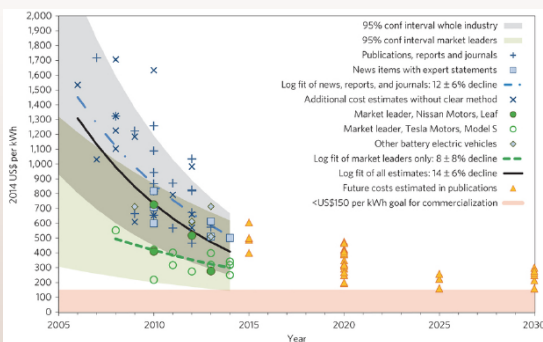


Figure 1 - Cost of Li-ion battery packs - Source Nature Climate Change



- But...

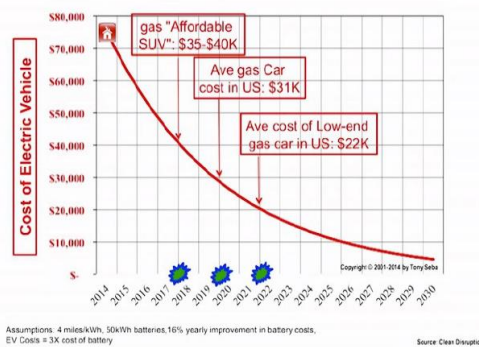
13 Source: Smart Grid Forum presentation at IM review Forum

### Problem validation - evidence (II) Electric vehicles

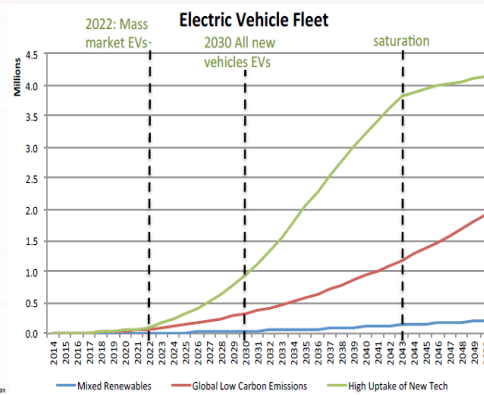


- ... same forces affecting EV cost, performance and uptake (increasing network's need)

#### Projected Cost of EV with 200-mile range



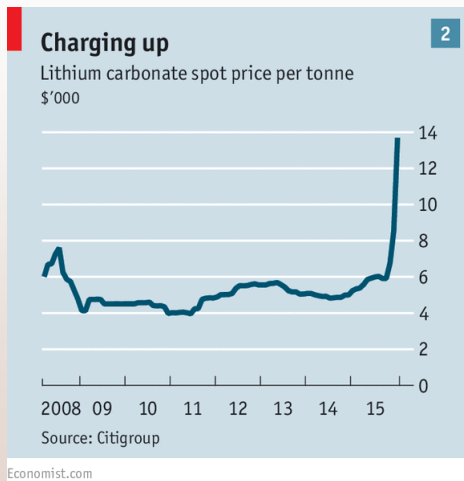
Source: Smart Grid Forum presentation at IM review Forum



Source: Smart Grid Forum submission to MBIE's EDGs

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## Problem validation - evidence (III) Lithium price



- Higher prices of lithium carbonate. Significant due to magnitude of spike and because commodity prices are mostly falling
- Mainly demand driven
- Signals ramping-up of battery production
  - economies of scale
  - lower battery costs

15 Source: The economist (16 Jan 2016): "An increasingly precious metal".

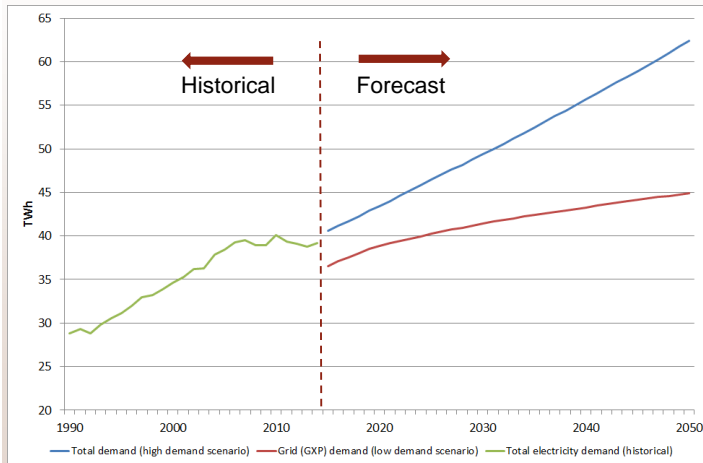
## Problem validation - evidence (IV)



- However, market does not seem to anticipate risk eventuating materially in NZ. Otherwise, all other things being equal, we would expect to see some or all of:
  1. Lower demand (including forecasts) for grid-sourced electricity
  2. Lower wholesale electricity prices (including futures and forecasts)
  3. Lower share prices for electricity generation companies
  4. Lower CAPEX by EDBs

16

## Problem validation - evidence (V) Electricity demand



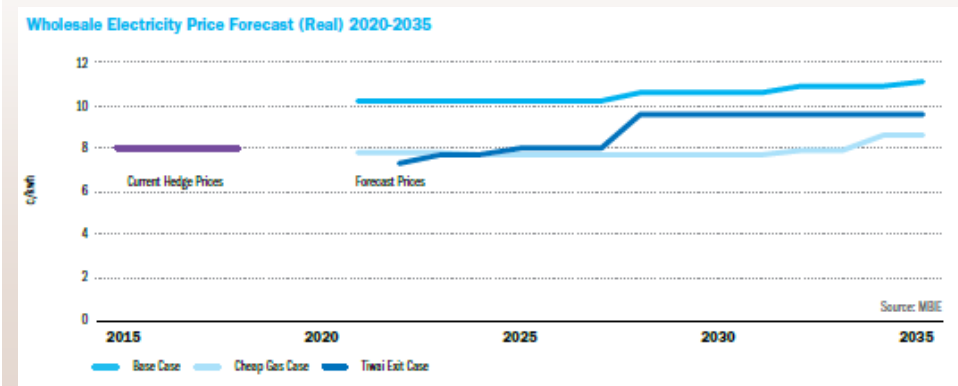
Grid-sourced electricity demand forecast to continue growing even in lowest grid demand scenario

17 Source: MBIE (EDGS) and MBIE energy statistics

## Problem validation - evidence (VI) Wholesale electricity prices

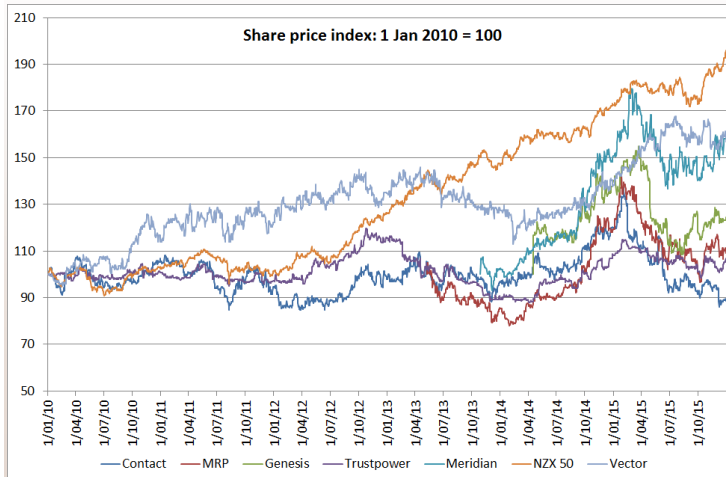


- Prices gently rising
  - 7-8 c/kWh average spot prices
  - 8 c//kWh hedge prices
  - 8-11 c/kWh forecast prices



18 Source: Infratil's December 2015 update, MBIE data

### Problem validation - evidence (VII) Share prices

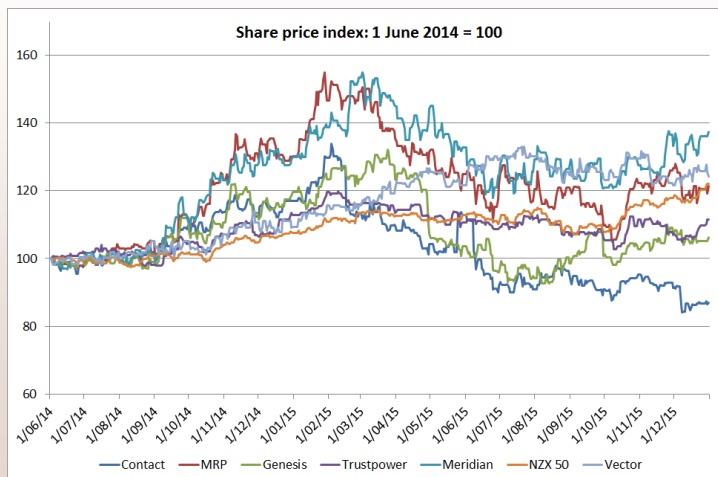


Share prices for gentailers and Vector up 10-60% in 2010-2015 (except Contact)

Underperforming market in 2010-2015

19 Source: Bloomberg

### Problem validation - evidence (VIII) Share prices



Share prices for gentailers and Vector up 6-37% in last 18 months (except Contact)

Market up 22%

20 Source: Bloomberg



## **Attachment B: Cost allocation IM materiality threshold analysis**

### **Purpose of this attachment**

205. This attachment presents the analysis supporting our proposed change to the cost allocation IM materiality thresholds which is discussed in Chapter 4.

### **Materiality threshold analysis**

206. The regulated revenue materiality threshold was set as part of the cost allocation IM in 2010 at 20% to ensure consistency with the two other thresholds, which are the operating cost and asset value materiality screening thresholds. This was based on analysis that suggested that the 20% threshold, in combination with the other thresholds, would prevent regulated suppliers who would receive more than a 2% increase to their total revenue from regulated services from using the ACAM approach on the basis of the revenue materiality threshold.<sup>133</sup>
207. We have sought to replicate the analysis contained in Appendix C of the 2010 EDBs/GPBs Reasons Paper, which supported the level at which the materiality thresholds were set. The result of our analysis is presented in Table B1. Consistent with our decisions in 2010, the analysis focusses on EDBs (not GPBs). The EDBs are ordered from the highest to lowest percentage of unregulated revenue to total regulated revenue (ie, the total revenue from the provision of all regulated services, and not just the regulated revenue from supplying electricity distribution services).<sup>134</sup> As in 2010, we propose treating GPBs the same as EDBs for the purposes of the draft IMs, but we are open to doing further analysis if we receive feedback that suggests the proposed changes are not appropriate for GPBs.
208. Table B1 does not include all EDBs or GTBs, as some of the data on unregulated revenues for some EDBs was not robust.<sup>135</sup> Further, in light of the fact that AVnDA are very low for EDBs subject to price-quality regulation, we focussed on operating costs.
209. We then calculated the impact on revenue of using ACAM to report operating costs. This data shows the percentage impact on total regulated revenue of applying ACAM to OCnDA under two different assumptions. The first (2010 Revenue Split) is a replication of our 2010 analysis based on the historical industry-wide revenue split (67% regulated, 33% unregulated) that was used in the 2010 Reasons Paper. The

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<sup>133</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para B3.16.

<sup>134</sup> As noted above, 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 (Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para B5.3).

<sup>135</sup> Some examples of these data issues included: (1) that we could not determine total revenue because the number was not in the public domain and (2) that there was a clear data entry issue in some of the disclosures.

second (Current Revenue Split) applies the 2010 Reasons Paper's approach but uses the current industry split (61% regulated, 39% unregulated).

210. Based on this analysis, we have found that there is one case (highlighted in red) where a company subject to price regulation may be using ACAM even though they are expected to receive a greater than 2% impact on their reported regulated revenue. There are also two cases where companies not subject to price regulation are using the ACAM approach where it is expected to have a greater than 2% impact on their reported regulated revenue. If we cut the threshold to 10%, we can prevent a situation where a regulated supplier can make a significant windfall gain from using ACAM, while minimising the impact on small regulated suppliers.

**Table B1: Revenue materiality threshold analysis**

| EDB                   | Used ACAM for OC? | Used ACAM for AV? | Total Revenue (000)* | Regulated Revenue (000)** | Unregulated Revenue (000)*** | Unregulated/Regulated Revenue | OCDA (000)** | OCnDA (000)** | Operating Cost Threshold | ABDA (000)** | AVnDA (000)** | Asset Value Threshold | Price Regulated Business? | Operating Cost Impact on Revenue (2010 Revenue Split) | Operating Cost Impact on Revenue (Current Revenue Split) |
|-----------------------|-------------------|-------------------|----------------------|---------------------------|------------------------------|-------------------------------|--------------|---------------|--------------------------|--------------|---------------|-----------------------|---------------------------|---|--|
| Nelson Electricity    |                   |                   | \$44,412             | \$10,534                  | \$33,878                     | 321.6%                        | \$1,905      | \$0           | 0.00%                    | \$41,669     | \$0           | 0.00%                 | ✓                         | 0.00%   | 0.00%  |
| Northpower            |                   | ✓                 | \$253,322            | \$63,779                  | \$189,543                    | 297.2%                        | \$13,762     | \$13,588      | 49.68%                   | \$238,036    | \$4,163       | 1.72%                 |                           | 7.03%   | 8.31%  |
| Marlborough Lines     |                   |                   | \$136,182            | \$35,331                  | \$100,851                    | 285.4%                        | \$11,521     | \$965         | 7.73%                    | \$217,515    | \$0           | 0.00%                 |                           | 0.90%   | 1.07%  |
| Horizon Energy        |                   |                   | \$112,250            | \$31,893                  | \$80,357                     | 252.0%                        | \$5,312      | \$4,339       | 44.96%                   | \$109,634    | \$3,649       | 3.22%                 | ✓                         | 4.49%   | 5.31%  |
| Scanpower             |                   | ✓                 | \$18,552             | \$8,492                   | \$10,060                     | 118.5%                        | \$1,599      | \$1,418       | 47.01%                   | \$35,881     | \$0           | 0.00%                 |                           | 5.51%   | 6.51%  |
| Vector Lines          |                   | ✓                 | \$1,294,016          | \$616,862                 | \$677,154                    | 109.8%                        | \$77,948     | \$56,245      | 41.91%                   | \$2,638,112  | \$28,641      | 1.07%                 | ✓                         | 3.01%   | 3.56%  |
| Network Waitaki       |                   |                   | \$26,903             | \$16,754                  | \$10,149                     | 60.6%                         | \$3,503      | \$1,303       | 27.11%                   | \$73,574     | \$877         | 1.18%                 |                           | 2.57%   | 3.03%  |
| Top Energy            |                   | ✓                 | \$61,097             | \$39,133                  | \$21,964                     | 56.1%                         | \$12,239     | \$5,224       | 29.92%                   | \$212,096    | \$4,625       | 2.13%                 | ✓                         | 4.41%   | 5.21%  |
| Buller Electricity    | ✓                 | ✓                 | \$9,915              | \$7,692                   | \$2,223                      | 28.9%                         | \$2,718      | \$380         | 12.27%                   | \$26,000     | \$2,540       | 8.90%                 |                           | 1.63%   | 1.93%  |
| Waipa Networks        | ✓                 | ✓                 | \$29,465             | \$22,993                  | \$6,472                      | 28.1%                         | \$4,811      | \$769         | 13.77%                   | \$89,710     | \$6,437       | 6.69%                 |                           | 1.10%   | 1.30%  |
| The Lines Company     |                   |                   | \$49,139             | \$38,456                  | \$10,683                     | 27.8%                         | \$8,079      | \$3,203       | 28.39%                   | \$175,881    | \$1,672       | 0.94%                 | ✓                         | 2.75%   | 3.25%  |
| Alpine Energy         | ✓                 | ✓                 | \$63,749             | \$50,913                  | \$12,836                     | 25.2%                         | \$13,822     | \$0           | 0.00%                    | \$166,321    | \$0           | 0.00%                 | ✓                         | 0.00%   | 0.00%  |
| Powerco               |                   |                   | \$445,900            | \$358,774                 | \$87,126                     | 24.3%                         | \$41,630     | \$29,111      | 41.15%                   | \$1,454,598  | \$27,164      | 1.83%                 | ✓                         | 2.68%   | 3.16%  |
| Orion NZ              |                   |                   | \$332,894            | \$274,174                 | \$58,720                     | 21.4%                         | \$50,828     | \$0           | 0.00%                    | \$907,756    | \$0           | 0.00%                 | ✓                         | 0.00%   | 0.00%  |
| Electricity Ashburton | ✓                 |                   | \$46,831             | \$41,252                  | \$5,579                      | 13.5%                         | \$9,121      | \$0           | 0.00%                    | \$226,349    | \$0           | 0.00%                 | ✓                         | 0.00%   | 0.00%  |
| Counties Power        | ✓                 | ✓                 | \$52,305             | \$46,467                  | \$5,838                      | 12.6%                         | \$7,716      | \$4,125       | 34.84%                   | \$227,781    | \$228,905     | 50.12%                |                           | 2.93%   | 3.46%  |
| Westpower             |                   |                   | \$23,335             | \$20,833                  | \$2,502                      | 12.0%                         | \$9,567      | \$0           | 0.00%                    | \$112,420    | \$0           | 0.00%                 |                           | 0.00%   | 0.00%  |
| Unison Networks       | ✓                 |                   | \$153,986            | \$139,744                 | \$14,242                     | 10.2%                         | \$19,314     | \$17,715      | 47.84%                   | \$538,909    | \$0           | 0.00%                 | ✓                         | 4.18%   | 4.94%  |

|                   |   |   |           |           |         |      |          |         |        |           |          |       |   |       |       |
|-------------------|---|---|-----------|-----------|---------|------|----------|---------|--------|-----------|----------|-------|---|-------|-------|
| WEL Networks      | ✓ | ✓ | \$110,079 | \$100,990 | \$9,089 | 9.0% | \$11,052 | \$8,920 | 44.66% | \$482,546 | \$0      | 0.00% |   | 2.91% | 3.44% |
| Centralines       | ✓ |   | \$13,369  | \$12,304  | \$1,065 | 8.7% | \$3,477  | \$94    | 2.63%  | \$54,680  | \$0      | 0.00% | ✓ | 0.25% | 0.30% |
| The Power Company |   |   | \$60,974  | \$56,622  | \$4,352 | 7.7% | \$14,414 | \$0     | 0.00%  | \$325,146 | \$0      | 0.00% |   | 0.00% | 0.00% |
| Aurora Energy     | ✓ | ✓ | \$99,453  | \$93,463  | \$5,990 | 6.4% | \$23,608 | \$0     | 0.00%  | \$330,597 | \$0      | 0.00% | ✓ | 0.00% | 0.00% |
| Network Tasman    | ✓ | ✓ | \$44,412  | \$42,074  | \$2,338 | 5.6% | \$9,818  | \$0     | 0.00%  | \$161,343 | \$14,304 | 8.14% | ✓ | 0.00% | 0.00% |

Notes: \* Based on the relevant 2015 Annual Report, \*\* Based on March 2015 Information Disclosure data, \*\*\* Calculated as the difference of total revenue minus regulated revenue. The table does not include all EDBs or GTBs, as some of the data on unregulated revenues for some EDBs was not robust.

|  |
|--|
| <b>Key</b>   |
| Under the Revenue Materiality Threshold                                  |
| Under the Operating Cost/Asset Value Materiality Threshold               |
| Using ACAM where this has greater than a 2% impact on regulated revenues |



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| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 27                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input Methodologies Determination 2012</i> [2012] NZCC 28                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010</i> (Decision 709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies Determination 2012</i> [2012] NZCC 17  |

Commerce Commission  
Wellington, New Zealand

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## **Executive summary**

### **Purpose of 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 proposed responses to these issues, which include proposed changes to the input methodologies (**IMs**);
  - X1.3 the reasons for our proposed 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 draft views 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 the 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 the 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 considering whether any adjustment to beta is required in light of our proposed changes to the form of control for electricity distribution businesses (**EDBs**); and
  - X3.5 reviewing key parameter estimates such as tax adjusted market risk premium (**TAMRP**) and beta in light of updated information.

- X.4. Table X1 summarises the areas in this topic where our analysis has led us to proposed changes to the IMs, and the reasons for those changes. As can be seen in the table, we have primarily made changes that lead to a better estimate of weighted average cost of capital (**WACC**) as we consider that the more accurate our estimate of WACC, the better we are able to promote the purpose of Part 4 (**Part 4**) of the Commerce Act 1986 (**the Act**). 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 proposed changes in relation to the cost of capital**

| Proposed change   | Outcomes of the proposed change  | Chapter  |
|---|--|--|
| <p>Continue to use the prevailing risk-free rate, 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 the one month window may have some distortionary effects in the way suggested by submissions, so we propose to increase the determination window.</p>   | <p>This proposed change is discussed in Chapter 3.</p> |
| <p>Modify the debt premium methodology implementation by:</p> <ul style="list-style-type: none"> <li>• using three months of data instead of one month;</li> <li>• removing the government ownership limitation on relevant bonds; and</li> <li>• having regard to the Nelson-Siegel-Svensson (<b>NSS</b>) curve when estimating the debt premium;</li> </ul> | <p>Removing 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>A more mechanical approach reduces the degree of judgement required when determining our debt premium estimates.</p>   | <p>This proposed change is discussed in Chapter 3.</p> |
| <p>Change issuance costs from 35 basis points (<b>bps</b>) (0.35%) p.a. to 20 bps (20%) p.a.</p>  | <p>The High Court suggested 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.</p> <p>We consider, on the basis of the evidence now available, that an allowance for debt issuance costs of 20 bps is sufficient to cover the costs of issuing NZ domestic corporate bonds and the costs of any required swaps. As a result, we consider that this proposed change improves the accuracy of our</p> | <p>This proposed change is discussed in Chapter 3.</p> |

|  |   |   |
|--|---|---|
|  | estimate of the cost of capital.  |   |
| Remove an allowance for swap costs from the TCSD and include it as part of the debt issuance costs.  | Reduces the complex administrative burden on suppliers.   | This proposed change is discussed in Chapter 3. |
| Change the asset beta upwards adjustment for GPBs – from 0.1 to 0. Therefore, change the asset beta estimate for GPBs – from 0.44 to 0.34.                   | After examining the available evidence, 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.                    | This proposed change is discussed in Chapter 4. |
| Change the leverage estimate for EDBs and GPBs – from 44% to 41%.  | We have updated our comparator sample to obtain a more accurate estimate of asset beta. We continue to use the average leverage of the comparator sample, which has also been updated.  | This proposed change is discussed in Chapter 4. |
| Change the leverage estimate for airports – from 17% to 19%.   | We have updated our comparator sample to obtain a more accurate estimate of asset beta. We continue to use the average leverage of the comparator sample, which has also been updated.  | This proposed change is discussed in Chapter 4. |
| Change the asset beta estimate for airports – from 0.60 to 0.58.   | We have updated our comparator sample to obtain a more accurate estimate of asset beta. The reduction in asset beta reflects the observed reduction in average asset beta in our sample, relative to our 2010 decision.   | This proposed change is discussed in Chapter 4. |
| 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. | There is no longer a requirement to obtain market information when estimating the TCSD, which reduces the complexity of the TCSD.<br><br>It will always provide a positive relationship between the TCSD allowance and original term of the debt, which ensures that the intent of the TCSD (that additional compensation is provided for issuing longer-term debt) is met. | This proposed change is discussed in Chapter 3. |

- X5. This topic paper forms part of our package of draft decisions papers on the IM review. As part of the package of papers, we have also published:
- X5.1 a summary paper of our draft decisions;
  - X5.2 an introduction and process paper, which provides an explanation of how the papers in our draft decisions package fit together; and
  - X5.3 a framework paper, which explains the framework we have applied in reaching our draft decisions on the IM review.

**Invitation to make submissions**

- X6. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
- X7. Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
- X8. Please clearly indicate within your submission which aspects of this paper it relates to.

## **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 proposed responses to these issues, which include proposed changes to the IMs;
  - 1.3 the reasons for our proposed 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 draft views presented in this paper.

### **Where this paper fits into our package of papers on our draft decisions**

2. This topic paper forms part of our package of draft 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 draft decision package.<sup>1</sup>
3. This paper explains our proposed responses to the issues identified within the cost of capital topic.
4. To the extent our preferred approaches involve changes to the IMs, this paper explains how we propose to change our existing IM decisions to account for issues within this topic area. The report on the IM review then collates our proposed changes to those existing IM decisions.<sup>2</sup>
5. Our proposed drafting changes to the IMs, including any resulting from this topic area, are shown in the draft determinations, which will be published on 22 June 2016.

---

<sup>1</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).

<sup>2</sup> We expect to publish the Report on the IM review on 22 June 2016.

6. The framework we have applied in reaching our draft decisions on the IM review is set out in a separate paper, published alongside this paper.<sup>3</sup> The framework paper explains that we have only proposed changes to the current IMs where this appears 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 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 propose 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 propose to update the other cost of capital parameters in that section.
9. In describing the issues and assessing proposed responses, we explain how we have taken stakeholders submissions into account and how they have helped to shape our views.

#### **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 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,<sup>4</sup> cost of capital update paper,<sup>5</sup> and the High Court's comments in the 2010 IM

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<sup>3</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>4</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015).



judgment.<sup>6</sup> We have sought to address these issues and detail our proposed approaches at the beginning of each chapter.

12. Dr Lally has provided us with advice on a number of cost of capital issues including the cost of debt, asset beta adjustments, the TAMRP, Regulated Asset Base (**RAB**) indexation and inflation risk. We published his two reports, one in February,<sup>7</sup> and one in May,<sup>8</sup> and have considered his advice and the submissions we received on that advice, when forming our draft decisions.
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.<sup>9</sup> 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.

#### **Invitation to make submissions**

15. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.

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<sup>5</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015).

<sup>6</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289.

<sup>7</sup> 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).

<sup>8</sup> 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).

<sup>9</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), p.60.

16. Please address submissions and cross submissions to:  
  
Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
17. Please clearly indicate within your submission which aspects of this paper it relates to.
18. The Introduction and process paper contains further details about the submissions process. This includes:<sup>10</sup>
  - 18.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
  - 18.2 providing guidance on requesting an extension to the submissions timeframes;
  - 18.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
  - 18.4 providing guidance on making confidential submissions.

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<sup>10</sup> Commerce Commission “Input methodologies review draft decisions: Introduction and process paper” (16 June 2016), chapter 5.

## Chapter 2: Context

### Purpose of this chapter

19. The purpose of this chapter is to provide an introduction to:
  - 19.1 the WACC;
  - 19.2 our current IM for estimating the cost of capital and its key parameters;
  - 19.3 the role of the cost of capital IM in Part 4 regulation; and
  - 19.4 our review of the cost of capital IM, including our review of the issues identified by the High Court and the changes we propose to make.

### What is the weighted average cost of capital?

20. 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.
21. 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.

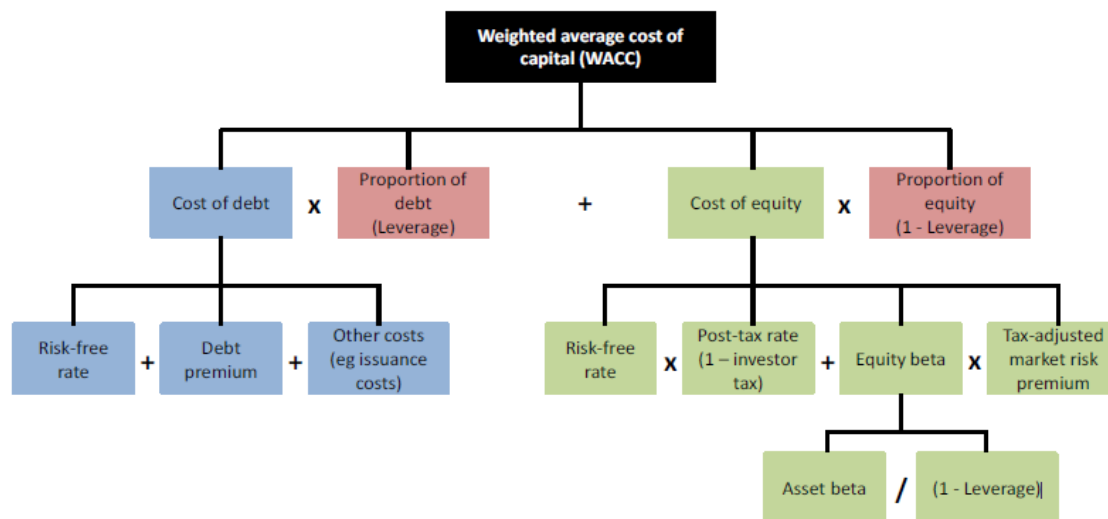
Post-tax WACC = cost of debt (after tax) x leverage + cost of equity x (1 - leverage)

Vanilla WACC = cost of debt x leverage + cost of equity x (1 – leverage)

22. 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.

23. To derive our estimates, a number of parameters, as set out in Figure 1 must be calculated.

Figure 1: WACC and its parameters



24. 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.
25. WACC reflects the cost of debt and the cost of equity, and the respective portion of each that is used to fund an investment.
26. 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.
27. If suppliers of a regulated service have similar exposure to systematic risk—that is, if they have similar technology, scale, cost structures, exposure to macroeconomic factors and exposure to regulation—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.
28. 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 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?**

29. Our cost of capital IM comprises two parts:
- 29.1 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.
  - 29.2 The second component is the TCSD (explained in paragraph 56), which is treated as a separate component because it will apply to qualifying firms only.
30. 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?*

31. 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.
32. 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.
33. 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.
34. 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 current cost of capital IM estimates these parameters below.
35. 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 midpoint estimate.<sup>11</sup>

36. The final part of our review is to conduct reasonableness checks to test whether our proposed 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,<sup>12</sup> and the 2014 WACC percentile reasons paper.<sup>13</sup>

#### *Cost of debt*

37. 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 brokerage), and the cost of entering interest rate swaps to shorten the term of part of the cost of debt and match it to the length of the regulatory period.
38. Our estimate of the cost of debt comprises four parameters:
- 38.1 the risk-free rate;
  - 38.2 the debt premium;
  - 38.3 debt issuance costs; and
  - 38.4 an allowance for swap costs.
39. 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 the trading on the debt market.
40. 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 risks of default in lending to a firm, plus an allowance for the inferior liquidity of

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<sup>11</sup> 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 errors for airports information disclosure regulation, rather than the 25<sup>th</sup> to 75<sup>th</sup> percentiles.

<sup>12</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010).

<sup>13</sup> Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

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.

41. 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.
42. 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.
43. Firms can efficiently manage interest rate risk by entering an interest rate swap that enables the supplier, if it wished, to cover the cost of aligning the interest rate setting to the price setting. Accordingly, we have included an allowance for the costs of entering interest rate swaps.

#### *Cost of equity*

44. The cost of equity, expressed as a rate of return, is the discount rate implicit in the price at that 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.
45. The difficulties in estimating the cost of equity are greater than in estimating the cost of debt. The cost of equity, and most of its components, is difficult for us to directly observe, so they have to be estimated based on an analytical model. Then the inputs for the preferred model have to be estimated.
46. 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.
47. 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.
48. 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.

49. 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.
50. 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).
51. 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**).
52. 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).
53. 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 asset 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.
54. 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.
55. 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?*

56. The cost of capital IM allows companies a TCSD allowance to compensate for the additional debt premium and the interest rate swap execution costs that can be incurred from issuing debt with a longer term than the five-year regulatory period.
57. 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.
58. The TCSD is calculated by way of a formula that combines:
  - 58.1 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');<sup>14</sup>
  - 58.2 an allowance for swap costs;<sup>15</sup> and
  - 58.3 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.<sup>16</sup>

**The role of the cost of capital IM in Part 4 regulation**

59. 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.
60. The cost of capital IM plays a significant role in promoting the s 52A purpose.<sup>17</sup> 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.<sup>18</sup>
61. Due to the estimation difficulties described at paragraph 31, determining a cost of capital IM that estimates a cost of capital which is neither too high, nor too low, so 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.

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<sup>14</sup> This debt is called 'qualifying' debt.

<sup>15</sup> As discussed in Chapter 3, we propose to remove the allowance for swap costs from the TCSD.

<sup>16</sup> We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

<sup>17</sup> For a more detailed discussion of the s 52A purpose see: Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>18</sup> 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.

62. We consider that where improvements to data or economic or regulatory practice have occurred, with the consequence that we are now better able to accurately estimate the cost of capital, making those changes will better promote the s 52A purpose.

#### **Our review of the cost of capital IM**

63. 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.
64. The High Court considered that the following aspects of the cost of capital IMs should be part of any future IM review:
- 64.1 the appropriateness of using the 75<sup>th</sup> percentile of the WACC in price-quality regulation;<sup>19</sup>
  - 64.2 the suitability of using the SBL-CAPM to estimate the cost of capital given the 'leverage anomaly', and whether alternative approaches could be considered;<sup>20</sup>
  - 64.3 whether a TCSD is required;<sup>21</sup> and
  - 64.4 to consider MEUG's suggestion of a split cost of capital approach whereby a higher WACC is applied to new investment.<sup>22</sup>
65. We considered the High Court's scepticism about the rationale for 75<sup>th</sup> 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 75<sup>th</sup> percentile.
66. 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

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<sup>19</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1486].

<sup>20</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1594-1661].

<sup>21</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1288].

<sup>22</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1486].

sectors from the 75<sup>th</sup> to 67<sup>th</sup> percentile.<sup>23</sup> The rationale for the amendment and the reasons for the change can be found in the final reasons paper for that amendment.<sup>24</sup> We have seen no evidence since the completion of the percentile amendment that indicates that we should change the percentile used.

67. 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 proposed approach, which is discussed in Chapter 4, is to remove the requirement to determine a CPP-specific WACC.
68. We have updated the asset betas for EDBs, GPBs, Transpower and regulated airports by following largely the same approach as in 2010. We have identified new comparator samples, estimated equity betas for each sample and then de-levered the equity betas using the average leverage of the proposed new samples. As discussed in Chapter 4, we propose to adopt an unadjusted asset beta of 0.34 for EDBs and GPBs and an adjusted asset beta of 0.58 for airports.
69. 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 proposed to make no adjustment for regulatory differences for EDBs, GPBs, Transpower and airports. However, due to new evidence provided by Dr Lally, we are proposing to remove the 0.1 upwards adjustment to the GPB asset beta that we previously made for differences in systematic risk. As discussed in Topic paper 1,<sup>25</sup> we are seeking views on the whether we should allow GPBs the option of shortening asset lives to mitigate stranding risk.
70. We have proposed to largely maintain the current debt premium methodology. However, we propose to extend the determination window for both the risk-free rate and debt premium from one month to three months. We have also proposed to remove restrictions on the use of bonds from firms that are majority owned by the government or local authorities, and have regard to the debt premium estimated from fitting a NSS curve to the bond data.
71. We have reviewed the efficacy of the TCSD as suggested to us by the High Court, and sought to address a number of implementation issues with our approach by proposing two modifications, which are discussed in Chapter 3.
72. 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

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<sup>23</sup> 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.

<sup>24</sup> Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

<sup>25</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016).

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 do not propose to use BSDR as a cross-check on the WACC until some of the identified issues have been resolved.

73. Having conducted our review, we propose to make the following changes to the cost of debt:

73.1 continue to use the prevailing risk-free rate, but use three months of data instead of one month;

73.2 modify the debt premium methodology implementation by:

73.2.1 using three months of data instead of one month;

73.2.2 removing the government ownership limitation on comparator bonds; and

73.2.3 have regard to the NSS curve as something we will consider when estimating the debt premium.

73.3 change issuance costs from 35 basis points (0.35%) p.a. to 20 basis points (0.20%) p.a.; and

73.4 remove an allowance for swap costs from the TCSD and include it as part of the debt issuance costs.

74. We propose to make the following changes to the cost of equity:

74.1 change the asset beta estimate for GPBs – from 0.44 to 0.34 (because we propose to change the asset beta adjustment for GPBs – from 0.1 to 0);

74.2 change the leverage estimate for EDBs and GPBs – from 44% to 41%; and

74.3 change the leverage estimate for airports – from 17% to 19%.

75. We also propose to make the following implementation change to the TCSD:

75.1 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 for electricity and gas companies;

75.2 no longer include an allowance for swap costs as part of the TCSD; and

75.3 remove the TCSD for airports.<sup>26</sup>

76. We no longer propose to publish a 25<sup>th</sup> and 75<sup>th</sup> WACC percentile estimate for airports. The proposed change is to calculate additional mid-point WACC estimates, along with standard errors for the quarters that do not align with WACC estimates currently calculated for ID, and publish these additional estimates either when requested by an airport, or prior to an airport's price setting event. This issue is discussed in Topic paper 6.<sup>27</sup>
77. Most of our changes our proposed because we consider that they enable us to more accurately 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 more accurate cost of capital better promotes the s 52A purpose.
78. We have also proposed a number of our draft 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.

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<sup>26</sup> The TCSD applied to airports is not defined in the input methodologies. Instead it is defined in the information disclosure determination. The proposed changes to the information disclosure determination published alongside the IM review draft decision are only ex ante amendments, ex post will be considered as part of a separate process.

<sup>27</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

## Chapter 3: Cost of debt

### Purpose of this chapter

79. The purpose of this chapter is to explain our draft findings on:
- 79.1 the main issues raised in relation to the cost of debt, including any changes we propose to make as a result; and
  - 79.2 our review of each of the parameters that make up the cost of debt, including any changes we propose to make as a result.

### Structure of this chapter

80. This chapter begins with a summary of our key proposals in respect of the cost of debt.
81. This chapter then discusses the main issues raised in relation to the cost of debt, and explains our proposed responses to them.
82. We then explain our draft findings in respect of our review of each of the parameters that make up the cost of debt, including any changes we propose to make as a result.
83. Each section of this chapter begins with the issues for EDBs and GPBs and then details any differences for airports.

### Summary of proposals in respect of the cost of debt

84. In general, we do not consider that there are significant issues with our current methodology for estimating the cost of debt. Although a number of submissions focussed on cost of debt issues, the changes that we propose are generally minor. They are intended to be relatively small incremental improvements to our current methodology.
85. A key focus from submissions was a suggestion that our current methodology to estimate the risk-free rate and debt premium, which uses 'prevailing' or 'current' information, causes unnecessary cost and risk to consumers and suppliers.<sup>28</sup> A number of suppliers supported a trailing average approach,<sup>29</sup> which we had identified as a potential alternative in our WACC update paper.<sup>30</sup>

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<sup>28</sup> Transpower's submission "Update paper on the cost of capital" (5 February 2016), p1.

<sup>29</sup> For example: 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 16; Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016), p.1; ENA "Submission on IM review: Cost of capital" (9 February 2016), para 18.

<sup>30</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015).

86. After considering advice on this topic from Dr Lally together with all of the submissions, we are not convinced that the advantages of moving to a trailing average approach outweigh its disadvantages and the costs of a significant change to our cost of debt methodology.<sup>31</sup> We maintain our view from 2010 that the prevailing rate provides better investment incentives, and any disadvantages from using prevailing rates are not sufficient to justify a significant change in approach.<sup>32</sup>
87. However, we propose to make some more minor modifications to our cost of debt methodology that are intended to mitigate some of the issues raised with the current approach. This includes some changes to the TCSD and a reassessment of the appropriate debt issuance costs. A summary of our proposed changes to the IMs related to the cost of debt are to:
- 87.1 keep the current prevailing approach for the risk-free rate and debt premium but expand the averaging period used from one month to three months;
  - 87.2 keep the current debt premium methodology but have regard to a secondary methodology, which determines a NSS curve based on the available bond data;<sup>33</sup>
  - 87.3 adapt the calculation of the TCSD so that it provides a more consistent allowance for bonds with a maturity date longer than five years; and
  - 87.4 set the debt issuance costs to be 0.20% per annum.

#### Identified focus areas

88. In reviewing the IMs, we focussed on the specific areas related to the estimate of the cost of debt that were raised internally and by external stakeholders. This process included the publication of a problem definition paper (which covered issues that had been raised by the High Court),<sup>34</sup> and a WACC update paper published in November 2015.<sup>35</sup>

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<sup>31</sup> 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).

<sup>32</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H4.13.

<sup>33</sup> Apart from a modification to the use of government-owned bonds.

<sup>34</sup> In its judgement on the appeals to the setting of the original IMS, the High commented on certain aspects of the cost of capital IMs. See: *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289.

<sup>35</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015).

89. Following submissions on these papers and internal assessment, we identified four specific areas related to the cost of debt methodology for further consideration. These areas are:
- 89.1 whether setting the benchmark cost of debt using our current 'prevailing' methodology is appropriate including our consideration of an alternative 'trailing average' approach;
  - 89.2 whether the cost of debt should be updated annually during a price-quality path;
  - 89.3 whether we can improve the accuracy or predictability of the existing methodology used to estimate the cost of debt; and
  - 89.4 whether the TCSD is necessary, or whether the current methodology can be improved.

**Issues raised with our prevailing approach to estimating the cost of debt**

90. Our current approach to estimating the cost of debt averages the risk-free rate and debt premium over one calendar month. This month is immediately prior to the month for which the WACC is being estimated.<sup>36</sup> This approach is described as using the 'prevailing rate' because it is the rate prevailing relatively close to the start of the price path.<sup>37</sup>
91. When determining a WACC for price-quality paths we apply the prevailing approach to one calendar month of data, seven months prior to the start of the path.<sup>38</sup>
92. We decided to use prevailing (or current) interest rates when setting the original IMs because we considered that they better achieved the Part 4 purpose and the potential dynamic efficiency benefits of investment, than the use of historic rates.<sup>39</sup>

*Issues raised with the current approach*

93. We received a number of submissions from suppliers that felt that the use of a prevailing approach resulted in increased costs or risks for companies. They suggested that it is difficult, as a regulated supplier, to exactly match the actual

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<sup>36</sup> For price-quality paths prevailing rates are calculated by averaging the data over one calendar month prior to when the cost of capital is being estimated. For more details on how these prevailing rates are calculated. See: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H.4.1.

<sup>37</sup> Alternative names for the prevailing approach are the 'on the day' approach or 'current interest rates' approach.

<sup>38</sup> For example, for the default price-quality paths and individual price-quality paths starting on 1 April 2015, this month was August 2014. See: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H.14.5.

<sup>39</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H4.10-H4.13.



financing prices with the benchmark cost of debt estimate used in the WACC calculation.

94. Suppliers suggested that a trailing average would provide more stability and be more consistent with the debt-financing actions taken by an efficient regulated supplier. For example, PwC, Orion and Transpower submitted that:

We submit that a trailing average of at least 5 years of bond yield data should be used to estimate both the risk-free rate and debt premium. This approach would reduce the volatility between estimates over time, and remove the emphasis on a single month every five years. Importantly it would better reflect the efficient financing arrangements of EDBs, who issue debt on a rolling basis over the course of a regulatory period. It would also be consistent with recent regulatory precedent in Australia and the UK, where a number of regulators have now adopted trailing averages.<sup>40</sup>

We support using trailing averages, in order to reduce volatility and increase certainty. This would also better reflect efficient financing approaches.<sup>41</sup>

In our view the rate on the day approach results in excessive and unnecessary volatility that is highly unlikely to occur in a workably competitive market (and would not occur under a trailing average approach).<sup>42</sup>

95. We received a number of detailed submissions on this topic. The issues raised in submissions that are related to the use of a prevailing approach can be summarised as:

95.1 *Refinancing risk*: a prevailing approach results in a large refinancing risk to suppliers because it implicitly assumes all suppliers refinance their debt in a one month window immediately prior to a price-quality path.<sup>43</sup>

95.2 *Mismatches in the debt premium*: there is no ability to hedge the pricing risk associated with the debt premium for debt issued outside the determination window.<sup>44</sup>

95.3 *Swap market costs*: a prevailing approach results in unnecessary swap market costs/risks on businesses that try to replicate the regulatory approach.<sup>45</sup>

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<sup>40</sup> 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 16.

<sup>41</sup> Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 5.

<sup>42</sup> Transpower's submission "Update paper on the cost of capital" (5 February 2016), p.7.

<sup>43</sup> 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.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), para 77.

<sup>44</sup> 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 80; Transpower's submission on the cost of capital update paper "Trailing average cost of debt and efficient debt management" (5 February 2016), p.8.

95.4 *Period-to-period volatility*: There is the potential for significant volatility in the WACC from one regulatory period to another that feeds through to regulated prices.<sup>46</sup>

96. We consider each of these separate issues in the following section.

#### *Refinancing risk*

97. In general, we do not consider that there are significantly higher refinancing risks under a prevailing approach.<sup>47</sup> Submissions did not appear to disagree with our suggestion that suppliers have the ability to (and do) issue debt on a rolling basis and use interest rate swaps to hedge against interest price movements.<sup>48</sup>

98. The ability to use the swap market means that suppliers who issue their debt on a rolling basis (to minimise refinancing risk) are able to reduce the impact from mismatches between the interest rate of the debt that they issue and the allowance provide by the WACC.<sup>49</sup>

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<sup>45</sup> Firms may replicate the regulatory approach in order to limit the exposure to differences between the compensation they receive for their cost of capital and their real costs. See: Powerco "Submission on Input methodologies review: Invitation to contribute to problem definition" 21 August 2015, para 58.6; Transpower's submission on the cost of capital update paper "Trailing average cost of debt and efficient debt management" (5 February 2016), p.5.

<sup>46</sup> 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 75-76; Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 5.

<sup>47</sup> We consider that 'refinancing risk' is the risk that suppliers are unable to access debt funding (or access come at a significant cost) at the time they need to refinance or issue debt. One example might be because of a significant economic shock that significantly reduces the willingness of companies to buy debt. We consider this is separate to the exposure of companies to the interest rate paid on debt that they issue. We consider that this 'interest pricing risk' can be treated separately to 'refinancing risk' because the interest rate paid by suppliers, can be hedged, to a certain extent, through the use of interest rate swap contracts. As we discuss later in this document, we recognise there are practical difficulties in hedging the debt premium element.

<sup>48</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 2.31.

<sup>49</sup> The use of interest rate swaps allows firms to choose the interest rate re-pricing period it faces, independently of the maturity date of the debt. When referring to swaps in this chapter, we are generally referring to NZD vanilla interest swaps.

99. Some submissions suggest that our approach implies that suppliers will refinance all debt in the narrow determination window that is used to set the WACC. For example Transpower suggested:<sup>50</sup>

The rate-on-the-day approach assumes implicitly that suppliers will refinance their entire debt portfolios at once (or within a very short timeframe) at the beginning of every regulatory period. A supplier that strives to match its actual cost of debt to the regulatory allowance under the rate-on-the-day approach would have to refinance its debt portfolio in this way. This would leave the supplier with all of its debt maturing, and having to be refinanced, at the end of the regulatory period. This means that the entire debt portfolio will be subject to refinancing risk at the same time.

100. We do not consider that use of a prevailing methodology necessarily implies that suppliers would behave in this way. The prevailing rate provides a benchmark cost of debt, including an allowance for any additional costs for suppliers that issue debt with original tenors longer than the original five-year regulatory period.
101. Suppliers themselves determine their debt management strategy, including how much debt they issue (if any) during the determination window. Evidence from the confidential debt survey appears to confirm that they do not only issue debt in the period over the determination window, but instead they issue debt on a regular basis and use interest rate swaps to help manage interest rate pricing risks. As described by Houston Kemp (for Powerco):<sup>51</sup>

An interest rate swap is an instrument that allows a business to convert its exposure to floating rate interest payments into fixed rate payments, or vice versa. A supplier that issues fixed rate debt, but seeks to fix its base rate exposure over the regulatory control period, will enter into two sets of interest rate swaps and will therefore incur the costs of swaps twice:

- it will swap fixed rate debt into floating rate debt at or near issuance, ensuring that all debt is subject to floating rate exposure prior to the start of the regulatory control period; and
- it will swap this floating rate exposure back into a fixed rate exposure, fixed for five years, over a period consistent with when the Commission measures the risk free rate.

Entering into these arrangements will not allow a supplier to match the cost of debt allowance under the IMs. As noted above, this is not possible unless the supplier engages in lumpy debt issuance. However, interest rate swaps can allow a supplier to approximately match the risk free rate component of the cost of debt, leaving it exposed only to movements in the debt premium.

102. As a result, 'refinancing risk' appears to be less relevant than some more specific risks and costs affecting suppliers. These are the practical costs associated with

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<sup>50</sup> 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.7.

<sup>51</sup> Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p.13.

hedging the risk-free rate using the swap market (swap market costs), and the exposure of companies to pricing risk associated with the debt premium.

*Mismatches in the debt premium*

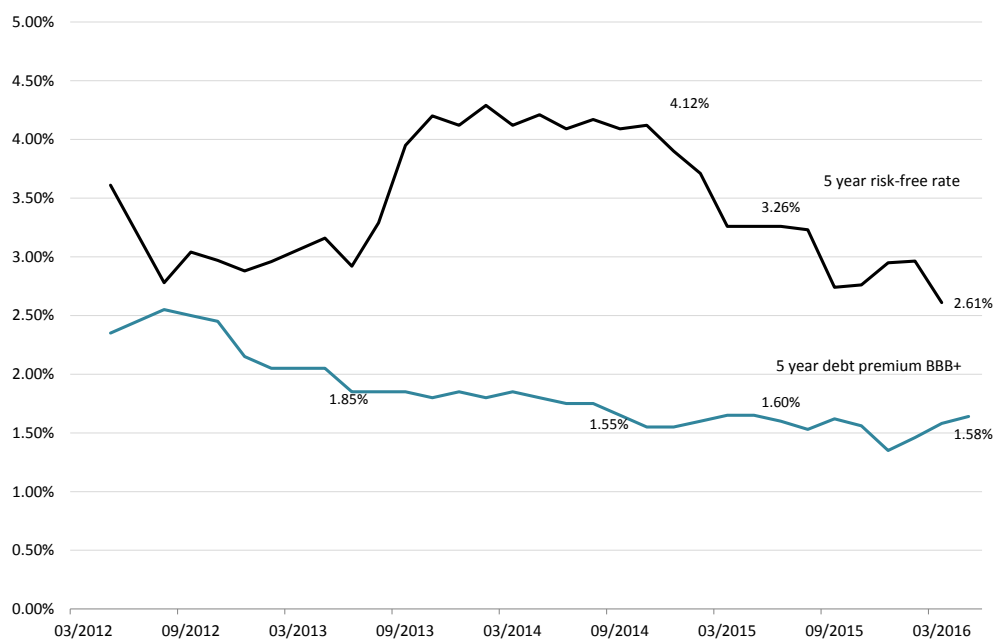
103. An important issue to consider when applying a prevailing approach methodology is the potential mismatch between the debt premium incurred by firms who issue debt on a regular rolling basis, and that allowed for in the WACC. Firms can be exposed to any difference between the debt premium paid at the time they issue debt and the debt premium determined during the averaging window prior to the setting of the WACC.<sup>52</sup>
104. This 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.
105. Transpower has argued that these mismatches are significant and currently cost it ca. \$15m p.a. because its average debt premium incurred was ca. 40-50 bps higher than that allowed for in the determination window.<sup>53</sup>
106. We do not consider the impact has been as significant as suggested by Transpower. Figure 2 shows the debt premium as determined by the Commission has been relatively stable (particularly compared to the risk-free rate) with an average over the last five years of ~1.85%.
107. The debt premium allowed for in the August 2014 determination window was 1.65%. This suggests that the identified mismatch in this determination would be of the order of 20 bps, or roughly half of that suggested by Transpower.

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<sup>52</sup> 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.

<sup>53</sup> 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.

**Figure 2: Commission estimates of the risk-free rate and debt premium (BBB+)**



108. Despite this, potential mismatches of the debt premium are a known disadvantage of the prevailing approach. However, we consider the effect is mitigated by a number of factors:

- 108.1 The debt premium is relatively stable, which reduces the chance any mismatches will have a material impact on supplier revenues.
- 108.2 Any potential mismatches can take place in both directions. Therefore, over time mismatches are likely to even out over time. We consider that regulated suppliers should be able to manage this risk.
- 108.3 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.<sup>54</sup>

109. Given these mitigating factors, we do not consider the potential for mismatches between the debt premium incurred by suppliers and that provided for in the WACC to be significant enough to warrant a change in the approach to estimating the cost of debt. As outlined in paragraphs 128 to 140, we consider any advantage provided by an alternative trailing average approach in minimising the potential for

<sup>54</sup> 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.

mismatches in the debt premium, does not outweigh disadvantages from applying such a change.<sup>55</sup>

*Swap market costs*

110. Suppliers raised concerns there are costs associated with using the interest rate swap market. In particular, they suggest that the swap market is subject to distortions if suppliers attempt to procure large numbers of swaps at the same time. The one month period used to determine the WACC will encourage suppliers to enter into swap contracts over this time.

111. For example, Transpower noted that:<sup>56</sup>

By comparison to the size of the interest rate swap market in New Zealand, which is estimated by Westpac to be ca. \$150 million per day for five year tenor based upon observed average volumes, the volume to be reset during the determination window significantly exceeds average daily market volumes. Further, in order to match the regulatory allowance and minimise refinancing risk requires the volume to be moved evenly and consistently over each of the determination window days. This presents a significant economic equilibrium problem where supply exceeding demand and consequently price will invariably move upwards.

112. Other particular issues raised by suppliers are the uncompensated costs associated with hedging differences between the swap rate and risk-free rate;<sup>57</sup> and the need to use forward starting swaps, given that the market yields on which a WACC is determined are ~7 months prior to the start of a price path.<sup>58</sup>

113. Transpower suggested there could be an impact of 50 bps on the swap market from the concentrated demand from regulated suppliers over a one month period. However, there is no empirical evidence given on this point.<sup>59</sup> Any increase in price will depend on both the demand from regulated businesses and the supply of swaps being offered by financial providers.

114. We have been provided with limited evidence that suggests the swap market is not competitive (ie, that the provision of swaps will not increase to cope with additional demand), however, we consider that it is possible that the one month window may have some distortionary effects in the way suggested by submitters.

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<sup>55</sup> It is also not clear that applying a trailing average would eliminate these mismatches as it would require a supplier to fully replicate a debt strategy consistent with the approach assumed by the regulator.

<sup>56</sup> Transpower's attachment to its submission on the cost of capital update paper "Trailing average cost of debt and efficient debt management" (5 February 2016), p.22.

<sup>57</sup> Transpower's submission "Update paper on the cost of capital" (5 February 2016), p.5.

<sup>58</sup> Assuming a rising interest rate curve vs tenor.

<sup>59</sup> 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.22.

115. We, therefore, propose to increase the determination window from the current one month window to three months. This extension of the window will help to reduce the potential for market distortion. This extension of the averaging period is supported by Dr Lally for the same reasons.<sup>60</sup>
116. In general, we do not consider specific details of swap market behaviour and transaction costs by suppliers. Firms are likely to behave differently, depending on their financial strategy, and the precise magnitude of any additional costs is uncertain and is likely to vary based on debt market conditions.
117. As a result we do not analyse all of the potential costs that could be associated with the operation of firms in the swap market. Instead, for simplicity, we provide a benchmark cost of debt and include an allowance for debt issuance costs. We consider this allowance is sufficient, at a general level, to compensate suppliers for the costs of both debt issuance and the costs of undertaking swap transactions. Further details on how this allowance is determined are provided in paragraphs 218 to 246.
118. One cost that some submissions focussed on is an additional cost due to the difference between the government bond rate and the swap rate.<sup>61</sup> However, as noted by Dr Lally, evidence he has previously provided on this topic suggests that any impact is likely to be minimal.<sup>62</sup> This approach would also require a review of our TAMRP as it is currently determined as a premium to the government bond rate.

*Period-to-period volatility*

119. The final issue raised with the prevailing approach is the claim that it results in volatile estimates of the WACC that can change significantly from one period to another. This point was raised by a number of suppliers who suggested the volatility affected both their own costs and also has a detrimental impact on consumers, who may be subject to significant price changes.<sup>63</sup>

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<sup>60</sup> 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.17.

<sup>61</sup> Frontier Economics' submission on the problem definition paper "Recommendations on priorities for review of cost of capital input methodology" (report prepared for Transpower, 21 August 2015), p.6.

<sup>62</sup> 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.8.

<sup>63</sup> 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), p.14; Orion "Submission on the cost of capital and the IM review" (5 February 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), p.4; CEG (on behalf of ENA) "Key reforms to rate of return under the IMs" (February 2016), para 204 (iv).

120. Price paths with an indexed RAB, accommodate changes to inflation throughout and between regulatory periods. This means that volatility in inflation should not result in step changes at a reset (although there can be some effect created by the balance between return achieved through cash flows versus revaluations). In particular, the effect of treating revaluations as income reduces the volatility in starting revenues (and therefore prices) at the reset.
121. We agree with submissions that suggested the prevailing approach is likely to lead to more volatile estimates compared to alternatives (eg, trailing average approach). However, we do not consider the existence of this volatility is sufficient to warrant a change from the prevailing approach.
122. The impact from this volatility is mitigated due to:
- 122.1 the ability of suppliers to enter swap market arrangements and/or issue debt during the determination window to reduce the effect of any volatility from changes to the risk-free rate;<sup>64</sup> and
- 122.2 the ability of the regulator to manage any significant changes to consumer prices at the time of each reset through regulatory pricing mechanisms.<sup>65</sup> This is true for any significant price change, which could be due to the WACC or other factors (eg, significant changes to the opex allowance).
123. We consider that these factors are sufficient to ensure the impact of cost of debt volatility from one regulatory period to another can be managed under a prevailing approach and will have limited negative impacts. As a result, we do not propose to change the prevailing approach due to volatility issues.

*Our proposed response to the issues raised with our current 'prevailing' approach for estimating the cost of debt*

124. Following consideration of the issues, we propose to maintain the current prevailing approach to estimating the cost of debt but, as described in paragraph 115, extend the determination window for both the risk-free rate and debt premium from one month to three months. On balance, we consider that our current 'prevailing' approach provides a better estimate of the cost of debt than any of the alternative approaches we have considered.

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<sup>64</sup> As noted previously this is not possible for the debt premium, but the debt premium is a relatively small and stable element of the cost of debt so the impact on the debt premium is likely to be limited.

<sup>65</sup> Dr Martin Lally (for QCA) "Review of submissions on the trailing average cost of debt" (27 January 2015), p.9; For example, we set alternative rates of change when setting the original DPP for electricity distribution businesses: Commerce Commission "Resetting the 2010-15 Default Price-Quality Paths for 16 Electricity Distributors" (30 November 2012).



125. We do not consider that the issues raised with the existing approach warrant a significant change to our approach given the disadvantages with the alternatives we have considered.
126. Our consideration of potential alternatives to our current approach is described in the following sections. Three specific alternative options that we considered are:
- 126.1 implement a trailing average for total cost of debt;
  - 126.2 implement a trailing average for the debt premium ('hybrid') approach;
  - 126.3 keep the prevailing approach, but allow firms to nominate their own determination window.
127. We do not propose to implement any of these options for the reasons described below.

*Alternative option 1 – trailing average for total cost of debt*

128. An alternative methodology for estimating the cost of debt would be to apply a trailing average approach. This method attempts to replicate an efficient debt-financing strategy for firms with long-lived assets, in which they refinance a portion of their debt every year. The portion is determined by the average length of the debt. Some Australian regulators have moved to a trailing average methodology since the setting of the original IMs.<sup>66</sup>
129. A number of submissions suggested that we change our cost of debt methodology to a trailing average approach.<sup>67</sup> For example, the ENA suggested that:<sup>68</sup>
- The use of a trailing average would promote outcomes that are consistent with those in workably competitive markets. ENBs will have an expectation that they will be compensated for the costs of an efficient debt management strategy and thus can recover the costs of investments. This will promote incentives to invest while still limiting the ability to extract excessive profits.
130. Most submissions on this issue suggested a 10-year trailing average whereby 10% of the debt is refinanced every year. Alternatively, PwC proposed a 5-year trailing average where 20% of the debt would be rolled-over every year.<sup>69</sup>

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<sup>66</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 3.23.

<sup>67</sup> See, for example: ENA "Submission on IM review: Cost of capital" (9 February 2016), para 18; NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 69.

<sup>68</sup> ENA "Submission on IM review: Cost of capital" (9 February 2016), para 19.

<sup>69</sup> 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 88.

131. BARNZ provided a counter view and did not support the use of a trailing average approach to estimate the WACC. It suggested that:<sup>70</sup>

WACC is predominantly a forward looking concept, designed to identify the cost of capital to a firm going forward, and to provide a measure of the opportunity cost to the firm of using its capital for the particular activity in question, rather than investing in an alternative activity. Since debt costs change with financial market conditions, the average historic cost of debt, taken by itself, is therefore a poor indicator as to the cost of capital a firm is facing when making forward looking investment decisions in respect of the forth-coming pricing period.

132. BARNZ also considered debt market conditions can influence the WACC methodology proposed by suppliers. It suggested:<sup>71</sup>

It has been BARNZ's experience that during price resetting when the prevailing cost of debt is increasing, that suppliers are only too happy to make use of the prevailing rates. The fact that at times a significant portion of the firm's debt requirements has been fixed at the previously lower rates, enabling the firm to recover more than its actual costs of debt, has not previously been seen as relevant by suppliers with whom BARNZ has consulted over the re-setting of charges.

It is only now that prevailing debt rates are below average debt rates experienced over the last ten to fifteen years, that the concept of a trailing average is being promoted by some regulated suppliers.

133. The general approach when applying a trailing average methodology is to update the cost of debt every year and adjust the price path accordingly. This ensures that the allowance for the cost of debt continually matches the trailing average portfolio. This was the approach suggested by Transpower and CEG (for the ENA).<sup>72</sup> An alternative view was provided by Orion and PwC who were in favour of a move to a trailing average, but did not consider the WACC should be updated on an annual basis.<sup>73</sup>

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<sup>70</sup> BARNZ's submission on cost of capital update paper "The use of trailing averages" (5 February 2016), p.1.

<sup>71</sup> BARNZ's submission on cost of capital update paper "The use of trailing averages" (5 February 2016), p.1.

<sup>72</sup> Transpower's submission "Update paper on the cost of capital" (5 February 2016), p.5; CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 223; Powerco "Submission on Input methodologies review: Invitation to contribute to problem definition" 21 August 2015, para 56.2.

<sup>73</sup> Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 33; 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 90-93.

134. The main benefits of the trailing average are that it counteracts the issues that previously have been identified with the prevailing approach. For example, it is likely to:
- 134.1 reduce the need for firms to enter into swap market transactions as the trailing average approach is intended to mimic the debt issuance behaviour of a prudent and efficient firm;<sup>74</sup>
  - 134.2 reduce the chance of mismatches occurring between the debt premium paid by suppliers issuing debt and that allowed in the WACC; and
  - 134.3 reduce the chance of significant changes in WACC from one regulatory period to another, as changes to the cost of debt are passed through more gradually through the annual updates.
135. Despite these benefits from a trailing average approach, there are also disadvantages compared to a prevailing approach. A number of these disadvantages are described by Dr Lally in his recent advice and previous reports on this topic.<sup>75</sup> The disadvantages include:
- 135.1 That using historical rates could blunt the signals from financial costs in relation to new infrastructure investment. This was our main reason for choosing a prevailing approach when setting the original IMs and remains a significant factor.<sup>76</sup>
  - 135.2 The long-term benefits of consumers could be harmed if a supplier requires a significant capex investment but is not incentivised to do so.
    - 135.2.1 This situation may arise if the prevailing cost of debt is significantly higher than the cost of debt allowance provided by a WACC allowance based on a trailing average methodology.

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<sup>74</sup> Although it may reduce the need for swap market transactions, it is unlikely to eliminate them completely. Firms may still enter the swap market to manage their interest rate risk, eg, because their actual debt issuances do not completely mimic that assumed by the regulator, or because they wish to lower interest rate payments by lowering the interest rate term (eg, from 10 years to 3 years), assuming an upward sloping yield curve.

<sup>75</sup> 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); Martin Lally "The trailing average cost of debt" (19 March 2014), available at: <http://www.qca.org.au/getattachment/fdb28fe4-1fe5-4e84-8a59-069ede17883f/The-Trailing-Average-Cost-of-Debt-Lally,-2014.aspx>; Martin Lally "Review of submissions on the trailing average cost of debt" (27 January 2015), available at: <http://www.qca.org.au/getattachment/1ae4e997-d268-49fe-ab4d-8d0eb12b1977/REVIEW-OF-SUBMISSIONS-ON-THE-TRAILING-AVERAGE-COST.aspx>.

<sup>76</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H4.10-H4.13.

- 135.3 The use of a trailing average regime increases the potential for violations of the NPV=0 principle (and thus increases bankruptcy risk) for both an initial investment and subsequent capex investment.<sup>77</sup>
- 135.4 If a 10-year trailing average is used it is likely to overcompensate suppliers compared to our prevailing approach. The allowance for the cost of debt would be based on the price of issuing debt with a term of 10 years, rather than five years.<sup>78</sup> The average price of the 10-year debt is likely to be higher than the five-year debt assuming an upward sloping yield curve.<sup>79</sup>
- 135.5 Moving from a prevailing approach to a trailing average approach would be a substantial policy change in the approach to estimating the cost of debt. This would potentially incur significant one-off regulatory cost both in terms of administrative costs of implementing the change and the impact on the conditional regulatory predictability that the IMs are intended to promote.<sup>80,81</sup>
- 135.6 A transition to a trailing average approach is likely to be subject to significant debate.<sup>82</sup> Any decision on the approach to transition is likely to result in a significant one-off impact on suppliers and consumers. We also note that a transition to a trailing average by the Australian Energy Regulator (**AER**) in

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<sup>77</sup> 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.

<sup>78</sup> We note that under the prevailing approach we allow for a TCSD allowance to compensate for the additional debt premium and the interest rate swap execution costs that can be incurred from issuing debt with a longer term than five years.

<sup>79</sup> As noted in the High Court judgment, firms make use of the swap market to reduce the higher interest rate it pays on longer-term debt (assuming upward sloping yield curve) by reducing its interest rate pricing term. A regulatory decision that does not take into account the potential for firms to reduce their costs in this way is likely to overcompensate companies for their cost of debt. PwC suggested a five-year term, however this would no longer result in a broad replication of the cost of debt of an efficient firm (which issues debt with an original term to maturity longer than five years) and so some of the advantages of a trailing average approach would not be realised.

<sup>80</sup> 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.21.

<sup>81</sup> We discuss further what we mean by regulatory certainty in Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>82</sup> The lack of clarity is underlined by the apparent contradiction in Transpower's submission described by Martin Lally on their views for the appropriate transition arrangements: 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.32.

Australia has been subject to significant debate and an ongoing appeals process.<sup>83</sup>

- 135.7 Annually updating the price path to take into account a revised cost of debt would be an additional administrative burden. This is particularly true for DPPs and CPPs where there is not currently an annual update to the price-quality path.
136. Although there are some benefits of moving to a trailing average regime (described in paragraph 134), in our view these are not outweighed by the disadvantages (described in paragraph 135). Therefore we do not propose to introduce a trailing average methodology to estimate the cost of debt for price-quality paths.
137. The advantages of using a trailing average approach for ID regulation appear slightly stronger than the situation in which the WACC is used to determine the allowance for return on capital under a price-quality path. A more stable estimate of WACC may provide benefits to interested parties when assessing supplier profitability using disclosed information.<sup>84</sup>
138. However, we do not consider this benefit would be substantial in assessing profitability because:
- 138.1 We agree with Dr Lally that any assessment of ex-post profitability should take place over number of years. 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;<sup>85</sup> and
- 138.2 To date our assessments of supplier profitability have been generally undertaken on an ex-ante basis using the WACC applied at the start of a price-quality path or price setting event (for airports).<sup>86</sup> Under these circumstances, the methodology to determine the annual WACC for ID is not

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<sup>83</sup> The Australian Competition Tribunal overturned the AER's decision on the transition methodology when the AER decided to move to a trailing average approach. The Tribunal's decision is now subject to judicial review. See: Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1, at [924].

<sup>84</sup> 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.

<sup>85</sup> 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.

<sup>86</sup> For example: summary analysis of EDB profitability, 56G reports for airports.

as significant because we generally use the WACC set at the start of the price-quality path/price-setting event.

139. Given the limited benefits in applying a trailing average approach to determine the WACC for ID, we do not propose to introduce a trailing average for this purpose.
140. On balance, we consider that our current prevailing approach provides a better estimate of the cost of debt for ID than this alternative .This is because of the:
- 140.1 administrative costs of introducing a trailing average approach; and
- 140.2 additional complexity that arises if the approach for ID diverges from the approach taken for price-quality regulation.<sup>87</sup>

*Alternative option 2 – trailing average for the debt premium ('hybrid') approach*

141. A second alternative option is to apply a trailing average approach but only to the debt premium, not the total cost of debt. This option has been called the 'hybrid' approach.<sup>88</sup>
142. No submissions specifically requested this variant of the trailing average, but we noted in the WACC update paper that it had been introduced by the ERAWA.<sup>89</sup> The advantage of this option is that it reduces the potential for mismatches in the debt premium incurred by a regulated supplier (assuming it issues debt on an annual rolling basis) and that provided in the cost of debt estimate.
143. However, it does not solve the other identified issues with the prevailing approach:
- 143.1 A prevailing approach is used for the risk-free rate and so it does not reduce the level of swap transactions (and costs) required.
- 143.2 It is likely to have limited effect on total price volatility from regulatory period to the next, because the debt premium is only a relatively small proportion of the total cost of debt.

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<sup>87</sup> 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.

<sup>88</sup> Submissions have not specifically requested this approach, however it has previously been raised as potential option in the WACC update paper and evaluated as part of this review because we consider that one of the main disadvantages of the prevailing approach is the potential for mismatches in the debt premium. Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), 3.29.3.

<sup>89</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), 3.23.3.

144. Disadvantages when applying the hybrid approach are that:
- 144.1 There is the potential for negative incentive effects for new investment from using a historic averaging approach. This has been illustrated by Dr Lally in his report, which suggests that NPV=0 violations are higher for a debt premium calculated using a trailing average compared to one calculated using a prevailing rate.<sup>90</sup>
  - 144.2 Broad replication of an efficient debt strategy would only arise after a transitional period (eg, 10 years), if we introduced a trailing average for the debt premium immediately. It would depend on the timing of previously incurred debt and means that any immediate imposition of this methodology is likely to be subject to significant debate.
  - 144.3 There will be an additional administrative burden from annual updating of the debt premium and updating the price-quality path.<sup>91</sup>
145. As noted in paragraph 108.3, use of a prevailing rate for the debt premium is also likely to partly offset MRP estimation errors, which further reduces the rationale for a change.
146. On balance, we consider that our current trailing average approach provides a better estimate of the cost of debt than this hybrid alternative. We recognise that this has not been the focus of submissions to date and we welcome any further evidence on this approach.

*Alternative option 3 – firms to nominate their own determination window*

147. We have previously suggested an option that allows a firm to choose the determination window based on which specific WACC would be estimated.<sup>92</sup> This could potentially help mitigate the potential for additional swap market distortions/costs from using a single month as the determination window.

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<sup>90</sup> 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.9-11.

<sup>91</sup> This is particularly the case for EDBs and GPBs who do not currently have an annual adjustment to their price-quality path.

<sup>92</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 3.34.4.2.

148. Submissions from the ENA and Wellington Electricity both supported the option for suppliers to nominate their own determination windows in the event that a prevailing approach is maintained.<sup>93</sup> Wellington Electricity suggested that:

To better manage the risks associated with a narrow re-pricing window, WELL proposes that the Commission allow businesses to nominate their own averaging period rather than having a fixed averaging period for all businesses. This would also help businesses lower their actual debt management costs.

149. We consider that supplier-specific determination windows may provide some benefit in reducing the swap market transactional costs. However, it would result in some additional complexity to the regime. This complexity may arise both in different WACC values being applied to different suppliers (for example, under the same DPP) which may impact on comparability as well as the process for firms to nominate specific periods.
150. The optionality inherent in firms being able to nominate their own determination windows could potentially lead to gaming opportunities, depending on the precise mechanism implemented.
151. Although we consider this type of approach might be possible under our regime, we do not consider that the issues it is intended to mitigate are significantly large to justify this change to the methodology. As noted in paragraph 115, we propose to extend the length of the determination window. This should reduce any potential swap market distortions by spreading out the period over which businesses obtain swaps.
152. We, therefore, do not propose to allow a supplier to nominate its own determination window.

**Submitters proposed that we update the WACC annually (indexation)**

153. The current IMs apply a single WACC to a price-quality path for the length of the regulatory period. There is no revision to the cost of debt element of the WACC during this time.
154. Dr Lally outlines that, because the WACC is fixed over the price-quality path, it can lead to mismatches between the debt premium set at the start of the path and the actual debt premium incurred by suppliers if they regularly issue debt over the course of the regulatory period.<sup>94</sup>

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<sup>93</sup> Wellington Electricity "Input methodologies review – Cost of capital" (9 February 2016), p.4; CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 234.

<sup>94</sup> 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).



155. The mismatches take place in both directions and lead to a violation of the NPV=0 principle. Dr Lally also explains that because firms have some discretion in when they invest in new capex, these mismatches will not necessarily wash out, so he favours annual updates to the debt premium element of the cost of debt.<sup>95</sup>
156. Submissions from stakeholders had differing views on how annual updating should be considered. For example, Transpower considered that it is inherently linked to the choice of whether to apply a trailing average:<sup>96</sup>

The Update Paper has separated issues to do with the trailing average approach and the question of whether the cost of debt allowance should be indexed through the regulatory period. Transpower views these as closely linked issues that should be considered together

157. However, PwC considered that they were separate issues.<sup>97</sup>

We agree with the Paper that annually updating the risk-free rate and/or debt premium is a distinct issue from the use of trailing averages, and should be considered separately

158. Although we agree with the points made by Dr Lally, on balance, we do not consider that this is a significantly material issue.<sup>98</sup> We do not consider that the introduction of annual updates to the debt premium would provide sufficiently material long-term benefits to consumers that would justify the administrative costs of an annual update process. We also note that there is no support from stakeholder submissions to annually update the cost of debt in the absence of the introduction of a trailing average. On this point Transpower suggested:<sup>99</sup>

There would be no good reason to implement indexation of the return on debt without also applying a trailing average. This would introduce significant volatility into regulated prices because the cost of capital would be reset in each year according to the prevailing rate, which can vary significantly from year to year. Neither increased volatility nor increased costs is in the interests of consumers or suppliers and is likely to result in suppliers entering more expensive hedging arrangements.

159. We therefore propose to maintain the current approach that fixes the WACC (and thus the cost of debt) for the length of the regulatory period.

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<sup>95</sup> 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), p16-17.

<sup>96</sup> 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.19.

<sup>97</sup> 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.90.

<sup>98</sup> We recognise there may be other practical implementation complications for example, maintaining a real return under indexing may be complicated if we wished to try and control for this.

<sup>99</sup> 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.19.

### Issues raised with our debt premium methodology

160. Our current approach to estimating the debt premium involves a degree of judgement. When estimating the debt premium, we consider yields to maturity for a pool of corporate bonds issued by companies that have similar characteristics to a notional benchmark supplier that we specify. This approach often results in upper and lower bounds, within which judgement is required to determine a point estimate of the debt premium.
161. Although we consider that the current approach to estimating the debt premium has worked relatively well, the relatively thin New Zealand bond market can sometimes lead to difficulties when determining a specific debt premium estimate. For example, CEG (for the ENA) submitted that:<sup>100</sup>
- 161.1 focussing on debt issued by regulated EDBs materially reduces the number of observations available, in a context where it is not obvious that there is any advantage from doing so; and
  - 161.2 with an expanded bond set, we should also consider curve fitting and other statistical techniques that would allow more intensive and efficient extraction of information from a sample of bonds.
162. We have investigated potential improvements that could be made to our current approach. In particular, we have considered the following two potential changes to our debt premium methodology.
- 162.1 *Should we stop placing less weight on bonds issued by companies that are majority owned by the government?* Removing this restriction would increase 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.
  - 162.2 *Should we use a more mechanical approach to estimating the debt premium?* A more mechanical approach would reduce the degree of judgement required when determining our debt premium estimates.

### *Outline of our current approach to estimating the debt premium*

163. Under our current approach, we estimate a service-specific (rather than supplier-specific) debt premium. We follow a 'simple approach' which involves three steps:<sup>101</sup>
- 163.1 identifying credit-rated publicly traded vanilla corporate bonds denominated in New Zealand dollars, issued by the regulated service in question in New

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<sup>100</sup> CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), paras 231-232.

<sup>101</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), para H5.30.

Zealand (and, as a cross-check, issued by other infrastructure businesses which are not the regulated service in question);

- 163.2 obtaining the market yield to maturity on these bonds and the contemporaneous risk-free rate, and estimating the debt premium by taking the difference between the two; and
  - 163.3 estimating, by interpolation, the debt premium for a term to maturity equal to the regulatory period, consistent with a specified Standard and Poor's (S&P) long-term credit rating (or equivalent rating from Moody's or Fitch), for bonds issued by suppliers of the regulated service in question.
164. For example, for EDBs, Transpower, and GPBs, we estimate the average debt premium that would reasonably be expected to apply to publicly traded vanilla New Zealand dollar denominated corporate bonds that:
- 164.1 are issued by an EDB or GPB that is neither majority owned by the government nor a local authority;
  - 164.2 have a S&P's long-term credit rating of BBB+ (or equivalent rating from Moody's or Fitch); and
  - 164.3 have a remaining term to maturity of five years.<sup>102</sup>
165. However, there are very few (if any) publicly traded bonds in New Zealand that match the characteristics described in paragraph 164. In particular, there have not been any BBB+ rated bonds issued by EDBs or GPBs included in our IMs WACC determinations since April 2013.
166. Given the small number of EDB/GPB issued bonds with a BBB+ credit rating, we also consider bonds issued by companies that are not EDBs or GPBs, or have credit ratings other than BBB+. When determining our debt premium estimate, we place progressively less weight on the available publicly traded bonds in the order listed below:<sup>103</sup>
- 166.1 bonds issued by an EDB or a GPB (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
  - 166.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;

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<sup>102</sup> We also currently estimate three and four year debt premiums for CPP proposals.

<sup>103</sup> We only consider bonds issued by New Zealand resident limited liability companies that undertake the majority of their business activities in Australia or New Zealand and do not operate predominantly in the banking or finance industries.

- 166.3 bonds issued by an EDB or a GPB (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+;
  - 166.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+; and
  - 166.5 bonds issued by entities that are majority owned by the Crown or a local authority.
167. We follow the same approach outlined in paragraph 163 when estimating the debt premium for airports, except we use a benchmark credit rating of A- (rather than BBB+) and most weight is placed on bonds issued by airports (rather than EDBs or GPBs).

*Should we stop placing less weight on bonds issued by companies that are majority owned by the government?*

168. As noted in paragraph 166.5, we currently place least weight on bonds that are majority owned by the Crown or a local authority when we estimate the debt premium. This is because, holding other factors constant, we considered that government ownership would generally be expected to lower the observed debt premium on a bond.<sup>104</sup>
169. Our current approach significantly limits the sample of bonds relied on when estimating the debt premium. Figure 3 shows debt premium estimates using data for the three months from January to March 2016, with majority government-owned companies listed under category 4(e). This figure shows that:
- 169.1 half of the companies we currently consider when estimating the debt premium are majority owned by the government; and
  - 169.2 four of the five majority government-owned companies in the sample issue bonds with a BBB+ credit rating.

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<sup>104</sup> Government ownership could be expected to reduce the observed debt premium on a bond if investors anticipate that the government will step in if the issuer is in financial trouble (reducing the risk of default).

**Figure 3: NZ corporate bonds considered when estimating the debt premium<sup>105</sup>**

| Subclause | Issuer         | Note ref. | Industry | Rating | Remaining term to maturity | Debt premium |
|-----------|----------------|-----------|----------|--------|----------------------------|--------------|
| 4(a)      | -              | -         | -        | -      | -                          | -            |
| 4(b)      | WIAL           | 1         | Other    | BBB+   | 5.0                        | 1.62         |
| 4(c)      | -              | -         | -        | -      | -                          | -            |
| 4(d)      | Spark          | 2         | Other    | A-     | 5.0                        | 1.39         |
|           | AIAL           | 3         | Other    | A-     | 5.0                        | 1.30         |
|           | Contact        | 4         | Other    | BBB    | 5.0                        | 1.83         |
|           | Fonterra       | 5         | Other    | A-     | 5.0                        | 1.46         |
| 4(e)      | Meridian       | 6         | Other    | BBB+   | 7.0                        | 1.75         |
|           | Genesis Energy | 7         | Other    | BBB+   | 5.0                        | 1.65         |
|           | MRP            | 8         | Other    | BBB+   | 5.0                        | 1.76         |
|           | CIAL           | 9         | Other    | BBB+   | 5.0                        | 1.58         |
|           | Transpower     | 10        | Other    | AA-    | 5.0                        | 1.10         |

**Notes on bonds analysed:**

- 1 WIAL 5.27% bond maturing 11/06/2020; 6.25% bond maturing 15/05/2021.
- 2 Spark 5.25% bond maturing 25/10/2019; 4.5% bond maturing 25/03/2022.
- 3 AIAL 4.73% bond maturing 13/12/2019; 5.52% bond maturing 28/05/2021.
- 4 Contact Energy 5.28% bond maturing 27/05/2020; 4.40% bond maturing 15/11/2021.
- 5 Fonterra 5.52% bond maturing 25/02/2020; 4.33% bond maturing 20/10/2021.
- 6 Meridian 4.53% bond maturing 14/03/2023.
- 7 Genesis Energy 8.3% bond maturing 23/06/2020; 4.14% bond maturing 18/03/2022.
- 8 MRP 8.21% bond maturing 11/02/2020; 5.79% bond maturing 6/03/2023.
- 9 CIAL 5.15% bond maturing 6/12/2019; 6.25% bond maturing 4/10/2021.
- 10 Transpower 6.95% bond maturing 10/06/2020; 4.3% bond maturing 30/06/2022.

170. However, in practice, government ownership appears to have had a limited effect on the observed debt premiums for publicly traded New Zealand bonds. If anything, government ownership appears to have had the opposite effect to that expected. The debt premium data we have collected since the cost of capital IMs came into effect (in December 2010) indicates that government ownership has had a positive effect on debt premiums since 2013.

<sup>105</sup> The five-year debt premiums are calculated by linear interpolation with respect to maturity.

171. Most of the government-owned companies in the sample of bonds we consider are electricity gentailers (ie, Meridian, Genesis, and Mighty River Power), which could explain the limited impact of government ownership we have observed. Due to the competitive nature of electricity generation and retailing, the government would not necessarily be expected to bail out these companies if they experienced financial difficulty.<sup>106</sup>
172. Given that government ownership appears to have had limited effect on observed debt premiums in recent years, we no longer intend to place reduced weight on bonds issued by companies that are issued by the Crown or a local authority. Removing this restriction will increase the number of bonds we are able to place significant weight on when estimating the debt premium (particularly for EDBs, Transpower and GPBs, given the high proportion of BBB+ bonds that are majority government-owned).

*Should we use a more mechanical approach to estimating the debt premium?*

173. 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 more detail in Attachment C.
174. We consider the NSS yield curve is a useful methodology that could assist us in estimating the debt premium. The NSS approach has strong theoretical foundations, and is an established approach used by central banks around the world. The NSS yield curve can represent a non-linear term structure, and allows the debt premium to be observed at any term to maturity. The NSS curve is also relatively simple to determine, and would reduce the need for judgement when estimating the debt premium.
175. However, there is currently limited experience in developing NSS curves using New Zealand bond data, suggesting some caution may be appropriate before adopting this approach.
176. We propose to have regard to the NSS curve when estimating the debt premium. We intend to generate the curve by:
- 176.1 using three months of debt premium data from individual corporate bonds;
  - 176.2 determining individual data points by using monthly average yields to maturity for each bond; and

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<sup>106</sup> We also note the recent insolvency of Solid Energy, which is government owned.

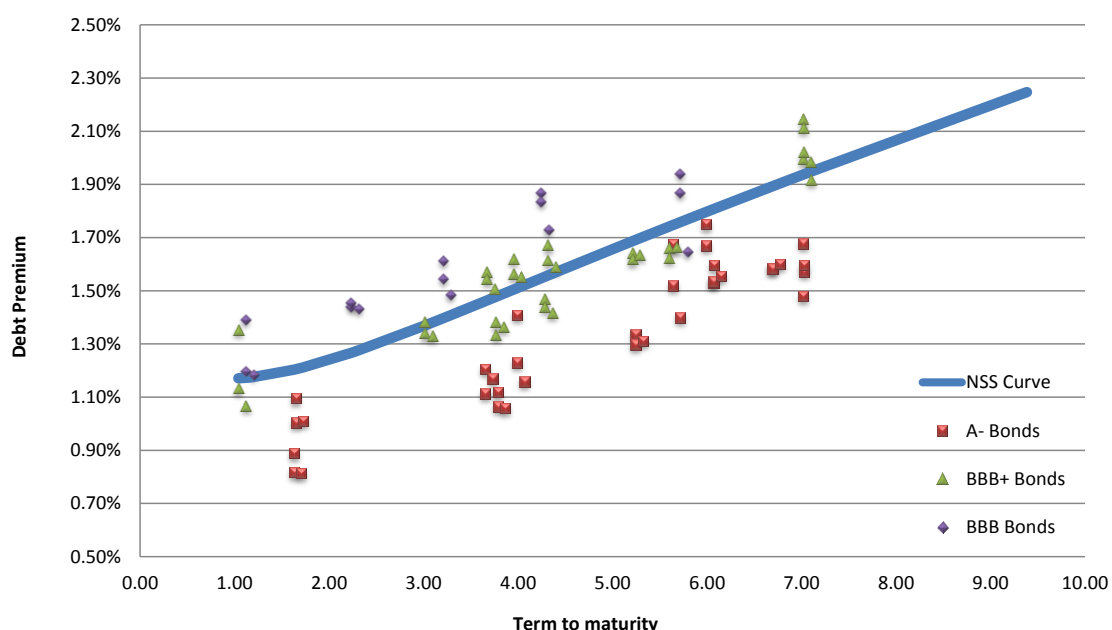
176.3 calculating a NSS curve using an excel optimisation process, including dummy variables for bonds with different credit ratings, based on the function in Equation 1.<sup>107</sup>

**Equation 1: NSS function (including dummy variables for bonds with different credit ratings)**

$$DRP(t) = \beta_1 + \beta_2 \left[ \frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[ \frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[ \frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right] + \beta_5 BBB + \beta_6 A -$$

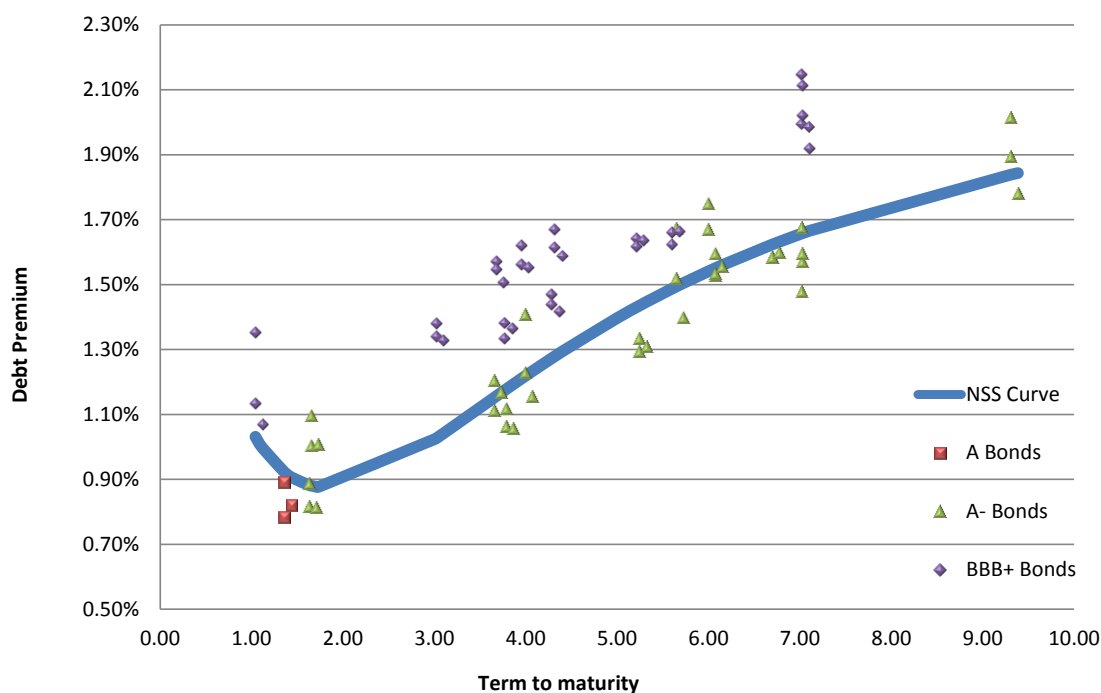
177. NSS curves for the three-month period from January 2016 to March 2016, based on the approach outlined in paragraph 176 and Equation 1, are included in Figure 4 and Figure 5. Further detail regarding the approach to estimating NSS curves is contained in Attachment C.

**Figure 4: NSS curve for EDBs, Transpower and GPBs debt premium (January – March 2016)**



<sup>107</sup> Bonds that match the target credit rating, or are one notch either side of the target credit rating, will be included. For EDBs, GPBs and Transpower, BBB, BBB+ and A- rated bonds will be used, as shown in Equation 1. For airports, BBB+, A- and A rated bonds will be used.

**Figure 5: NSS curve for airports debt premium (January – March 2016)**



178. Following this approach, debt premiums for a five-year term to maturity can be estimated using the NSS yield curves. For example, based on the curves Figure 4 and Figure 5, the five-year debt premium for EDBs/Transpower/GPBs is 1.66% and the five-year debt premium for airports is 1.40%.
179. According to the European Central Bank, there are four main reasons for the popularity of the Nelson-Siegel model:<sup>108</sup>
- 179.1 the model is easy to estimate;
  - 179.2 the yield curve can provide estimates for all maturities (ie, bonds not observable in the market);
  - 179.3 factors have intuitive interpretation so that estimations and conclusions are easily communicated from the model; and
  - 179.4 the model has been proven to fit data well.

<sup>108</sup> European Central Bank (2008)  
<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp874.pdf?4b32dc2539d2598c420ec5e96a3891f7>.



## Issues raised with our approach to the term credit spread differential

### *Issues with the current approach*

180. The cost of capital IM allows companies a TCSD allowance to compensate for the additional debt premium and the interest rate swap execution costs that can be incurred from issuing debt with a longer term than the five-year regulatory period.
181. 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.
182. A number of issues have been raised on the current IM concerning the compensation for the debt premium associated with longer-term debt. These include:
- 182.1 *High Court comments:* The High Court judgment on the setting of the original IMs suggested that the Commission “review the efficacy of the TCSD” so that it may be able to be better articulated and connected with market practice.<sup>109</sup>
- 182.2 *TCSD implementation issues:* There are a number of implementation issues with the current application of the TCSD, including the ability to obtain appropriate data, its complexity and that it potentially undercompensates for longer-term debt.<sup>110</sup>
183. Submissions from suppliers generally maintained the view that a TCSD is required in the absence of a longer benchmark term for the debt premium. However, they note its complexity can cause issues. For example PwC suggested.<sup>111</sup>

We note that the current alternative, the TCSD, has proven to be complex for EDBs to implement in practice. We also note that it may be possible to develop a different mechanism which provides an explicit allowance for longer-term debt, which is more straightforward to apply than the TCSD.

### *Proposed approach*

184. Our proposed approach is to maintain the TCSD but make changes to its implementation. We have reviewed the rationale behind the TCSD and still consider that the additional debt premium incurred by suppliers when issuing debt that has an original tenor greater than the (five-year) regulatory period is a legitimate expense for an efficient supplier. In reaching our draft view, we have considered alternative options, in which the TCSD is removed (as proposed by the High Court), and these are described in subsequent sections.

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<sup>109</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1288].

<sup>110</sup> In particular, the IMs require the TCSD to be calculated by reference to a Bloomberg NZ 'A' fair value curve, which is no longer published. An amendment was therefore made to Transpower's IM which enables it to use an equivalent reference to calculate the TCSD.

<sup>111</sup> 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 99.

185. The TCSD is calculated by way of a formula that combines:
- 185.1 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');<sup>112</sup>
  - 185.2 an allowance for swap costs; and
  - 185.3 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.<sup>113</sup>
186. An additional allowance is then available for qualifying firms based on the size of their debt portfolio and the value of the TCSD.<sup>114</sup>
187. The current IMs require firms to calculate the spread premium and swap cost individually based on market data on the date the bond is issued, subject to minimum and maximum values.
188. This leads to a significant administrative burden on suppliers. Data issues also mean that the TCSD allowance is unlikely to be representative of the true costs of the spread premium. The observed data shows that there is often an inverse relationship between the original term of the debt and the TCSD allowance.<sup>115</sup>
189. As a result, we propose two modifications to the TSCD methodology:
- 189.1 Implementation of a fixed relationship between the value of the spread premium and the original term of the debt in excess of the benchmark five-year term based on historical data.<sup>116</sup>
  - 189.2 Removal of the swap cost element of the TCSD. Instead the allowance for swap costs will become part of the allowance for debt issuance costs.
190. The advantages of this proposed revised approach are that:
- 190.1 it reduces the complex administrative burden associated with the TCSD – this is particularly relevant given that it forms a relatively small element of the cost of capital;

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<sup>112</sup> This debt is called 'qualifying' debt.

<sup>113</sup> We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

<sup>114</sup> Those firms that have a debt portfolio, as at the date of that supplier's most recently published audited financial statements, that has a weighted average original tenor greater than five years.

<sup>115</sup> For further details see Attachment B.

<sup>116</sup> Using NZ domestic bond data from 2010 to 2016 we have determined a linear relationship between term and the additional premium over the average five-year debt premium. For further details see Attachment B.

190.2 there is no longer a requirement to obtain market information when estimating the TCSD; and

190.3 it will always provide a positive relationship between the TCSD allowance and original term of the debt.

*Approach for airports*

191. We have estimated a separate relationship between the value of the spread premium and term for energy businesses (which have a BBB+ credit rating) and airports (which have an A- credit rating). Table 35 in Attachment D shows how the positive spread premium for airports is more than offset by the lower per annum debt issuance costs that arise from issuing longer-term debt.

192. Because of this outcome, we propose to remove the TCSD allowance for airports because under our revised approach the value would always be zero.<sup>117</sup>

*Alternative option 1 – remove the term spread credit differential*

193. An alternative to modifying the TCSD would be to remove it completely and not provide compensation for longer-term debt.

194. The High Court judgment in 2010 indicated that this would be its preferred approach, given the term of debt was set at five years for the regulatory period:<sup>118</sup>

Given the view we take of the basic issue of principle (that to avoid under and over compensation the risk-free rate should be matched to the regulatory period), the material before us has not persuaded us of the need for a TCSD at all.

195. Contact Energy (**Contact**) also submitted that removing the TCSD was an appropriate option for three reasons:<sup>119</sup>

The Commission already uses an appropriate market proxy and the defined regulation period when looking at credit rating, leverage and duration of debt. To vary from this is a choice of the firm around how much maturity risk they want, not a cost consumers should cover.

Longer duration debt comes with lower per annum debt establishment costs that would offset the higher cost.

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<sup>117</sup> The TCSD applied to airports is not defined in the input methodologies. Instead it is defined in the information disclosure determination. The proposed changes to the information disclosure determination published alongside the IM review draft decision are only ex ante amendments, ex post will be considered as part of a separate process.

<sup>118</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1285].

<sup>119</sup> Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p.11.

Regulated Network Service companies that choose to fund with shorter (or cheaper) debt do not see an additional revenue reduction to offset this. The principle of consumers paying for longer term debt and not being reimbursed for shorter debt is one sided.

196. We agree that not applying a TCSD is one potential option, given the benchmark term of five years. However, maintaining the TCSD allows us to compensate for any additional costs (ie, an increase in the debt premium) that are incurred by supplier that issues debt with original tenors longer than five years.
197. If the TCSD was removed and we maintained a five-year term for the cost of debt, there would no compensation for the additional debt premium incurred by firms that issue debt with original tenors longer than the five-year benchmark debt term. Compensation under the TCSD is only provided for costs which are not offset by a reduction in the per annum debt issuance costs, that result from having a longer tenor.
198. A prudent supplier may issue debt for longer than five years to reduce the refinancing risk associated with assets that have long economic and engineering lives.<sup>120</sup> We consider that a supplier financing assets to reduce refinancing risk in this way is likely to be providing long-term benefits to consumers, and this is why we continue to consider that including a TCSD helps provide the best estimate of a cost of capital incurred by prudent suppliers.
199. However, we also agree with the High Court's view that "to avoid under and over compensation the risk-free rate should be matched to the regulatory period". This is consistent with the expectation that a supplier would then use the swap market to reduce its interest rate re-pricing period to be consistent with our benchmark term of debt. That is why we consider that the only appropriate additional costs incurred from the issuance of longer-term debt, which should be compensated for under the TCSD, will be related to the debt premium and not the risk-free rate.
200. The TCSD calculation takes into account the lower annual issuance costs associated with debt that has a longer original maturity term. As shown in Attachment D this appears to eliminate the need for a TCSD for airports (which are A- rated) because the debt issuance cost adjustment outweighs the additional spread premium. However, this is not the case for BBB+ rated bonds and so a TCSD is still required.
201. We recognise that the TCSD provides a slightly asymmetrical approach because it does not provide a negative adjustment for firms that issue shorter-term debt (ie, debt with an original tenor that is less than five years). However, it is a practical approach (consistent with the materiality of associated costs) that provides a small incentive for firms to issue longer-term debt consistent with the actions of a prudent supplier.

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<sup>120</sup> For example, regulated suppliers often have assets with lifetimes up to 50 years.

*Alternative option 2 – remove the TCSD and extend the benchmark term of the debt premium*

202. A number of suppliers have suggested that a better option would be to remove the TCSD and instead increase the term of the debt premium (or total cost of debt). Most suppliers have suggested a debt term of 10 years is appropriate.<sup>121</sup>
203. We used a specific estimate for the debt premium when determining the cost of capital for the unbundled copper local loop (**UCLL**)/unbundled bitstream access (**UBA**) pricing review. In that situation we did not apply a TCSD but instead used a 7-year term to determine the debt premium single hypothetical efficient operator.<sup>122</sup>
204. CEG (for the ENA) suggested that this decision means we have accepted the logic that we should set a benchmark term for the debt premium in excess of the five-year regulatory period.<sup>123</sup> However, this is incorrect because the debt premium determined for the UCLL/UBA decision was in a different context. Under that process we were determining the cost of capital for a hypothetical efficient operator and for which no information on actual debt issuance is available.
205. We do not consider the approach in the IM is comparable, because we separately estimate a TCSD allowance for individual firms on the basis of the actual debt issuance practices. This approach was developed in 2010 because the 2010 confidential debt survey showed that 24 suppliers out of 29 had a weighted average term to maturity that was less than the regulatory period, and we did not want to compensate these firms for costs that they did not actually incur.<sup>124</sup>
206. We still consider that this approach is appropriate because the recent 2016 confidential debt survey showed that 23 out of 30 regulated suppliers had a weighted average term to maturity that was less than the regulatory period.

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<sup>121</sup> MDL, Untitled submission on cost of capital update paper (5 February 2016), p.5; Orion “Submission on the cost of capital and the IM review” (5 February 2016), para 6; 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.26.

<sup>122</sup> Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews “ (15 December 2015), para 82.

<sup>123</sup> CEG “Key reforms to rate of return under the IMs” (report prepared for ENA, February 2016), 169.

<sup>124</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), paras H5.12-H5.13.

207. Dr Lally has suggested that this approach potentially provides an incentive for firms to issue debt for even longer periods.<sup>125</sup> Although this may be true, we do not consider this disadvantage to result in a significant cost to consumers. This is especially true when we consider that:
- 207.1 consumers would not have to pay the additional debt premium to firms that are not in fact issuing debt with original maturity terms longer than regulatory period; and
  - 207.2 in general we do not wish to discourage firms from issuing longer-term debt to reduce refinancing risk.
208. On balance, weighing up the factors discussed above, we consider that our current approach to the TCSD leads to a better estimate of the cost of debt, and reduces administrative complexity to suppliers, than either of the alternatives discussed.

#### **Our approach to estimating the key cost of debt parameters**

209. The previous section considered the key identified issues related to the cost of debt that were raised and considered as part of the IM review. This section summarises our approach to estimating each of the key parameters that are required to estimate the cost of debt.

#### *Risk-free rate*

210. The risk-free rate is the interest rate that an investor would expect to earn by holding a risk-free asset. We use the risk-free rate when estimating both the cost of debt and the cost of equity.
211. The previous IMs outlined how there were five steps to determining a suitable risk-free rate:<sup>126</sup>
- 211.1 identify a suitable proxy, given the true-risk-free rate cannot be observed;
  - 211.2 determine whether to use prevailing or historical interest rates;
  - 211.3 determine whether to use spot rates or yields to maturity;
  - 211.4 determine the averaging period and the length of time the risk-free rate is fixed; and
  - 211.5 determine an appropriate maturity term.

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<sup>125</sup> 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.20.

<sup>126</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), H4.3.

212. We have reviewed our approach to each of these steps to ensure the IMs are still appropriately estimating a risk-free rate.

*Identifying a suitable proxy*

213. We propose to maintain the use of government bond rates as a proxy for the risk-free rate. Suppliers were split on this issue, PwC submitted that there was not sufficient evidence for a change,<sup>127</sup> while Transpower and CEG (on behalf of the ENA) supported the use of a swap rate instead of government bonds. The main rationale for using a swap rate is because it is difficult to hedge a government bond, and therefore, suppliers can be exposed if there is not perfect correlation between the swap rate and the risk-free rate.<sup>128</sup>
214. Dr Lally has identified this risk as small,<sup>129</sup> and we also note the use of swap rates as proxy for the risk-free rate by overseas regulators remains limited.<sup>130</sup> As a result, we see limited benefit in changing the proxy to the New Zealand swap rate and so propose to continue to use government bond rates.

*Other steps in estimating the risk-free rate*

215. Our proposed approach to the remaining steps in estimating the risk-free rate is as follows:
- 215.1 We propose to maintain the use of prevailing rates as described in paragraphs 90 to 127.
- 215.2 We propose to maintain the use of yield to maturity as an approximation of spot rates due to the difficulties in obtaining spot rate data.<sup>131</sup> No submissions were received on this point.
- 215.3 We propose to extend the averaging period to three months and fix the risk-free rate for the duration of a five-year regulatory period.<sup>132</sup>

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<sup>127</sup> 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 64.

<sup>128</sup> 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.20; CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 168.

<sup>129</sup> 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.8.

<sup>130</sup> We note CEG's submission that identifies that that ERAWA has used swap rates as a proxy for the risk free rate. CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 193.

<sup>131</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), H4.19.

<sup>132</sup> This is an extension to the one month determination window in the original IMs.

215.4 We propose to maintain the maturity term of the risk-free rate at five years so that it is consistent with the regulatory period.

*Debt premium*

216. The debt premium reflects the additional risk an investor is exposed to when lending to a borrower other than the government.

217. Following the review of the debt premium methodology, we propose to make the following modifications:

217.1 expand the averaging period from one month to three months;

217.2 remove restrictions of the use of bonds from firms that are majority owned by the government or local authorities; and

217.3 have regard to the debt premium estimated from fitting a NSS curve to the bond data.

*Issuance costs*

218. The current IMs recognise that fees and costs associated with prudent debt issuance and refinancing costs are legitimate expenses that should be compensated for, and currently provides a 35 bps p.a. allowance.

219. We have previously considered that this allowance is generous because it is higher than our finding from the 2010 confidential debt survey that the average debt issuance cost is 0.22% p.a. and is greater than similar costs allowed by overseas regulators.<sup>133</sup> The High Court judgment on the appeals to the original IMs agreed with the assessment that the debt issuance costs were generous to suppliers.<sup>134</sup>

220. The current IMs provide 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 is only provided for debt with an original maturity term longer than five years for qualifying suppliers.

221. We propose to change this restriction and provide general allowance for the cost of executing swaps as part of the debt issuance costs. 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 maturity term that is greater than five years: for example, if a firm issues debt on a rolling five year basis.

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<sup>133</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), 6.3.39.

<sup>134</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1370].



222. This is consistent with a suggestion from Contact:<sup>135</sup>

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.

*Confidential debt survey*

223. 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 19 vanilla NZ domestic bonds that are equivalent to the type of bond from which we estimate the debt premium. The average issuance cost provided in the debt survey of these bonds was 6 bps p.a. when averaged over the original maturity term of the bond, and 7 bps p.a. when the costs are assumed to be averaged over a five-year term.

224. 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 an interest rate swap as about 2 bps p.a.

*Evidence from submissions – debt issuance costs*

225. Evidence from submissions on appropriate debt issuance costs was varied.

226. Contact provided a breakdown of debt issuance costs that suggested an issuance cost of 5 bps p.a. for a NZ domestic bond. It also suggested that issuance costs have fallen since 2010 because regulatory reforms had lowered the cost for repeat issuers.<sup>136</sup>

227. Suppliers, on the other hand, suggested our allowance was not sufficient because it did not include the costs of:

227.1 standby bank facilities;<sup>137</sup>

227.2 the costs of issuing debt in foreign markets;<sup>138</sup>

227.3 the costs of maintaining a credit rating with Standard & Poors;<sup>139</sup> and

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<sup>135</sup> Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p.10.

<sup>136</sup> Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p.10.

<sup>137</sup> Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 40-44.

<sup>138</sup> 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.

<sup>139</sup> Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p.14.

- 227.4 the 'new issue premium' which is a potential discount that firms may have to apply to enable them to offer new debt into the bond markets.<sup>140</sup>
228. 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.
229. We have called this approach, which focusses on one type of debt, the 'simple' approach. 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'.<sup>141</sup> 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.<sup>142</sup>
230. Given this approach, we do not consider other types of debt (eg, bank debt, non-vanilla corporate bonds, foreign issued bonds) which may have different issuance costs.
231. As noted in 2010, firms generally borrow from banks for a term less than five years, which is likely to result in an all-in cost of debt less than a publicly traded corporate bond with five years to maturity.<sup>143</sup> We, therefore, consider this approach to be relatively favourable to suppliers.
232. A number of suppliers have claimed that that there are significant costs associated with the issuing of debt. We consider that a significant portion of these costs are associated with types of debt that are not publically available corporate bonds. For example, the use of standby facilities is a prudent aspect of debt management, but is generally associated with the use of shorter-term debt (eg, commercial paper). We also consider that a S%P credit rating is not necessarily required to issue New Zealand domestic bonds by New Zealand regulated suppliers.
233. Although these debt management costs may be legitimately incurred by suppliers, we do not consider that they should be included in debt issuance costs, given our simple approach to determining the cost of debt. As noted above, this simple approach can be advantageous to suppliers in other aspects.

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<sup>140</sup> CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 248-249.

<sup>141</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.29.

<sup>142</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.42-H5.43.

<sup>143</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.42-H5.43.

234. We accept that there has been some evidence of a new issue premium in various foreign debt markets, but no specific evidence has been presented to us on the average premium in New Zealand. Any premium is likely to be variable (and can even be negative) depending on the state of the debt market at any point in time.

*Evidence from submissions – swap costs*

235. 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).<sup>144</sup>
236. 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.<sup>145</sup> However it suggested that these costs should be reviewed. Houston Kemp suggest we should estimate the costs of swaps from the confidential debt survey.<sup>146</sup>

*Review of swap costs*

237. 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
238. Based on this definition, we estimated a swap cost of 4 bps for the UBA/UCLL FPP decision. However, this estimate was based on the observed data value from a single day.<sup>147</sup> 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.
239. The majority of bonds in the 2016 confidential debt survey used to estimate the average issuance costs described estimated the cost of a swap transaction as 2 bps p.a.
240. We consider that the evidence suggests that an appropriate estimate of the cost of executing a swap transaction in NZ is approximately 2 bps p.a.

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<sup>144</sup> Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), Appendix 6.

<sup>145</sup> Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016) p.13.

<sup>146</sup> Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p.14.

<sup>147</sup> This date was 1 August 2014.

*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.<sup>148</sup>
242. We disagree with this conclusion because, as identified in paragraph 97, efficient 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, together with the consideration of the High Court 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.<sup>149</sup>
244. Information received from the 2016 debt survey and submissions suggest that these costs are more likely to be in the region of 5-10 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 (5-10 bps) and costs of any required swaps (~4 bps). Given the uncertainty and variability of the various costs, we consider it is prudent to include an additional margin to cover other issues related to debt issuance.

*Credit rating*

247. We propose to maintain S&P (or equivalent from another recognised agency) long-term credit ratings of:
- 247.1 BBB+ for EDBs, GPBs and Transpower; and
- 247.2 A- for airports.
248. Credit ratings are an indication of a borrower's creditworthiness. The higher the rating, the less the likelihood of default.

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<sup>148</sup> CEG "Key reforms to rate of return under the IMs" (report prepared for ENA, February 2016), para 243.

<sup>149</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H5.85.

249. 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.
250. 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-.
251. 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.<sup>150</sup> 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.
252. 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".<sup>151</sup>
253. 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.
254. However, it is difficult to accurately estimate the debt premium 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 premium.<sup>152</sup> This is discussed in more detail in the debt premium section.<sup>153</sup>

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<sup>150</sup> 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.

<sup>151</sup> 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.

<sup>152</sup> 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.

<sup>153</sup> See paras 160 to 179.

## **Chapter 4: Cost of equity**

### **Purpose of this chapter**

255. The purpose of this chapter is to explain our draft findings on:
- 255.1 the main issues raised in relation to the cost of equity, including any changes we propose to make as a result; and
  - 255.2 our review of each of the parameters that make up the cost of equity, including any changes we propose to make as a result.

### **Structure of this chapter**

256. This chapter begins by explaining our draft findings in respect of asset beta, including:
- 256.1 how we estimated the asset beta for EDBs, GPBs, Transpower and Airports using a similar approach to 2010 and updated data; and
  - 256.2 whether we propose to make any adjustments to asset beta for regulatory differences or differences in exposure to systematic risks.
257. We then explain our draft findings in respect of our review of the other parameters that make up the cost of equity: TAMRP and the risk-free rate.
258. 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, GPBs and Transpower, and then as it relates to airports.

### **Asset beta**

259. This section discusses our approach to reviewing our asset beta estimates for EDBs, Transpower, GPBs, and airports. Based on the analysis we have undertaken, we propose to:
- 259.1 maintain an asset beta of 0.34 for EDBs and Transpower;
  - 259.2 reduce the asset beta for GPBs from 0.44 to 0.34, based on updated analysis suggesting that the 0.1 upwards adjustment to the asset beta for GPBs (that we made in 2010) should no longer be applied; and
  - 259.3 reduce the asset beta for specified airport services to from 0.60 to 0.58, based on updated data for our revised airports comparator sample.

260. Our proposed approach to estimating asset (and equity) betas is largely unchanged from 2010. We have followed the same six-step process for estimating beta, which is summarised below.<sup>154</sup>
- 260.1 *Step 1:* identify a sample of relevant comparator firms.
- 260.2 *Step 2:* estimate the equity beta for each firm in the sample.
- 260.3 *Step 3:* de-lever each equity beta estimate to get an estimated asset beta for each firm in the sample.
- 260.4 *Step 4:* calculate an average asset beta for the sample.
- 260.5 *Step 5:* apply any adjustments for regulatory differences or differences in systematic risk across services to the average asset beta for the sample.
- 260.6 *Step 6:* re-lever the average asset beta for the sample to an equity beta estimate using the Commission's assumed notional leverage.
261. Although we have updated the comparator samples used and time periods considered, we have estimated very similar (unadjusted) asset betas to our 2010 decision. In reaching these 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.
262. We calculated weekly and four-weekly betas, averaged across each trading day, in response to submissions. 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. Our reasons for adopting this amended approach are discussed further in paragraphs 283 to 286 below.
263. We propose to make no adjustment to our asset beta estimates to reflect regulatory differences in New Zealand, relative to other countries in the comparator samples. This is due to a lack of empirical evidence to support making an adjustment for regulatory differences, and is consistent with our 2010 decision.

*Beta measures exposure to systematic risk*

264. Equity 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. For example:
- 264.1 if an investment had no systematic risk (ie, it showed no correlation with returns on the market), its equity beta would be zero; and

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<sup>154</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.14.

- 264.2 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).
265. 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)*.
266. Beta is not directly observable so we estimate it empirically. We estimate forward-looking betas because the cost of capital is intended to be forward-looking. 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.
267. 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 is the only publicly listed EDB or GPB in New Zealand. Therefore, we use a sample of international comparator firms when estimating beta.

**We propose to use an asset beta of 0.34 for regulated energy businesses**

268. The discussion below explains why we consider an asset beta of 0.34 should be used for EDBs, Transpower, and GPBs, based on the updated analysis we have undertaken. In reaching this view, we have followed the six-step process outlined in paragraph 260.

*Identifying a sample of relevant comparator firms*

269. The first step in our process is to identify relevant comparable firms for inclusion in our sample.
270. We have included New Zealand, Australian, UK, and US-based electricity and gas utilities in our 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.



271. This is consistent with Maui's submission on our cost of capital update paper, which recognised that there are very few publicly listed 'pure-play' GTBs even when looking overseas. Maui suggested that:<sup>155</sup>

This justifies the Commission's approach to obtain beta estimates for GTBs by using a wider sample of publically listed utility companies, mostly in the USA, without making a more detailed assessment of their business portfolio composition.

272. 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.

273. 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.<sup>156</sup>

274. 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.<sup>157</sup>

275. This resulted in a sample of 74 firms, which are listed in Attachment A. 64 of the firms in our updated sample were also included in the 2010 sample. Table 1 shows the:

275.1 15 companies included in the 2010 sample that are not included in our new sample because of acquisitions or de-listings (in red); and

275.2 10 new firms that have been added (in green).

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<sup>155</sup> MDL, Untitled submission on cost of capital update paper (5 February 2016), p.2.

<sup>156</sup> 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.

<sup>157</sup> 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.

**Table 1: 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.                             |
| 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.  |

276. In its submission on our cost of capital update paper, CEG removed the same 15 companies from the 2010 sample, but did not appear to add any new companies (other than the companies that changed name).<sup>158</sup> This resulted in a comparator sample of 68 firms, which is very similar to our proposed sample contained in Attachment A.
277. Frontier Economics (for Transpower) suggested a new approach for excluding illiquid firms from our comparator sample. Frontier noted that our current approach of limiting the sample to companies with a market equity value of at least US\$100m is:<sup>159</sup>
- ...a blunt way of dealing with the illiquidity of potential stocks as it ignores the possibility that some small companies may be relatively deeply traded, and some large companies may be relatively thinly traded.
278. Frontier proposed using Amihud's liquidity metric, which "takes account of the volatility of the recorded stock price and the dollar volume of daily trade".<sup>160</sup> It acknowledged that there is no objective threshold for the liquidity test, so it devised a "subjective threshold" for excluding companies from the sample.<sup>161</sup> As a result, Frontier removed several firms from our 2010 sample and concluded that the average asset beta would have increased from 0.31 to 0.32.<sup>162</sup>
279. We agree that using market equity values as a proxy for liquidity is an imperfect test, but we value its simplicity. We consider that a different approach (such as Amihud's liquidity metric), which would still require a subjective threshold, is unlikely to produce materially different estimates of asset beta. Frontier Economics' own analysis applying Amihud's liquidity metric made no material difference to the asset beta estimate.
280. Frontier also noted that, when applying Amihud's liquidity metric, its asset betas were "...computed using Friday as the reference day and otherwise using the same estimation approach employed by the Commission in the Cost of Capital IM."<sup>163</sup> However, as noted in paragraph 284, Frontier also submitted that the choice of

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<sup>158</sup> CEG "Asset beta" (report prepared for ENA, February 2016), p.34.

<sup>159</sup> Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016), p.49.

<sup>160</sup> Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016), p.49

<sup>161</sup> Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016), p.51.

<sup>162</sup> We note that Frontier only conducted this exercise using weekly data. It is not clear that the same effect would be observed for monthly data, which is not always consistent with weekly estimates.

<sup>163</sup> Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016), p.53.

reference day can have a significant impact on the results.<sup>164</sup> It is not clear that the same effect would have been observed had more reference days been used.<sup>165</sup>

*Estimating the equity beta for each firm in the sample*

281. We have used a similar process as 2010 to estimate the historical equity beta for each of the individual 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 283 to 286.
282. 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:<sup>166</sup>
- 282.1 the five-year period to 31 March 2001 using daily, weekly and 4-weekly observations;
  - 282.2 the five-year period to 31 March 2006 using daily, weekly and 4-weekly observations;
  - 282.3 the five-year period to 31 March 2011 using daily, weekly and 4-weekly observations; and
  - 282.4 the five-year period to 31 March 2016 using daily, weekly and 4-weekly observations.
283. 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.
284. 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”.<sup>167</sup> Frontier also indicated that the risk is magnified when moving from weekly to monthly estimates.

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<sup>164</sup> Frontier Economics “Cost of equity issues related to input methodologies review” (report prepared for Transpower, February 2016), p.45.

<sup>165</sup> As noted in paragraphs 283 to 286, we have now estimated weekly and 4-weekly asset betas averaged across each trading day in the period.

<sup>166</sup> We used daily equity beta estimate reported by Bloomberg. We calculated the weekly and 4-weekly beta estimates ourselves, as noted in para 281.

<sup>167</sup> Frontier Economics “Cost of equity issues related to input methodologies review” (report prepared for Transpower, February 2016), p.45.

285. Similarly, CEG noted the risk of estimation error from using a single monthly asset beta estimate:<sup>168</sup>

...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.

286. 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:

286.1 four-weekly equity betas, by estimating equity betas for each of the 20 possible trading/reference days and then averaging the results; and

286.2 weekly equity betas, by estimating equity betas for each of the five possible trading days/reference days and then averaging the results.

*De-levering the equity beta estimates and calculating the average asset beta across the sample*

287. 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.

288. 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.

288.1 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:

$$\beta_a = \beta_e(1-L) + \beta_dL$$

*where  $\beta_a$  is the asset beta,  $\beta_e$  is the equity beta,  $\beta_d$  is the debt beta, and  $L$  is the leverage.*

288.2 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:

$$\beta_e = \beta_a + (\beta_a - \beta_d)L/(1-L)$$

289. To estimate a service-wide asset beta, we averaged the individual asset beta estimates across our comparator sample (giving each estimate equal weighting). This

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<sup>168</sup> CEG “Asset beta” (report prepared for ENA, February 2016), para 25.

produced the results shown in Table 2. Further details regarding the results for the comparator sample are included in Attachment A.

**Table 2: Summary of energy asset beta comparator sample results**

|                    | Daily asset beta | Weekly asset beta | 4-Weekly asset beta | Leverage | # of firms in the sample |
|--------------------|------------------|-------------------|---------------------|----------|--------------------------|
| <b>2011 - 2016</b> | 0.39             | 0.34              | 0.30                | 40%      | 74                       |
| <b>2006 - 2011</b> | 0.39             | 0.36              | 0.34                | 42%      | 74                       |
| <b>2001 - 2006</b> | 0.30             | 0.27              | 0.31                | 45%      | 69                       |
| <b>1996 - 2001</b> | 0.16             | 0.10              | 0.07                | 41%      | 61                       |

290. 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 most weight should be given to:

290.1 the two most recent five-year periods (ie 2006-2011 and 2011-2016), for the reasons explained in paragraphs 291 to 295; and

290.2 weekly and four-weekly asset beta estimates (rather than daily estimates), for the reasons given in paragraphs 296 to 302.

291. Aswath Damodaran, a 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:<sup>169</sup>

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.

292. We recognise this trade-off, and in this context we consider that the two most recent five-year periods provide an appropriate balance between the number of observations and the best reflection of beta for the future.

293. 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

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<sup>169</sup> Estimating Risk Parameters, Aswath Damodaran (<http://people.stern.nyu.edu/adamodar/pdfiles/papers/beta.pdf>).

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.<sup>170</sup>

294. 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.<sup>171</sup>

295. Using data from the two most recent five-year periods is consistent with the approach that we took to estimating asset beta for our recent telecommunications pricing determinations. However, in that case we gave more weight to the most recent five-year period.<sup>172</sup>

296. We have given equal weight to four-weekly and weekly asset beta estimates, but have not given significant weight to daily estimates. Due to the 'noisy' nature of daily betas, we consider that they should not be given significant weight when estimating our average asset beta. We also note that:

296.1 the daily results from our energy comparator sample are higher than the weekly or four-weekly results, but are lower than the weekly or four-weekly results from our airport comparator sample (see Table 7). This suggests that the daily results are not subject to systematic bias; and

296.2 although we have not placed significant weight on the daily results, they would not have materially changed our asset beta estimates in either case.

297. Olan Henry, a Professor of finance at Liverpool University, provided advice to the ACCC in 2009 stating that:<sup>173</sup>

There is a tradeoff between the noisy nature of the daily data and the lack of degrees of freedom in the monthly data. The best compromise would appear to be the use of data sampled at the weekly frequency.

298. Regarding Professor Henry's suggestion that monthly data suffers from a lack of freedom due to having fewer estimates, we note that his comments were made

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<sup>170</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), figure H9, p 524.

<sup>171</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras H8.62-H8.72.

<sup>172</sup> Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews" (15 December 2015).

<sup>173</sup> Olan Henry "Estimating beta" (2009), p.48

using sometimes “less than 30 monthly observations meaning that statistical inference is unlikely to be reliable”.<sup>174</sup>

299. Not only do we have significantly more estimates because we have considered data from the last two five-year periods, we have also used four-weekly estimates based on data from every trading day within each period. We consider that this goes some way to addressing the issue of relying on fewer estimates when using monthly asset betas.

300. CEG submitted that we should give equal weighting to daily estimates of asset beta, stating that:<sup>175</sup>

...the only reason not to give daily betas the same weight as monthly and weekly betas would be if one considered that daily betas were biased down by the above effect.

301. Professor Damodaran has also highlighted this trade-off, but appears to disagree with CEG’s view that daily betas are only likely to be biased downwards. Professor Damodaran suggests that:<sup>176</sup>

Betas estimated using daily or even weekly returns are likely to have a significant bias due to the non-trading problem, with illiquid firms reporting lower betas than they really should have and liquid firms reporting higher betas than is justified.

302. Similarly, in 2009 advice to Ofgem, PwC noted that “...in overall terms monthly estimates are more reliable than weekly or daily estimates...”. PwC stated that:<sup>177</sup>

The key points to note are as follows:

- Weekly estimates suffer from the problem of different results depending upon the day of the week chosen as the basis for the regressions
- Daily and weekly betas are less stable than monthly betas, reflecting the fact that monthly share price movements are less volatile than daily and weekly share price movements; and
- Movements in monthly returns are more likely to be representative of underlying systematic risk than daily and weekly movements because daily and weekly returns may be influenced by short-term factors that have little to do with systematic risk — this is known as “noise” because it obscures the relationship being measured. As a result standard errors of monthly betas are lower than those for daily and weekly betas as they suffer from less noise.

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<sup>174</sup> Olan Henry “Estimating beta” (2009), p.48.

<sup>175</sup> CEG “Asset beta” (report prepared for ENA, February 2016), para 35.

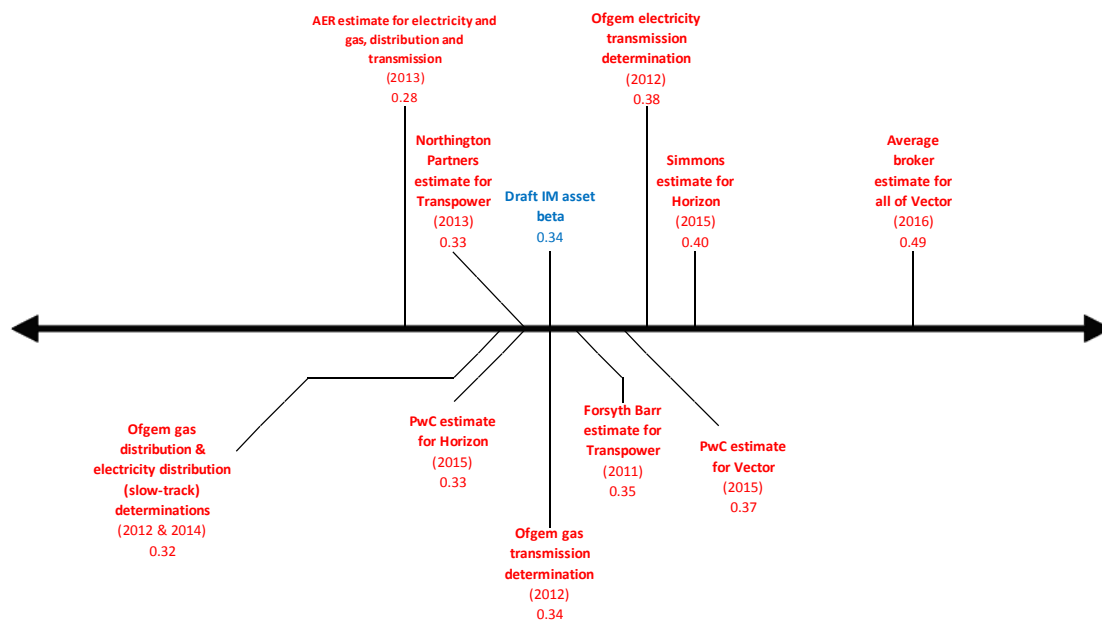
<sup>176</sup> Estimating Risk Parameters, Aswath Damodaran (<http://people.stern.nyu.edu/adamodar/pdfiles/papers/beta.pdf>).

<sup>177</sup> PwC “Advice on the cost of Capital for DPCR5: Final Report” (Report for Ofgem, 28 July 2009).



303. As a result of the above analysis, we consider that an asset beta of 0.34 is the best (unadjusted) asset beta estimate for EDBs, Transpower and GPBs. Despite updating our sample and data for the most recent period, our estimate has not moved from the 0.34 we estimated in 2010.
304. We note that CEG’s asset beta analysis led to similar results to ours. Using a comparator sample similar to us, and estimating an average asset beta for the last two five-year periods, CEG’s results indicate an asset beta of 0.35 (when equal weighting is given to monthly and weekly estimates for both periods, as we have done).<sup>178</sup>
305. CEG also estimated a 10 year asset beta, which it submitted is likely to be less volatile than the average of smaller sub-sets (eg, two five-year periods) because it includes more observations.<sup>179</sup> We note that CEG only finds a 0.01 difference between the 10 year asset beta and the average of the two corresponding five-year periods. When we conducted the same exercise using our updated comparator sample, the average asset beta for the 10 year period 2006-2016 was 0.35, which is also only a 0.01 difference from our estimate of 0.34.
306. We have compared our unadjusted asset beta estimate of 0.34 against a range of estimates from other sources, as shown in Figure 6.

**Figure 6: Reasonableness checks on our asset beta estimate for EDBs, Transpower, and GPBs**



<sup>178</sup> CEG “Asset beta” (report prepared for ENA, February 2016), p.16.

<sup>179</sup> CEG “Asset beta” (report prepared for ENA, February 2016), para 50.

307. Figure 6 shows that our unadjusted asset beta estimate for EDBs, Transpower and GPBs of 0.34 falls within the range of comparable information. We consider that this supports the reasonableness of our estimate.

*We also considered a smaller energy comparator sample, based on Contact's submission*

308. Contact submitted that a smaller sample of six comparator companies should be used to estimate the asset beta for EDBs, Transpower, and GPBs. Based on this smaller comparator sample, Contact derived an asset beta estimate of 0.19.<sup>180</sup>
309. The smaller sample proposed by Contact reflects its attempt to include only "genuinely comparable" companies when estimating asset beta. Contact noted that, in an ideal analysis, the set of genuinely comparable firms would include those that:<sup>181</sup>
- 309.1 provide electricity or gas network services;
  - 309.2 are regulated in the same or similar regulatory environment to New Zealand;
  - 309.3 have the majority of their operations in similar regulated activities (eg, not electricity retailing or generation); and
  - 309.4 have sufficient share data to conduct a high quality beta regression analysis.
310. Based on its analysis, Contact made refinements to the full comparator sample used in the 2010 IMs decision (after assessing the scope of operations, regulatory and industry structure, and proportion of regulated revenues, for each company). This produced a primary set of six comparable companies from New Zealand, Australia and the UK, and a secondary set of seven US companies. Contact's comparator samples are shown in Table 3.

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<sup>180</sup> Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p.5.

<sup>181</sup> Contact Energy [PUBLIC] "Submission on cost of capital update paper: 30 November 2015" (5 February 2016), p.4.

**Table 3: Contact’s asset beta comparator samples**

| Company name                              | Beta        |             |            |
|---|-------------|-------------|------------|
|   | Monthly     | Weekly      | Leverage   |
| <b>Primary comparator set</b>             |             |             |            |
| Vector (NZSEVCT)                          | 0.28        | 0.25        | 56%        |
| DUET Group (ASX:DUE)                      | 0.20        | 0.15        | 73%        |
| Spark Infrastructure (ASX:SKI)            | 0.19        | 0.20        | 50%        |
| SP AusNet (ASX:AST)                       | 0.16        | 0.10        | 46%        |
| National Grid (LSENG)                     | 0.24        | 0.30        | 48%        |
| Envestra                                  | 0.14        | 0.10        | 71%        |
| <b>Mean</b>                               | <b>0.20</b> | <b>0.18</b> | <b>57%</b> |
| <b>Median</b>                             | <b>0.20</b> | <b>0.18</b> | <b>53%</b> |
| <b>Secondary comparator set</b>           |             |             |            |
| Atmos Energy Corporation (NYSE:ATO)       | 0.20        | 0.30        | 49%        |
| Eversource Energy (NYSE:ES)               | 0.20        | 0.20        | 52%        |
| ITC Holdings Corp. (NYSE:ITC)             | 0.48        | 0.49        | 45%        |
| North west Natural Gas Company (NYSE:NWN) | 0.15        | 0.27        | 37%        |
| Pepco Holdings, Inc. (NYSE:POM)           | 0.26        | 0.39        | 55%        |
| The Laclede Group, Inc. (NYSE:LG)         | 0.15        | 0.33        | 41%        |
| Unitil Corp. (NYSE:UTL)                   | 0.19        | 0.16        | 55%        |
| <b>Mean</b>                               | <b>0.23</b> | <b>0.31</b> | <b>48%</b> |
| <b>Median</b>                             | <b>0.20</b> | <b>0.30</b> | <b>49%</b> |

311. Although Contact acknowledged that the smaller sample may increase the risk of statistical error, it argued that the improved confidence in the comparator data will far outweigh this. Contact highlighted several concerns regarding the larger comparator sample from the 2010 IMs:<sup>182</sup>

311.1 it is very heavily weighted to the US, a market with a very different industry and regulatory structure to New Zealand;

311.2 for many of the firms, regulated electricity and/or gas network services comprise only a small part of their total assets or operations; and

311.3 many of the businesses are highly diversified across a range of activities, making it difficult to determine the underlying risk profile.

312. In support of its proposed approach, Contact noted that the AER uses a small, closely comparable, set of nine companies when estimating beta. Contact referred to the AER’s October 2015 preliminary Jemena distribution decision.<sup>183</sup>

313. However, we note that the AER adopted a point estimate for the equity beta of 0.7, despite the comparator sample evidence suggesting a “best empirical equity beta

<sup>182</sup> Contact Energy [PUBLIC] “Submission on cost of capital update paper: 30 November 2015” (5 February 2016), p.4 and p.6.

<sup>183</sup> AER “Preliminary Decision: Jemena distribution determination 2016 to 2020, Attachment 3 – Rate of Return” (October 2015).

estimate of approximately 0.5”<sup>184</sup> The AER referred to empirical estimates from international energy networks, and the theoretical principles underpinning the Black CAPM, as additional information considered when determining an equity beta of 0.7.

314. We agree that in an ideal world, all of the companies included in our asset beta sample would be close comparators to the regulated electricity and gas network businesses in New Zealand.
315. However, we consider that Contact’s sample of six comparator firms is too small to be relied on when estimating asset beta. Given the level of noise in empirical asset beta estimates, our view is that a larger sample is required to reduce the risk of measurement error. Further:
- 315.1 it is not clear how Contact determined which companies to include in its primary sample of six companies (or its secondary sample of seven US companies);<sup>185</sup> and
- 315.2 Contact’s asset beta estimate of 0.19 is significant below the range of comparative information included in Figure 6 above.
316. Although in principle we consider that Contact’s attempt to determine a smaller, more comparable sample, has some merit, our view is that US companies should be retained, to help increase the sample size.
317. In light of Contact’s submission, we attempted to refine our updated asset beta sample for EDBs, Transpower, and GPBs, by excluding companies that are involved in generation or retailing (based on Bloomberg company descriptions). Our approach resulted in a sample of 13 companies, as shown in Table 4.

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<sup>184</sup> AER “Preliminary Decision: Jemena distribution determination 2016 to 2020, Attachment 3 – Rate of Return” (October 2015).

<sup>185</sup> Although Contact considered a range of characteristics (eg, country of origin, percentage of regulated revenues, whether the company has an electricity or gas network), the thresholds used to determine whether each company should be included in the sample were not explicit. For example, Contact does not state the percentage of regulated revenues required for a firm to be included in its comparator sample.

**Table 4: Asset beta comparator sample, excluding generation and/or retail companies**

| Company                    | 2006-2011           |                   | 2011-2016           |                   |
|----------------------------|---------------------|-------------------|---------------------|-------------------|
|                            | 4-weekly asset beta | Weekly asset beta | 4-weekly asset beta | Weekly asset beta |
| APA Group                  | 0.25                | 0.21              | 0.33                | 0.32              |
| AusNet Services            | 0.09                | 0.09              | 0.27                | 0.25              |
| Atmos Energy Corp          | 0.32                | 0.30              | 0.31                | 0.36              |
| Chesapeake Utilities Corp  | 0.37                | 0.48              | 0.27                | 0.31              |
| Duet Group                 | 0.16                | 0.13              | 0.13                | 0.12              |
| ITC Holdings Corp          | 0.49                | 0.45              | 0.19                | 0.26              |
| Kinder Morgan Inc          | -                   | -                 | 0.56                | 0.55              |
| National Grid PLC          | 0.27                | 0.28              | 0.26                | 0.27              |
| Nisource Inc               | 0.36                | 0.33              | 0.22                | 0.33              |
| ONEOK Inc                  | 0.56                | 0.47              | 0.58                | 0.66              |
| Spark Infrastructure Group | 0.21                | 0.21              | 0.19                | 0.30              |
| TC Pipelines LP            | 0.52                | 0.44              | 0.60                | 0.54              |
| Vector Ltd                 | 0.28                | 0.20              | 0.19                | 0.16              |
| <b>Mean</b>                | 0.32                | 0.30              | 0.31                | 0.34              |

318. The results of this smaller sample are very similar to our full sample of 74 companies. The four-weekly and weekly estimates across the two most recent five-year periods (2006-2011 and 2011-2016) suggest an asset beta between 0.30 and 0.34, compared to our estimate of 0.34 based on the full sample.

319. Therefore, our attempt to develop a smaller, more comparable, sample suggests there is no strong evidence that a lower asset beta is appropriate.

*We have not adjusted our asset beta for differences in systematic risk due to regulatory differences*

320. 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.<sup>186</sup>

321. 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:<sup>187</sup>

<sup>186</sup> Form of control is discussed in more detail in topic 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).

<sup>187</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), paras H8.87–H8.97.

- 321.1 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
- 321.2 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 changes in cost/volumes, while the consumer price remains unaffected.
322. However, we were not aware of any empirical evidence that demonstrated what adjustment should be made for regulatory differences, or of any overseas regulators making an adjustment. Therefore, we decided against making any adjustment to asset beta for regulatory differences.<sup>188</sup>
323. 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:
- 323.1 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...”;<sup>189</sup> and
- 323.2 CEG (for the ENA) noted that “it is very hard to find an effect of the form of regulation on measured asset betas”.<sup>190</sup>
324. 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 prices caps expose firms to volume risk and this is at least partly systematic”.<sup>191</sup>

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<sup>188</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), paras H8.85–H8.162.

<sup>189</sup> Houston Kemp “Comment on the Commerce Commission’s cost of capital update paper” (report prepared for Powerco, 5 February 2016), p.7.

<sup>190</sup> CEG “Asset beta” (report prepared for ENA, February 2016), p.26.

<sup>191</sup> 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.

325. 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”.<sup>192</sup> Dr Lally noted that:<sup>193</sup>

...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.

326. Submissions generally agreed with Dr Lally’s conclusion. For example:

326.1 WELL submitted that “Dr Lally’s conclusion that there is no empirical evidence to support different asset betas for different price control regimes provides further support for no adjustment to the asset beta for form of control”,<sup>194</sup> and

326.2 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”.<sup>195</sup>

327. 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.

328. 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.

329. 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 365 to 369.

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<sup>192</sup> 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.20.

<sup>193</sup> 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.

<sup>194</sup> Wellington Electricity “Input methodologies review – Commission emerging views” (24 March 2016), p.7.

<sup>195</sup> Transpower “Asset beta adjustments and Black’s SDR” (24 March 2016), p.1.

330. As a result of these difficulties, and Dr Lally's advice, we do not propose to make an adjustment to our asset beta estimate of 0.34 due to regulatory differences. Although in principle regulatory differences could potentially have an effect on asset beta, we consider that there is insufficient empirical evidence to support making an adjustment.

**We have not adjusted the energy asset beta for differences in systematic risk between services**

331. This section considers whether any adjustments should be made to our asset beta estimate for energy businesses of 0.34, to reflect differences in exposure to systematic risk between electricity lines and gas pipeline services.
332. As described above, our primary approach to estimating asset beta is to calculate the average of our comparator sample of 74 energy businesses. The average asset beta of our comparator sample is 0.34, which reflects an average across both electricity and gas businesses.
333. After examining the available evidence, 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. Therefore, we are proposing to use the same asset beta of 0.34 for EDBs, Transpower, and GPBs.
334. This contrasts with our 2010 IMs decision, where we concluded that the asset beta for gas pipeline services was likely higher than for electricity lines services. We made an upwards adjustment of 0.1 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 0.1 higher than for EDBs and Transpower.
335. We consider that the information available to us now does not support an uplift of 0.1 to the asset beta for GPBs. We also consider that the case for a smaller uplift (or difference in the assets betas for electricity and gas services) is weak and have decided, on balance, not to make an adjustment to reflect any such difference. The main reasons for this conclusion are summarised below.
- 335.1 We applied the 0.1 uplift in 2010 after considering the available evidence, including submissions and advice from Dr Lally (provided in 2008) that GPBs may face greater systematic risk than EDBs. However, we acknowledged that the 0.1 uplift "...may be considered favourable to GPBs" based on overseas regulatory precedent, analysis of our comparator sample, and evidence of regulated equity premiums for US electricity and gas utilities.



335.2 Dr Lally no longer recommends applying a higher asset beta for GPBs, based on the more detailed analysis of customer mix that he has undertaken. His analysis of the higher proportion of gas being used by industrial/commercial customers, rather than retail customers, suggests a differential between the asset beta for electricity lines and gas pipelines which he considers is too small to justify an uplift. He also considers that the option to expand gas pipeline networks, which he previously considered supported an uplift, is not a significant consideration for businesses under formal regulation.<sup>196</sup>

335.3 Houston Kemp (for Powerco) submitted empirical analysis suggesting the uplift for GPBs should continue to apply. Using Houston Kemp's income elasticity of demand estimates, in the context of Dr Lally's framework for assessing the impact of differences in customer mix, suggests there may be a small difference between gas and electricity asset betas (of approximately 0.04-0.08). However, we consider that:

335.3.1 although Houston Kemp has been careful in applying "robust time-series econometric techniques", its income elasticity of demand estimates for residential and commercial gas customers appear very high (and alternative estimates differ significantly). Therefore, we consider that limited weight should be placed on them;<sup>197</sup>

335.3.2 there is no reliable evidence regarding whether income elasticities for New Zealand GPBs differ from those in other countries. Therefore, our asset beta estimate may already broadly reflect the systematic risks faced by GPBs without an uplift;<sup>198</sup>

335.3.3 simply demonstrating differences between New Zealand gas and electricity consumers may suggest that an uplift for GPBs should be accompanied by a corresponding downwards adjustment for EDBs and Transpower;<sup>199</sup>

335.3.4 beta reflects a broader range of factors than customer mix (and differing income elasticities between customer groups). We examine evidence for other possible influences in our more detailed discussion below; and

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<sup>196</sup> Dr Lally notes that he erred in giving weight to growth options in his advice in 2008, where that advice related to the calculation of an asset beta for price regulation.

<sup>197</sup> Houston Kemp also acknowledges limitations of its econometric analysis of income elasticities of demand. Houston Kemp "Asset beta for gas pipeline businesses" (report prepared for Powerco, May 2016), p.6.

<sup>198</sup> Demonstrating differences in income elasticity for New Zealand gas consumers relative to New Zealand electricity consumers is not sufficient to support an asset beta uplift for GPBs – it is differences between New Zealand GPBs and the companies in our comparator sample that is most relevant.

<sup>199</sup> This is explained paras 386 to 387.

- 335.3.5 more fundamentally, it is not clear that income elasticity of demand will have a material impact on exposure to systematic risk for New Zealand electricity lines and gas pipeline businesses (given the specific nature of the risks they are exposed to under revenue cap and weighted average price cap regulation).<sup>200</sup>
- 335.4 The updated evidence from overseas regulators we have considered continues to provide no clear support for a higher asset beta for GPBs. Overseas regulators generally use the same (or very similar) asset beta estimates for electricity lines and gas pipelines.
- 335.5 Empirical analysis we have undertaken using our international comparator sample shows significant variations in the difference between electricity and gas asset betas over time. We consider this is more likely to reflect measurement error than a systematic difference between gas and electricity betas.
- 335.6 Although GPBs may intuitively appear riskier than electricity lines businesses (given that gas is a more discretionary fuel than electricity), this appears largely due to industry-specific factors which can be mitigated through diversification (and so is not relevant to asset beta). Asset beta measures exposure to systematic risk. Systematic risk affects all investments in the market, not just a particular firm or industry.
336. Our current view is that the asset beta adjustment is not required to account for differences between the comparator sample and regulated GPBs in New Zealand. Based on the available evidence, we consider that removing the uplift would improve the accuracy of our asset beta and mid-point WACC estimates for GPBs, consistent with determining our best estimate of WACC under the IMs.
337. Further, we already recognise the possibility of estimation error through our estimate of the standard error of the WACC, and use of the 67<sup>th</sup> percentile when setting price-quality paths. We consider that applying an asset beta uplift for GPBs largely based on precedent, without other robust supporting evidence, would be likely to overcompensate suppliers of gas pipeline services.
338. However, we acknowledge that attempting to quantify differences in exposure to systematic risk between electricity lines and gas pipeline services is difficult, and has received only limited attention to date.

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<sup>200</sup> As discussed in paras 365 to 368, under a revenue cap regulated businesses receive their revenue allowance each year, independent of changes to GDP or incomes. Under a weighted average price cap, regulated businesses are exposed to forecast risk, but it is not clear that this will be correlated with the market.

339. Therefore, we welcome additional evidence to assist us in reaching a final decision on whether a gas uplift should be applied. As explained in paragraphs 388 to 391, we particularly welcome evidence regarding:
- 339.1 differences in exposure to systematic risk between New Zealand GPBs and our sample of international comparator companies;
  - 339.2 how much weight should be placed on income elasticity when estimating beta, particularly in light of the nature of the risks New Zealand electricity lines and gas pipeline businesses are exposed to under revenue cap and weighted average price cap regulation;
  - 339.3 whether other regulators estimate differences in electricity and gas betas due to differences in income elasticity;
  - 339.4 whether New Zealand consumers have different income elasticities of demand for gas relative to consumers in other countries in our comparator sample;
  - 339.5 why any difference in systematic risk should result in an uplift to the gas beta only, rather a smaller uplift accompanied by a reduction in the electricity asset beta; and
  - 339.6 whether other New Zealand analysts estimate different asset betas for electricity lines and gas pipeline businesses (and why or why not).
340. This rest of this section discusses our reasons for proposing to remove the 0.1 adjustment for GPBs in more detail, including:
- 340.1 why we consider it important to re-assess the evidence for a gas asset beta uplift as part of this review;
  - 340.2 why it is unclear whether GPBs face materially greater exposure to systematic risk than EDBs and Transpower, even though gas is a more discretionary fuel;
  - 340.3 Dr Lally's latest analysis and advice, which no longer supports using a higher asset beta for GPBs;
  - 340.4 overseas regulatory precedent, which generally supports using the same (or a very similar) asset beta for electricity lines and gas pipelines;
  - 340.5 analysis of electricity and gas sub-sets of our full comparator sample, which also provide no clear support for an asset beta uplift for GPBs;
  - 340.6 the reasons why we consider that a difference in systematic risk between gas and electricity businesses might suggest we should make both an upwards asset beta adjustment for GPBs and a corresponding downwards adjustment to the asset beta for EDBs and Transpower; and

340.7 additional evidence that we would welcome from submitters, in response our views explained in this paper.

*We are required to re-assess the evidence for gas asset beta uplift*

341. In 2010 we applied an asset beta for GPBs that was 0.1 higher than for EDBs and Transpower, based on:<sup>201</sup>

341.1 evidence we had, including submissions and advice from Dr Lally (provided in 2008) recommending a 0.1 uplift for GPBs, due to differences in customer types, the nature of the product, and more valuable growth options; and

341.2 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).

342. At the time, we noted that other evidence suggested that "...the IM may be considered favourable to GPBs". In particular, we noted that:<sup>202</sup>

342.1 the AER and Ofgem generally used the same, or very similar, asset beta/WACC estimates for electricity and gas;

342.2 empirical estimates from our comparator sample produced an asset beta for gas companies that was lower than for electricity companies; and

342.3 NERA had noted that the regulated equity premium for US electricity utilities was identical to that for US gas utilities over 1996-2010.

343. 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".<sup>203</sup> We also stated (emphasis added):<sup>204</sup>

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.

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<sup>201</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras H8.167-H8.179.

<sup>202</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), paras H13.71-H13.74.

<sup>203</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H13.74.

<sup>204</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para H8.179.

344. Powerco has submitted that removing the gas adjustment would be inconsistent with the section 52R purpose of the IMs, our framework for undertaking this review, and the long-term benefit of consumers, noting that:<sup>205</sup>

Predictability and certainty in regulatory arrangements incentivise investment and reward long-term planning, both of which are of critical importance to consumers.

When considering whether or not to pursue an amendment to the IMs, the Commission should therefore bear in mind that the objectives of the Act may be best served by maintaining the status quo. The rationale for implementing a change to the IMs must be weighed against the inherent value of maintaining stability, and sending a signal that the IMs should not be changed lightly.

345. Similarly, First State Investments submitted:<sup>206</sup>

The approach to parameters that are used to set the cost of capital warrant particular stability. Changes in approach directly affect value, so have a large impact on investment incentives. Any decision to reduce the asset beta that applies to gas pipelines would have a strongly negative impact on incentives to invest. It would certainly affect FSI's perception of investment risk in other regulated assets in New Zealand.

346. We note the following points, which are also articulated in the framework paper, in response to the submissions from Powerco and First State Investments.<sup>207</sup>

346.1 The s 52R purpose of IMs is not to promote certainty simpliciter, but to promote certainty in the rules which will be applied throughout the subsequent regulatory periods. If the promotion of s 52A requires an amendment to the GPB asset beta, s 52R does not constrain this.

346.2 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.<sup>208</sup> Our November 2015 cost of capital update paper noted that we intended to "evaluate evidence on the rationale" for the upward adjustment to the asset beta for GPBs.<sup>209</sup>

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<sup>205</sup> Powerco "Submission on input methodologies review: Dr Lally's expert advice on asset beta adjustments and Black's simple discounting rule" (24 March 2016), paras 21-28.

<sup>206</sup> First State Investments "Comments on Professor Lally's review of WACC issues" (24 March 2016), p 4.

<sup>207</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>208</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 253.

<sup>209</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), para 2.14.

- 346.3 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.
347. 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 0.1 asset beta uplift for GPBs has such status that it should not be re-assessed in this review. We consider that:
- 347.1 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 342, there was evidence suggesting our approach may be considered favourable to GPBs.
- 347.2 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.
- 347.3 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.<sup>210</sup> This will provide firms an expectation of earning a normal return, consistent with FCM.
- 347.4 Retaining the 0.1 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.
348. Further, we explicitly recognise the potential for estimation error (given the uncertainty in estimating WACC) by using the 67<sup>th</sup> percentile WACC for price-quality path regulation. The practical effect of this approach is to implicitly adopt an asset beta, and a WACC, that is higher than our best estimate. We consider that setting an asset beta that is above our best estimate, combined with the 67<sup>th</sup> percentile, would overestimate WACC by more than can be justified in terms of net benefits to consumers.<sup>211</sup>
349. We also note that the 0.1 asset beta uplift for GPBs is not a standalone component of beta. Rather, it resulted from applying our six-step process, as outlined in

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<sup>210</sup> As discussed in Chapter 2.

<sup>211</sup> Our reasons for using the 67<sup>th</sup> 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).

paragraph 260. The 0.1 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.

350. As part of this review we have retaken each step of the six stage 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.<sup>212,213</sup>

*Although gas is a discretionary fuel, this does not necessarily suggest greater exposure to systematic risk*

351. 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:<sup>214</sup>

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.

352. 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 more discretionary than for electricity.<sup>215</sup> Suppliers of gas pipeline services recognise the possible loss of volumes if consumers were to switch energy demand to other fuel types.<sup>216</sup>
353. However, it is not clear that this 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. Systematic risk affects all investments in a market (to greater or lesser extent), not just a particular firm or industry.
354. Some aspects of the demand risks faced by GPBs are non-systematic in nature, and can be mitigated through diversification. For example:

354.1 If the cost to consumers of reticulated gas were to increase, this may cause some consumers to switch to alternative fuels (such as bottled gas, coal or

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<sup>212</sup> Our six stage process is discussed in further detail in para 260.

<sup>213</sup> As discussed in paragraphs 405 to 420, 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.

<sup>214</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para 6.4.3.

<sup>215</sup> Vector “Pricing Methodology for Gas Distribution Services” (effective from 1 October 2015), p.11.

<sup>216</sup> Vector “Pricing Methodology for Gas Distribution Services” (effective from 1 October 2015); and Powerco “Gas Distribution Pricing Methodology” (24 September 2015).

electricity). In this event, the GPB would experience lower volumes.<sup>217</sup> 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.

354.2 However, the risk of switching to alternative fuels is non-systematic, given that it will not matter to diversified business or investor. A diversified participant 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.

355. 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:<sup>218</sup>

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 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.

356. Investors can also diversify the risks associated with consumers switching between alternative fuels, by investing in companies supplying a range of services.

357. 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. Although there is a risk to the volume of gas transported by gas pipelines, this risk can be mitigated through diversification.<sup>219</sup>

358. Other factors may also influence consumers' decisions regarding whether to join or leave a GPB network, for example, weather conditions or the introduction of new technologies.<sup>220</sup> Regarding new technologies, CEG submitted that it "would expect the higher competitive stranding risk facing gas transport businesses (relative to

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<sup>217</sup> Vector "Pricing Methodology for Gas Distribution Services" (effective from 1 October 2015), p.11-12.

<sup>218</sup> Powerco "Gas Distribution Pricing Methodology" (24 September 2015), p.22.

<sup>219</sup> 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.

<sup>220</sup> Powerco "Gas Distribution Pricing Methodology" (24 September 2015), p.21.



electricity transport businesses) to have a systematic component that would be appropriately reflected in a higher allowed asset beta".<sup>221</sup>

359. However, we note that:

359.1 weather events are typically a non-systematic factor that investors would not expect to be compensated for through a higher beta; and

359.2 the AER recently concluded that "[w]e do not consider the risk arising from disruptive technologies can be reasonably classified as systematic risk".<sup>222</sup> We agree that stranding risk is generally non-systematic in nature. 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).<sup>223</sup>

360. 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.

361. 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.<sup>224</sup> 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).

362. We consider reticulated gas may well have a higher income elasticity of demand than electricity in New Zealand. As Powerco explains in its 2015 gas pricing methodology, electricity is an essential service for which there are few alternatives for most consumer applications. Reticulated gas, on the other hand, is a more discretionary fuel, given consumers have a range of choices for their fuel needs.<sup>225</sup>

363. For example, in an economic downturn New Zealand consumers' may reduce their use of gas proportionately more than they reduce their use of electricity. However:

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<sup>221</sup> CEG "Relative risk of gas transport services" (report prepared for Vector, March 2016), p.1.

<sup>222</sup> AER "Final decision – SA Power Networks determination 2015–16 to 2019–20, Attachment 3 – Rate of return" (October 2015), D.1.4.

<sup>223</sup> The possibility of asset stranding for GPBs is discussed further in the emerging technologies topic paper. Commerce Commission "Input methodologies review draft decisions: Topic paper 3 – The future impact of emerging technologies in the energy sector" (16 June 2016). We welcome further evidence on this issue.

<sup>224</sup> 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.

<sup>225</sup> Powerco "Gas Distribution Pricing Methodology" (24 September 2015), p.19-20.

- 363.1 we are not aware of any reliable evidence on differences in income elasticities of demand for gas and electricity services in New Zealand;<sup>226</sup>
- 363.2 the impact of differences in income elasticities between gas and electricity on a regulated supplier's returns is affected by a number of other factors including consumer mix, and the composition of charges (proportion of fixed and variable charges); and
- 363.3 several factors beyond the income elasticity of demand affect beta. It is not clear how much weight should be given to differences in income elasticity when estimating beta, as opposed to those other factors.
364. 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 (0.34).
365. More fundamentally, it is not clear income elasticity of demand will have a material impact on exposure to systematic risk for New Zealand electricity lines and gas pipeline businesses. This reflects the specific nature of the risks that regulated businesses are exposed to under revenue caps and weighted average price caps, respectively.
366. Under a revenue cap, regulated businesses receive their revenue allowance each year, independent of changes to GDP or incomes. For example:
- 366.1 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;
- 366.2 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
- 366.3 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.

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<sup>226</sup> The income elasticity of demand for gas is discussed further in the context of Houston Kemp's submission (see paragraphs 373 to 374). In summary, although Houston Kemp has been careful to address data limitations when undertaking its econometric analysis, we consider the resulting income elasticity of demand estimates appear very high. We also note that they differ significantly from other available estimates.

367. Under a weighted average price cap, regulated businesses are exposed to forecast risk, but it is not clear that this will affect its 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:

367.1 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

367.2 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 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.

368. 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".<sup>227</sup> This conclusion was based on similar analysis to paragraph 367. Specifically, Houston Kemp submitted:<sup>228</sup>

...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.

369. Overall, it is not clear that GPBs should receive a higher asset beta than electricity lines, simply because gas is a more discretionary fuel. This is because it is only systematic risk that is relevant to beta. It is not immediately clear whether:

369.1 New Zealand GPBs face greater exposure to systematic risk than New Zealand electricity lines businesses;

369.2 New Zealand GPBs face greater exposure to systematic risk than our sample of comparator companies; and

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<sup>227</sup> Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p.7.

<sup>228</sup> Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p.7.

369.3 income elasticity of demand will have a material impact on exposure to systematic risk, given the specific nature of the risks New Zealand electricity lines and gas pipeline businesses are exposed to under revenue cap and weighted average price cap regulation.

*Dr Lally's latest advice no longer supports using a higher asset beta for gas pipeline businesses*

370. As part of this review, we asked Dr Lally to consider whether the 0.1 upwards adjustment to the asset beta for GPBs continues to be appropriate. As set out in his advice, Dr Lally no longer considers that the 0.1 upwards adjustment to the asset beta for GPBs is warranted.<sup>229</sup>

371. 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 regulated, reducing the relevance of this argument.<sup>230</sup>

372. Dr Lally also concluded, based on his empirical analysis, that differences in customer mix do not warrant a higher beta for GPBs.

372.1 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 than was 0.08 higher than for electricity (assuming 'theta' of 0.5), or 0.04 higher (assuming 'theta' of 0.25).<sup>231</sup> 'Theta' captures the extent to which income elasticity explains changes in asset beta.

372.2 However, Dr Lally also noted betas are affected by many other factors.<sup>232</sup> In particular, he advised that "...it is impossible to reliably estimate the

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<sup>229</sup> 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); 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).

<sup>230</sup> Dr Lally notes that he was in error in not taking this into account in his earlier advice on the appropriate asset beta for regulated gas businesses. 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.

<sup>231</sup> 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.

<sup>232</sup> 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.

difference in the betas of gas and electricity businesses purely on the basis of the two factors considered by HK, and the effect of these two factors will be significantly diluted by other factors”.<sup>233</sup>

372.3 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 below, we have some additional concerns about Houston Kemp’s analysis which further calls into question the magnitude of the estimated difference.

373. Dr Lally’s May 2016 advice relies on Houston Kemp’s income elasticity of demand estimates. However, although Houston Kemp notes that it has “applied robust time-series econometric techniques” when estimating income elasticities, we consider that the values it reports appear very high.<sup>234</sup> In particular:

373.1 Houston Kemp estimated income elasticities of demand of 3.6-3.8 for residential gas, and 1.4-1.2 for commercial gas. 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.

373.2 Alternative studies estimate much lower income elasticities of demand for energy.<sup>235</sup> For example, a 2004 study of energy demand elasticities for OECD countries found the short-run and long-run income elasticities shown in Table 5.<sup>236</sup> This study was referenced in the March 2016 submission from First State Investments.<sup>237</sup>

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<sup>233</sup> 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.

<sup>234</sup> Houston Kemp “Asset beta for gas pipeline businesses” (report prepared for Powerco, May 2016), p 6.

<sup>235</sup> Beierlein, Dunn, and McConnon “The demand for electricity and natural gas in the northeastern United States” *The Review of Economics and Statistics*, Vol. 63, No. 3 (Aug., 1981), p.403-408; Mohammed A. Al-Sahlawi “The Demand for Natural Gas: A Survey of Price and Income Elasticities” *The Energy Journal*, Vol. 10, No. 1 (January 1989); Ronald Bernstein and Reinhard Madlener “Residential Natural Gas Demand Elasticities in OECD Countries: An ARDL Bounds Testing Approach” (October 2011); and NERA “An Econometric Assessment of Electricity Demand in the United States Using Panel Data and the Impact of Retail Competition on Prices” (9 June 2015).

<sup>236</sup> Gang Liu “Estimating Energy Demand Elasticities for OECD Countries - A Dynamic Panel Data Approach” (March 2004), p.12. 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.

<sup>237</sup> First State Investments “Comments on Professor Lally’s review of WACC issues” (24 March 2016), table 4.1, p.10.

**Table 5: 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    |

373.3 Houston Kemp also reports a higher income elasticity for residential gas consumers than commercial gas consumers, but other empirical studies suggest the reverse.<sup>238</sup> Further, Houston Kemp reports lower income elasticities for residential electricity consumers than commercial electricity consumers – the opposite to its findings for gas. It is not clear why the income elasticities for gas and electricity would be sufficiently different to change the relative positions of each energy source.

374. 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:<sup>239</sup>

374.1 the relative lack of availability of some consumption data on a quarterly basis; and

374.2 the length of the time series for annual data, which are only available consistently since 1991.

*Overseas regulatory precedent continues to suggest no uplift should be applied*

375. Overseas regulatory decisions continue to provide no clear support for applying a higher asset beta for gas pipeline services, relative to electricity lines services. Specifically, we note that:

375.1 the AER and Ofgem use the same, or very similar, asset betas for electricity and gas; and

375.2 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.

376. 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,

<sup>238</sup> For example, see the results presented in Table 5.

<sup>239</sup> Houston Kemp “Asset beta for gas pipeline businesses” (report prepared for Powerco, May 2016), p 6.

and gas distribution.<sup>240</sup> 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.<sup>241</sup>

377. The explanatory statement for the AER's rate of return guideline states:<sup>242</sup>

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.

378. 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.

378.1 For both gas distribution (RIIO-GD1) and electricity distribution (RIIO-ED1), Ofgem used an equity beta of 0.9 and gearing of 65%.<sup>243</sup> This implies an asset beta of 0.32.

378.2 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.<sup>244</sup>

379. 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.<sup>245</sup>

379.1 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.<sup>246</sup>

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<sup>240</sup> AER "Better Regulation - Rate of Return Guideline" (December 2013), p 15.

<sup>241</sup> 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).

<sup>242</sup> AER "Better Regulation Explanatory Statement Rate of Return Guideline" (December 2013), p 83.

<sup>243</sup> 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).

<sup>244</sup> Ofgem "RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas - Finance Supporting document" (17 December 2012).

<sup>245</sup> 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.

- 379.2 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).<sup>247</sup>
380. 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.
381. 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:<sup>248</sup>
- 381.1 “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
- 381.2 “Ofgem’s estimate of the WACC for gas distribution companies is very similar to that for electricity distribution companies”.

*Analysis of our comparator sample does not provide clear support for an uplift*

382. Incenta’s March 2016 submission (for First State Investments) argues that comparator sample analysis, using a modified version of our 2010 sample, supports a 0.11-0.14 adjustment for gas.<sup>249</sup> However:
- 382.1 Incenta compares betas for *gas transmission* businesses to its full comparator sample (including both gas and electricity businesses). We consider that a clearer illustration of any difference would be achieved by comparing a set of gas firms and a set of electricity firms (rather than comparing a sub-set of gas firms to a sample comprised of both gas and electricity).<sup>250</sup>

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<sup>246</sup> 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”

<sup>247</sup> CEG “Relative risk of gas transport services” (report prepared for Vector, March 2016), p 7-10.

<sup>248</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para H13.73.

<sup>249</sup> Incenta “Asset beta for gas pipelines in New Zealand” (report prepared for First State Investments, March 2016), p.4.

<sup>250</sup> Dr Lally makes the same point in his report: 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 44-45.

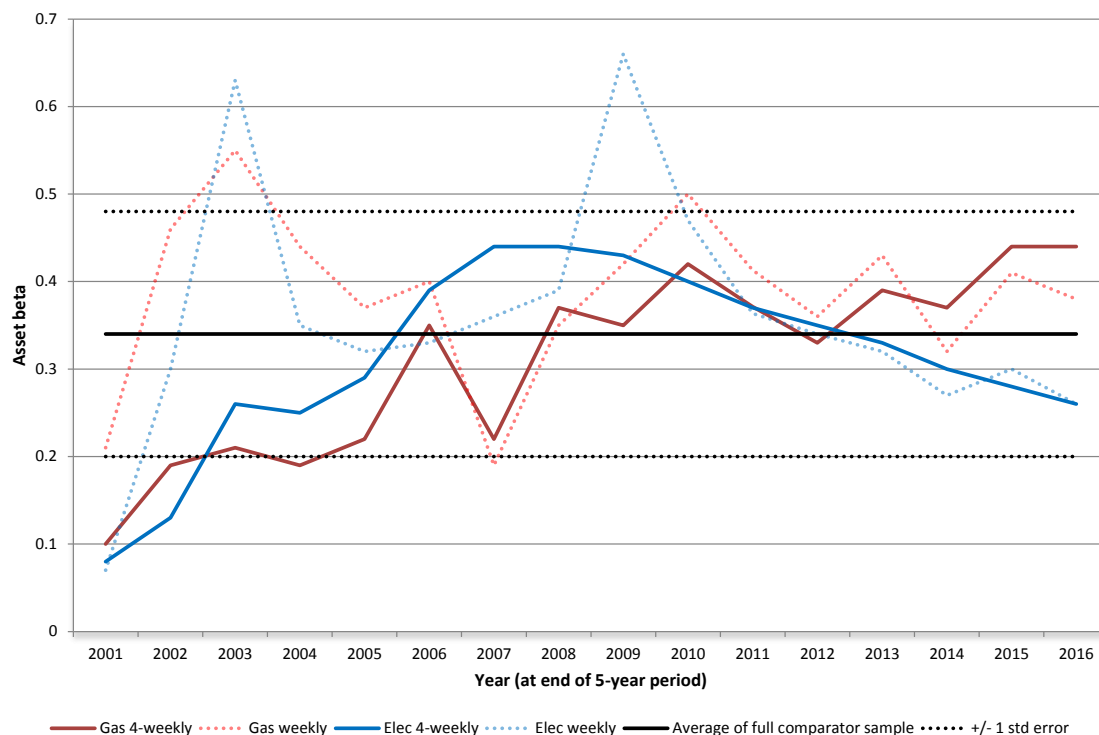


- 382.2 Incenta only considers asset beta estimates for a single period – the five years to 30 November 2015. We consider that this is too short a period to draw any reliable conclusions.<sup>251</sup>
383. In response to the evidence submitted by Incenta, we have undertaken our own analysis of the empirical data. We have compared asset betas for electricity and gas sub-sets of our updated comparator sample, based on rolling five-year asset betas over the most recent 20 year period. As shown in Attachment A we have classified the 74 companies in our comparator sample as either electricity, gas or integrated based on Bloomberg company descriptions. The electricity sub-set is comprised of 16 companies, the gas sub-set is comprised of 18 companies, and the remaining 40 companies are integrated electricity and gas companies.
384. Although our own analysis suggests a higher asset beta for companies in recent years, this is not consistent over time. Figure 7 shows the relationship between the gas and electricity sub-sets of our comparator sample. In some periods the gas beta is higher than the electricity beta, but in other periods the electricity beta is higher than the gas beta. In our view, this suggests that:
- 384.1 observed differences in asset betas between electricity and gas are more likely to reflect measurement error than a systematic difference over time; and therefore
- 384.2 the empirical evidence in support of using a higher asset beta for GPBs is relatively weak.

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<sup>251</sup> Note also 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.45.

**Figure 7: Five-year rolling asset betas for gas and electricity sub-sets of our comparator sample**



385. Figure 7 also illustrates the uncertainty associated with attempting to make an adjustment to the asset beta for GPBs. In particular, we note that a 0.1 adjustment for GPBs would be less than our estimate of the standard error of the asset beta for the full comparator sample, which is 0.14.

*If an asset beta uplift was applied for gas pipeline businesses, this may suggest a downwards adjustment for electricity distribution businesses and Transpower*

386. We consider that if an upwards adjustment were to be made to the asset beta for GPBs, this may (in principle) suggest a corresponding downwards adjustment should be made to the asset beta for EDBs and Transpower. This is because we have derived our asset beta estimate of 0.34 from a sample of both electricity and gas businesses. If our gas estimate is increased, the electricity estimate should be decreased, to ensure the weighted average remains 0.34.<sup>252</sup>

387. Even if it is assumed that New Zealand GPBs face greater exposure to systematic risk than New Zealand electricity lines businesses, there are several possible scenarios

<sup>252</sup> As noted in paragraph 383 above, we consider that of the 74 companies in our comparator sample, 16 are predominantly electricity companies, 18 are predominantly gas companies, and the remaining 40 are integrated electricity and gas companies. The companies have been classified as either electricity, gas, or integrated based on our reading of the Bloomberg company descriptions.

which potentially imply different adjustments to the comparator sample estimate of 0.34.

- 387.1 *Scenario 1:* Gas companies, both in New Zealand and overseas, face greater exposure to systematic risk than electricity companies (and by a similar amount). In this case, a higher asset beta of gas companies is already reflected in the average beta estimate for the comparator sample. This suggests a higher asset beta for gas should be offset by a decrease in the electricity beta.<sup>253</sup>
- 387.2 *Scenario 2:* New Zealand electricity lines businesses face the same exposure to systematic risk (on average) as the companies in our comparator sample. This would imply that the 0.34 estimate is most appropriate for New Zealand electricity lines businesses. When estimating the asset beta for New Zealand GPBs, a higher asset beta for gas should result in an upwards adjustment to the average asset beta derived from the overseas comparator sample.
- 387.3 *Scenario 3:* New Zealand GPBs face the same exposure to systematic risk (on average) as the companies in our comparator sample. This would imply that the 0.34 estimate is most appropriate for New Zealand GPBs. When estimating the asset beta for EDBs and Transpower, a higher asset beta for gas should result in a downwards adjustment to the to the average asset beta derived from the overseas comparator sample.
- 387.4 *Scenario 4:* The overseas gas and electricity companies in our comparator sample face higher exposure to systematic risk than New Zealand electricity lines and gas pipeline businesses. This would suggest the average asset beta of the comparator set is too high, and a downward adjustment should apply for EDBs, Transpower, and GPBs. Conversely, the overseas gas and electricity companies in our comparator sample could face lower exposure to systematic risk, implying an upward adjustment to the asset beta for EDBs, Tranpower, and GPBs.

*We welcome additional evidence to assist us in reaching a final decision*

388. On balance, we propose to use an asset beta of 0.34 for EDBs, Transpower and GPBs. In light of the available evidence, we consider that our original rationale for applying a higher asset beta for GPBs has been significantly weakened, and there is currently no strong evidence in support of an uplift for GPBs. Therefore, we consider that removing the uplift will best promote the long-term interests of consumers consistent with s 52A.

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<sup>253</sup> However, if this was the case, we would also expect to see a material difference in other regulators' asset beta estimates for electricity and gas businesses.

389. However, we acknowledge that attempting to quantify differences in exposure to systematic risk between electricity lines and gas pipeline services is difficult, and has received only limited attention to date.

390. Therefore, we welcome further evidence to assist us in reaching a final decision. In particular, we are interested in evidence on the following points.

390.1 *Evidence of differences in exposure to systematic risk between New Zealand GPBs and our sample of international comparator companies.* As noted in the scenarios in paragraph 387, we consider that demonstrating a difference in risk between New Zealand electricity lines and gas pipeline businesses is not sufficient to justify an uplift to the asset beta for GPBs – it could equally suggest that there should be a downwards adjustment to the asset beta for EDBs and Transpower. Therefore, we are particularly interested in evidence of differences in exposure to systematic risk between New Zealand GPBs and our international comparator sample.

390.2 *Evidence regarding how much weight should be placed on income elasticity of demand when estimating beta.* We are particularly interested in evidence regarding the relevance of income elasticity to asset beta, given the specific risks New Zealand electricity lines and gas pipeline businesses are exposed to under revenue cap and price cap regulation (as discussed in paragraphs 365 to 368).

390.3 *Evidence of other regulators estimating differences in electricity and gas betas due to differences in income elasticity.* We are not currently aware of any other regulators estimating differences in asset beta between electricity and gas explicitly to reflect differences in income elasticity of demand. We welcome evidence on this point, as it is relevant to whether there is any strong precedent for estimating different electricity and gas betas based on differences in income elasticity (and how much weight should be given to differences in income elasticity).

390.4 *Evidence of whether New Zealand consumers have different income elasticities of demand for gas, relative to consumers in other countries in our comparator sample.* As explained earlier, we have estimated asset beta by reference to a large selection of comparator companies including gas pipeline and electricity lines networks. This suggests we should only provide an uplift to our asset beta estimate (of 0.34) for GPBs if the income elasticity of demand for gas in New Zealand is significantly different to the comparator companies (such that it materially affects beta).

390.5 *Evidence of other New Zealand analysts estimating different asset betas for electricity lines and gas pipelines.* We are also not aware of any evidence that New Zealand analysts, other than ourselves, use asset beta estimates for GPBs that are higher than for EDBs and Transpower. We welcome any

evidence showing whether other analysts estimating WACC in the New Zealand context do, or do not, make such a distinction (and why or why not).

391. As outlined above, our consideration of the case for an asset beta uplift for GPBs has raised a number of issues on which we would welcome submissions. We are open to holding a workshop on whether an asset beta adjustment should apply for GPBs if, following consideration of submissions, we consider that this would be a useful addition to our process for reaching final decisions.

*Re-levering the average asset beta to an equity beta*

392. For the reasons explained above, we propose to use an asset beta of 0.34 for EDBs, Transpower, and GPBs. Combining this with a notional leverage estimate of 41% (as explained in paragraphs 443 to 461), results in an equity beta of 0.58.

**We propose to use an asset beta of 0.58 for airports**

393. We propose to use an updated asset beta of 0.58 for specified airport services, which is lower than the value of 0.60 that we determined in 2010. Our proposed asset beta of 0.58 reflects updated data for our revised airports comparator sample.
394. In reaching this view we followed the same six-step process used in 2010, as outlined in paragraph 260. This is consistent with the process used for updating our asset beta estimate for EDBs, Transpower, and GPBs, as explained above.

*Identifying a sample of relevant comparator firms*

395. 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.
396. 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.
397. 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.
398. This resulted in a sample of 26 firms, which are listed in Attachment B. 21 of the firms in our updated sample were also included in the 2010 sample. Table 6 shows the:
- 398.1 four companies from the 2010 sample that are no longer included primarily because of acquisitions or de-listings (in red); and

398.2 five new firms that have been added (in green).

**Table 6: 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<br>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.   |

399. In its submission on our cost of capital update paper, NZAA stated that it expected us to maintain our “...existing approach of using the largest possible comparator sample of airport operators to estimate the asset beta...” noting that “...[d]oing so will provide regulatory certainty, which best gives effect to the purpose of Part 4 and the IM”.<sup>254</sup> We consider our updated airports comparator sample is consistent with the existing approach used in the 2010 IMs.

*Estimating the equity beta for each firm in the sample*

400. 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 281 to 286.

401. 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:

401.1 the five-year period to 31 March 2001 using daily, weekly and 4-weekly observations;

401.2 the five-year period to 31 March 2006 using daily, weekly and 4-weekly observations;

<sup>254</sup> NZ Airports “Submission on additional evidence for cost of capital input methodologies” (5 February 2016), p.2.

401.3 the five-year period to 31 March 2011 using daily, weekly and 4-weekly observations; and

401.4 the five-year period to 31 March 2016 using daily, weekly and 4-weekly observations.

*De-levering the equity beta estimates and calculating the average across the sample*

402. 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.

403. 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 7. Further details regarding the results for the comparator sample are included in Attachment B.

**Table 7: Airport comparator sample asset beta results**

|                    | Daily asset beta | Weekly asset beta | 4-Weekly asset beta | Leverage | # of firms in the sample |
|--------------------|------------------|-------------------|---------------------|----------|--------------------------|
| <b>2011 - 2016</b> | 0.59             | 0.60              | 0.66                | 20%      | 26                       |
| <b>2006 - 2011</b> | 0.60             | 0.57              | 0.69                | 18%      | 25                       |
| <b>2001 - 2006</b> | 0.66             | 0.48              | 0.55                | 12%      | 19                       |
| <b>1996 - 2001</b> | 0.48             | 0.16              | 0.24                | 17%      | 6                        |

404. When determining our asset beta estimate for airports, we have given most 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 290 to 302. This results in an average asset beta for the airports comparator sample of 0.63.

*Is an adjustment to the average asset beta from the comparator sample required?*

405. We consider that the average asset beta from the comparator sample (0.63) is likely to overstate beta for regulated aeronautical activities, because it relates to airports' overall (multi-divisional) businesses.

406. The average of the comparator sample gives us an asset beta estimate for an airport's total operations, rather than regulated activities only.<sup>255</sup> This raises the question of whether an adjustment is required to generate an asset beta estimate for regulated aeronautical activities.

<sup>255</sup> 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.

407. 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.
408. 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), as there is greater demand uncertainty.
409. In 2010 we made a downwards adjustment of 0.05 (from 0.65 to 0.60). We considered the average asset beta for the 2010 comparator sample (0.65) to be an upper bound, as it included both regulated and unregulated activities. In deciding on a beta of 0.60, we attributed primary consideration to:<sup>256</sup>
- 409.1 more recent beta estimates for overseas airports, adopted for regulatory purposes;
  - 409.2 analysis of differences in beta estimates between regulated aeronautical services relative and non-aeronautical services from the UK; and
  - 409.3 the extensive unregulated activities of airports, which are considered by other regulators and suppliers of airports services to have a higher asset beta.
410. We continue to consider a downwards adjustment should be made to our comparator sample estimate of 0.63, for the reasons given in 2010. In support of treating 0.63 as an upper bound, we note that data from our updated comparator sample indicates that:
- 410.1 approximately 40% of revenues are from non-aeronautical activities (see Table 8); and
  - 410.2 asset beta decreases as the percentage of aeronautical revenues increases (see Figure 8).
411. We have used the percentage of aeronautical revenues for each company in our comparator sample, as shown in Table 8, as a proxy for the percentage of regulated revenues.<sup>257</sup> This shows that, on average, approximately 60% of an airport's revenues are from aeronautical activities, suggesting that a significant amount of an airport's business is likely to be unregulated.<sup>258</sup>

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<sup>256</sup> Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para E8.96.

<sup>257</sup> The percentages of aeronautical revenues have been calculated based on Bloomberg segment analysis.

<sup>258</sup> Given that only aeronautical activities are subject to regulation in New Zealand, we have used aeronautical revenues as a proxy for regulated revenues.

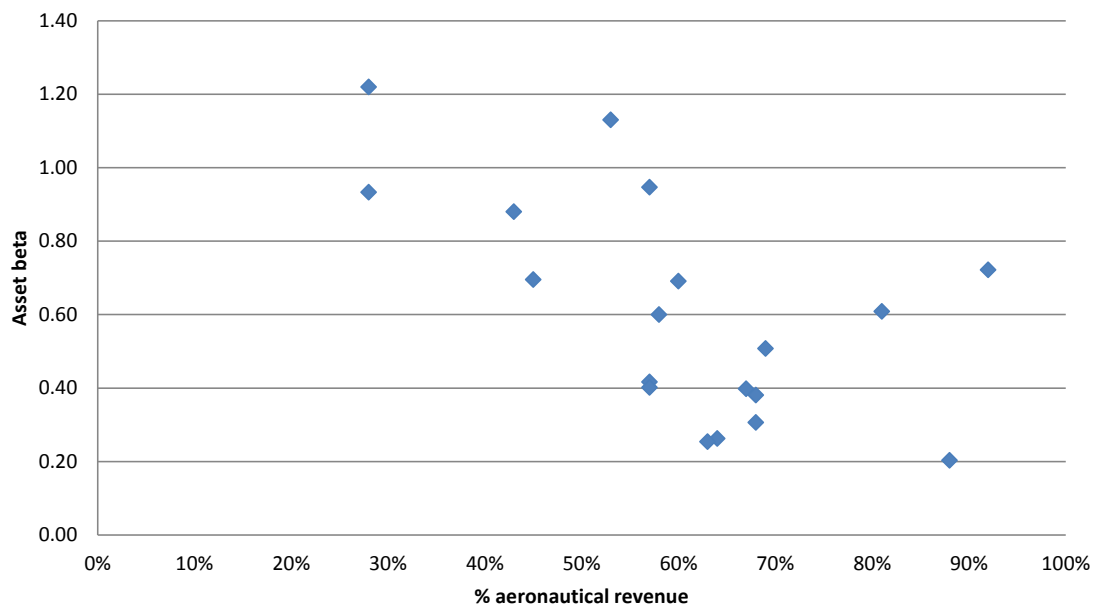


**Table 8: Percentage of aeronautical revenues for airports comparator sample**

| <b>Company</b>                 | <b>% of revenue from aeronautical activities</b> |
|--------------------------------|--|
| Shenzhen Airport Co            | N/A  |
| HNA Infrastructure Company Ltd | 57%  |
| Guangzhou Baiyun International | N/A  |
| Shanghai International Airport | N/A  |
| Xiamen International Airport C | N/A  |
| Beijing Capital International  | 57%  |
| Airport Facilities Co Ltd      | N/A  |
| Japan Airport Terminal Co Ltd  | 28%  |
| Aeroports de Paris             | 57%  |
| Auckland International Airport | 53%  |
| Airports of Thailand PCL       | 45%  |
| Grupo Aeroportuario del Surest | 28%  |
| Flughafen Zuerich AG           | 60%  |
| Flughafen Wien AG              | 81%  |
| Fraport AG Frankfurt Airport S | 64%  |
| Grupo Aeroportuario del Pacifi | 67%  |
| Kobenhavns Lufthavne           | 58%  |
| Malta International Airport PL | 69%  |
| Grupo Aeroportuario del Centro | 68%  |
| SAVE SpA/Tessera               | N/A  |
| Sydney Airport                 | 43%  |
| Aerodrom Nikola Tesla AD Beogr | 92%  |
| GMR Infrastructure Ltd         | N/A  |
| Malaysia Airports Holdings Bhd | 88%  |
| TAV Havalimanlari Holding AS   | 63%  |
| Toscana Aeroporti SpA          | 68%  |
| <b>Average</b>                 | <b>60%</b>                                       |

412. Figure 8 displays the relationship between asset beta and the percentage of aeronautical revenue for firms in our comparator sample. It shows that as aeronautical revenue increases, the asset beta for the airport as a whole decreases. This relationship supports our view that the average asset beta of the comparator sample (which represents the asset beta of all airport activities), should be treated as an upper bound.

**Figure 8: Relationship between asset beta and percentage of aeronautical revenues for airports comparator sample**



413. As part of this review, we asked Dr Lally to consider whether our 2010 adjustment from 0.65 to 0.60 is still appropriate. Based on his analysis, Dr Lally estimated a 0.03 downwards adjustment to the average asset beta of the comparator sample. However he noted that his estimate is “extremely imprecise”, due to uncertainty regarding the underlying parameter values.<sup>259</sup>

414. In reaching his estimate of 0.03, Dr Lally:<sup>260</sup>

414.1 noted that the asset beta for an airport is a value-weighted average of the asset betas for its regulated and unregulated activities;

414.2 used revenue weightings as an proxy for value weightings – specifically, he assumed that the average proportion of revenues from non-aeronautical activities is 39% (based on data from six airports, included in a 2010 Europe Economics report); and

414.3 assumed that the asset beta for unregulated activities is 0.67, based on his estimate of the market average asset beta (ie, using an equity beta of one, and assuming market average leverage of 33%).

<sup>259</sup> 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.4.

<sup>260</sup> 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.25-28.

415. We have considered available evidence regarding value weightings for regulated and unregulated activities at New Zealand airports, given that Dr Lally noted revenue weightings are an “imperfect proxy”.
416. We consider that using value weights (rather than revenue weights) suggests a bigger downwards adjustment than the 0.03 estimated by Dr Lally is likely to be appropriate. Specifically, we note that:
- 416.1 Deutsche Bank estimates that unregulated activities comprise between 78%-82% of AIAL’s market value;<sup>261</sup>
- 416.2 a 2011 PwC report estimated Queenstown Airport’s non-aeronautical activities as comprising 53%-55% of its total enterprise value;<sup>262</sup> and
- 416.3 replicating Dr Lally’s analysis, but assuming 67% value weighting for unregulated activities (based on the average of AIAL and Queenstown), suggests an asset beta for regulated airport services of 0.55 (ie, an adjustment of 0.08).<sup>263</sup>
417. We also note that there are other factors suggesting an asset beta below 0.60 may be appropriate for regulated aeronautical services. In particular:
- 417.1 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’).<sup>264</sup> De-levering assuming gearing of 35% results in an asset beta of 0.46 for AIAL’s regulated business, which is 0.05 lower than the asset beta for AIAL group (0.51).
- 417.2 The Civil Aviation Authority (CAA) has estimated asset betas of 0.50 and 0.56 for Heathrow and Gatwick, respectively, which are significantly below our comparator sample average of 0.63.<sup>265</sup>
- 417.3 Figure 8 indicates that the asset beta for a business with 100% aeronautical revenues would likely be significantly below the sample average of 0.63.

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<sup>261</sup> Deutsche Bank “Auckland Int. Airport – Excellent 1H16, regulatory red light” (19 February 2016), Figure 12, p.14.

<sup>262</sup> 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 14, p.33. We have assumed that “land held for future development” and “commercial activities” capture all the non-aeronautical activities.

<sup>263</sup> Further, assuming market average leverage of 30% (as we previously used in the 2010 IMs reasons paper), would reduce the implied regulated asset beta to 0.49 (an adjustment of 0.14). Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), paragraph H13.14.

<sup>264</sup> Deutsche Bank “Auckland Int. Airport – Excellent 1H16, regulatory red light” (19 February 2016), p 13.

<sup>265</sup> 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, p.44.

- 417.4 PwC's analysis of Queenstown Airport uses an asset beta range for commercial activities of 0.6-0.8, implying an average of 0.7.<sup>266</sup> This is significantly higher than the 0.6 it uses for aeronautical business, and suggests that an adjustment of 0.03 would be too small.
- 417.5 For the Airports Inquiry in 2002, we used an asset beta of 0.50 based on advice from Dr Lally.<sup>267</sup>
418. On the other hand, there are also several factors that suggest caution is appropriate.
- 418.1 There is uncertainty regarding differences in regulatory regimes that apply to the comparator companies (relative to NZ Airports), which may suggest caution in moving significantly away from the sample estimate of 0.63. It is unclear whether these differences affect the suppliers' exposure to systematic risk (and, if so, what way).
- 418.2 Dr Lally estimated a small adjustment of 0.03, noting that he has "very little confidence" in this value due to uncertainty regarding the two underlying parameter values.
- 418.3 NZAA submitted that there is insufficient evidence to credibly quantify any downward adjustment, so the most robust approach would be to not make any adjustment to the airport asset beta.<sup>268</sup>
419. In summary, although we consider there are strong reasons for adopting an asset beta for regulated airport services below 0.63, the appropriate magnitude of the downwards adjustment is unclear.
420. On balance, we propose to adopt an asset beta of 0.58 based on the evidence presented above. Given the uncertainty, we have made a downwards adjustment of 0.05, which is consistent with our 2010 decision. This is also consistent with the submission from BARNZ, which noted that the imprecision in the available estimates suggests "that there is not a good case for amending the existing 0.05 adjustment contained in the current input methodologies".<sup>269</sup>
421. We have assessed the reasonableness of our asset beta estimate of 0.58 based on available comparative information, as shown in Figure 9.

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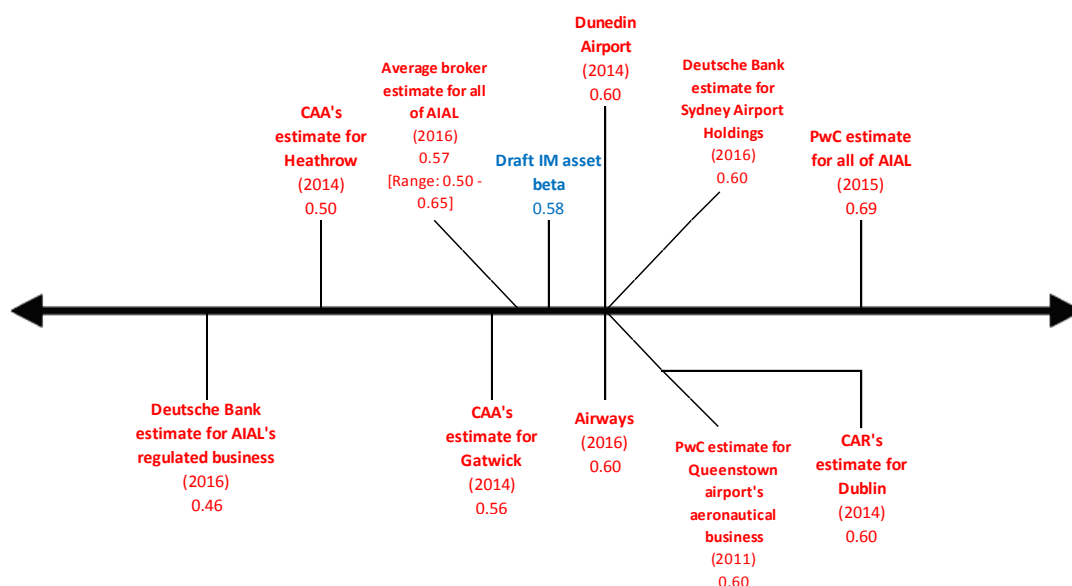
<sup>266</sup> PwC "Queenstown Lakes District Council – Issue of shares in Queenstown Airport Corporation Limited to Auckland International Airport Limited – Detailed report on fairness opinion" (15 March 2011), p.74.

<sup>267</sup> 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).

<sup>268</sup> NZ Airports "Submission on expert advice on cost of capital topics" (24 March 2016), p.1.

<sup>269</sup> BARNZ "Professor Lally's advice on airport asset beta adjustment" (29 March 2016).

**Figure 9: Reasonableness checks on our asset beta estimate for airports**



422. The above diagram shows that our asset beta estimate for airport services of 0.58 falls within the range of comparable information. We consider that this supports the reasonableness of our estimate.

*Re-levering the average asset beta to an equity beta*

423. For the reasons explained above, we propose to use an asset beta of 0.58 for specified airport services. Combining this with a notional leverage estimate of 19% (as explained in paragraphs 443 to 461), results in an equity beta of 0.72.

**Tax adjusted market risk premium**

424. We propose to maintain a TAMRP of 7%, which is the figure used in the current IMs.<sup>270</sup> The TAMRP is a market-wide parameter, so we use a consistent approach across sectors.<sup>271</sup>

425. 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).

<sup>270</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (December 2010).

<sup>271</sup> As noted in paragraph 428, we most recently considered the TAMRP as part of our pricing determination for two telecommunications services.

426. 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:
- 426.1 studies of historic returns on shares relative to the risk-free rate;
  - 426.2 surveys of investors that ask them to state their expected rate of return for the overall market; and
  - 426.3 empirical estimates of the MRP from share prices and expected dividends.
427. In the 2010 IMs we estimated a TAMRP of 7% by considering a range of information sources, including both forecast and historic estimates of the TAMRP.<sup>272</sup> We noted that a TAMRP of 7%:
- 427.1 best reflected the range of evidence available, including both historical returns and expected future returns;
  - 427.2 was considered reasonable by the Cost of Capital Expert Panel (which included Dr Lally); and
  - 427.3 was consistent with the range of TAMRP estimates used by New Zealand market participants, including New Zealand investment banks.
428. We most recently considered the TAMRP as part of our pricing determination for two regulated telecommunications services – Chorus’ UCLL and UBA services.<sup>273</sup> In those determinations we also used a TAMRP of 7%, after considering updated analysis 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 9.<sup>274</sup>

**Table 9: 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%          |

<sup>272</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (December 2010), paragraphs 6.5.4-6.5.15.

<sup>273</sup> Commerce Commission “Cost of capital for the UCLL and UBA pricing reviews – Final decision” (15 December 2015), p.41-47.

<sup>274</sup> 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.

429. 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 is our most recent decision on how the TAMRP should be estimated.<sup>275</sup>
430. In particular, CEG (for the ENA) submitted that:<sup>276</sup>
- 430.1 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;
  - 430.2 Dr Lally has introduced three new methods to estimate the New Zealand MRP (Siegel version 1, Siegel version 2, and surveys);
  - 430.3 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
  - 430.4 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.
431. Frontier Economics (for Transpower) submitted that:<sup>277</sup>
- 431.1 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;
  - 431.2 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%;
  - 431.3 different weight should be placed on different methods of estimating the TAMRP, based on their relative strengths and prevailing market conditions (in

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<sup>275</sup> Commerce Commission "Input methodologies review – Update paper on the cost of capital topic" (30 November 2015), para 2.23-2.27.

<sup>276</sup> CEG "Key reforms to rate of return under the IMs" (February 2016), p.22-43.

<sup>277</sup> Frontier Economics "Cost of equity issues related to input methodologies review" (report prepared for Transpower, February 2016).

particular, the Siegel version 1 method should be discarded, and minimal weighting placed on survey evidence); and

- 431.4 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).
432. Dr Lally considered these submissions in his most recent report and continues to recommend a TAMRP of 7%. He stated that:<sup>278</sup>

...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.

433. Dr Lally also made the following points in response to the submissions from CEG and Frontier Economics.<sup>279</sup>

433.1 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.

433.2 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.

433.3 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.

433.4 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

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<sup>278</sup> 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.

<sup>279</sup> 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).



from 6.9% in 2014 to 7.1% in 2015. However, the rounding process leaves the estimate unchanged at 7.0%.

- 433.5 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.
- 433.6 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).<sup>280</sup> When advising us on TAMRP he has consistently used the results of surveys since 2001, and Siegel version 1 since 2003.
- 433.7 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 of imputation credits in its DGM estimate was incorrect, and Dr Lally mistakenly overlooked this error when including it in his 2014 report.<sup>281</sup>
- 433.8 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".
434. We also note that 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.
435. Further, based on discussions with analysts, we understand that a TAMRP of 7% is generally consistent with estimates used by New Zealand investment banks. Table 10 summarises recent TAMRP estimates from investment banks, which range from 6.5% to 8%.

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<sup>280</sup> Dr Martin Lally "Review of the AER's Methodology for the Risk-Free Rate and the Market Risk Premium" (4 March 2013).

<sup>281</sup> 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.

**Table 10: 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%           |

436. We agree with Dr Lally’s recommendation, and have continued to use a TAMRP estimate of 7.0% for the reasons listed below.
- 436.1 Given that the various approaches to estimating TAMRP produce significantly different estimates of TAMRP, 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.
- 436.2 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).
- 436.3 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.
437. We understand that an estimate of TAMRP of 7.0% remains generally consistent with the estimates used by New Zealand investment banks.

**Risk-free rate**

438. As in 2010, we propose to use the same risk-free rate for the cost of equity as that applied in the cost of debt. As described in paragraph 115, we propose to maintain the current prevailing approach to estimating the risk-free rate but, extend the determination window from one month to three months.

## Chapter 5: Other WACC parameters

### Purpose of this chapter

439. This chapter discusses our draft findings for the parameters that do not comfortably sit in either the cost of debt or cost of equity chapters.

### Structure of this chapter

440. This chapter begins by explaining why we propose to maintain our current approach to estimating a notional leverage, which includes a discussion of the leverage anomaly associated with the use of the SBL-CAPM.
441. We then discuss the tax rates we propose to use in our WACC estimates.
442. Finally, we discuss our proposed approach to determining updated estimates of the standard error of the WACC.

### Leverage

443. We propose maintaining our 2010 approach to estimating notional leverage, which is to use the average leverage of our asset beta comparator samples. This results in leverage of 41% for EDBs, GPBs and Transpower, and 19% for airports.
444. 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.

### *The leverage anomaly*

445. 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.
446. 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.<sup>282</sup> This is because interest costs are tax deductible to the firm, but dividends are not.
447. 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.
448. However, a well-known 'leverage anomaly' exists when using the simplified Brennan-Lally CAPM.<sup>283</sup> When the simplified Brennan-Lally CAPM is used to estimate the cost

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<sup>282</sup> This is the context normally set out in textbooks when discussing the use of the classical CAPM to estimate the cost of equity.

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.

449. 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.
450. 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.<sup>284</sup> 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.
451. 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:<sup>285</sup>
- 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.
452. 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 is the debt beta.
453. 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

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<sup>283</sup> For further discussion see: Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), paras 6.6.1-6.6.16, and Appendix H3.

<sup>284</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services): Reasons paper" (December 2010), paras H3.20-H3.64.

<sup>285</sup> 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: PricewaterhouseCoopers "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: PricewaterhouseCoopers "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.

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.

454. 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.
455. The High Court’s judgment dismissed the appeals 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.”<sup>286</sup>
456. The High Court also noted that AIAL 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.”<sup>287</sup>
457. 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:<sup>288</sup>
- 457.1 Transpower’s average forward-looking actual leverage for the value of leverage without further adjustments to the cost of capital IM; or
  - 457.2 Transpower’s average forward-looking actual leverage for the regulatory period for the value of leverage together with a non-zero debt beta; or
  - 457.3 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.
458. We did not agree with Transpower’s submission for 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

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<sup>286</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, p.540.

<sup>287</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, p.541.

<sup>288</sup> Transpower “Submission on Leverage Value in the Cost of Capital Input Methodology for Transpower” (2012).

beta), and this may have biased the resulting estimate of WACC (unless a debt beta was incorporated).<sup>289</sup>

459. 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 samples, the resulting WACC will be the same for those services regardless of the value assumed for the debt beta.

*Updated leverage for comparator samples*

460. Leverage figures for our proposed asset beta comparator samples are included below. Table 11 shows leverage figures for the EDB, Transpower and GPB comparator sample, and Table 12 shows leverage figures for the airports comparator sample.

**Table 11: EDB, GPB and Transpower comparator sample average leverage results**

|                    | Leverage | No. of firms in the sample |
|--------------------|----------|----------------------------|
| <b>2011 - 2016</b> | 40%      | 74                         |
| <b>2006 - 2011</b> | 42%      | 74                         |
| <b>2001 - 2006</b> | 45%      | 69                         |
| <b>1996 - 2001</b> | 41%      | 61                         |

**Table 12: Airport comparator sample average leverage results**

|                    | Leverage | No. of firms in the sample |
|--------------------|----------|----------------------------|
| <b>2011 - 2016</b> | 20%      | 26                         |
| <b>2006 - 2011</b> | 18%      | 25                         |
| <b>2001 - 2006</b> | 12%      | 19                         |
| <b>1996 - 2001</b> | 17%      | 6                          |

461. 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 41% for EDBs, Transpower and GPBs, and 19% for airports.

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<sup>289</sup> Commerce Commission “Input Methodologies (Transpower) Supplementary Reasons Paper for Leverage in Cost of Capital” (29 June 2012), paras 1.1.7-1.1.18.

## Tax

462. This section explains that we do not propose to change our current approach to the corporate and investor tax rates used in estimating WACC.

### *Corporate tax rate*

463. We propose to maintain the approach of using the statutory corporate tax rate when estimating the WACC. The current statutory corporate tax rate is 28%.
464. 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*

465. We propose to maintain 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.
466. 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.
467. The IM does not provide for the tax circumstances of individual investors.<sup>290</sup> 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.

## Standard error of the WACC

468. This section discusses our proposed 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:<sup>291</sup>
- 468.1 for EDBs, Transpower, and GPBs, the standard error is used to calculate the 67<sup>th</sup> percentile WACC estimates used for price-quality path regulation; and
- 468.2 for airports, we propose to publish the standard error of the WACC, enabling interested parties to generate a distribution for our WACC estimates.<sup>292</sup>

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<sup>290</sup> 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.

<sup>291</sup> 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.

<sup>292</sup> Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

469. We propose that the standard error of the WACC should be changed to 0.0113 for EDBs, Transpower and GPBs, and 0.0144 for airports. This involves two key proposed changes to our 2010 estimates of the standard error of the WACC:
- 469.1 We propose to revise 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.
- 469.2 We propose to remove 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 would mean 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.
470. Apart from the two changes listed above, we are proposing to continue using the approach (and input values) explained in the 2010 IMs reasons paper when estimating the standard error of the WACC.<sup>293</sup> 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.<sup>294</sup>

*Current approach to estimating the standard error of the WACC*

471. Under the current IMs, we combine standard errors for the asset beta, debt premium and TAMRP to determine an overall standard error of the WACC. We use the 'complex analytical approach' described in the 2010 IMs reasons paper to calculate the standard error of the WACC.<sup>295</sup>
472. The standard errors we determined in the 2010 IMs are shown in Table 13.

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<sup>293</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), paras H11.1-H11.67.

<sup>294</sup> Martin Lally "The weighted average cost of capital for gas pipeline businesses" (28 October 2008), see equation 14 and Appendix 3.

<sup>295</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) Reasons paper" (December 2010), para H11.19.



**Table 13: 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 <sup>296</sup> | 0.0015          | 0.0015 | 0.0015   |
| Asset beta                  | 0.13            | 0.14   | 0.16     |
| Overall WACC <sup>297</sup> | 0.0106          | 0.0120 | 0.0146   |

473. 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*

474. 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.<sup>298</sup> Based on this analysis, we propose that:

474.1 an updated standard error of the asset beta of 0.14 should apply to EDBs and Transpower;

474.2 a standard error of the asset beta of 0.14 should continue to apply to GPBs (ie, the same as the value proposed for EDBs and Transpower); and

474.3 a standard error of the asset beta of 0.16 should continue to apply to airports.

475. Data on the standard error of the asset beta for the energy comparator sample is summarised in Table 14.

<sup>296</sup> 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 485 to 488 for further details.

<sup>297</sup> 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.

<sup>298</sup> 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 14: Standard error of the asset beta for updated energy comparator sample**

|                 | 2006-2011 | 2011-2016 | Average |
|-----------------|-----------|-----------|---------|
| <b>Daily</b>    | 0.1491    | 0.1233    | 0.1362  |
| <b>Weekly</b>   | 0.1483    | 0.1268    | 0.1375  |
| <b>4-weekly</b> | 0.1434    | 0.1291    | 0.1363  |

476. Consistent with our approach to estimating asset beta, we have placed most weight on the weekly and 4-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 0.14 (rounded to two decimal places).
477. Given that we propose to use the same asset beta for EDBs, Transpower, and GPBs, we consider that the updated standard error of the asset beta 0.14 should apply to all of these sectors.<sup>299</sup> This would result in a slight increase in the standard error of the asset beta for EDBs and Transpower (from 0.13 to 0.14), but is the same standard error of the asset beta that currently applied to GPBs (0.14).
478. We also assessed updated data on the standard error of the asset beta for the airports comparator sample, as summarised in Table 15. Averaging across the weekly and 4-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 15: Standard error of the asset beta for updated airports comparator sample**

|                 | 2006-2011 | 2011-2016 | Average |
|-----------------|-----------|-----------|---------|
| <b>Daily</b>    | 0.2396    | 0.3064    | 0.2730  |
| <b>Weekly</b>   | 0.1945    | 0.2989    | 0.2467  |
| <b>4-Weekly</b> | 0.1862    | 0.3053    | 0.2457  |

479. However, in the original airports IMs decision we adopted a standard error of the asset beta of 0.16 by applying judgement.<sup>300</sup> 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”.
480. 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.<sup>301</sup> In particular, NZ Airports’ expert at the time (Alistair Marsden, from

<sup>299</sup> As explained in paragraphs 331 to 392, we propose to no longer make an adjustment to the asset beta for GPBs.

<sup>300</sup> Commerce Commission “Input methodologies (airport services) Reasons paper” (December 2010), paras E8.107-E8.114.

<sup>301</sup> Commerce Commission “Input methodologies (airport services) Reasons paper” (December 2010), para E8.114.

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.<sup>302</sup>

481. 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.
482. 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:<sup>303</sup>

...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.

483. 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):<sup>304</sup>
- 483.1 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);
- 483.2 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
- 483.3 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).
484. We therefore propose 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.<sup>305</sup> In addition, we note that:

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<sup>302</sup> 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.

<sup>303</sup> NZ Airports “Submission on Commerce Commission’s Input Methodologies Review: Invitation to Contribute to Problem Definition” (21 August 2015), paras 76 and 80.

<sup>304</sup> 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.

<sup>305</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010).

- 484.1 an asset beta of 0.58 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);
- 484.2 there appears to be significant variation in the standard error of the asset beta for airports between periods (for example, based on weekly and 4-weekly observations, the standard error of the asset beta for 2006-2011 is approximately 0.19, but for 2011-2016 it is approximately 0.30);
- 484.3 although 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;
- 484.4 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;
- 484.5 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);
- 484.6 a standard error of the asset beta for airports of 0.16 is consistent with advice from NZAA's expert in 2010 (Uniservices); and
- 484.7 we propose to no longer publish specific WACC percentile estimates for airports ID, diminishing the importance of our standard error estimate.<sup>306</sup>

*Standard error of the debt premium*

- 485. Under the current IMs we use an estimate of the standard error of the debt premium that is the greater value of:
  - 485.1 0.0015; or
  - 485.2 the result of Equation 2: Standard error of the debt premium for EDB ID (which is based on cost of capital IMs for EDB ID, as an example).<sup>307</sup>

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<sup>306</sup> Instead we propose to only publish a mid-point WACC estimate and standard error of the WACC. Under this approach, the standard error of the WACC would only be one factor when considering airports' targeted rates of return.

<sup>307</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2015] NZCC 32, clause 2.4.5. The same formula is used for other forms of regulation and other sectors (but different clause references apply).

**Equation 2: 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).

- 486. Although 0.0015 is 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.<sup>308</sup>
- 487. Given that equation for estimating the standard error of the debt premium has never been able to be applied, we propose that it should be removed from the IMs. This means that a fixed standard error of the debt premium of 0.0015 would apply.
- 488. Using a fixed value for the standard error of the debt premium of 0.0015 would simplify the IMs. This would enable 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.

*Draft review regarding overall standard error of the WACC*

- 489. Based on the analysis described above, we propose that the standard errors in Table 16 should apply.<sup>309</sup>

<sup>308</sup> We note that this will still be the case if majority government owned bonds are given the same weighting as non-majority government owned bonds.

<sup>309</sup> 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 0.0113 (for EDBs/Transpower/GPBs) and 0.0144 (for airports) when rounded to four decimal places.

**Table 16: Updated standard errors of the WACC under this draft determination**

| Parameter           | Standard error           |               |
|---------------------|--------------------------|---------------|
|                     | EDBs/Transpower/<br>GPBs | Airports      |
| TAMRP               | 0.015                    | 0.015         |
| Debt premium        | 0.0015                   | 0.0015        |
| Asset beta          | 0.14                     | 0.16          |
| <i>Overall WACC</i> | <i>0.0113</i>            | <i>0.0144</i> |

490. The proposed application of the standard error of the WACC for airports is described in more detail in the Topic paper 6.<sup>310</sup>

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<sup>310</sup> Commerce Commission “Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports” (16 June 2016).

## Chapter 6: Additional cost of capital issues

### Purpose of this chapter

491. This chapter explains our draft findings 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:

491.1 incentives to apply for a CPP; and

491.2 issues raised by the High Court in its judgment on the merits appeal to the setting of the original IMs, including;<sup>311</sup>

491.2.1 the choice of the SBL-CAPM to estimate the cost of capital;

491.2.2 the appropriate WACC percentile; and

491.2.3 the implementation of a split cost of capital.

### Incentives to apply for a CPP

492. The current IMs apply a prevailing approach to estimating the cost of capital. We determine a new WACC each year that applies to any supplier making a CPP application. The CPP WACC applies 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 current approach*

493. We outlined the potential issue with the current approach to setting a CPP WACC in the problem definition paper.<sup>312</sup> Divergence between the revised WACC that will apply to CPPs and a supplier's existing WACC under a DPP may create perverse incentives for a supplier to either apply or not apply, for a customised price-quality path.

494. 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).

495. If the CPP WACC is lower than the DPP WACC, then a supplier potentially has an incentive not to apply for a CPP.<sup>313</sup> Given the much larger size of the RAB compared

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<sup>311</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289.

<sup>312</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), Topic 3.

<sup>313</sup> Particularly if it has undertaken steps to manage its debt financing risk on the expectation that the WACC will be fixed for five years

to potential new capex over the CPP period, the difference between CPP and DPP WACC is likely to be a significant driver of whether to apply for a CPP or not.

496. 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.<sup>314</sup>
497. 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.<sup>315</sup>
498. In his report, Dr Lally identified four broad solutions to the WACC alignment incentive issue:
- 498.1 annual updating of the cost of debt – indexing the price path to the cost of debt (Option 1);
  - 498.2 using a long-term trailing average cost of debt when setting the WACC (Option 2);
  - 498.3 applying the DPP WACC to any CPP application (Option 3); and
  - 498.4 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).<sup>316</sup>
499. 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.

*Proposed approach to the WACC alignment issue*

500. We propose to remove the requirement to determine a CPP-specific WACC from the cost of capital IM. Under this proposal, the WACC determined for the DPP would apply for a fixed term of five years, even for suppliers that moved onto a CPP. If a new DPP WACC was determined part way through a CPP, we would reopen the CPP

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<sup>314</sup> For further information on these decisions, see: Commerce Commission: "IM review second process update paper CPP fast track amendments" (9 October 2015).

<sup>315</sup> Dr Martin Lally "Complications arising from the option to seek a CPP" (18 September 2015).

<sup>316</sup> 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 paras 541-555.



and adjust prices for the remainder of the CPP to reflect that new DPP WACC. The adjusted prices would be consistent with the allowed return on capital over the remainder of the period being equivalent to the new DPP WACC.

501. 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 provided at a time at which the WACC is determined. For example, when determining a forecast of revaluation gains for a CPP, we would use CPI forecasts made at the time the DPP WACC was determined. This earlier CPI forecast could have been a number of years prior to the start of the CPP but it ensures consistency with our economic principle of ex-ante FCM.<sup>317</sup> Similarly, when the DPP WACC is updated and we reopen the CPP, we would need to use an updated forecast of CPI to update the forecast of revaluations for the remainder of the CPP.
502. 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.<sup>318</sup> Fluctuations in interest rates would therefore no longer be a significant consideration in whether a supplier applies for a CPP or not.
503. We received a number of submissions supporting this approach.<sup>319</sup> 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.
504. Vector and Aurora did not support the decision to apply the DPP WACC to CPPs because they thought our focus should be on reducing WACC volatility more generally and not just in relation to this specific issue.<sup>320</sup>

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<sup>317</sup> 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.

<sup>318</sup> 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.

<sup>319</sup> 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.

505. 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. We also note that this approach does not rule out moving to a trailing average approach more generally to determine the cost of debt.
506. The approach has the added benefit of removing the need to determine a separate CPP WACC.
507. We 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.
508. We, therefore, propose to introduce an ability to reconsider a CPP following a WACC change. When reconsidering the path in this context, we would use the new WACC for all inputs to the building blocks model that is used to update a supplier's allowable revenue. We would 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.<sup>321</sup>

*Alternative option 1 – Application of a dual WACC approach*

509. One of the issues with applying the DPP WACC to existing assets is that it can cause problems with significant new investment under 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:<sup>322</sup>

... 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.

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<sup>320</sup> Vector "Input methodologies review – Update paper on the cost of capital topic" (5 February 2016), para 3; Aurora "Input methodologies review: Update paper on the cost of capital topic" (5 February 2016), p.3.

<sup>321</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016).

<sup>322</sup> Dr Martin Lally "Complications arising from the option to apply for a CPP" (18 September 2015), p.4.

510. An alternative approach, as suggested by Dr Lally, is to apply a dual WACC approach.<sup>323</sup> Under this approach, for a CPP:
- 510.1 the DPP WACC would be applied to existing assets and capex that was originally allowed for under the DPP; and
  - 510.2 the CPP WACC would be applied to additional (incremental) capex provided for under a CPP that was not allowed under the DPP.
511. 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 E 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.
512. 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 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.
513. 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:
- 513.1 identifying CPP and DPP capex;<sup>324</sup>
  - 513.2 the use of single WACC values as inputs to price-quality path calculations (eg, in the IRIS mechanism, timing factors);<sup>325</sup> and
  - 513.3 consideration of how subsequent changes to the WACC would take place once assets were subject to different WACCs.<sup>326</sup>

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<sup>323</sup> 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 paras 541-555.

<sup>324</sup> 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.

<sup>325</sup> Orion "Submission on the cost of capital and the IM review" (5 February 2016), para 58.

<sup>326</sup> Houston Kemp "Comment on the Commerce Commission's cost of capital update paper" (report prepared for Powerco, 5 February 2016), p.22.

514. Contact and MEUG suggested that we should at least explore the dual WACC approach.<sup>327</sup>
515. We do not consider the issues identified by suppliers provide insurmountable barriers to implementing a dual WACC approach.<sup>328</sup> 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.

*Alternative option 2 – Update the WACC annually*

516. 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.
517. These options were to:
- 517.1 update the WACC annually; and
  - 517.2 apply a trailing average approach.
518. These options could potentially have helped to reduce the CPP incentive issues. However both options:
- 518.1 would have still resulted in a 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
  - 518.2 have already been rejected as a change to the cost of debt for other reasons.
519. 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.<sup>329</sup> 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**

520. 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

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<sup>327</sup> 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.

<sup>328</sup> 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.

<sup>329</sup> 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.

cost of equity and the SBL-CAPM is a version that best fits the particular features of the New Zealand taxation system.

521. The problem definition paper identified that the High Court questioned the suitability of the SBL-CAPM, particularly with regard to the ‘leverage anomaly’.<sup>330</sup>
522. 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 alternatives to the SBL-CAPM were the main reasons given for this view. For example PwC suggested that:<sup>331</sup>

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.

523. 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.<sup>332</sup>
524. 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:<sup>333</sup>

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

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<sup>330</sup> 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.

<sup>331</sup> 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.

<sup>332</sup> 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.

<sup>333</sup> Transpower’s submission “Update paper on the cost of capital” (5 February 2016), p.1;

bias in the SBL-CAPM (placing some weight on both the adjusted and unadjusted SBL-CAPMs).

525. MGUG submitted more strongly that we should consider alternative models.<sup>334</sup>

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.

526. 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 regulated business are based overseas and we use overseas firms in the comparator sample to determine some parameter inputs.<sup>335</sup>

527. 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:

527.1 Black CAPM because there was no clear evidence of its superiority to SBL-CAPM and the fact it has not been widely used elsewhere.<sup>336</sup> We also noted that the use of a 5-year risk-free rate (rather than shorter-term risk-free rates often used in academic studies) is likely to flatten the securities market line (due to the higher price of longer-term debt) mitigating impact of any low beta bias.<sup>337</sup>

527.2 Fama/French model because of difficulties in obtaining data and ongoing debate on its theoretical merits.<sup>338</sup>

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<sup>334</sup> MGUG “Submission on cost of capital update paper: 30 November 2015” (5 February 2016), para 9.

<sup>335</sup> 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.

<sup>336</sup> We note that the AER has provided some weight to the theories of the Black CAPM when determining equity betas. However they have 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>

<sup>337</sup> 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.

<sup>338</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services) reasons paper” (22 December 2010), para H2.26.

- 527.3 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).
528. 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.
529. 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.
530. 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.<sup>339</sup>
531. 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.
532. 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.<sup>340</sup> The simplicity and intuition of the SBL-CAPM also works to its advantage.
533. We, therefore, do not propose to change the choice of model used to estimate the cost of equity when determining the WACC.

#### **Black's simple discounting rule**

534. 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.

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<sup>339</sup> Commerce Commission "Input methodologies (electricity distribution and gas pipeline services) reasons paper" (22 December 2010), para 6.4.35.

<sup>340</sup> 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>.

### WACC percentile

535. 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.
536. When setting the original IMs we used the 75<sup>th</sup> 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.<sup>341</sup> This amendment reduced the percentile used for price-quality regulation in the electricity and gas sectors from the 75<sup>th</sup> to 67<sup>th</sup> percentile.<sup>342</sup>
537. Submissions from suppliers agreed with our view that this should not be a topic of focus for the review. For example Orion noted that:<sup>343</sup>
- 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.
538. Contact and MEUG both considered that we should re-evaluate the use of the 67<sup>th</sup> percentile and both recommend a move to the 50<sup>th</sup> percentile. MEUG submitted evidence from recent transactions of regulated businesses to support a lower WACC.<sup>344</sup>
539. We consider that ongoing evaluation of RAB multiples is useful, particularly with regard to assessing the reasonableness of our WACC estimates. However, we do not propose to make any change to our use of the 67<sup>th</sup> 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.

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<sup>341</sup> Commerce Commission “Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper” (30 October 2014).

<sup>342</sup> 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), paras 256-258.

<sup>343</sup> 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.

<sup>344</sup> RAB multiples are discussed in more detail in Chapter 7.



540. We are however considering the WACC percentile range in relation to airports, because the airport sector was not part of the final 2014 analysis. Our assessment of the relevance of the WACC percentile range for airports is considered in Topic paper 6.<sup>345</sup>

### **Split cost of capital**

541. 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 75<sup>th</sup> percentile).<sup>346</sup>
542. 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.
543. MEUG suggested that the WACC estimate used for already committed or approved capital should be equivalent to the 50<sup>th</sup> percentile and the WACC estimate used for new capital should be the 75<sup>th</sup> 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.<sup>347</sup>
544. 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.<sup>348</sup> A more recent study was 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.<sup>349</sup>
545. 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 50<sup>th</sup> percentile of the WACC is more appropriate. Also, Helm indicated that lower WACC should be applied to assets as soon as they enter the RAB, while MEUG's proposal appears to indicate that they would expect an asset to receive the higher WACC for a longer period of time.

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<sup>345</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

<sup>346</sup> 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].

<sup>347</sup> Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services: Reasons paper" (30 October 2014), paras 4.46-4.47.

<sup>348</sup> For example: Dieter Helm, "Ownership, utility regulation and financial structures: an emerging model" (14 January 2006). Available at: [www.dieterhelm.co.uk/node/632](http://www.dieterhelm.co.uk/node/632)

<sup>349</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015), paras 4.33-4.44.

546. 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 the of a split cost of capital*

547. 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.
548. The main benefits would accrue from:
- 548.1 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
  - 548.2 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.
549. 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:
- 549.1 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.
  - 549.2 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.
550. 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.
551. Given the potential for these disadvantages to be significant, we propose that it is inappropriate to apply a split cost of capital approach when setting the cost of

capital for regulated suppliers. In taking that position we considered the following factors are particularly relevant.

- 551.1 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.<sup>350</sup>
- 551.2 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.
- 551.3 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.
- 551.4 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.
- 551.5 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.
552. 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:
- 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.
553. Other submissions from suppliers also agreed with our proposal not to undertake further work in this area.<sup>351</sup>

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<sup>350</sup> Commerce Commission "Input methodologies review: Update paper on the cost of capital topic" (30 November 2015).

<sup>351</sup> 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

554. MEUG submitted that they still considered that ongoing evaluation of the split cost of capital would be useful but they provided no specific information on how this might be undertaken or how they envisaged a split cost of capital might be implemented.<sup>352</sup>
555. As a result, 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.

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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.

<sup>352</sup> MEUG "Submission on cost of capital update paper" (5 February 2016), paras 13-17.

## Chapter 7: Reasonableness checks

### Purpose of our reasonableness checks

556. This chapter discusses whether our WACC estimates, if we adopted the proposals 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.
557. 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.<sup>353</sup>
558. Unless otherwise indicated, all relevant calculations and reasonableness checks discussed in this chapter were conducted using the current cost of capital IMs, updated to reflect proposed changes discussed in this paper (which we refer to in this chapter as the 'draft amended cost of capital IM').
559. Based on the analysis we have undertaken, we consider that our WACC estimates based on the draft amended cost of capital IMs are reasonable. In particular:
- 559.1 Our 67<sup>th</sup> percentile post-tax WACC estimate for EDBs, Transpower and GPBs of 5.31% 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).<sup>354</sup>
- 559.2 Although limited evidence is available to test the reasonableness of our WACC estimate for GPBs specifically, 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 sufficient to compensate investors for putting their capital at risk (even after allowing for the expected impact of reducing the asset beta for GPBs, as we are now proposing).
- 559.3 Our mid-point post-tax WACC for airports of 6.17% is within the range of alternative New Zealand sourced post-tax WACC estimates for airports, and

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<sup>353</sup> 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.

<sup>354</sup> Our reasonableness checks analysis focusses on the 67<sup>th</sup> percentile WACC estimate 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 estimate of 4.81% is also within the range of comparative information considered.

within the range of overseas WACC estimates from the UK and Ireland (after normalising for differences in risk-free rates).

560. The rest of this chapter:

- 560.1 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;
- 560.2 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;
- 560.3 describes in detail the comparative information used when undertaking reasonableness checks for EDBs/Transpower/GPBs and airports, respectively;
- 560.4 outlines the RAB multiples analysis we have undertaken, as an additional reasonableness check; and
- 560.5 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**

- 561. This section explains the approach we have used when undertaking reasonableness checks of our WACC estimates, including:
  - 561.1 the publicly available comparative information we have considered;
  - 561.2 the weight placed on WACC estimates from different sources; and
  - 561.3 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*

- 562. When undertaking our reasonableness checks, we have used publicly available information on:
  - 562.1 the current New Zealand post-tax risk-free rate and the post-tax cost of corporate debt;
  - 562.2 historic and forecast estimates of the returns achieved by New Zealand investors on an investment of average risk;
  - 562.3 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

- 562.4 estimates of the post-tax WACC from other regulatory contexts, particularly Australia and the United Kingdom.
563. Our WACC estimates for EDBs/Transpower/GPBs and airports, as at 1 April 2016, are compared to the publicly available information listed above. Our WACC estimates are calculated based on the draft cost of capital IMs set out in this paper. If the draft 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 and debt premium will be linked to prevailing market rates.
564. 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*

565. 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.
- 565.1 *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).<sup>355</sup>
- 565.2 *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.
- 565.3 *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.

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<sup>355</sup> 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.

566. 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".<sup>356</sup>

*We have normalised for differences in risk-free rates*

567. We have normalised the comparator WACC estimates for differences in risk-free rates.<sup>357</sup> 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.

568. Under the draft amended cost of capital IM, we use prevailing interest rates when determining the risk-free rate.<sup>358</sup> In contrast, some other analysts and regulatory authorities use long-term averages when estimating the risk-free rate.

569. 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.<sup>359</sup>

570. 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%).<sup>360</sup>

*We have considered RAB multiples, as an additional reasonableness check*

571. 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

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<sup>356</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, at [1213].

<sup>357</sup> 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.

<sup>358</sup> Using prevailing interest rates when determining the risk-free rate is consistent with our approach in the 2010 IMs.

<sup>359</sup> 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%.

<sup>360</sup> 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.



set at a sufficient level to adequately compensate investors for putting their capital at risk.<sup>361</sup>

572. 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 proposed 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**

573. 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 10 and Figure 11, respectively.
574. Our analysis for EDBs, Transpower, and GPBs focusses on the 67<sup>th</sup> percentile WACC estimate, given that this is the percentile used for price-quality path regulation of these businesses. We consider that our 67<sup>th</sup> percentile post-tax WACC estimate of 5.31% (as at 1 April 2016) is reasonable given it is:
- 574.1 below the long-term historical return (8.72%) and the forecast return on New Zealand investments of average risk (7.17%-7.39%), but well above the post-tax returns on five-year government stock (1.87%) and five-year BBB+ bonds (3.06%). 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;
  - 574.2 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 unregulated activities (ranging from 5.56% to 7.15%, with an average of 6.19%);<sup>362</sup> and
  - 574.3 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

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<sup>361</sup> See paragraphs 611 to 630 for further discussion on RAB multiples.

<sup>362</sup> As explained in paragraph 588, 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.

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).

575. 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 6.17% (as at 1 April 2016) is reasonable given it is:

575.1 below the long-term historical (8.72%) and the forecast return on New Zealand investments of average risk (7.17%-7.39%), but well above the post-tax returns on five-year government stock (1.87%) and five-year A- bonds (2.88%). 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;

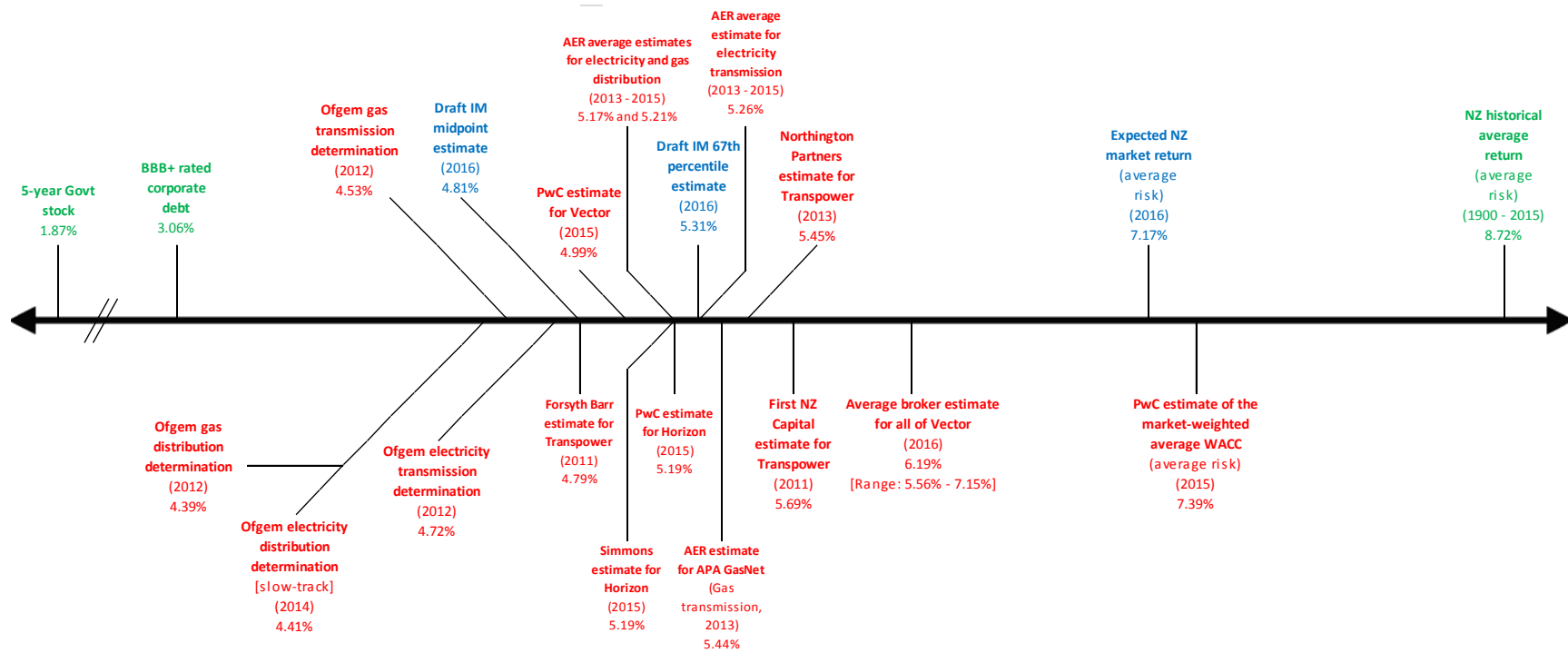
575.2 similar to alternative New Zealand sourced post-tax WACC estimates for airports, after normalising for differences in risk-free rates. For example, our estimate is the same as Deutsche Bank's estimate for the regulated segment of Auckland International Airport's (AIAL) business (6.17%), within 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 the post-tax WACC of 6.28% that Dunedin International Airport used for its 2014 disclosure year, 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%;<sup>363</sup> and

575.3 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 UK (6.11% for Heathrow and 6.42% for Gatwick) and the Commission for Aviation Regulation (**CAR**) in Ireland (6.09% for Dublin Airport).

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<sup>363</sup> AIAL 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.

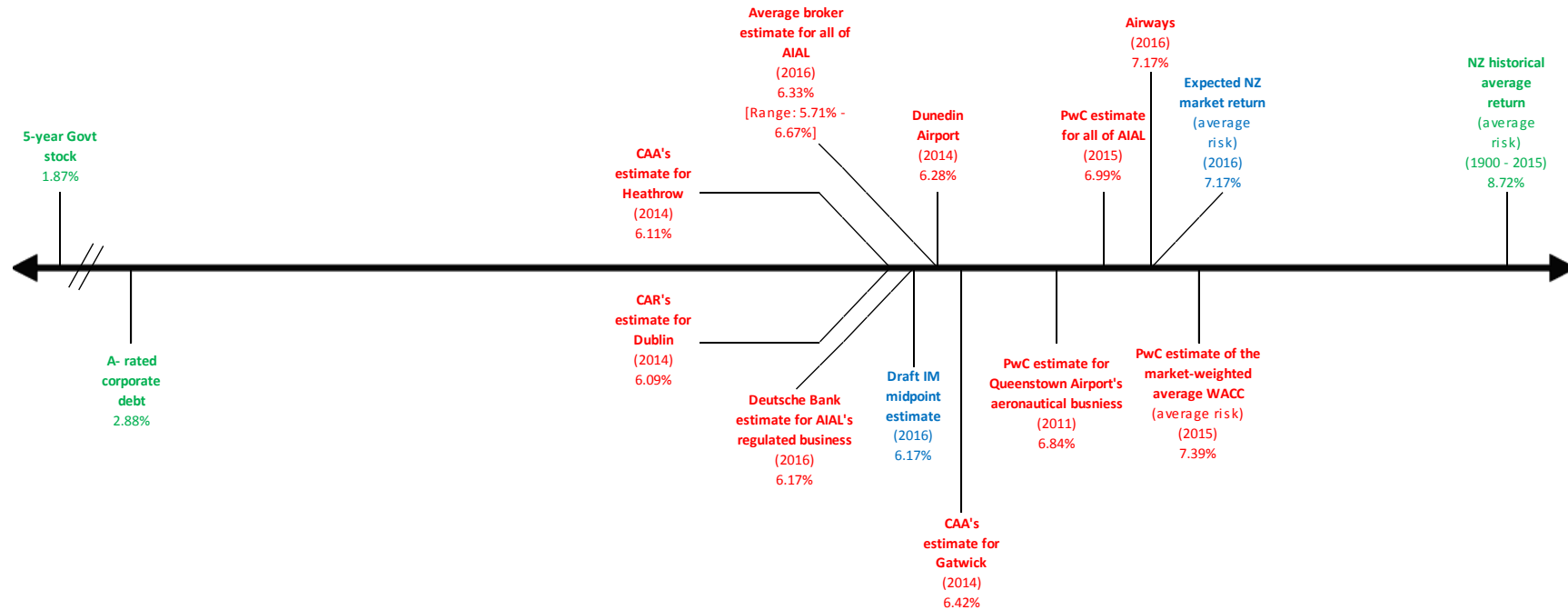
Figure 10: Summary of WACC reasonableness checks for EDBs, Transpower, and GPBs (using normalised risk-free rates)



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 566, 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 11: 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 566 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).

576. We have given particular attention to the reasonableness of our 67<sup>th</sup> percentile WACC estimate for gas pipeline services, given our proposal to no longer apply a higher asset beta for GPBs (relative to EDBs and Transpower). Although limited evidence is available to test the reasonableness of our WACC estimate for GPBs, we note that:

576.1 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 approach of applying an asset beta uplift for gas “may be considered favourable to GPBs”);<sup>364</sup> and

576.2 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 sufficient to compensate investors for putting their capital at risk.<sup>365</sup> 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 0.34.<sup>366</sup>

577. 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**

578. This section explains the comparative information used when assessing the reasonableness of our WACC estimate for EDBs, Transpower and GPBs in more detail. A summary of the information considered is contained in Figure 10.

#### *Our WACC estimate for EDBs, Transpower and GPBs as at 1 April 2016*

579. Our WACC estimate for EDBs, Transpower and GPBs calculated using the draft amended cost of capital IM is shown in Table 17. The figures are based on the draft cost of capital IMs contained in this decision. The risk-free rate and debt premium are calculated as at 1 April 2016.

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<sup>364</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (December 2010), paragraph H13.71-H13.74.

<sup>365</sup> See paragraphs 611 to 630 for further discussion on RAB multiples.

<sup>366</sup> Specifically, the RAB multiples reported for the Vector sale range from 1.33x to 1.50x (or 1.17x to 1.32x, after adjusting for the expected impact of reducing the asset beta for GPBs). We have estimated a RAB multiple for the Maui sale of 1.14x (or 1.00x, after adjusting for the expected impact of reducing the asset beta).

**Table 17: WACC estimate for EDBs, Transpower and GPBs as at 1 April 2016**

| Parameter   | Estimate     | Standard error |
|---|--------------|----------------|
| Risk-free rate                                    | 2.60%        |                |
| Debt premium                                      | 1.65%        | 0.0015         |
| Leverage  | 41%          |                |
| Asset beta  | 0.34         | 0.14           |
| 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                                       | 0.58         |                |
| Cost of equity                                    | 5.93%        |                |
| Cost of debt                                      | 4.45%        |                |
| <b>Vanilla WACC (mid-point)</b>                   | <b>5.32%</b> | 0.0113         |
| <b>Vanilla WACC (67<sup>th</sup> percentile)</b>  | <b>5.82%</b> |                |
| <b>Post-tax WACC (mid-point)</b>                  | <b>4.81%</b> | 0.0113         |
| <b>Post-tax WACC (67<sup>th</sup> percentile)</b> | <b>5.31%</b> |                |

580. As noted in paragraph 574 above, our reasonableness checks analysis focusses on our 67<sup>th</sup> percentile post-tax WACC estimate for EDBs, Transpower and GPBs of 5.31%. We consider it appropriate to focus on the 67<sup>th</sup> percentile estimate, given that this is the WACC estimate used when setting price-quality paths for EDBs, Transpower and GPBs.

*The plausible range*

581. Our 67<sup>th</sup> percentile post-tax WACC estimate for EDBs, Transpower and GPBs of 5.31% is comfortably within the plausible range we have considered, which is bounded:

581.1 at the lower end, by post-tax yields on five-year Government stock of 1.87% and five-year BBB+ rated corporate debt of 3.06%; and

581.2 at the upper end, by the future return expected from the New Zealand market for a firm of average risk of 7.17% (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).

582. Our WACC estimate for EDBs, Transpower and GPBs 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, Transpower, and GPBs, 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.

583. We have estimated a future return expected from the market (using the simplified Brennan-Lally CAPM) of 7.17%, 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 1.65%, debt issuance costs of 0.20% per annum and a corporate and investor tax rate of 28%.<sup>367</sup>
584. PwC's most recent estimate of the market-weighted average post-tax WACC for around 100 New Zealand listed companies is 8.4%.<sup>368</sup> 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%).
585. 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.<sup>369</sup> Dimson, 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.<sup>370</sup> 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*

586. 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 18, have been sourced from:

586.1 Simmons;<sup>371</sup>

586.2 Northington Partners;<sup>372</sup>

586.3 Forsyth Barr;<sup>373</sup>

586.4 First NZ Capital;<sup>374</sup>

586.5 PwC;<sup>375</sup> and

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<sup>367</sup> For simplicity, we have used our BBB+ debt premium estimate when estimating the future return expected from the market.

<sup>368</sup> PwC "Appreciating Value New Zealand" (Edition six, March 2015).

<sup>369</sup> 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 (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.

<sup>370</sup> Dimson, Marsh and Staunton, "Credit Suisse Global Investment Returns Yearbook 2016".

<sup>371</sup> 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).

<sup>372</sup> Northington Partners "Transpower New Zealand – Valuation Assessment" (15 November 2013).

<sup>373</sup> Forsyth Barr "Transpower – Capex coming to fruition" (8 November 2011).

<sup>374</sup> First NZ Capital "Transpower – A valuation perspective" (31 October 2011).

586.6 research analysis employed by New Zealand investment banks.<sup>376</sup>

**Table 18: 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%.

587. After normalising for differences in risk-free rates, our 67<sup>th</sup> percentile post-tax WACC estimate for EDBs, Transpower and GPBs of 5.31% is within the range of independent estimates. Specifically, our 67<sup>th</sup> percentile estimate is:

587.1 above the Simmons WACC estimate for Horizon of 5.19%;

587.2 above the PwC WACC estimates for all of Vector and Horizon of 4.99% and 5.19% respectively;

587.3 above the Forsyth Barr WACC estimate for Transpower of 4.79%;

587.4 below the Northington Partners and First NZ Capital estimates for Transpower of 5.45% and 5.69%, respectively; and

587.5 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%).

588. 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.<sup>377</sup> 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

<sup>375</sup> PwC "Appreciating Value New Zealand" (Edition six, March 2015).

<sup>376</sup> 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.

<sup>377</sup> Commerce Commission "Input methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper" (December 2010), para H13.54.



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.

*Overseas estimates of the regulated cost of capital*

589. 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 67<sup>th</sup> percentile post-tax WACC estimate, we have converted:

589.1 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%;<sup>378</sup> and

589.2 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%.<sup>379</sup>

590. The AER WACC estimates we have considered are very similar to our 67<sup>th</sup> percentile estimate for EDBs, Transpower and GPBs of 5.31%, after normalising for differences in the risk-free rate. Based on the AER WACC estimates listed in Table 19, the average WACC for:

590.1 electricity distribution is 5.17%;

590.2 electricity transmission is 5.26%;

590.3 gas distribution is 5.21%; and

590.4 gas transmission is 5.44% (noting that the only estimate included is from the 2013 determination for APA GasNet Australia).

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<sup>378</sup> The tax rate of 30% is based on the statutory corporate tax rate.

<sup>379</sup> 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 19: Recent AER WACC determinations (2013-today)**

| Determination                     | Year | State                  | Normalised WACC estimate |
|-----------------------------------|------|------------------------|--------------------------|
| <b>Electricity distribution</b>   |      |                        |                          |
| 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%                    |
| <b>Electricity transmission</b>   |      |                        |                          |
| 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%                    |
| <b>Gas distribution</b>           |      |                        |                          |
| 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%                    |
| <b>Gas transmission</b>           |      |                        |                          |
| APA GasNet Australia (Operations) | 2013 | Victoria               | 5.44%                    |

591. As shown in Table 20, recent Ofgem WACC estimates for electricity distribution, electricity transmission, gas distribution, and gas transmission, are below our 67<sup>th</sup> percentile WACC estimates for EDBs, Transpower and GPBs of 5.31% (after normalising for difference in risk-free rates).<sup>380</sup>

<sup>380</sup> 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).

**Table 20: Recent Ofgem WACC determinations**

| Determination                                   | Year | Normalised WACC estimate |
|---|------|--------------------------|
| RIO-ED1 - electricity distribution (slow-track) | 2014 | 4.41%                    |
| RIO-T1 - electricity transmission               | 2012 | 4.72%                    |
| RIO-GD1 - gas distribution                      | 2012 | 4.39%                    |
| RIO-T1 - gas transmission                       | 2012 | 4.53%                    |

*Reasonableness of GPB WACC estimate*

592. In the 2010 IMs, we adopted a higher asset beta for GPBs than 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.<sup>381</sup>
593. As explained in the asset beta section above, we propose that the same asset beta (and the same WACC) should now be used for EDBs, Transpower, and GPBs.<sup>382</sup> This reflects updated analysis suggesting that the upwards adjustment we made to the asset beta for GPBs in 2010 should no longer be applied.
594. The reasonableness checks we have undertaken support using the same WACC estimate for EDBs, Transpower, and GPBs. In particular, we note that:
- 594.1 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;<sup>383</sup> and
- 594.2 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 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 0.34.<sup>384</sup>

<sup>381</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (December 2010), para H13.72.

<sup>382</sup> See paras 331 to 391.

<sup>383</sup> Commerce Commission “Input methodologies (electricity distribution and gas pipeline services): Reasons paper” (December 2010), para H13.72.

<sup>384</sup> Specifically, the RAB multiples reported for the Vector sale range from 1.33x to 1.50x (or 1.17x to 1.32x, after adjusting for the expected impact of reducing the asset beta for GPBs). We have estimated a RAB

**Further details on reasonableness checks for airports**

595. 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 in contained in Figure 11.

*Our WACC estimate for specified airport services as at 1 April 2016*

596. Our WACC estimate for airports is shown in Table 21. The figures are based on the draft cost of capital IMs contained in this decision. The risk-free rate and debt premium are calculated as at 1 April 2016.

**Table 21: WACC estimate for airports as at 1 April 2016**

| Parameter                        | Estimate     | Standard error |
|----------------------------------|--------------|----------------|
| Risk-free rate                   | 2.60%        |                |
| Debt premium                     | 1.40%        | 0.0015         |
| Leverage                         | 19%          |                |
| Asset beta                       | 0.58         | 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                      | 0.72         |                |
| Cost of equity                   | 6.91%        |                |
| Cost of debt                     | 4.20%        |                |
| <b>Vanilla WACC (mid-point)</b>  | <b>6.40%</b> | 0.0144         |
| <b>Post-tax WACC (mid-point)</b> | <b>6.17%</b> | 0.0144         |

597. As noted in paragraph 574.1 above, our reasonableness checks analysis focusses on our mid-point post-tax WACC estimate for airports of 6.17%. This reflects our proposal to only publish mid-point WACC estimates for airports (along with the standard error of the WACC, which can be used to calculate different percentile estimates).

*The plausible range*

598. Our mid-point post-tax WACC estimate for airports of 6.17% is comfortably within the plausible range we have considered, which is bounded:

598.1 at the lower end, by post-tax yields on five-year Government stock of 1.87% and five-year A- rated corporate debt of 2.88%; and

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multiple for the Maui sale of 1.14x (or 1.00x, after adjusting for the expected impact of reducing the asset beta). See paragraphs 611 to 630 for further details.

- 598.2 at the upper end, by the future return expected from the New Zealand market for a firm of average risk of 7.17% (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).
599. 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).<sup>385</sup>
600. We have estimated a future return expected from the market (using the simplified Brennan-Lally CAPM) of 7.17%, 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 1.65%, debt issuance costs of 0.20% per annum and a corporate and investor tax rate of 28%.<sup>386</sup>
601. PwC's most recent estimate of the market-weighted average post-tax WACC for around 100 New Zealand listed companies is 8.4%.<sup>387</sup> 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%).
602. 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.<sup>388</sup> Dimson, 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.<sup>389</sup> The advantage of looking at historic returns is that they can be calculated without the need for an analytical tool such as CAPM.

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<sup>385</sup> 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].

<sup>386</sup> For simplicity, we have used our BBB+ debt premium estimate when estimating the future return expected from the market.

<sup>387</sup> PwC "Appreciating Value New Zealand" (Edition six, March 2015).

<sup>388</sup> 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 (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.

<sup>389</sup> Dimson, Marsh and Staunton, "Credit Suisse Global Investment Returns Yearbook 2016".

*NZ-sourced estimates of the cost of capital for regulated suppliers and similar businesses*

603. 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 18, have been sourced from:

603.1 Deutsche Bank;<sup>390</sup>

603.2 Dunedin Airport;<sup>391</sup>

603.3 PwC;<sup>392</sup>

603.4 research analysis employed by New Zealand investment banks;<sup>393</sup> and

603.5 Airways NZ.<sup>394</sup>

**Table 22: 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%.

604. After normalising for differences in risk-free rates, our mid-point percentile post-tax WACC estimate for airports of 6.17% is similar to alternative New Zealand sourced estimates. Specifically, our mid-point estimate is:

604.1 the same as the Deutsche Bank estimate for the regulated segment of AIAL’s business of 6.17%;

<sup>390</sup> Deutsche Bank “Markets Research – Auckland Int. Airport” (19 February 2016).

<sup>391</sup> Dunedin International Airport Limited “2014 Disclosure Financial Statements” (27 November 2014).

<sup>392</sup> 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).

<sup>393</sup> 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.

<sup>394</sup> Airways New Zealand Ltd “Airways’ pricing for the 2016-2019 period: Consultation response document” (May 2016), p.30.

- 604.2 below the post-tax WACC of 6.28% that Dunedin International Airport used for its 2014 disclosure year;
  - 604.3 below the PwC estimate for Queenstown Airport's aeronautical business of 6.84%;<sup>395</sup>
  - 604.4 below the PwC estimate for AIAL's entire business of 6.99%;
  - 604.5 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
  - 604.6 below the Airways NZ WACC estimate of 7.17%, based on its pricing for the 2016-2019 period.
605. We would generally expect estimates of AIAL'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, property etc), but the IM focusses solely on regulated airport services (ie, aeronautical activities). We note that:
- 605.1 Deutsche Bank has estimated a WACC for AIAL's regulated business that is lower than for AIAL Group;<sup>396</sup>
  - 605.2 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;<sup>397</sup> and
  - 605.3 AIAL has previously acknowledged that its unregulated services would be expected to have a higher post-tax WACC than its regulated services.<sup>398</sup>
606. 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

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<sup>395</sup> 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.

<sup>396</sup> Deutsche Bank "Markets Research – Auckland Int. Airport" (19 February 2016), p.13.

<sup>397</sup> 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.

<sup>398</sup> Auckland International Airport Limited "Airport regulation and pricing - Issues Brief" (November 2006), p.5.

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 draft 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.

607. 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.

608. However, we have placed limited weight on the Airways NZ estimate. We note that:

608.1 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 67<sup>th</sup> percentile, while our estimate of 6.17% is based on the mid-point); and

608.2 the High Court previously questioned the value of Airways NZ's self-estimates as a reasonableness check for our airports WACC estimate.<sup>399</sup>

#### *Overseas estimates of the regulated cost of capital*

609. 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.<sup>400</sup> To enable comparison with our mid-point post-tax WACC estimate, we have converted:

609.1 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%;<sup>401</sup> and

609.2 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%.<sup>402</sup>

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<sup>399</sup> 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].

<sup>400</sup> 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).

<sup>401</sup> 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.



610. As shown in Table 23, our mid-point WACC estimate for airports of 6.17% is within the range of the CAA and CAR estimates (after normalising for differences in risk-free rates).

**Table 23: 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**

611. As part of our reasonableness checks, we have considered RAB multiples for regulated energy and airports businesses in New Zealand. RAB multiples can provide 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.
612. The RAB multiple of a regulated business is the ratio of its enterprise value to its RAB.<sup>403</sup> 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.
613. 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).
614. 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:
- 614.1 the regulatory allowed rate of return was too high; or

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<sup>402</sup> 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.

<sup>403</sup> The enterprise value is calculated as the sum of the market value of net debt and the market value of the shareholders' equity.

614.2 the market expected the company to outperform cash flow or other model assumptions used in the regulatory determination.

615. 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.<sup>404</sup>

*Summary of RAB multiples evidence we have considered*

616. 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:

616.1 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);

616.2 the sale of Maui's gas transmission assets to First State Funds, which was announced in December 2015;

616.3 the takeover of 22.71% of shares in Horizon by Eastern Bay Energy Trust in June 2015; and

616.4 regulated businesses that are publicly listed, specifically Vector and AIAL.

617. 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.

618. The RAB multiples evidence we have considered is summarised in Table 24 and Table 25. Table 24 contains available RAB multiples for EDBs (ie, Vector and Horizon) and AIAL, while Table 25 focuses on the recent sales of Vector and Maui's gas assets to First State Funds.<sup>405</sup>

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<sup>404</sup> 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.

<sup>405</sup> 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.

**Table 24: Summary of RAB multiples for regulated EDBs and airports**<sup>406</sup>

|  | RAB multiple  |
|--|---------------|
| <b>Electricity distribution</b>                      |               |
| Vector - Craigs Investment Partners (Nov 2015)*      | 1.26x         |
| Vector - Macquarie (Nov 2015)                        | 1.43x         |
| Horizon - Commerce Commission estimate (June 2015)** | 1.13x - 1.34x |
| <b>Airports</b>                                      |               |
| 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 75<sup>th</sup> percentile (P75) implies a RAB multiple of 1.44x.

**Table 25: Summary of RAB multiples for recent Vector and Maui gas asset sales**<sup>407</sup>

|   | RAB multiple | RAB multiple (adjusted for reduced beta)* |
|---|--------------|---|
| <b>Vector sale of gas assets to First State Funds</b> |              |   |
| Craigs Investment Partners (Nov 2015)**               | 1.33x        | 1.17x                                     |
| Macquarie (Nov 2015)                                  | 1.47x        | 1.29x                                     |
| First NZ Capital (Nov 2015)***                        | 1.4x - 1.5x  | 1.23x - 1.32x                             |
| <b>Maui sale of gas assets to First State Funds</b>   |              |   |
| Commerce Commission estimate (Dec 2015)               | 1.14x        | 1.00x                                     |

**Notes:** \* The RAB multiples in this column reflect the impact that may be expected from our proposal to remove the gas asset beta uplift. This reduces the post-tax WACC by approximately 12% (from 6.04% to 5.31%), and the return on capital by approximately 12%. Therefore, holding other factors constant, we expect this would reduce the observed RAB multiples for gas pipelines by approximately 12%.

<sup>406</sup> 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).

<sup>407</sup> 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).

\*\* 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.

619. We consider that the available RAB multiples for electricity lines and airports (as shown in Table 24 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 sufficient to compensate investors for putting their capital at risk. This conclusion is likely to hold under our draft amended cost of capital IM, given that we are not proposing to make material changes to our approach to estimating WACC for these sectors.
620. 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 75<sup>th</sup> percentile). This supports our conclusion that the mid-point WACC estimate for airports is reasonable.
621. We have paid particular attention to the RAB multiples for sale of Vector and Maui's gas assets (as shown in Table 25), given:
- 621.1 our proposal to use the same asset beta for electricity lines and gas pipelines, instead of applying an upwards adjustment for GPBs of 0.1 (as we did in 2010);<sup>408</sup> and
- 621.2 the lack of independent New Zealand sourced WACC estimates to assess the reasonableness of our WACC estimate for GPBs.
622. The observed multiples for the Vector and Maui gas sales support the reasonableness of our WACC estimate for GPBs. The observed multiples are all equal to or above one, even after adjusting for the expected impact of reducing the asset beta for GPBs from 0.44 to 0.34. This suggests that the current regulatory settings are sufficient to compensate investors for putting their capital at risk (even after allowing for the expected impact of reducing the asset beta for GPBs).
- 622.1 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 one, ranging from 1.33x to 1.50x (or 1.17x to 1.32x, after adjusting for the expected impact of reducing the asset beta for GPBs).
- 622.2 Although the RAB multiples for the Maui sale are lower than for Vector, they are still in excess of one. We have estimated a RAB multiple for the Maui sale

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<sup>408</sup> Based on this proposal, the asset beta for GPBs would decrease from 0.44 to 0.34.

of 1.14x (or 1.00x, after adjusting for the expected impact of reducing the asset beta for GPBs).

- 622.3 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).
623. While RAB multiples in excess of one 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 one 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 0.34) generates at least a normal rate of return.
624. We acknowledge that there are limitations of our RAB multiples analysis. For example, as noted in our 2014 WACC percentile decision:<sup>409</sup>
- 624.1 there are only a limited number of data points available;
- 624.2 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
- 624.3 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.
625. 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 621, 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. We welcome any further information to test the reasonableness of our WACC estimates.

*How we estimated the RAB multiples for Horizon and Maui*

626. 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.<sup>410</sup>
627. Table 26 summarises our RAB multiples calculations for Horizon. We have estimated both standard and adjusted RAB multiples. The difference is that the adjusted

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<sup>409</sup> 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.

<sup>410</sup> The source documents are listed in footnotes 406 and 407. Given that Horizon and Maui are not publicly listed, no broker RAB multiples estimates are available for these companies.

calculation also includes other net financial obligations, such as deferred taxes, when calculating the enterprise value.

**Table 26: Horizon RAB multiple**

|   | Measurement date | RAB multiple (standard) | RAB multiple (adjusted for other net financial obligations) <sup>411</sup> |
|---|------------------|-------------------------|--|
| 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  |
| <b>EV / RAB</b>                             |                  | <b>1.13x</b>            | <b>1.34x</b>   |

Source: Publicly available information and Commerce Commission analysis

628. The RAB multiples we have estimated for Horizon are based on the assumptions set out below.

628.1 The price paid by Eastern Bay Energy Trust implies a value of \$110.2m for 100% of Horizon's equity.<sup>412</sup>

628.2 Horizon had net debt of \$44.3m as at March 2015.<sup>413</sup>

628.3 Horizon had other net financial obligations of \$24.0m as at March 2015.<sup>414</sup>

628.4 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).<sup>415</sup>

<sup>411</sup> 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.

<sup>412</sup> 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.

<sup>413</sup> 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.

<sup>414</sup> 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.

<sup>415</sup> 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.

628.5 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).

628.6 Horizon’s closing RAB as at March 2015 is \$113.3m.<sup>416</sup>

629. Table 27 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.<sup>417</sup>

**Table 27: 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 2014         | 3.4                     |
| Total                                       |                  | 331.6                   |
| RAB (\$m)                                   | Dec 2014         | 290.9                   |
| <b>EV / RAB</b>                             |                  | <b>1.14x</b>            |

Source: Publicly available information and Commerce Commission analysis

630. The RAB multiple we have estimated for Maui is based on the assumptions set out below.

630.1 The sale price of \$335m is used as the enterprise value for the regulated business.<sup>418</sup> We have assumed there are no unregulated businesses to be subtracted.

630.2 We have removed capital works in progress of \$3.4m 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).

630.3 Maui’s closing RAB as at December 2014 was \$290.0m.<sup>419</sup> This is the most up-to-date RAB value currently available for Maui, although we note it is measured approximately one year prior to the announcement of the sale to First State Funds.

<sup>416</sup> Horizon “Information Disclosure Reports prepared according to Part 4 of the Commerce Act 1986 For the Year Ended 31 March 2015”.

<sup>417</sup> We understand that Maui is a joint venture, so only consists of operating assets.

<sup>418</sup> 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>.

<sup>419</sup> Maui “Annual disclosures for the disclosure year ending 31 December 2014” (June 2015).

### **Black's simple discounting rule**

631. 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*

632. The current CAPM methodology is known to have limitations in estimating the appropriate risk-adjusted return. IWA (on behalf of MEUG) 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.<sup>420</sup>
633. 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*

634. Frontier (on behalf of Transpower) explain how BSDR values an asset by estimating future 'certainty equivalent' cash flows and discounting them using a risk-free rate.<sup>421</sup> 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.
635. 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.
636. 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.
637. 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

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<sup>420</sup> 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).

<sup>421</sup> 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.



usefulness as a cross-check on the WACC depends on the accuracy of estimating the certainty equivalent cash flows (compared to the WACC).

638. The suggested approach for estimating these cash flows is a 4-step process described by IWA in reference to a paper by Loderer.<sup>422</sup> Broadly speaking this process can be described as:

638.1 find a benchmark security or index that closely correlates with the project's cash flows;<sup>423</sup>

638.2 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;

638.3 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

638.4 discount those cash flows at the risk-free rate.

639. 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.

#### *Assessment of Black's simple discounting rule*

640. We commissioned advice from Dr Lally on this topic.<sup>424</sup> 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:<sup>425</sup>

640.1 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.

640.2 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.

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<sup>422</sup> Loderer, Long, and Roth "Black's simple discounting tool" (August 2008).

<sup>423</sup> The overall market return appears to be the most suitable option for this benchmark. The IWA submission does not provide any potential alternatives.

<sup>424</sup> 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.

<sup>425</sup> 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.

640.3 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.

641. Given these drawbacks Dr Lally does not recommend the use of this approach.

642. Submissions from suppliers provided a similar view to Dr Lally. The ENA summarise their position as:<sup>426</sup>

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.

643. 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:<sup>427</sup>

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.

644. IWA do not expand on how they expect the results could be used as a cross-check to the WACC. They submit that the unconditional (or expected) cash flows can be compared with the conditional (or certainty equivalent) cash flows:<sup>428</sup>

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.

645. Both Houston Kemp and CEG suggest that when the certainty equivalent cash flows are much lower than the expected cash flows, it implies that a higher WACC is

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<sup>426</sup> ENA "Input methodologies review: Emerging views papers – Submission to the Commerce Commission" (24 March 2016), p.8

<sup>427</sup> 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.

<sup>428</sup> 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.

required. CEG submit “The lower the certainty equivalent value as a proportion of the risky cash flow implies the cash-flow is more risky, not less.”<sup>429</sup>

646. 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.<sup>430</sup>
647. Houston Kemp and CEG suggest 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 suggest that if all of the same assumptions were retained, the difference of \$58m would *decrease*, when a higher WACC is applied.<sup>431</sup>
648. 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 the a lower WACC changed the relationship between the expected cash flow and pessimistic case, or there was a changed to the expected cash flow distribution, the 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.

*Proposed approach*

649. 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:

649.1 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,

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<sup>429</sup> CEG “Use of Black’s simple discount rule in regulatory proceedings” (report prepared for ENA, February 2016), para 72.

<sup>430</sup> 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.

<sup>431</sup> 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; CEG “Use of Black’s simple discount rule in regulatory proceedings” (report prepared for ENA, February 2016), para 72 and 78.

decreases in the WACC appear to increase the difference between the values of the two types of cash flow.

- 649.2 Determining a robust process for estimating the input parameters, and particularly the probability distribution of future cash flows. We have limited information 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.
650. 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.<sup>432</sup> 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.
651. 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.
652. Particular difficulties for its use in a regulatory context include limited experience/precedent and the difficulties described in estimating probability distribution of expected cash flows. We have limited empirical information to help inform us on this or 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
653. This 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.
654. 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.
655. However, even if we had more information that provided further evidence that this proposition was true, it would be difficult to change our approach given that

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<sup>432</sup> 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).

empirical estimates of asset beta from comparable regulated firms consistently show a positive value for asset beta.

656. Therefore, we agree with Dr Lally's conclusion. We do not propose to use BSDR as a cross-check on the WACC until some of the identified issues have been resolved.
657. 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
658. As result we consider it is more appropriate to focus on obtaining suitable inputs (eg, asset beta to be used in the SBL-CAPM) in order to determine the most appropriate compensation estimate for equity risk in a regulated business.

## Chapter 8: Application of WACC

### Purpose of this chapter

659. The purpose of this chapter is to address issues that have been identified with the application of our WACC estimates. This issues are:
- 659.1 the timing of the determination and publication of our WACC estimates for airports given the differences between *ex-ante* profitability assessment following an airports price-setting event and *ex-post* profitability assessment;
  - 659.2 the timing of our proposed amendments to WACC made as part of the IM review; and
  - 659.3 the requirement to publish a specific WACC for CPPs.

### Airport WACC timing

660. We propose publish quarterly WACC estimates for airports, when requested, for the use of an *ex-ante* profitability assessment under ID regulation.<sup>433</sup>
661. 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.
662. 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.
663. We currently estimate and publish annual WACC estimates for airports' ID purposes, in April for WIAL and July for AIAL and CIAL. We publish these WACC estimates within one month of the start of the disclosure period.
664. 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.
665. 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.

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<sup>433</sup> We will consider the implementation of this decision in annual historic disclosures in a future process.

666. Therefore, we propose 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 airports price setting event) in assessing profitability. When airports plan to reset their prices they should 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. Even if we do not publish the WACC estimate for we will be able to calculate it and use it as a benchmark through our summary and analysis.
667. 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, so that we are not unnecessarily increasing regulatory costs.

**When will our proposed changes to how we estimate WACC be incorporated in ID regulation?**

668. 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):
- 668.1 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;
  - 668.2 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;
  - 668.3 for CPPs, for CPP applications made following the date our final GDB, GTB and EDB IM determination amendments are published; and
  - 668.4 for the Transpower IPP, for the next IPP reset after the date of publication of our final IM determination amendments.
669. We are interested in your views on the timing for amendments coming into effect, and whether transitional arrangements may be required for some provisions. In particular, we seek your views on whether certain changes to the IMs for ID should only take effect from the next regulatory period (ie, to maintain alignment between the IMs for ID and price-quality regulation for those suppliers subject to both types of regulation).

**CPP/DPP dual WACC**

670. We propose 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 propose to remove the clauses describing the determination of a CPP WACC from the cost of capital IM for EDBs, GDBs, and GTBs.

**Attachment A: Further details regarding energy asset beta comparator sample**

671. This attachment includes further details regarding the sample of comparator firms used when estimating our proposed (unadjusted) asset beta for EDBs, Transpower and GPBs of 0.34. Specifically:

671.1 Table 28 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.

671.2 Table 29 summarises the results for our energy asset beta comparator sample across the four separate 5-year periods we have considered, based on daily, weekly and 4-weekly frequencies.

**Table 28: 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                 |



| <b>Ticker</b>  | <b>Name</b>                    | <b>Bloomberg description</b>  | <b>Electricity/Gas/Integrated</b> |
|----------------|--------------------------------|---|-----------------------------------|
| 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                               |
| 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                               |

| Ticker        | Name                           | Bloomberg description  | Electricity/Gas/Integrated |
|---------------|--------------------------------|--|----------------------------|
| 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                 |
| 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                 |

| Ticker        | Name                           | Bloomberg description  | Electricity/Gas/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                |
| 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                        |

| <b>Ticker</b>  | <b>Name</b>               | <b>Bloomberg description</b>   | <b>Electricity/Gas/Integrated</b> |
|----------------|---------------------------|--|-----------------------------------|
| 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                               |
| 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                        |

| <b>Ticker</b> | <b>Name</b>                    | <b>Bloomberg description</b>  | <b>Electricity/Gas/Integrated</b> |
|---------------|--------------------------------|---|-----------------------------------|
| 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                       |
| 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                               |

| Ticker        | Name                        | Bloomberg description   | Electricity/Gas/Integrated |
|---------------|-----------------------------|---|----------------------------|
| 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                |
| 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                 |

| Ticker        | Name                 | Bloomberg description  | Electricity/Gas/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                 |
| 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                 |

**Table 29: Results for energy asset beta comparator sample**

| Ticker         | Name                           | 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  | Ameren Corp                    | 0.11        | 0.07   | 0.03     | 0.28        | 0.27   | 0.25     | 0.41        | 0.39   | 0.42     | 0.36        | 0.30   | 0.26     |
| AEP US Equity  | American Electric Power Co Inc | 0.14        | 0.08   | -0.04    | 0.39        | 0.39   | 0.54     | 0.35        | 0.32   | 0.31     | 0.32        | 0.27   | 0.21     |
| AES US Equity  | AES Corp/VA                    | 0.42        | 0.49   | 0.75     | 0.41        | 0.44   | 0.64     | 0.52        | 0.48   | 0.56     | 0.37        | 0.36   | 0.37     |
| ALE US Equity  | ALLETE Inc                     | 0.15        | 0.08   | 0.02     | 0.52        | 0.52   | 0.56     | 0.47        | 0.44   | 0.51     | 0.43        | 0.37   | 0.40     |
| APA AU Equity  | APA Group                      | 0.15        | 0.00   | 0.01     | 0.21        | 0.17   | 0.25     | 0.27        | 0.21   | 0.25     | 0.39        | 0.32   | 0.33     |
| AST AU Equity  | AusNet Services                | -           | -      | -        | -           | -      | -        | 0.16        | 0.09   | 0.09     | 0.24        | 0.25   | 0.27     |
| ATO US Equity  | Atmos Energy Corp              | 0.19        | 0.15   | 0.14     | 0.35        | 0.28   | 0.25     | 0.30        | 0.30   | 0.32     | 0.44        | 0.36   | 0.31     |
| AVA US Equity  | Avista Corp                    | 0.17        | 0.08   | 0.16     | 0.34        | 0.32   | 0.36     | 0.34        | 0.32   | 0.36     | 0.39        | 0.32   | 0.30     |
| BKH US Equity  | Black Hills Corp               | 0.24        | 0.08   | -0.09    | 0.37        | 0.45   | 0.59     | 0.52        | 0.47   | 0.59     | 0.49        | 0.40   | 0.46     |
| BWP US Equity  | Boardwalk Pipeline Partners LP | -           | -      | -        | 0.35        | 0.01   | 0.00     | 0.39        | 0.45   | 0.26     | 0.42        | 0.40   | 0.52     |
| CMS US Equity  | CMS Energy Corp                | 0.08        | 0.04   | 0.13     | 0.24        | 0.28   | 0.47     | 0.26        | 0.24   | 0.24     | 0.30        | 0.24   | 0.18     |
| CNL US Equity  | Cleco Corporate Holdings LLC   | 0.19        | 0.12   | 0.09     | 0.41        | 0.45   | 0.62     | 0.47        | 0.39   | 0.37     | 0.41        | 0.36   | 0.28     |
| CNP US Equity  | CenterPoint Energy Inc         | 0.14        | 0.08   | 0.04     | 0.18        | 0.25   | 0.40     | 0.27        | 0.28   | 0.28     | 0.41        | 0.36   | 0.30     |
| CPK US Equity  | Chesapeake Utilities Corp      | 0.03        | 0.01   | 0.02     | 0.09        | 0.12   | 0.20     | 0.54        | 0.48   | 0.37     | 0.54        | 0.31   | 0.27     |
| D US Equity    | Dominion Resources Inc/VA      | 0.11        | 0.07   | 0.03     | 0.31        | 0.28   | 0.33     | 0.38        | 0.35   | 0.31     | 0.33        | 0.27   | 0.17     |
| DGAS US Equity | Delta Natural Gas Co Inc       | 0.02        | 0.03   | 0.01     | 0.00        | 0.04   | 0.08     | 0.12        | 0.20   | 0.25     | 0.25        | 0.25   | 0.32     |
| DTE US Equity  | DTE Energy Co                  | 0.16        | 0.09   | 0.03     | 0.22        | 0.18   | 0.21     | 0.33        | 0.32   | 0.33     | 0.36        | 0.30   | 0.23     |
| DUE AU Equity  | DUET Group                     | -           | -      | -        | 0.11        | 0.01   | 0.01     | 0.14        | 0.13   | 0.16     | 0.14        | 0.12   | 0.13     |



| Ticker         | Name                           | 1996 - 2001 |        |          | 2001 - 2006 |        |          | 2006 - 2011 |        |          | 2011 - 2016 |        |          |
|----------------|--------------------------------|-------------|--------|----------|-------------|--------|----------|-------------|--------|----------|-------------|--------|----------|
|                |                                | Daily       | Weekly | 4-Weekly | Daily       | Weekly | 4-Weekly | Daily       | Weekly | 4-Weekly | Daily       | Weekly | 4-Weekly |
| DUK US Equity  | Duke Energy Corp               | 0.18        | 0.10   | -0.01    | 0.44        | 0.52   | 0.71     | 0.37        | 0.33   | 0.31     | 0.26        | 0.19   | 0.13     |
| ED US Equity   | Consolidated Edison Inc        | 0.17        | 0.11   | 0.09     | 0.26        | 0.19   | 0.17     | 0.28        | 0.26   | 0.23     | 0.24        | 0.16   | 0.06     |
| EDE US Equity  | Empire District Electric Co/Th | 0.07        | 0.06   | 0.04     | 0.29        | 0.27   | 0.32     | 0.35        | 0.31   | 0.36     | 0.38        | 0.28   | 0.22     |
| EE US Equity   | El Paso Electric Co            | 0.14        | 0.11   | 0.15     | 0.36        | 0.28   | 0.26     | 0.44        | 0.39   | 0.45     | 0.37        | 0.31   | 0.27     |
| EEP US Equity  | Enbridge Energy Partners LP    | 0.16        | 0.17   | 0.08     | 0.16        | 0.20   | 0.06     | 0.40        | 0.49   | 0.51     | 0.49        | 0.52   | 0.62     |
| EIX US Equity  | Edison International           | 0.14        | 0.10   | 0.04     | 0.34        | 0.29   | 0.31     | 0.48        | 0.45   | 0.44     | 0.32        | 0.27   | 0.26     |
| ES US Equity   | Eversource Energy              | 0.07        | 0.07   | 0.16     | 0.18        | 0.18   | 0.17     | 0.30        | 0.29   | 0.28     | 0.36        | 0.30   | 0.25     |
| ETR US Equity  | Entergy Corp                   | 0.09        | 0.05   | 0.02     | 0.27        | 0.29   | 0.35     | 0.44        | 0.37   | 0.39     | 0.28        | 0.23   | 0.22     |
| EXC US Equity  | Exelon Corp                    | 0.11        | 0.05   | -0.08    | 0.31        | 0.27   | 0.36     | 0.66        | 0.59   | 0.51     | 0.35        | 0.27   | 0.18     |
| FE US Equity   | FirstEnergy Corp               | 0.12        | 0.02   | 0.00     | 0.25        | 0.20   | 0.24     | 0.42        | 0.37   | 0.34     | 0.27        | 0.21   | 0.12     |
| GAS US Equity  | AGL Resources Inc              | 0.18        | 0.17   | 0.17     | 0.35        | 0.34   | 0.36     | 0.36        | 0.37   | 0.33     | 0.31        | 0.24   | 0.12     |
| GXP US Equity  | Great Plains Energy Inc        | 0.12        | 0.12   | 0.17     | 0.28        | 0.34   | 0.40     | 0.32        | 0.33   | 0.44     | 0.32        | 0.30   | 0.30     |
| HE US Equity   | Hawaiian Electric Industries I | 0.24        | 0.15   | 0.07     | 0.41        | 0.40   | 0.43     | 0.39        | 0.44   | 0.45     | 0.50        | 0.43   | 0.37     |
| IDA US Equity  | IDACORP Inc                    | 0.18        | 0.13   | 0.05     | 0.30        | 0.35   | 0.42     | 0.35        | 0.32   | 0.29     | 0.45        | 0.37   | 0.38     |
| ITC US Equity  | ITC Holdings Corp              | -           | -      | -        | 0.49        | 0.02   | 0.02     | 0.43        | 0.45   | 0.49     | 0.32        | 0.26   | 0.19     |
| JEL LN Equity  | Jersey Electricity PLC         | -           | -      | -        | 0.00        | 0.02   | 0.04     | 0.00        | -0.01  | -0.09    | 0.01        | 0.04   | 0.02     |
| KMI US Equity  | Kinder Morgan Inc/DE           | -           | -      | -        | -           | -      | -        | 0.26        | 0.00   | 0.00     | 0.53        | 0.55   | 0.56     |
| SR US Equity   | Spire Inc                      | 0.16        | 0.14   | 0.08     | 0.40        | 0.34   | 0.29     | 0.44        | 0.34   | 0.14     | 0.44        | 0.32   | 0.30     |
| LNT US Equity  | Alliant Energy Corp            | 0.12        | 0.08   | 0.04     | 0.29        | 0.30   | 0.27     | 0.48        | 0.46   | 0.43     | 0.42        | 0.35   | 0.31     |
| MGEE US Equity | MGE Energy Inc                 | 0.23        | 0.11   | 0.05     | 0.62        | 0.41   | 0.33     | 0.48        | 0.38   | 0.27     | 0.59        | 0.37   | 0.31     |
| NEE US Equity  | NextEra Energy Inc             | 0.13        | 0.05   | -0.03    | 0.30        | 0.28   | 0.28     | 0.44        | 0.40   | 0.36     | 0.33        | 0.29   | 0.25     |
| NFG US Equity  | National Fuel Gas Co           | 0.20        | 0.16   | 0.08     | 0.30        | 0.34   | 0.40     | 0.75        | 0.73   | 0.76     | 0.80        | 0.81   | 0.79     |
| NG/ LN Equity  | National Grid PLC              | 0.51        | 0.51   | 0.47     | 0.28        | 0.23   | 0.30     | 0.32        | 0.28   | 0.27     | 0.31        | 0.27   | 0.26     |

| Ticker        | Name                           | 1996 - 2001 |        |          | 2001 - 2006 |        |          | 2006 - 2011 |        |          | 2011 - 2016 |        |          |
|---------------|--------------------------------|-------------|--------|----------|-------------|--------|----------|-------------|--------|----------|-------------|--------|----------|
|               |                                | Daily       | Weekly | 4-Weekly | Daily       | Weekly | 4-Weekly | Daily       | Weekly | 4-Weekly | Daily       | Weekly | 4-Weekly |
| NI US Equity  | NiSource Inc                   | 0.08        | 0.04   | 0.01     | 0.26        | 0.24   | 0.31     | 0.33        | 0.33   | 0.36     | 0.37        | 0.33   | 0.22     |
| NJR US Equity | New Jersey Resources Corp      | 0.16        | 0.11   | 0.09     | 0.40        | 0.36   | 0.26     | 0.48        | 0.40   | 0.28     | 0.59        | 0.43   | 0.35     |
| NWE US Equity | NorthWestern Corp              | -           | -      | -        | 0.19        | 0.02   | 0.02     | 0.36        | 0.35   | 0.38     | 0.40        | 0.31   | 0.30     |
| NWN US Equity | Northwest Natural Gas Co       | 0.20        | 0.13   | 0.08     | 0.34        | 0.28   | 0.19     | 0.42        | 0.34   | 0.22     | 0.39        | 0.28   | 0.24     |
| OGE US Equity | OGE Energy Corp                | 0.14        | 0.07   | 0.05     | 0.28        | 0.23   | 0.26     | 0.50        | 0.46   | 0.50     | 0.54        | 0.51   | 0.46     |
| OKE US Equity | ONEOK Inc                      | 0.27        | 0.21   | 0.15     | 0.33        | 0.36   | 0.36     | 0.49        | 0.47   | 0.56     | 0.66        | 0.66   | 0.58     |
| PCG US Equity | PG&E Corp                      | 0.11        | 0.07   | 0.05     | 0.51        | 0.43   | 0.54     | 0.36        | 0.28   | 0.27     | 0.30        | 0.23   | 0.27     |
| PEG US Equity | Public Service Enterprise Grou | 0.12        | 0.07   | 0.00     | 0.27        | 0.29   | 0.37     | 0.54        | 0.44   | 0.41     | 0.44        | 0.36   | 0.23     |
| PNM US Equity | PNM Resources Inc              | 0.12        | 0.09   | 0.06     | 0.37        | 0.39   | 0.60     | 0.38        | 0.40   | 0.43     | 0.38        | 0.29   | 0.28     |
| PNW US Equity | Pinnacle West Capital Corp     | 0.07        | 0.02   | -0.04    | 0.33        | 0.36   | 0.49     | 0.33        | 0.32   | 0.33     | 0.39        | 0.33   | 0.29     |
| PNY US Equity | Piedmont Natural Gas Co Inc    | 0.20        | 0.18   | 0.10     | 0.41        | 0.38   | 0.35     | 0.49        | 0.41   | 0.25     | 0.50        | 0.41   | 0.45     |
| POM US Equity | Pepco Holdings LLC             | -           | -      | -        | 0.23        | 0.11   | 0.14     | 0.34        | 0.34   | 0.34     | 0.24        | 0.21   | 0.19     |
| PPL US Equity | PPL Corp                       | 0.14        | 0.09   | 0.01     | 0.33        | 0.36   | 0.51     | 0.49        | 0.40   | 0.34     | 0.26        | 0.23   | 0.19     |
| SCG US Equity | SCANA Corp                     | 0.14        | 0.05   | -0.03    | 0.26        | 0.26   | 0.29     | 0.34        | 0.30   | 0.33     | 0.32        | 0.26   | 0.25     |
| SE US Equity  | Spectra Energy Corp            | -           | -      | -        | -           | -      | -        | 0.61        | 0.56   | 0.61     | 0.56        | 0.51   | 0.45     |
| SJI US Equity | South Jersey Industries Inc    | 0.09        | 0.06   | 0.08     | 0.25        | 0.23   | 0.22     | 0.46        | 0.38   | 0.27     | 0.53        | 0.41   | 0.43     |
| SKI AU Equity | Spark Infrastructure Group     | -           | -      | -        | -           | -      | -        | 0.28        | 0.21   | 0.21     | 0.39        | 0.30   | 0.19     |
| SO US Equity  | Southern Co/The                | 0.13        | 0.01   | -0.04    | 0.26        | 0.14   | 0.10     | 0.30        | 0.23   | 0.22     | 0.23        | 0.18   | 0.09     |

| Ticker         | Name                 | 1996 - 2001 |             |             | 2001 - 2006 |             |             | 2006 - 2011 |             |             | 2011 - 2016 |             |             |
|----------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                |                      | Daily       | Weekly      | 4-Weekly    | Daily       | Weekly      | 4-Weekly    | Daily       | Weekly      | 4-Weekly    | Daily       | Weekly      | 4-Weekly    |
| SRE US Equity  | Sempra Energy        | 0.10        | -0.01       | -0.12       | 0.42        | 0.45        | 0.57        | 0.54        | 0.51        | 0.52        | 0.43        | 0.38        | 0.38        |
| SSE LN Equity  | SSE PLC              | 0.24        | 0.13        | 0.17        | 0.36        | 0.29        | 0.31        | 0.47        | 0.41        | 0.36        | 0.45        | 0.43        | 0.42        |
| STR US Equity  | Questar Corp         | 0.21        | 0.18        | 0.13        | 0.43        | 0.50        | 0.63        | 1.09        | 1.02        | 0.90        | 0.52        | 0.46        | 0.32        |
| SWX US Equity  | Southwest Gas Corp   | 0.17        | 0.15        | 0.22        | 0.28        | 0.25        | 0.22        | 0.43        | 0.39        | 0.40        | 0.50        | 0.37        | 0.38        |
| TCP US Equity  | TC PipeLines LP      | 0.14        | 0.05        | -0.04       | 0.17        | 0.26        | 0.16        | 0.33        | 0.44        | 0.52        | 0.45        | 0.54        | 0.60        |
| TE US Equity   | TECO Energy Inc      | 0.12        | 0.04        | -0.05       | 0.29        | 0.33        | 0.39        | 0.42        | 0.39        | 0.42        | 0.39        | 0.35        | 0.21        |
| UGI US Equity  | UGI Corp             | 0.17        | 0.14        | 0.07        | 0.29        | 0.31        | 0.24        | 0.37        | 0.34        | 0.29        | 0.47        | 0.45        | 0.44        |
| UTL US Equity  | Unitil Corp          | 0.06        | 0.08        | 0.20        | 0.03        | 0.04        | 0.03        | 0.09        | 0.12        | 0.15        | 0.34        | 0.20        | 0.15        |
| VCT NZ Equity  | Vector Ltd           | -           | -           | -           | 0.43        | 0.06        | 0.04        | 0.24        | 0.20        | 0.28        | 0.25        | 0.16        | 0.19        |
| VVC US Equity  | Vectren Corp         | 0.44        | 0.05        | 0.01        | 0.32        | 0.31        | 0.31        | 0.34        | 0.32        | 0.29        | 0.43        | 0.37        | 0.39        |
| WEC US Equity  | WEC Energy Group Inc | 0.13        | 0.07        | 0.03        | 0.20        | 0.21        | 0.19        | 0.29        | 0.27        | 0.25        | 0.35        | 0.26        | 0.15        |
| WGL US Equity  | WGL Holdings Inc     | 0.28        | 0.20        | 0.13        | 0.43        | 0.35        | 0.30        | 0.49        | 0.39        | 0.26        | 0.56        | 0.42        | 0.39        |
| WPZ US Equity  | Williams Partners LP | -           | -           | -           | -           | -           | -           | 0.40        | 0.02        | 0.00        | 0.60        | 0.76        | 0.82        |
| WR US Equity   | Westar Energy Inc    | 0.07        | 0.02        | -0.04       | 0.25        | 0.24        | 0.25        | 0.36        | 0.35        | 0.33        | 0.33        | 0.28        | 0.26        |
| XEL US Equity  | Xcel Energy Inc      | 0.16        | 0.08        | 0.03        | 0.31        | 0.26        | 0.48        | 0.31        | 0.26        | 0.25        | 0.30        | 0.23        | 0.17        |
| <i>Average</i> |                      | <i>0.16</i> | <i>0.10</i> | <i>0.07</i> | <i>0.30</i> | <i>0.27</i> | <i>0.31</i> | <i>0.39</i> | <i>0.36</i> | <i>0.34</i> | <i>0.39</i> | <i>0.34</i> | <i>0.30</i> |

**Attachment B: Further details regarding airports asset beta comparator sample**

672. This attachment includes further details regarding the sample of comparator firms used when estimating our proposed (unadjusted) asset beta for airports of 0.63. Specifically:

672.1 Table 30 lists the 26 firms included in our airports comparator sample, including descriptions for each company reported by Bloomberg; and

672.2 Table 31 summarises the results for our airports asset beta comparator sample across the four separate 5-year periods we have considered, based on daily, weekly and 4-weekly frequencies.

**Table 30: 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.                             |
| 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 Pacifi | 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.  |
| 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.  |

**Table 31: Results for airports asset beta comparator sample**

| Airport sample   | Name                              | 1996-2001 |        |              | 2001 -2006 |        |              | 2006-2011 |        |              | 2011-2016 |        |              |
|------------------|-----------------------------------|-----------|--------|--------------|------------|--------|--------------|-----------|--------|--------------|-----------|--------|--------------|
|                  |                                   | Daily     | Weekly | 4-<br>Weekly | Daily      | Weekly | 4-<br>Weekly | Daily     | Weekly | 4-<br>Weekly | Daily     | Weekly | 4-<br>Weekly |
| 000089 CH Equity | Shenzhen Airport Co               | -         | -      | -            | 0.76       | 0.68   | 0.60         | 0.90      | 0.69   | 0.78         | 0.87      | 0.85   | 0.97         |
| 357 HK Equity    | HNA Infrastructure<br>Company Ltd | -         | -      | -            | 0.79       | 0.40   | 0.42         | 0.59      | 0.68   | 1.25         | 0.76      | 0.81   | 0.92         |
| 600004 CH Equity | Guangzhou Baiyun<br>International | -         | -      | -            | 1.05       | 0.34   | 0.26         | 0.83      | 0.67   | 0.65         | 1.04      | 0.93   | 0.96         |
| 600009 CH Equity | Shanghai International<br>Airport | -         | -      | -            | 0.74       | 0.69   | 0.65         | 0.83      | 0.71   | 0.80         | 0.91      | 0.86   | 0.81         |
| 600897 CH Equity | Xiamen International<br>Airport C | -         | -      | -            | 1.05       | 0.92   | 0.87         | 0.89      | 0.64   | 0.65         | 1.04      | 1.02   | 1.06         |
| 694 HK Equity    | Beijing Capital International     | 0.59      | 0.11   | 0.08         | 0.91       | 0.88   | 0.89         | 0.98      | 1.04   | 1.06         | 0.44      | 0.38   | 0.42         |
| 8864 JP Equity   | Airport Facilities Co Ltd         | -         | -      | -            | 0.34       | 0.37   | 0.32         | 0.50      | 0.44   | 0.48         | 0.59      | 0.54   | 0.62         |
| 9706 JP Equity   | Japan Airport Terminal Co<br>Ltd  | -         | -      | -            | 0.55       | 0.57   | 0.67         | 0.73      | 0.68   | 0.65         | 0.90      | 0.84   | 0.93         |
| ADP FP Equity    | Aeroports de Paris                | -         | -      | -            | -          | -      | -            | 0.64      | 0.67   | 0.66         | 0.41      | 0.42   | 0.40         |
| AERO SG Equity   | Aerodrom Nikola Tesla AD<br>Beogr | -         | -      | -            | -          | -      | -            | -         | -      | -            | 1.04      | 1.21   | 1.13         |
| AIA NZ Equity    | Auckland International<br>Airport | 0.58      | 0.34   | 0.46         | 0.83       | 0.87   | 0.82         | 0.79      | 0.71   | 0.68         | 0.82      | 0.60   | 0.69         |
| AOT TB Equity    | Airports of Thailand PCL          | -         | -      | -            | 0.64       | 0.10   | 0.11         | 0.57      | 0.55   | 0.71         | 0.99      | 1.05   | 1.23         |
| ASURB MM Equity  | Grupo Aeroportuario del<br>Surest | 0.38      | 0.03   | 0.04         | 0.41       | 0.30   | 0.69         | 0.58      | 0.51   | 0.68         | 0.69      | 0.74   | 0.69         |
| FHZN SW Equity   | Flughafen Zuerich AG              | 0.14      | 0.14   | 0.37         | 0.09       | 0.10   | 0.28         | 0.30      | 0.47   | 0.66         | 0.49      | 0.54   | 0.61         |
| FLU AV Equity    | Flughafen Wien AG                 | -         | -      | -            | 0.67       | 0.48   | 0.88         | 0.41      | 0.49   | 0.57         | 0.23      | 0.27   | 0.26         |
| FRA GR Equity    | Fraport AG Frankfurt<br>Airport S | -         | -      | -            | 0.31       | 0.51   | 0.61         | 0.63      | 0.70   | 0.74         | 0.37      | 0.40   | 0.40         |
| GAPB MM Equity   | Grupo Aeroportuario del           | -         | -      | -            | 0.23       | 0.00   | 0.00         | 0.66      | 0.65   | 0.75         | 0.57      | 0.63   | 0.61         |

| Airport sample  | Name                              | 1996-2001   |             |              | 2001 -2006  |             |              | 2006-2011   |             |              | 2011-2016   |             |              |
|-----------------|-----------------------------------|-------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|--------------|
|                 |                                   | Daily       | Weekly      | 4-<br>Weekly | Daily       | Weekly      | 4-<br>Weekly | Daily       | Weekly      | 4-<br>Weekly | Daily       | Weekly      | 4-<br>Weekly |
|                 | Pacifi                            |             |             |              |             |             |              |             |             |              |             |             |              |
| GMRI IN Equity  | GMR Infrastructure Ltd            | -           | -           | -            | -           | -           | -            | 0.91        | 0.82        | 0.97         | 0.38        | 0.40        | 0.50         |
| KBHL DC Equity  | Kobenhavns Lufthavne              | 0.22        | 0.24        | 0.36         | 0.30        | 0.34        | 0.52         | 0.20        | 0.21        | 0.42         | 0.21        | 0.24        | 0.38         |
| MAHB MK Equity  | Malaysia Airports Holdings<br>Bhd | 0.97        | 0.10        | 0.12         | 1.12        | 1.11        | 1.11         | 0.70        | 0.66        | 0.79         | 0.67        | 0.85        | 1.07         |
| MIA MV Equity   | Malta International Airport<br>PL | -           | -           | -            | -           | -           | -            | 0.24        | 0.30        | 0.52         | 0.36        | 0.45        | 0.87         |
| OMAB MM Equity  | Grupo Aeroportuario del<br>Centro | -           | -           | -            | -           | -           | -            | 0.65        | 0.61        | 0.86         | 0.57        | 0.56        | 0.73         |
| SAVE IM Equity  | SAVE SpA/Tessera                  | -           | -           | -            | 0.87        | 0.05        | 0.07         | 0.38        | 0.46        | 0.70         | 0.18        | 0.21        | 0.25         |
| SYD AU Equity   | Sydney Airport                    | -           | -           | -            | 0.90        | 0.44        | 0.62         | 0.48        | 0.45        | 0.52         | 0.34        | 0.26        | 0.20         |
| TAVHL TI Equity | TAV Havalimanlari Holding<br>AS   | -           | -           | -            | -           | -           | -            | 0.39        | 0.30        | 0.38         | 0.40        | 0.38        | 0.25         |
| TYA IM Equity   | Toscana Aeroporti SpA             | -           | -           | -            | -           | -           | -            | 0.20        | 0.21        | 0.38         | 0.04        | 0.12        | 0.31         |
| <i>Average</i>  |                                   | <i>0.48</i> | <i>0.16</i> | <i>0.24</i>  | <i>0.66</i> | <i>0.48</i> | <i>0.55</i>  | <i>0.60</i> | <i>0.57</i> | <i>0.69</i>  | <i>0.59</i> | <i>0.60</i> | <i>0.66</i>  |



## **Attachment C: Nelson-Siegel-Svensson approach to modelling yield curves**

### **Purpose of this attachment**

673. 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**

674. 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.<sup>434</sup>

675. The framework allows for a yield curve<sup>435</sup> with the 'humped' shape often associated with bond-yield term structures. 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.

676. Using an annual averaging period under the NSS framework may introduce less relevant data at the time of estimation. A single monthly averaging period would consider the most relevant data but could suffer from a lack of bonds and volatile parameter estimates. For the purposes of this paper, a three-month averaging period was used as it appears to be a good trade-off between relevancy and robustness.

677. 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**

678. 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.

679. 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.

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<sup>434</sup> [CEG report - Estimating the regulatory debt risk premium for Victorian gas businesses.](#)

<sup>435</sup> When 'yield curve' is used in this paper, we are referring to a debt premium curve.

680. 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.

681. The NSS model is defined as (formula 1):

$$DRP(t) = \beta_1 + \beta_2 \left[ \frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} \right] + \beta_3 \left[ \frac{1 - e^{(-\frac{t}{\lambda_1})}}{t/\lambda_1} - e^{(-\frac{t}{\lambda_1})} \right] + \beta_4 \left[ \frac{1 - e^{(-\frac{t}{\lambda_2})}}{t/\lambda_2} - e^{(-\frac{t}{\lambda_2})} \right]$$

Where:

- $DRP(t)$  is the debt risk premium;
- $\beta_1$  is a constant term independent of the term to maturity, interpreted as the long-run yield of the curve;
- $\beta_2$  impacts the beginning segment of the curve and is weighted by the term to maturity;
- $\beta_3$  is weighted by term to maturity and adds a 'hump' to the curve;
- $\beta_4$  is weighted by the term to maturity and allows for a secondary 'hump' to the curve;
- $\lambda_1$  is a constant associated with the  $\beta_2$  and  $\beta_3$  terms;
- $\lambda_2$  is a constant associated with the  $\beta_4$  term;
- $t/\lambda_1$  influences the weight functions for  $\beta_2$  and  $\beta_3$ , determining where the hump is observed in the curve (where  $t$  is the term to maturity); and
- $t/\lambda_2$  influences the weight function of  $\beta_4$ , determining the secondary hump.

682. 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.

683. In this paper the dataset used for estimation has been sourced from the Commission's existing debt premium and risk-free rate determination spreadsheets.

684. These determinations extract bond data from Bloomberg and annualise for use in debt premium estimation. Bonds with terms to maturity less than 1 year were not

included in the dataset as these bonds can be affected by external factors. For example, PwC notes:<sup>436</sup>

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.

685. According to the European Central Bank,<sup>437</sup> there are four main reasons for the popularity of the Nelson-Siegel model:
- 685.1 the model is easy to estimate;
  - 685.2 the yield curve can provide estimates for all maturities (ie, bonds not observable in the market);
  - 685.3 factors have intuitive interpretation so that estimations and conclusions are easily communicated from the model; and
  - 685.4 the model has been proven to fit data well.
686. 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/GPB 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**

687. 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.
688. We have included majority government-owned bonds in the sample to expand the number of observations. In a 2013 report by CEG,<sup>438</sup> 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”.
689. 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.

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<sup>436</sup> PricewaterCoopers “Electranet: Estimating the benchmark debt risk premium” (May 2012), p.13.

<sup>437</sup> European Central Bank (2008).

<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp874.pdf?4b32dc2539d2598c420ec5e96a3891f7>

<sup>438</sup> Competition Economists Group “Estimating the debt risk premium” (June 2013), p.14.

690. We attempt to mitigate the non-representative effects of these additional bonds with the use of dummy variables in the NSS estimation function.
691. 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).
692. 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  $\beta_1$  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.
693. 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.
694. 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:

- $\beta_5$  is a binary dummy variable for BBB rated bonds; and
- $\beta_6$  is a binary dummy variable for A- rated bonds.

#### Applying a BBB+ only sample of bonds

695. Figure 12, Figure 13 and Figure 14 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 – i.e. only four degrees of freedom) but the curves appear very well-fitted.
696. 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 12: October 2015 NSS Curve – BBB+

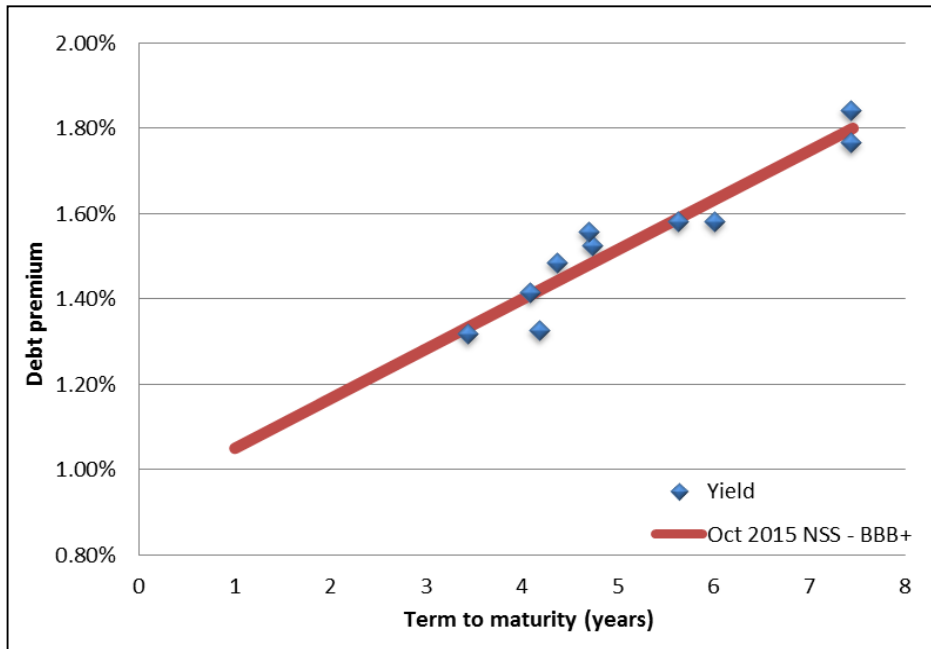
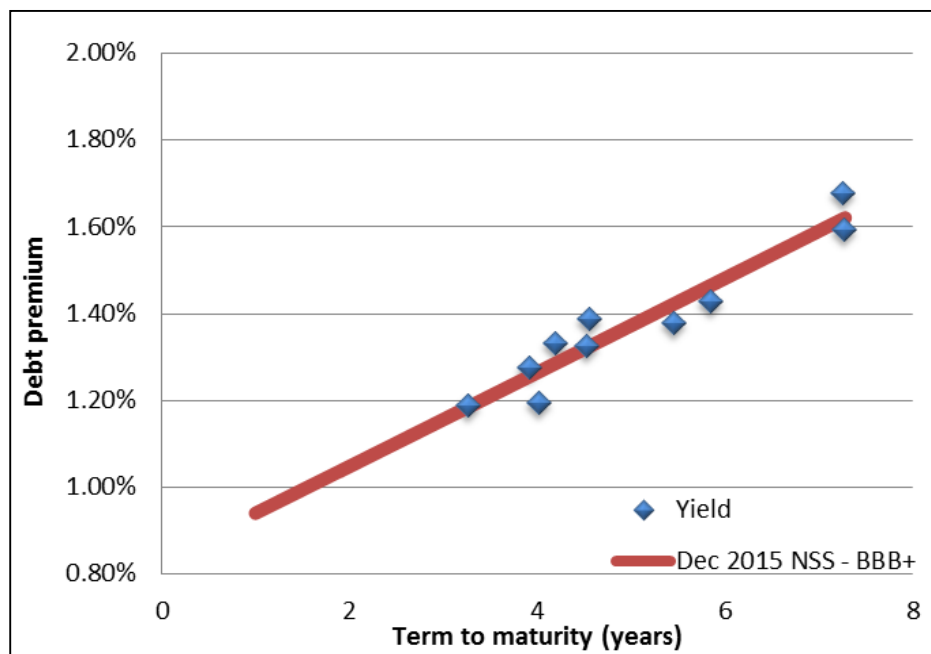
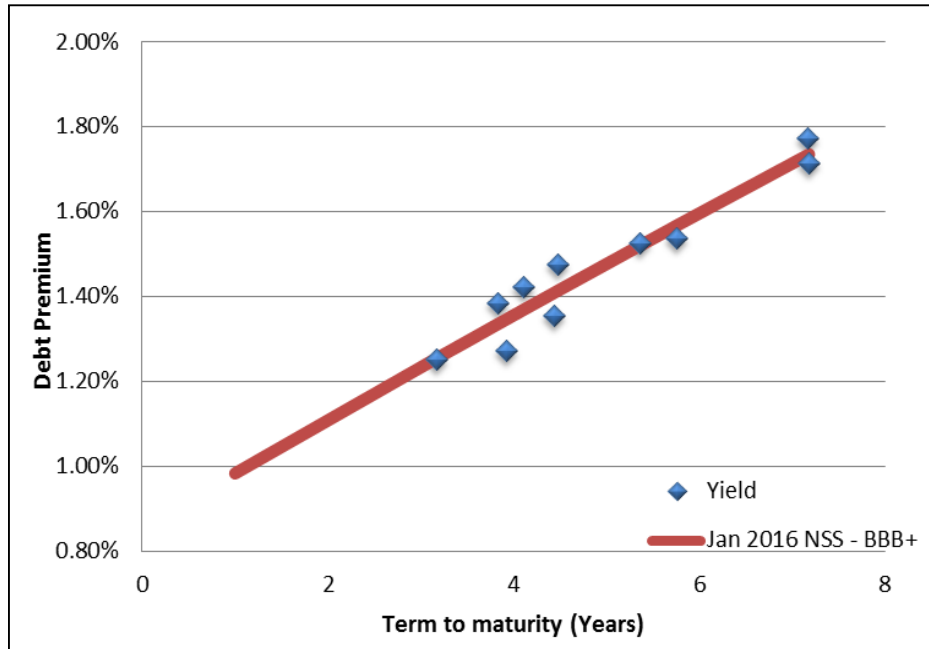


Figure 13: December 2015 NSS Curve – BBB+



**Figure 14: January 2016 BBB+ NSS Curve – BBB+**



697. Table 32 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 32: 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                 |
| <b>Average</b> | <b>1.46%</b>    | <b>0.96</b> | <b>2.03E-07</b> | <b>2.12E-06</b>          |

698. 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.

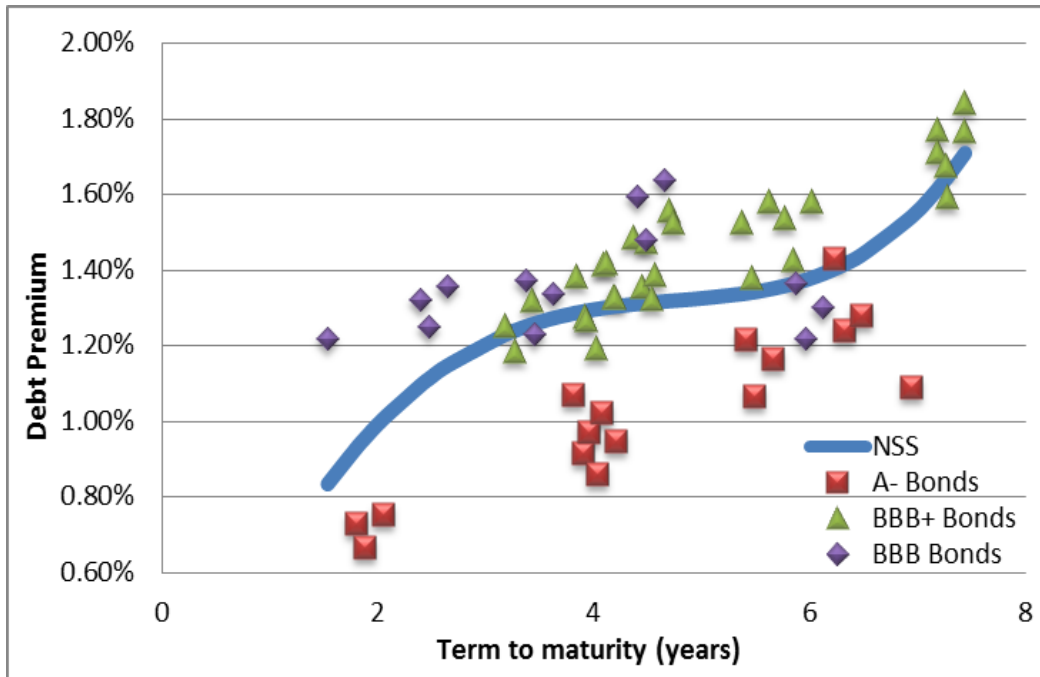
**Applying a BBB, BBB+ and A- sample of bonds**

699. Using dummy variables within the NSS framework (formula 2) provides the flexibility to include A- and BBB+ rated bonds;  $\beta_5$  can be used to capture the average level shift

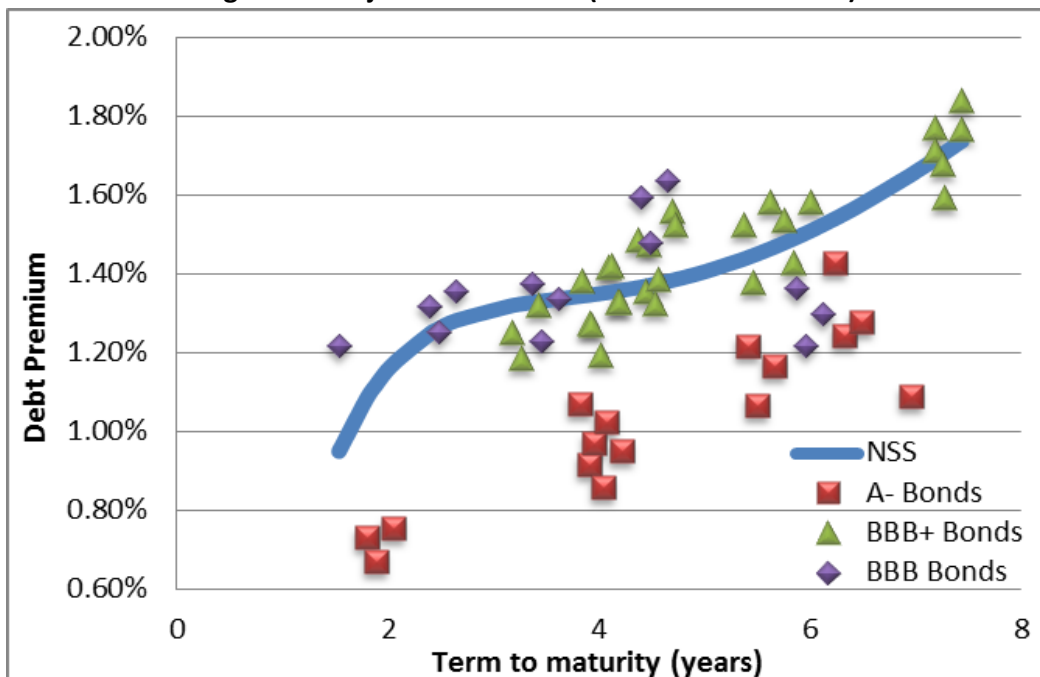
difference in the yields of BBB bonds and  $\beta_6$  the average level shift difference in the yield of A- bonds, from the benchmark BBB+ bonds.

700. In Figure 15, 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 15: Unadjusted NSS Curve (Oct 2015 – Jan 2016)**



**Figure 16: Adjusted NSS Curve (Oct 2015 – Jan 2016)**



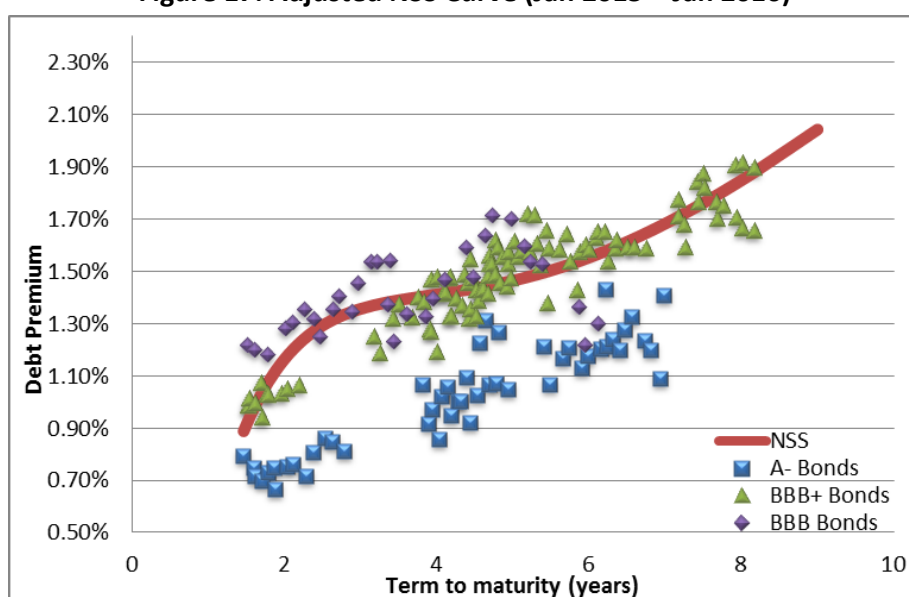
- 701. In Figure 16, the yield curve is estimated adjusting for differences in credit rating using dummy variables on credit rating (formula 2). This adjusted yield curve estimates higher debt BBB+ debt premiums for a given term to maturity compared to the non-adjusted yield curve.
- 702. The estimates 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 33: 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                 |

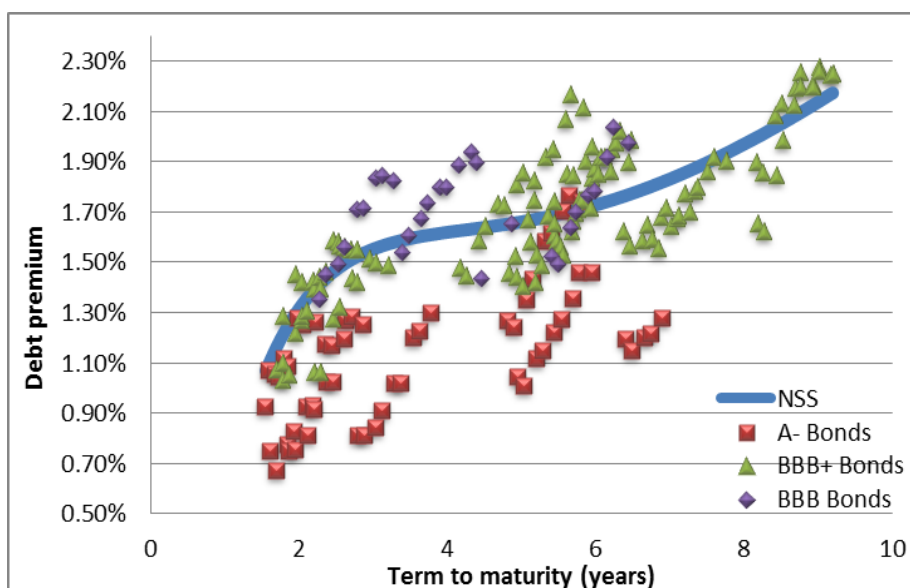
- 703. Expanding the sample to cover BBB, BBB+, and A- bonds and using dummy variables results in lower  $R^2$  values compared with the averaging and BBB+ only samples. This is expected given the inclusion of outer-rated bonds. However, the estimated BBB+ debt premium using the BBB+ only dataset (using 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 17: Adjusted NSS Curve (Jan 2015 – Jan 2016)**





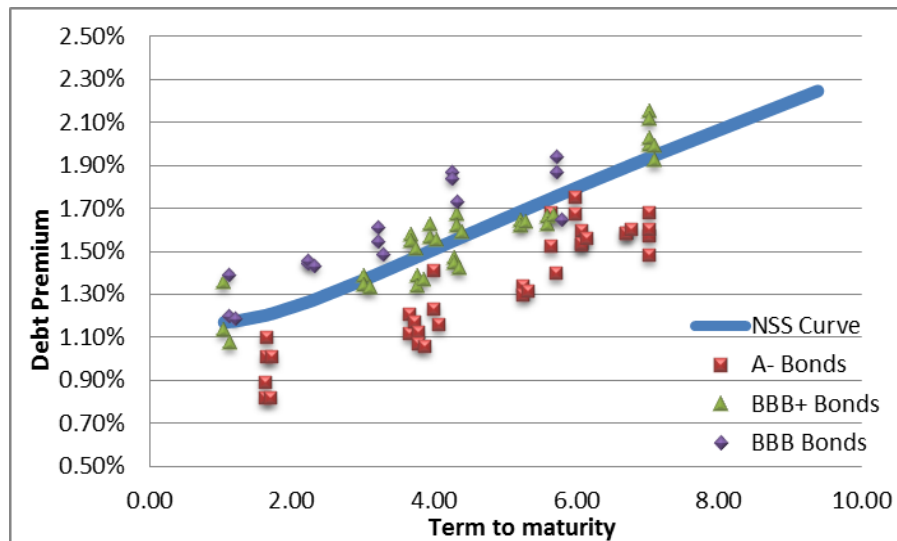
**Figure 18: Adjusted NSS Curve (Jan 2014 – Jan 2015)**



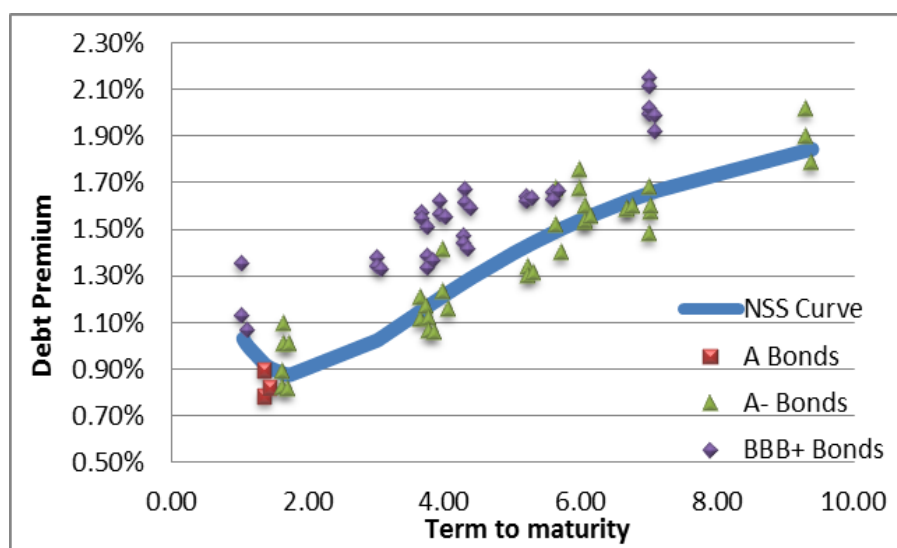
704. Figure 17 and Figure 18 demonstrate the debt premium curves spanning a year of observations and adjusted for credit rating using dummy variables. The parameters values used to generate the curves are also presented. Both annual yield curves have the same general shape and positioning of differently rated bonds.
705. 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 34 for parameter values). When compared with individual monthly parameter values, there can be significant differences (as monthly curves can fluctuate between curve shapes).
706. 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.
707. 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 19: EDB/GPB NSS Curve (Jan – Mar 2016)**



**Figure 20: Airport NSS Curve (Jan – Mar 2016)**



708. Figure 19 and Figure 20 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 34: 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 |
|-------------|-----------------------------|-----------------------------|------------------------|------------------------|
| $\beta_1$   | -13.58                      | -13.45                      | -0.056                 | -0.0020                |
| $\beta_2$   | 13.56                       | 13.43                       | 0.069                  | 0.025                  |
| $\beta_3$   | -9.20                       | -9.09                       | -8.72                  | -13.49                 |
| $\beta_4$   | 0.079                       | 0.082                       | -0.0088                | -0.049                 |
| $\beta_5$   | 0.00038                     | 0.00039                     | 0.0015                 | 0.0027                 |
| $\beta_6$   | -0.0036                     | -0.0036                     | -0.0029                | -0.00084               |
| $\lambda_1$ | -3611.24                    | -3723.43                    | -3797.60               | -158281                |
| $\lambda_2$ | 1.16                        | 1.26                        | 1.19                   | 1.02                   |

709. Table 34 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.

710. 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:*

711. Strengths:

711.1 can observe the debt premium at any term to maturity within the range of the curve (ie, bonds not observable in the market);

711.2 can generate relatively robust estimations from the yield curve with limited observations;

711.3 strong theoretical foundations – proven to produce reliable results;

711.4 similar to methods used in other countries (specifically Australia) for use in estimating the debt premium;

711.5 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

- 711.6 easily replicable.
712. Weaknesses:
- 712.1 may be perceived as complex and not fully transparent due to the complicated functional form;
- 712.2 there are several assumptions that must be made in the NSS model; and
- 712.3 there could be a potential collinearity problem (however very unlikely).
713. 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. In terms of replicability; 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.
714. 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  $\lambda$ ; the factor loadings can be highly correlated.<sup>439</sup> An example of the collinearity would be if  $\lambda_1$  and  $\lambda_2$  are approximately equal; therefore  $\beta_3$  and  $\beta_4$  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).
715. When generating the yield curves to estimate the debt premium, we have implicitly assumed that:
- 715.1 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';<sup>440</sup>
- 715.2 outer-rated bonds in the sample (BBB and A-) have the same yield curve shape as the BBB+ rated bonds; and
- 715.3 there is no significant difference between majority government-owned corporate bonds and private corporate bonds.
716. A three-month averaging period has been set as the time period for this paper. One month samples may lack robustness due to lack of bonds and an annual sample could include irrelevant data in the estimation. Incorporating dummy variables for

---

<sup>439</sup> Factor loadings represent how much a factor explains a variable.

<sup>440</sup> 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.

outer-rated bonds (A- and BBB) allows expansion of the bond sample while taking into account the differences from these bonds.

## **Attachment D: Analysis of the term credit spread differential**

### **Purpose of this attachment**

717. The purpose of this attachment is to provide further information on our proposed changes to the TCSD.

### **Adjustments to the term credit spread differential**

718. We propose to make some adjustments to the TCSD applied in the IMs. As described in paragraphs 180 to 208 we consider that the policy intent for the TCSD remains valid, but the way that it has been implemented can be improved.

719. This attachment provides more information on why we consider that the approach to the TCSD can be improved and outlines the changes we propose:

719.1 Firstly we consider why changes to the TCSD methodology could better implement the policy intent behind the TCSD.

719.2 Secondly, we explain how we have determined a fixed relationship between original debt tenors and the additional debt premium associated with debt with a term over five years.

### *Issues with the current approach*

720. The current IMs determine a TCSD for qualifying suppliers that is calculated using a formula that combines:

720.1 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');<sup>441</sup>

720.2 an allowance for swap costs; and

720.3 a negative adjustment to take account of the lower per annum debt issuance costs that are associated with longer-term debt.<sup>442</sup>

---

<sup>441</sup> This debt is called 'qualifying' debt.

<sup>442</sup> We assume that all debt issuance costs are fixed, irrespective of the original term of the debt.

721. 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 the current assumption of debt issuance costs. The debt issuance costs are currently assumed to be 0.35% p.a. for a five-year period. This formula is specified in the IMs and means that (proportionally) the impact will be the same for all debt that has the same original tenor. The debt issuance costs adjustment is calculated as:<sup>443</sup>

$(0.0175 \div \text{original tenor of the qualifying debt} - 0.0035) \times \text{book value in New Zealand dollars of the qualifying debt at its date of issue}$

722. A different approach is undertaken for the spread premium. The spread premium is estimated by using Bloomberg data and is calculated by using the difference between:

722.1 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

722.2 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).

723. These values are taken from Bloomberg on the date that the debt was originally issued.

724. Two issues have been raised with the current approach:

724.1 The New Zealand 'A' fair value curve is no longer published by Bloomberg;<sup>444</sup> and

724.2 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 can 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.

725. We were aware of the potentially for variability from this calculation when setting the IMs 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.<sup>445</sup>

726. Figure 21 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.

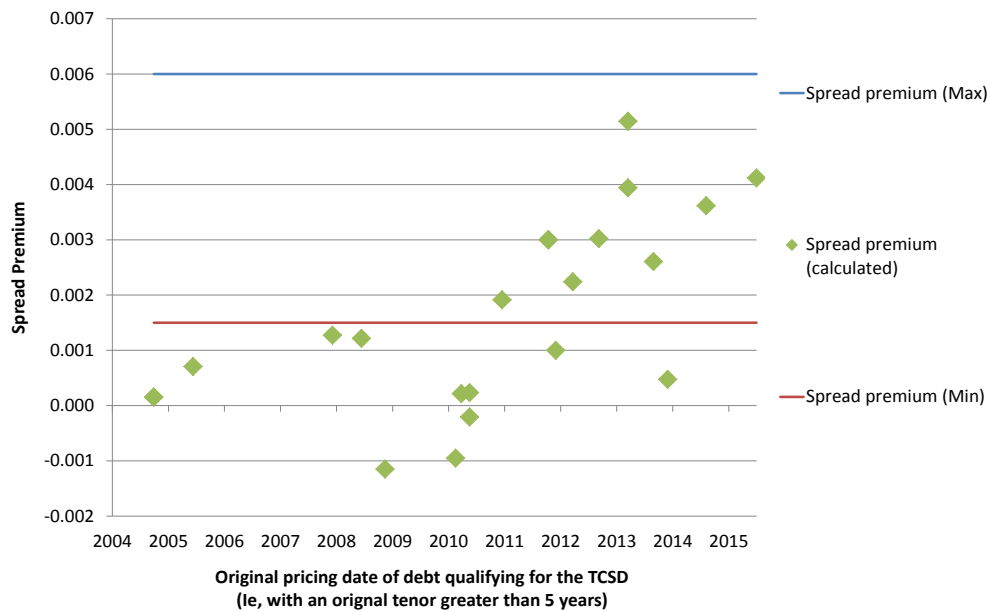
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<sup>443</sup> Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, clause 2.4.11.

<sup>444</sup> 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].

<sup>445</sup> For example, see: Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, clause 2.4.10.

**Figure 21: Calculation of the spread premium for Transpower’s 2015 TCSD**

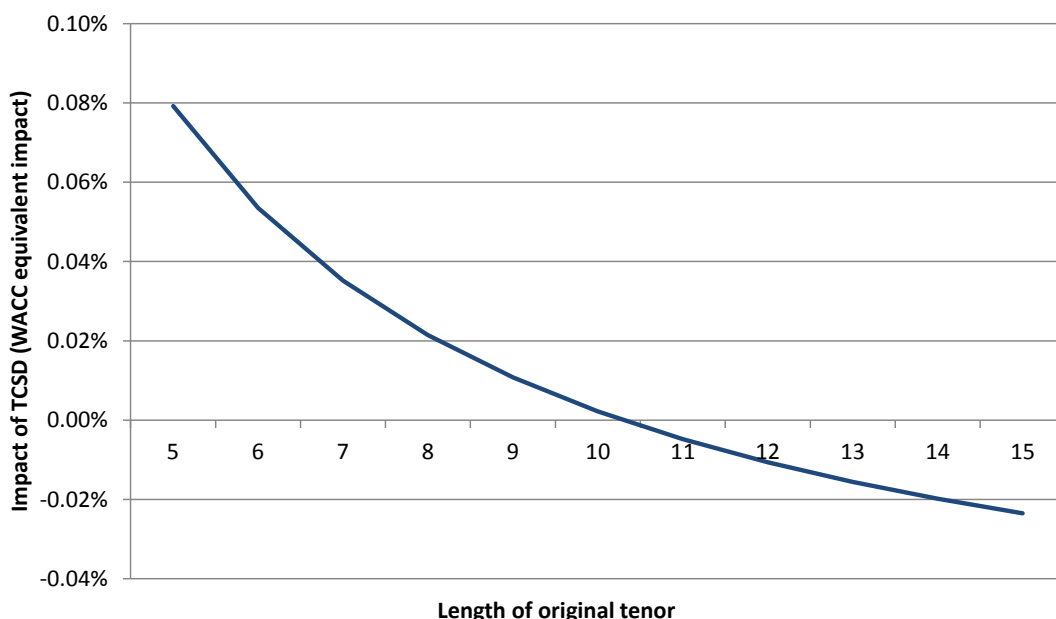


727. A problem arises when the spread premium is at the minimum value because when it is combined with the debt issuance cost adjustment it results in a decreasing allowance from the TCSD with increasing tenor.
728. Figure 22 shows this effect and how, when the minimum value for the spread premium is used, the TCSD reduces as original tenor increases.<sup>446</sup>

<sup>446</sup> Although Figure 22 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 22: Decreasing TCSD with increasing original tenor for a spread premium at the minimum value of 0.0015**



729. 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 current approach.

*Proposed approach*

730. We consider that a more appropriate methodology would be to determine a fixed positive relationship between original tenor of issued debt and the additional spread premium.<sup>447</sup> The benefits of this revised approach would be to:

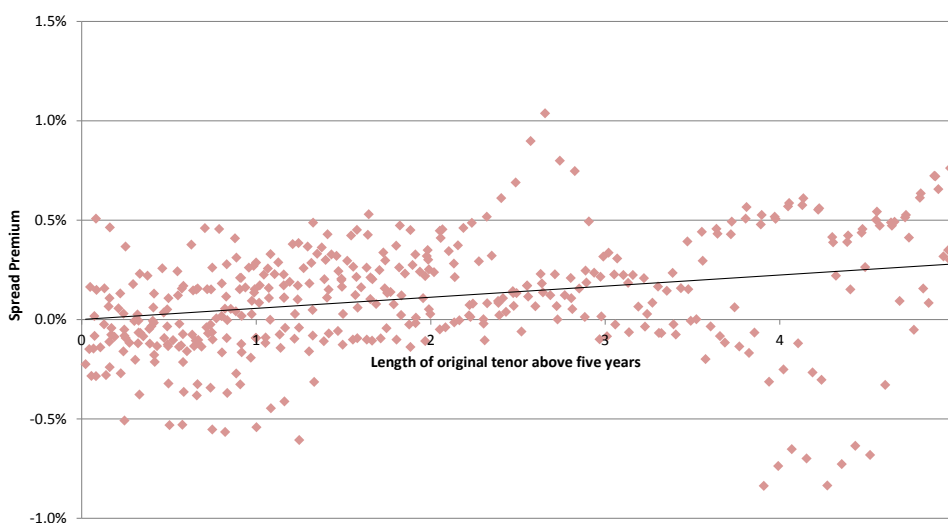
- 730.1 No longer require the use of the Bloomberg fair value 'A' Curve;
- 730.2 Reduce the complexity and administrative burden of the current approach because firms would no longer need to obtain market information on corporate bond yields or the interest rate swap rate;
- 730.3 Provide a positive relationship between the length of debt and the additional TCSD allowance. This is consistent with our consideration that the issuance of longer-term debt provides long-term benefits to consumers (due to reduced refinancing risks).

---

<sup>447</sup> 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.

731. The fixed relationship was determined by analysing the observed spread premiums for NZ domestic vanilla bonds since 2010 with remaining tenor greater than five years and an estimate (using interpolation) of the equivalent government bond rate.
732. Using this data we fitted a linear slope to the data points associated with a specific credit rating.<sup>448</sup> The slope is shown in Figure 23 for BBB+ rated bonds. A similar approach was undertaken for A- rated bonds.

**Figure 23: Observed relationship between spread premium and length of tenor for BBB+ rated bonds (2010-2016)**



733. The linear relationships estimated from this process are:

BBB+ bonds:  $\text{spread premium} = 0.000559 \times (\text{original term of the qualifying debt} - 5)$

A- bonds:  $\text{spread premium} = 0.000172 \times (\text{original term of the qualifying debt} - 5)$

734. 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.<sup>449</sup> This is because:

734.1 it is straightforward to implement; and

734.2 there are difficulties in fitting an NSS curves to the limited data points that we have on debt premiums greater than 7 years – this is particularly relevant for A- bonds.

735. 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.

<sup>448</sup> The intercept of the linear slope was set to zero.

<sup>449</sup> NSS curves are discussed in more detail in Attachment C.

736. We consider that the issuance costs are fixed, therefore regardless of the debt term, the required adjustment can be calculated based on our proposed allowance of 0.20% p.a. issuance costs for debt with a 5-year original term. Table 35 provides the lower debt issuance costs associated with debt that has a longer original tenor and also how this translates to a debt issuance costs adjustment as part of the TCSD calculation.

**Table 35: Debt issuance costs adjustment factor**

| <b>Tenor</b>                       | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> |
|------------------------------------|----------|----------|----------|----------|----------|-----------|
| Issuance costs<br>(0.2% × 5/tenor) | 0.20%    | 0.17%    | 0.14%    | 0.13%    | 0.11%    | 0.10%     |
| Debt issuance<br>adjustment        | 0.00%    | -0.03%   | -0.06%   | -0.07%   | -0.09%   | -0.10%    |

737. From combining credit spread premium and the issuance costs adjustment, a fixed relationship between the term of issued debt and the TCSD can be determined

**Table 36: TCSD adjustment for different original tenor length (EDBS, GPBS and Transpower)**

| <b>Tenor</b>                | <b>5</b>  | <b>6</b>     | <b>7</b>     | <b>8</b>     | <b>9</b>     | <b>10</b>    |
|-----------------------------|-----------|--------------|--------------|--------------|--------------|--------------|
| Spread premium              | 0.00%     | 0.06%        | 0.11%        | 0.17%        | 0.22%        | 0.28%        |
| Debt issuance<br>adjustment | 0.00%     | -0.03%       | -0.06%       | -0.07%       | -0.09%       | -0.10%       |
| <b>TCSD premium</b>         | <b>0%</b> | <b>0.03%</b> | <b>0.05%</b> | <b>0.10%</b> | <b>0.13%</b> | <b>0.18%</b> |

**Table 37: TCSD adjustment for different original tenor length (Airports)**

| <b>Tenor</b>                | <b>5</b>  | <b>6</b>      | <b>7</b>      | <b>8</b>      | <b>9</b>      | <b>10</b>     |
|-----------------------------|-----------|---------------|---------------|---------------|---------------|---------------|
| Spread premium              | 0.00%     | 0.02%         | 0.04%         | 0.06%         | 0.07%         | 0.09%         |
| Debt issuance<br>adjustment | 0.00%     | -0.03%        | -0.06%        | -0.07%        | -0.09%        | -0.10%        |
| <b>TCSD premium</b>         | <b>0%</b> | <b>-0.01%</b> | <b>-0.02%</b> | <b>-0.01%</b> | <b>-0.02%</b> | <b>-0.01%</b> |

738. To incorporate the TCSD formula for energy businesses in the IMs we propose to:
- 738.1 provide a formula in which the input would be the original term of the relevant debt issuance – This input would not need to be rounded;
  - 738.2 use the formula to calculate the TCSD premium for each bond by determining the relevant spread premium and debt issuance costs adjustment;
  - 738.3 set the maximum term allowed in the calculation to be 10 years; and
  - 738.4 apply those values to any qualifying debt in the same manner as the present TCSD.
739. 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 term of qualifying debt
740. The data also suggests that on average the spread premium of A- bonds does not outweigh the benefits from a reduction in the per annum issuance costs As a result we propose not to provide an TCSD for airports because if we did the allowance would be zero (or negative).<sup>450</sup>

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<sup>450</sup> Note that the TCSD for airports is provided in the information disclosure determination, not the input methodologies determination. We propose that this determination is updated to reflect any change to the TCSD at a later date.

## **Attachment E: Materiality of dual WACC approach**

### **Purpose of this attachment**

741. The purpose of this attachment is to discuss the materiality of the dual WACC approach discussed in Chapter 6.

### **Dual WACC option**

742. We describe in Chapter 6 the potential for perverse incentives with our current approach for determining a CPP WACC.

743. Our proposal is to apply the DPP WACC for CPPs. However, one alternative option suggested is 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.<sup>451</sup>

744. Submissions from suppliers did not recommend the dual WACC approach suggesting there are some implementation issues and that it adds complexity to the regime.<sup>452</sup>

### *Explanation of the Dual WACC approach*

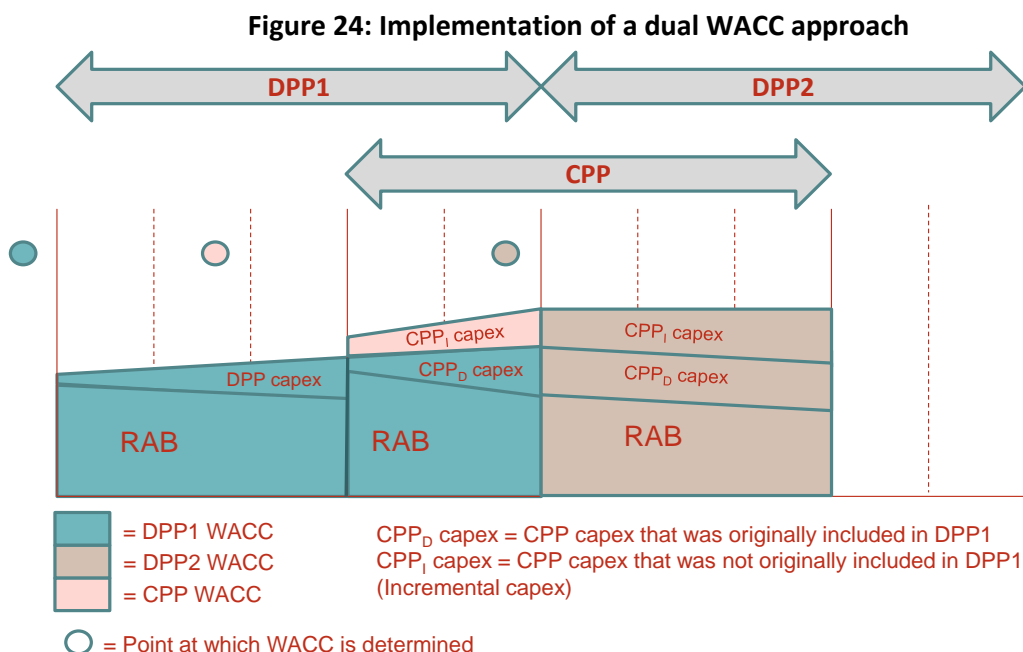
745. The dual WACC approach applies a different WACC to different types of capex and the existing asset base. Figure 24 provides an illustration of how this might work in practice. The capex allowance under the CPP can be split into two categories, capex that was originally allowed for under a DPP and 'incremental capex' that is the additional capex provided for under a CPP.

746. There are two variants of the dual WACC approach. The first variant (shown in Figure 24) 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.

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<sup>451</sup> Dr Martin Lally "Complications arising from the option to apply for a CPP" (18 September 2015).

<sup>452</sup> 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.



747. 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.
748. 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 needs to be considered when assessing the benefits of the dual WACC approach.
749. The materiality can be 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:
- 749.1 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;<sup>453</sup> and
- 749.2 the CPP applies for three years before the DPP WACC is reset.<sup>454</sup>
750. 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

<sup>453</sup> We expect this would be at the high end of potential step-changes under a CPP.

<sup>454</sup> 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.<sup>455</sup> The average over the five-year DPP regulatory period would be 6%.<sup>456</sup>

751. We can 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%).
752. 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  $\approx 0.5\%$
753. 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.
754. Applying a dual WACC option would also require 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.
755. The second variant of the dual WACC approach would be 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 do have not considered this variant of the dual WACC approach in detail.
756. After considering the materiality on the price path, our view is 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.
757. 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 would be applied to the CPP path.

---

<sup>455</sup> 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,  $(5\% + 10\% + 15\%)/3$ .

<sup>456</sup>  $10\% \times (3/5) = 6\%$ .

758. This approach would have the added benefit that the Commission would no longer need to estimate separate CPP WACCs.





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| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Electricity Distribution Services<br/>Input Methodologies Determination 2012</i> [2012] NZCC 26                                 |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 27   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 28   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Input Methodologies) Determination 2010</i><br>(Decision 709, 22 December 2010)    |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies<br/>Determination 2012</i> [2012] NZCC 17  |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Information Disclosure) Determination 2010</i><br>(Decision 715, 22 December 2010) |

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 airports profitability topic:
  - X1.1 the problems we have identified within this topic area;
  - X1.2 our proposed solutions to these problems;
  - X1.3 the reasons for our proposed 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 parties through submissions on our problem definition paper and in 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 is currently no requirement in the Airports ID Determination for airports to disclose a forward-looking profitability indicator. This means that when we have conducted profitability assessments, we have 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.
- 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.

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- X7 This makes it difficult to compare forward-looking profitability to the backward-looking profitability indicator included in annual historical disclosures since airports have to apply the Airport IMs Determination to backward-looking 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 proposes amendments to the Airport IMs in addition to those amendments which we made to give effect to the High Court's judgment that the initial RAB value for land has to be assessed as at 2010.
- X10 A separate topic paper, on the WACC percentile for airports, sets out our proposals for publishing the benchmark cost of capital against which the proposed forward-looking profitability indicator would be compared.<sup>1</sup>

*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.

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<sup>1</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

**Table X1: Summary of proposed changes in relation to this topic**

| <b>Proposed change</b>   | <b>Outcomes of the proposed change</b>   | <b>Chapter</b>   |
|--|--|------------------|
| <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"> <li>• an opening investment value at the beginning of the pricing period;</li> <li>• a forecast closing investment value; and</li> <li>• forecast cash-flows over the duration of the pricing period.</li> </ul> <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> |

| Proposed change   | Outcomes of the proposed change  | Chapter          |
|---|--|------------------|
| <p>Make the following changes with respect to asset revaluations:</p> <ul style="list-style-type: none"> <li>• require airports to disclose forward and backward-looking costs on a consistent basis to the approaches used when setting prices;</li> <li>• 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));</li> <li>• allow airports to make their choice of either CPI-indexation or an un-indexed approach for parts of the asset base separately;</li> <li>• 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);</li> <li>• 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 backward-looking disclosures;</li> <li>• include an objective method of forecasting CPI based on the approach to forecasting CPI used in other regulated sectors;</li> <li>• 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; and</li> <li>• require airports to disclose both the forecast of CPI used to set prices and the IM-consistent forecast of CPI, and identify the impact of any differences on the value of forecast revaluations.</li> </ul> | <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> |

| Proposed change   | Outcomes of the proposed change   | Chapter          |
|---|---|------------------|
| <p>Make the following changes with respect to depreciation:</p> <ul style="list-style-type: none"> <li>• require airports to apply specified principles when using alternative depreciation approaches; and</li> <li>• 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.)</li> </ul>   | <p>Greater clarity about the requirements in the Airport IMs and ID Determinations.</p> <p>Reduce complexity and compliance costs.</p>  | <p>Chapter 5</p> |
| <p>Make the following changes with respect to assets held for future use:</p> <ul style="list-style-type: none"> <li>• 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 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</li> <li>• 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.</li> </ul> | <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>Chapter 8</p> |
| <p>Make the following changes with respect to pricing assets:</p> <ul style="list-style-type: none"> <li>• addition of a new schedule to the Airports ID Determination reflecting airports’ targeted profitability based on the pricing asset base only; and</li> <li>• require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the total RAB.</li> </ul>   | <p>Greater transparency for interested parties to better understand an airport’s approach to pricing.</p>   | <p>Chapter 9</p> |



| Proposed change  | Outcomes of the proposed change  | Chapter           |
|--|--|-------------------|
| <p>Make the following changes with respect to the initial RAB value for land:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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.</li> </ul> | <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> |

| Proposed change   | Outcomes of the proposed change   | Chapter          |
|---|---|------------------|
| <p>Include in the carry forward mechanism to adjust the opening investment value:</p> <ul style="list-style-type: none"> <li>• un-forecast revaluation gains or losses (in real terms) unless an alternative treatment has been proposed by airports; and</li> <li>• other risk sharing arrangements if these have been proposed in the airport’s price setting event.</li> </ul> <p>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).<sup>2</sup></p> <p>Require 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.</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> | <p>Chapter 6</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 provide information on the ‘degree of acceptance’ by airlines regarding those forecast over and under-recoveries included in the carry forward mechanism.</p> <p>Require airports to provide information on the purpose and the appropriateness of including those forecast over and under-recoveries in the carry forward mechanism.</p>  | <p>Greater transparency for interested parties to better understand an airport’s approach to pricing.</p>   | <p>Chapter 7</p> |

<sup>2</sup> 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.

| Proposed change   | Outcomes of the proposed 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"> <li>• require airports to provide a high level disclosure of the total value of pricing incentives in the price setting event disclosures.</li> </ul>   | <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"> <li>• ex-post disclosures – to specify mid-year timing assumptions for all revenues and expenditures;<sup>3</sup></li> <li>• price setting event disclosures – to specify mid-year timing assumptions for all revenues and expenditures; and</li> <li>• price setting event disclosures – to provide 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.</li> </ul> | <p>Greater transparency for interested parties to better understand an airport’s approach to pricing.</p> | <p>Chapter 10</p> |

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<sup>3</sup> 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.

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- X12 This topic paper forms part of our package of draft decision papers on the IM review. As part of the package of papers, we have also published:
- X12.1 a summary paper of our draft decisions;
  - X12.2 an introduction and process paper, which provides an explanation of how the papers in our draft decision package fit together; and
  - X12.3 a framework paper, which explains the framework we have applied in reaching our draft decisions on the IM review.

**Invitation to make submissions**

- X13 We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
- X14 In respect of our draft amended IM and ID determinations, which we expect to publish on 22 June 2016, we invite submissions by **5pm on 11 August 2016**.<sup>4</sup>
- X15 Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
- X16 Please clearly indicate within your submission which aspects of this paper it relates to.

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<sup>4</sup> Rather than providing for cross submissions on the draft determinations, we have instead provided an extended period for primary submissions on those drafts.

## **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 ID regulation;
  - 1.2 explain our proposed solutions relating to the airport profitability assessment topic by explaining:
    - 1.2.1 the problems we have identified within this topic area;
    - 1.2.2 our assessment of potential solutions to these problems; and
    - 1.2.3 the reasons for our proposed solutions.
  - 1.3 explain how we have taken stakeholders' submissions into account in considering the above and reaching our proposed solutions to problems identified within this topic.

### **Where this paper fits into our package of papers on our draft decisions**

2. This paper explains our proposed solutions to problems identified within the airports profitability assessment topic.
3. We have identified proposed solutions that could be accommodated through amendments to the Airport Input Methodologies Determination (Airport IMs), the Airports Information Disclosure Determination (Airport ID) or both. In responding to the problems identified in this topic area we considered that a holistic consideration of both the existing Airport IM and ID was required.
4. This topic paper forms part of our package of draft 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 draft decision package.<sup>5</sup>
5. To the extent our proposed solutions to problems within this topic area involve changes to the Airport IMs, this paper explains how we propose to change our existing Airport IMs decisions. A number of our proposed solutions within this topic involve changes to the Airport ID requirements – this paper also explains how we propose to change the Airport ID requirements.

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<sup>5</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).

6. The Report on the IM review collates our proposed changes to the existing IMs and presents them as draft decisions to change the IMs.<sup>6</sup> Our proposed drafting changes to the Airport IMs and ID requirements, including any resulting from this topic area, are shown in the draft amended Airport IMs and ID Determinations, which we expect to publish on 22 June 2016.
7. The framework we have applied in reaching our draft decisions on the IM review is set out in a separate paper, published alongside this paper.<sup>7</sup> The framework paper explains that we have only proposed changing the current Airport IMs where this appears 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. We explain how we have applied this framework in reaching our draft solutions on our review of the Airport IMs and ID Determinations in Chapters 2 and 3.

### **Structure of this paper**

10. Chapters 2 and 3 provide an overview of the context for assessing airport profitability, including:
  - 10.1 how airports are regulated; and
  - 10.2 identifying and explaining, at a high level, the problems with the ex-ante assessment of airports' profitability under the current Airport IMs and ID Determinations.
11. Chapter 3 also provides a summary of all of our proposed solutions to problems identified with the airports profitability topic area.
12. The remainder of the paper is divided into chapters, each addressing a potential problem or problem area within the airport profitability assessment topic. Each of the chapters broadly follows the following structure:
  - 12.1 a description of the problem or problem area;
  - 12.2 an explanation of our proposed solutions and our reason for preferring them; and

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<sup>6</sup> We expect to publish the Report on the IM review on 22 June 2016.

<sup>7</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

- 12.3 an explanation of our assessment of any alternative solutions to the problem.
13. In defining the problems and assessing potential solutions, we have considered stakeholders' submissions and views expressed at two workshops. We have discussed how they have helped to shape our problem definitions and our proposed solutions.
14. Attachment A to this paper explains our proposed transitional arrangements for information disclosures based on the amended Airport IMs and ID Determinations.

### **Introduction to this topic**

15. When we refer to 'airports' in this paper we are only referring the airports that are subject to information disclosure regulation, as specified in s 56 of the Act. These are Auckland, Christchurch and Wellington airports.
16. In our problem definition paper, we identified the assessment of airports profitability topic as one of the key topics for the IM review.<sup>8</sup>
17. This topic is about our assessment of airports' profitability under information disclosure regulation. In particular, it is about how changes to the Airport IMs and ID Determinations would support the assessment.
18. During the problem definition phase we identified several issues that make it difficult to assess the expected profitability of airports when they set their prices. In reaching our views on the problems and proposed solutions discussed in this paper we have been informed by our consultation with stakeholders, which included submissions and two workshops.<sup>9</sup>
19. This topic has focussed on the assessment of airports profitability on a forward-looking basis. We have only proposed 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.
20. 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.<sup>10</sup> That topic paper sets out our proposals for publishing the benchmark cost of capital against which the forward-looking profitability indicator proposed in this topic paper would be compared.

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<sup>8</sup> Commerce Commission "Input methodologies review – Invitation to contribute to problem definition" (16 June 2015).

<sup>9</sup> Summaries of the views expressed at the workshops are available at our website.

<sup>10</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

21. 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.<sup>11</sup>

**Invitation to make submissions**

22. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
23. In respect of our draft amended IM and ID determinations, which we expect to publish on 22 June 2016, we invite submissions by **5pm on 11 August 2016**.<sup>12</sup>
24. Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
25. Please clearly indicate within your submission which aspects of this paper it relates to.
26. The Introduction and process paper contains further details about the submissions process. This includes:<sup>13</sup>
- 26.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
  - 26.2 providing guidance on requesting an extension to the submissions timeframes;
  - 26.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
  - 26.4 providing guidance on making confidential submissions.

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<sup>11</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016).

<sup>12</sup> Rather than providing for cross submissions on the draft determinations, we have instead provided an extended period for primary submissions on those drafts.

<sup>13</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016), Chapter 5.



## Chapter 2: How airports are regulated

### Purpose of this chapter

27. 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

28. 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:
  - 28.1 the Airports Authorities Act (**AAA**); and
  - 28.2 Part 4 of the Commerce Act 1986 (the **Act**).
29. Unless otherwise indicated, all statutory references in this paper are to the Act.

#### *The AAA*

30. 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:
  - 30.1 s 4A(1) of the AAA provides that airports 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
  - 30.2 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”.
31. In other words, airports are only required to consult (rather than negotiate) on charges and irrespective of airlines’ views, airports are free to set prices as they see fit.
32. 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.

*Part 4 of the Commerce Act*

33. 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).

34. The purpose of Part 4 is:<sup>14</sup>

... 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.

35. 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.<sup>15</sup>

36. 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:

36.1 aircraft and freight activities;

36.2 airfield activities;

36.3 specified passenger terminal activities; and

36.4 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.

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<sup>14</sup> Commerce Act 1986, s 52A.

<sup>15</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

37. 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.
38. 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).
39. 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 airport's prices.
40. 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*

41. 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.
42. 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**

43. For airports, under Part 4 we are required to (among other requirements):
  - 43.1 set the input methodologies (IMs) that apply to airports;
  - 43.2 set the information disclosure requirements for airports; and
  - 43.3 conduct summary and analysis of disclosed information to promote a greater understanding of airport performance.

**The input methodologies that apply to airports**

44. 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.

45. 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:<sup>16</sup>
- 45.1 allocation of costs to regulated services supplied by the airports;
  - 45.2 valuation of assets that are used to supply airport services;
  - 45.3 treatment of tax costs for regulatory purposes; and
  - 45.4 the cost of capital (which is applied only by us in order to monitor and analyse information disclosed by the airports).
46. Because airports can set prices as they see fit, the Airport IMs only apply to Airport ID for the purposes of assessing whether s 52A is being met and do not apply to the way airports set prices.
47. A brief description of the Airport IMs is set out below. The 2010 Airports IM reason paper provides a more fulsome discussion.<sup>17</sup>

*Allocation of costs*

48. 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.
49. 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.

*Valuation of assets*

50. 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:
- 50.1 establishment of the initial value of each airport’s regulatory asset base **(RAB)**;

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<sup>16</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010).

<sup>17</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010).

- 50.2 revaluation of assets;
  - 50.3 calculation of depreciation; and
  - 50.4 treatment of asset acquisitions and disposals.
51. The valuation of assets will help determine an appropriate baseline against which profitability can be assessed.

*Treatment of tax*

52. 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.
53. 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*

54. 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.
55. 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)).<sup>18</sup> Airports are also required to disclose our annual published WACC in ex-post disclosures of financial information.
56. The cost of capital IM is discussed in more detail in Topic paper 4 – Cost of capital.<sup>19</sup>

**Information disclosure requirements**

57. 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.

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<sup>18</sup> This has been confirmed by the High Court in *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 1132-1149.

<sup>19</sup> Commerce Commission “Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues” (16 June 2016).

58. 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.
59. The Airports ID Determination provides for the disclosure of:
- 59.1 historical financial information;
  - 59.2 quality performance measures and other key statistics;
  - 59.3 forecasts of total revenue requirements; and
  - 59.4 price and pricing methodologies.
60. In addition, the Airports ID Determination sets out publication, certification and audit requirements.
61. A brief description of the Airports ID Determination is set out below. The 2010 Airports ID reason paper provides a more fulsome discussion.<sup>20</sup>

*Historical financial information*

62. 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.
63. As noted at paragraphs 54-56, 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*

64. 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.

*Forecasts of total revenue requirements*

65. 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.

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<sup>20</sup> Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010).

66. 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:
- 66.1 **Revenue methodology** – this provides an overview of the methodology used to determine the forecast total revenue requirement.
  - 66.2 **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.
  - 66.3 **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.
  - 66.4 **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.
  - 66.5 **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.
  - 66.6 **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.
  - 66.7 **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.
  - 66.8 **Other income** – 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*

67. 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.<sup>21</sup>
68. 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.
69. 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**

70. 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.
71. 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.
72. 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.
73. 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.
74. 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'.

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<sup>21</sup> 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.



## How the input methodologies interact with the information disclosure requirements

### *Airports must apply IMs when making annual ex-post disclosures*

75. 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.<sup>22</sup>
76. 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:
- 76.1 valuation of assets;
  - 76.2 allocation of common costs; and
  - 76.3 treatment of taxation.
77. As explained earlier in this chapter, airports are not required to apply IMs relating to cost of capital.<sup>23</sup> 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*

78. The Airports ID Determination requires an airport to publically disclose, on an ex-ante basis, information relating to its forecast revenue requirement.<sup>24</sup> It must disclose this information following a price setting event (**PSE**), or within five consecutive years of the previous disclosure of this type.<sup>25</sup> This means that airports must disclose price setting information at least every five years.

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<sup>22</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clauses 2.3 and 2.4.

<sup>23</sup> Commerce Act 1986, s 53F(1).

<sup>24</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clause 2.5.

<sup>25</sup> Price setting event means “the fixing or altering of price by an airport in respect of a specified airport service, pursuant to s 4A and s 4B of the Airport Authorities Act 1966 excluding where the price is: (a) subject to adjustment as a result of a wash-up; or (b) reset or adjusted annually, including without further consultation; or (c) subject to separate negotiation for inclusion in the terms of a lease or licence; or (d) not required to be consulted on by virtue of s 4B(3) of the Airport Authorities Act 1966; A price setting event is deemed to occur on the date that a new price comes into effect” (*Airports Information Disclosure Determination 2010*, (Commerce Commission Decision 715, 22 December 2010), clause 1.4).

79. The forward-looking information disclosed under Airports ID Determination does not have to be IM-compliant. However, at present, airports must publically disclose a description of how the components of the forecast total revenue requirements have been determined.<sup>26</sup> These include:
- 79.1 forecast value of assets employed;
  - 79.2 forecast cost of capital;
  - 79.3 forecast operational expenditure;
  - 79.4 forecast depreciation;
  - 79.5 forecast tax;
  - 79.6 forecast revaluations; and
  - 79.7 any other component of the total revenue requirement.
80. 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).
81. 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.
82. We also require airports to provide the following in their price setting event disclosures:
- 82.1 a summary of its pricing methodology;
  - 82.2 a summary of its proposed prices for charged services; and
  - 82.3 a report on the demand forecasts used when setting prices.
83. This information helps us and other interested persons understand and assess an airport's pricing decision.

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<sup>26</sup> We propose some changes to these disclosure requirements in this topic paper.

### **Chapter 3: Summary of problem definition and proposed solutions**

#### **Purpose of this chapter**

84. 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 proposed solutions. Further details on these problems and proposed solutions are provided in Chapters 4 – 12.
85. We also identify whether our proposed solutions require amendments to the Airport IMs, Airport ID, or both.

#### **Problem definition**

86. This section explains, at a high level, the problems we identified in respect to the airports profitability topic.
87. 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.<sup>27</sup>
88. 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 ss 52A(1)(a) and (d) of the Act. In particular, airports:
  - 88.1 have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
  - 88.2 are limited in their ability to extract excessive profits.
89. There is currently no requirement in the 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.
90. In assessing targeted returns for each airport as part of the s 56G process:
  - 90.1 we found it difficult to determine the effective returns the airports were targeting, because in setting their prices airports did not follow the approaches assumed in our information disclosure requirements; and
  - 90.2 various problems with the transparency of the information disclosed by airports made it difficult for us and other interested persons to understand an airport's pricing intent.

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<sup>27</sup> Commerce Act 1986, s 53A.

91. In the remainder of this section, we explain, at a high level:
- 91.1 the problems created by the lack of a forward-looking profitability indicator in the Airports ID Determination; and
  - 91.2 where the Airports ID Determination lacks transparency which is discussed in the light of the four matters listed below:
    - 91.2.1 airports may target a time profile of capital recovery that is different to that assumed as the default position under the Airport IMs;
    - 91.2.2 the scope of the asset base used by airports when setting prices can be different to that disclosed under the Airports ID Determination;
    - 91.2.3 a profitability assessment should take into account multiple pricing periods,<sup>28</sup> and
    - 91.2.4 other transparency problems exist.
92. We also considered further amendments to the Airport IMs and ID Determinations in addition to those amendments which we made to give effect to the High Court's judgment that the initial RAB value for land has to be assessed as at 2010.<sup>29, 30</sup>

*No forward-looking profitability indicator in Airports ID Determination*

93. 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.
94. 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.<sup>31</sup>
95. To facilitate this analysis, we need transparent disclosures of targeted returns and underlying assumptions. In the past, transparency was limited by the fact that:
- 95.1 airports can set prices as they see fit;

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<sup>28</sup> 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 as well as 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.

<sup>29</sup> For clarification, this issue is different to the other problems we describe in more detail in this chapter, as it does not impact the ex-ante profitability assessment of airports. This is because all airports have revalued their land post 2010 and RAB values have been subsequently updated with these new valuations.

<sup>30</sup> *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289, para 892.

<sup>31</sup> For more information on our proposals for the published benchmark against which we assess airport profitability, please see: Commerce Commission "Input methodologies review draft decisions: Topic paper 6 – WACC percentile for airports" (16 June 2016).

- 95.2 airports are not required to apply the Airport IMs Determination in setting prices and making their forward-looking pricing disclosures;
  - 95.3 airports do not have to apply our forecast of cost of capital when setting prices;
  - 95.4 airports may target a return that is different from an airport's estimate of cost of capital; and
  - 95.5 **most importantly, we do not currently require airports to disclose a forward-looking profitability indicator** that reflects the airport's decision on targeted returns.
96. 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.
97. The lack of a forward-looking profitability indicator is 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.<sup>32</sup>
98. The inclusion of a requirement on airports to disclose their targeted returns in the Airports ID Determination would better promote s 53A, because it would allow interested persons to better understand what returns airports were targeting during the price setting events; it would ensure the more timely release of such information; and would reduce our costs in undertaking summary and analysis.

*Insufficient transparency in Airports ID Determination*

99. There is insufficient transparency in Airports ID Determination because the current requirements in the Airports ID Determination do not:
- 99.1 require an airport to accurately and appropriately disclose its approach taken in the price setting event; and
  - 99.2 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.
100. The matters listed below make it difficult to accurately assess an airport's targeted profitability:
- 100.1 airports may target a time profile of capital recovery that is different to that assumed as the default position under the Airport IMs;

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<sup>32</sup> For example, if an airport has made a commercial decision to under-recover revenue in a pricing period.

- 100.2 the scope of the asset base used by airports when setting prices can be different to that disclosed under the Airports ID Determination;
- 100.3 a profitability assessment should take into account multiple pricing periods;<sup>33</sup>  
and
- 100.4 other transparency problems exist.

*Airports may target a time profile of capital recovery that is different to that assumed as the default position under the Airport IMs*

- 101. 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.<sup>34</sup>
- 102. There are two main ways an airport may target a different time profile of capital recovery compared to the default position under the Airports IM Determination. These are:
  - 102.1 through its approach to revaluations; and
  - 102.2 by explicitly (or implicitly) using non-standard depreciation (ie, an approach different to the default approach of straight line depreciation).
- 103. 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.
- 104. Approach to revaluations: Following a price setting event, airports make forward-looking disclosures reflecting the assumptions and outcomes of the price setting event.<sup>35</sup> The approach to revaluing assets used for disclosure purposes must be the one chosen by the airport in the price setting event.<sup>36</sup> This means that the ex-ante information we receive on asset revaluations may not be consistent with the current Airport IMs.
- 105. In contrast, when making backward-looking disclosures, the revenues and costs disclosed during the relevant regulatory period must be disclosed in accordance with the Airport IMs.

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<sup>33</sup> 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 as well as 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.

<sup>34</sup> The default position under the Airport IMs involves straight line depreciation and CPI indexation for non-land assets of the RAB (Commerce Act (*Specified Airport Services Input Methodologies*) Determination 2010 (Commerce Commission Decision 709, 22 December 2010), clauses 3.4 (depreciation) and 3.7 (revaluation)).

<sup>35</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clause 2.5 and Schedule 18.

<sup>36</sup> See definition of "forecast revaluations": *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), p. 18.

106. Therefore, if airports do not use an IM-consistent approach to asset revaluation when setting prices, we cannot compare returns assessed on a forward-looking basis with returns assessed on a backward-looking basis. This is because the underlying RAB will diverge between ex-ante and ex-post disclosure purely because the Airport IMs are not flexible enough to reflect the approaches to revaluing assets chosen by airports for price setting purposes.
107. Use of non-standard depreciation: Airports can apply non-standard depreciation in rolling forward the RAB for ex-post disclosures. There are no constraints on how airports apply non-standard depreciation, and airports are not required to make the approach consistent with the approach taken in pricing decisions. In the price setting event disclosures, airports are allowed to apply non-standard depreciation as they see fit, as long as it reflects the pricing decision and they provide an explanation in their disclosures of what they have done.
108. 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 has raised a number of issues which suggest that the current non-standard depreciation requirements are too flexible.<sup>37</sup> These issues relate to the ex-post and price setting event disclosure requirements and include:
- 108.1 **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;
- 108.2 **price setting event disclosure** – we and other interested parties (in particular, BARNZ) have found it difficult to understand Christchurch Airport's approach to non-standard depreciation; and
- 108.3 **ex-post disclosure** – it is not clear how Christchurch Airport has 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*

109. 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.
110. 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.

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<sup>37</sup> Commerce Commission "Summary and analysis of Christchurch Airport's revised information disclosure for its second price setting event" (9 July 2015), para 48.

111. 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:
- 111.1 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.
- 111.2 In the past, airports have excluded certain assets (mainly comprising leased assets) from their pricing asset base.<sup>38</sup> 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'.<sup>39</sup>
112. Assets held for future use: Under the current 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.<sup>40, 41</sup>
113. The current Airport IMs and ID Determinations may not provide 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.
114. 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.<sup>42</sup>
115. Understanding these differences in the underlying asset bases has been difficult in the past and can make the airports profitability assessment of future pricing periods challenging for us and other interested persons.

*Profitability assessment must take into account multiple pricing periods*

116. Consistent with our approach to assessing ex-ante profitability for the s 56G review, in future, as is discussed in Chapter 4, we are proposing to use an internal rate of return (IRR) calculation to assess targeted returns over the pricing period.

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<sup>38</sup> More information on what these assets are is provided in Chapter 9.

<sup>39</sup> 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.

<sup>40</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clause 3.1 and definition of "excluded assets".

<sup>41</sup> 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).

<sup>42</sup> 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.



117. 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 those commitments, the profitability assessment for the current pricing period effectively links multiple pricing periods together.<sup>43</sup> For the purpose of this topic paper, we describe these commitments as:
- 117.1 ex-post effects of risk allocation (as defined below); and
  - 117.2 forecast over and under-recoveries that an airport intends to offset in future price setting events.
118. Ex-post effects of risk allocation: The Airports ID Determination does 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 have an impact on the current pricing period.
119. In the absence of this transparency, we and other interested persons may find it difficult to appropriately and accurately reflect those effects in the ex-ante assessment of profitability.
120. We provide clarification of what we mean by ex-post effects of risk allocation below:
- 120.1 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 5 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.
  - 120.2 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.
121. Forecast over and under-recoveries: The Airports ID Determination does not provide sufficient transparency to identify forecast over and under-recoveries by airports that are intended to be offset in future pricing events. In the absence of this transparency, we and other interested persons may find it difficult to appropriately and accurately reflect those effects in the ex-ante assessment of profitability.

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<sup>43</sup> 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*

122. 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:
- 122.1 commercial concessions; and
  - 122.2 route incentives.
123. In addition, we have identified the assumptions regarding timing of cash-flows as an area where transparency should be provided. In order to calculate an ex-ante IRR that more accurately reflects targeted returns by airports, we need to establish forecast cash-flow timing assumptions that are reflective of actual cash-flows occurring at the airports.
124. Commercial concessions: Commercial concessions are a commitment by an airport to under-recover revenue in a pricing period.<sup>44, 45</sup>
125. The current 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.
126. 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.
127. 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.
128. Currently, the Airports ID Determination only requires 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 is no specific requirement for airports to report in the price setting event disclosures on route incentives.
129. In the absence of such a requirement, we and other interested persons may find it difficult to accurately assess the impact of route incentives on the ex-ante profitability assessment of airports.

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<sup>44</sup> 'Commercial concessions' is a term used by airports and is not in our Airport IMs and ID Determinations.

<sup>45</sup> 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).

130. Timing of cash-flows: In order to calculate an IRR that more accurately reflects returns targeted by airports, we need to establish forecast cash-flow timing assumptions that reflect actual cash-flows occurring at the airports.
131. We consider the current 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 underestimate airport returns. This is because the ROI does not reflect actual cash-flows occurring throughout the year.
132. In addition, the current 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.

### **Proposed solutions and the framework we applied in respect of these problems**

133. This section describes, at a high level, our proposed solutions in respect of the five problems identified above. Further details on our proposed solutions are provided in the Chapters 4 – 12.
134. 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 parties 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.
135. 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.<sup>46</sup>
136. 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.<sup>47</sup>

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<sup>46</sup> Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 2.7.3.

<sup>47</sup> 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.

137. 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.<sup>48</sup>
138. 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).
139. We also propose supplementing the proposed 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.
140. In this regard, our proposals on the inputs to the forward-looking profitability indicator, and to the price setting event disclosures more widely, are intended to achieve the following outcomes:
- 140.1 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;
  - 140.2 greater clarity about the requirements in the Airport IMs and ID Determinations;
  - 140.3 greater transparency for us and other interested persons to better understand an airport's approach to pricing; and
  - 140.4 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.
141. Table 3.1 outlines the problems as they have been summarised in the problem definition section of this chapter, and provides our proposed solutions. We also indicate in Table 3.1 where we:
- 141.1 propose amendments to the Airport IMs, Airport ID, or both; and
  - 141.2 consider at this stage that no amendments are required to solve the relevant problem.

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<sup>48</sup> 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 proposed solutions**

| Problem  | Sub-problem        | Proposed outcome   | Proposed solution  | IMs or ID | Chapter |
|--|--------------------|--|--|-----------|---------|
| There is 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 on a consistent basis 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       |

| Problem   | Sub-problem               | Proposed outcome  | Proposed solution  | IMs or ID | Chapter |
|---|---------------------------|---|--|-----------|---------|
| 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 | <p>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 backward-looking disclosures.</p> <p>Include an objective method of forecasting CPI based on the approach to forecasting CPI used in other regulated sectors.</p>  | IM        | 5       |
|   |                           | Greater clarity about the requirements in the Airport IMs and ID Determinations | <p>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> <p>Require airports to disclose both the forecast of CPI used to set prices and the IM-consistent forecast of CPI, and identify the impact of any differences on the value of forecast revaluations.</p> | IM        | 5       |
|   | Non-standard depreciation | Greater clarity about the requirements in the Airport IMs and ID Determinations | <p>Require airports to apply 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       |

| Problem   | Sub-problem                | Proposed outcome  | Proposed solution   | IMs or ID | Chapter |
|---|----------------------------|---|---|-----------|---------|
| 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 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       |
|   | Pricing assets             | Greater transparency for interested parties to better understand an airport’s approach to pricing | Addition of a new schedule to the ID determination reflecting airports’ targeted profitability based on the pricing asset base only.<br><br>Require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the total RAB .                   | ID        | 9       |

| Problem  | Sub-problem                | Proposed outcome  | Proposed solution   | IMs or ID | Chapter |
|--|----------------------------|---|---|-----------|---------|
| 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                | Proposed outcome  | Proposed solution  | IMs or ID | Chapter |
|--|----------------------------|---|--|-----------|---------|
| A profitability assessment should take into account multiple pricing periods | Ex-post 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:</p> <ul style="list-style-type: none"> <li>• un-forecast revaluation gains or losses (in real terms) unless an alternative treatment has been proposed by airports; and</li> <li>• other risk sharing arrangements if these have been proposed in the airport's price setting event.</li> </ul> <p>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).<sup>49</sup></p> <p>Require 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.</p> | ID        | 6       |

<sup>49</sup> 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                         | Proposed outcome  | Proposed solution  | IMs or ID | Chapter |
|---|-------------------------------------|---|--|-----------|---------|
| A profitability assessment should take into account multiple pricing periods (cont) | Forecast under or over-recoveries   | Greater transparency for interested parties to better understand an airport's approach to pricing | <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 provide information on the 'degree of acceptance' by airlines regarding those forecast over and under-recoveries included in the carry forward mechanism.</p> <p>Require airports to provide information on the purpose and the appropriateness of including those forecast over and under-recoveries in the carry forward mechanism.</p> | ID        | 7       |
| 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      |

| Problem                            | Sub-problem          | Proposed outcome  | Proposed solution   | IMs or ID | Chapter |
|------------------------------------|----------------------|---|---|-----------|---------|
| Other transparency problems (cont) | Timing of cash-flows | Greater transparency for interested parties to better understand an airport's approach to pricing | <p>Ex-post disclosures – to specify mid-year timing assumptions for all revenues and expenditures.<sup>50</sup></p> <p>Price setting event disclosures – to specify mid-year timing assumptions for all revenues and expenditures.</p> <p>Price setting event disclosures – to provide 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      |

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<sup>50</sup> 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**

142. The purpose of this chapter is to explain our proposed solution to the problem associated with the lack of a forward-looking profitability indicator under the Airports ID Determination.
143. We discussed our proposed solution at the airports workshop held in April 2016 that was attended by key airports stakeholders. The slides we presented at the workshop contained information on how we propose to assess ex-ante profitability in future (including some graphics) that may be useful to read alongside this chapter.<sup>51</sup>

### **Structure of this chapter**

144. This chapter begins with a section on the problem definition, before going on to explain our proposed solution to this problem. The chapter finishes with a discussion of an alternative solution that we considered.

### **Problem definition**

145. This section explains the problem definition, including how it evolved through consultations, which included submissions and workshops.

#### *Summary of problem definition*

146. There is currently no forward-looking profitability indicator in the Airports ID Determination to assist us and other interested persons in assessing whether airports are targeting excessive profits when they set prices.
147. 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:
  - 147.1 do not provide for indicators that are a good measure of a particular area of performance; or
  - 147.2 more importantly, do not provide for any indicators at all (as is the case with targeted profitability).
148. In this case, the key concern is whether the existing information disclosed following a price setting event sufficiently influences airports' conduct such that they are limited in their ability to extract excessive profits.
149. In this chapter, we discuss how the Airports ID Determination should be amended 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.

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<sup>51</sup> Commerce Commission "Airports profitability assessment – Workshop 2 – Workshop papers" (19 April 2016).

*Understanding targeted returns by airports is important*

150. Understanding the returns targeted by airports is important in assessing whether airports are limited in their ability to extract excessive profits.
151. 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.
152. 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:
  - 152.1 airports can set prices as they see fit;
  - 152.2 airports are not required to apply the Airport IMs Determination in making their forward-looking pricing disclosures;
  - 152.3 airports do not have to apply our forecast of cost of capital when setting prices;
  - 152.4 airports may target a return that is different from an airport's estimate of cost of capital; and
  - 152.5 most importantly, airports currently are not required to disclose a forward-looking profitability indicator at all.
153. In particular, if a forward-looking profitability indicator can provide a good reflection of an airport's target 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*

154. 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.<sup>52</sup>

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<sup>52</sup> 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.

155. When assessing the returns targeted during the price setting event for the s 56G review, we calculated an IRR forecast, which required information on:<sup>53</sup>
- 155.1 the opening investment value;
  - 155.2 the forecast cash-flows over the duration of the pricing period; and
  - 155.3 the forecast closing investment value.
156. In a forward-looking IRR calculation, the **opening investment value** reflects the initial capital to be recovered. We consider the opening investment value should comprise:
- 156.1 the IM-compliant closing RAB value from the ex-post disclosure of the year preceding the start of the current price setting event; and
  - 156.2 any adjustments reflecting decisions made in previous price setting periods that have an impact on charges for the current pricing period.<sup>54</sup> 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.<sup>55</sup>
157. The **forecast cash-flows** over the duration of the pricing period comprise:<sup>56</sup>
- 157.1 revenues;
  - 157.2 opex;
  - 157.3 capex; and
  - 157.4 tax.
158. 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.<sup>57</sup>

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<sup>53</sup> 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 in this chapter on our proposed solution.

<sup>54</sup> For the purpose of this topic paper, we refer to these decisions as the 'ex-post effects of risk allocation'.

<sup>55</sup> For more information on the concept of matching the cash-flows to the opening investment value see Chapter 6.

<sup>56</sup> 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.

<sup>57</sup> For more information on the adjustments that we made see Chapter 6.

159. In a forward-looking IRR calculation, the **forecast closing investment value** reflects the remaining capital to be recovered. We consider it should comprise:
- 159.1 the forecast closing asset base used by airports when setting prices, reflecting an airport's assumed time profile of capital recovery; and
  - 159.2 any adjustments reflecting decisions made by airports that affect 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.<sup>58</sup>
160. 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.
161. 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.
162. 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.
163. For example, when undertaking the s 56G reviews, additional consultations with airports were necessary to enable us to establish those input values in a way that 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.

*Stakeholders are open to exploring the introduction of a forward-looking profitability indicator*

164. BARNZ supports our view that the lack of a forward-looking profitability indicator under ID can be problematic. In particular, BARNZ submitted that:<sup>59</sup>

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

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<sup>58</sup> For more information on the forecast closing investment value and the adjustments that we consider appropriate, see Chapter 7.

<sup>59</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 6.

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.

165. NZAA is open to exploring the introduction of a forward-looking profitability indicator in the Airports ID Determination. However, NZAA is not convinced that “a new ex-ante mechanism can remove the inevitable degree of complexity involved in profitability assessment” and considers 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 is of the view that:<sup>60</sup>

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 proposed solution in respect of this problem**

166. This section explains our proposed solution in respect of this problem.

##### *Our proposed solution*

167. We propose amendments to the Airports ID Determination under s 52Q to increase the transparency relating to targeted returns. In particular, our proposed solution in respect of this problem is:

167.1 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 should include an opening investment value, a forecast closing investment value and forecast cash-flows over the duration of the pricing period; and

167.2 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.

168. Our proposed 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:

168.1 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);

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<sup>60</sup> NZ Airports “Airport profitability assessment post-workshop submission” (22 December 2015), para 10 and 13.



- 168.2 assist in determining if airports are targeting excessive profits; and
- 168.3 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.
169. In addition, our proposed solution focusses on disclosure of the profitability expected in the current pricing period which is consistent with the preferences expressed by participants at the airports workshop held in December 2015.<sup>61</sup>
170. 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:
- 170.1 avoids the problems associated with the short-term variability in returns that are inherent in a ROI calculation;
- 170.2 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
- 170.3 allows us to reflect specific cash-flow timing assumptions as discussed in Chapter 10.
171. 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. 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 ss 52A(1)(a) and (d).<sup>62</sup>
172. Our proposed 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:
- 172.1 firstly, 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; and<sup>63</sup>

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<sup>61</sup> Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), Attachment C, para 4.

<sup>62</sup> For more information on the FCM principle, see Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>63</sup> For more information on the concept of matching the cash-flows to the opening investment value see Chapter 6 on the ex-post effects of risk allocation.

- 172.2 secondly, 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.
173. For more information on what we consider should 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 we consider should 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.
174. We consider our proposed solution would better enable us and other interested persons to assess whether airports are targeting excessive profits as it would create transparency in Airport ID with regards to targeted returns inherent in an airport's pricing decision.
175. In the remainder of this section, we provide more detail on:
- 175.1 why our proposed solution can provide for a headline indicator that can be used as a starting point for any subsequent summary and analysis;
  - 175.2 why an IRR avoids the problems associated with the short-term variability in returns; and
  - 175.3 the views expressed by stakeholders on this problem in submissions and at workshops.

*Proposed solution can provide for a headline indicator*

176. Our proposed 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.
177. 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.<sup>64</sup>
178. 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.

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<sup>64</sup> For example, if an airport revalues its asset base inconsistently with our proposed solution for asset revaluations as discussed in Chapter 5, the price setting event disclosure would not be able to fully reflect this airport's pricing decision.

179. In any subsequent summary and analysis 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. However, it is our intent to try and make the proposed new indicator as good as possible in the first instance.

*IRR avoids the problems associated with the short-term variability in returns*

180. 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:<sup>65</sup>

(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, which signals an expectation of higher (or lower) profits in the future.<sup>66</sup> 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.<sup>67</sup>

(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.

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<sup>65</sup> 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.

<sup>66</sup> 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).

<sup>67</sup> 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.

*There is general support for our proposed solution*

181. 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.<sup>68</sup>
182. In their submissions on this workshop, NZAA and BARNZ confirmed their support for our proposed solution. In particular:
- 182.1 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 is 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”;<sup>69</sup> and
- 182.2 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”.<sup>70</sup>
183. 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 proposed solutions are in Chapters 6 and 7.

**Assessment of an alternative solution to this problem**

184. This section explains our assessment of an alternative solution that we considered, namely requiring airports to disclose an enduring IRR under information disclosure.

*Alternative solution – requiring airports to disclose an enduring IRR under information disclosure*

185. At the first airports workshop in December 2015, we also presented on the concept of an enduring IRR that could be introduced in information disclosure.<sup>71</sup> This concept would require:
- 185.1 to fix the starting point of an IRR calculation (eg, the start of Part 4, beginning of PSE2 or PSE3); and
- 185.2 always to begin the IRR calculation from that point in time.

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<sup>68</sup> Commerce Commission “Input methodologies review – airports profitability assessment – Workshop 1 – Summary of views expressed” (18 December 2015), para 12.

<sup>69</sup> NZ Airports “Airport profitability assessment post-workshop submission” (22 December 2015), para 13 and 45.

<sup>70</sup> BARNZ’s post workshop submission on airports profitability assessment workshop 1 “Post profitability workshop comments” (21 December 2015), p. 1.

<sup>71</sup> Commerce Commission “Input methodologies review – airports profitability assessment – Workshop 1 – workshop papers” (18 December 2015), slides 27 and 28.

186. Similar to our proposed ex-ante IRR supplemented by a carry forward mechanism, an enduring IRR would provide for a headline indicator that can:
- 186.1 be used as a starting point for any subsequent summary and analysis undertaken by us and other interested persons; and (in this function)
  - 186.2 assist in determining if airports are targeting excessive profits.
187. As an enduring IRR could span multiple pricing periods, an enduring IRR would also reflect decisions that were made in the past allowing for an assessment of whether the FCM principle is being followed in the longer term.
188. However, although an enduring IRR would provide additional transparency, participants at the airports workshop in December 2015 dismissed this option early in the process given that:
- 188.1 airports and airlines focus in their profitability assessment largely on targeted returns of the current pricing period; and
  - 188.2 the impact of an individual pricing period on the enduring IRR becomes increasingly less important over the longer term.<sup>72</sup>
189. NZAA reiterated its position in its post-workshop submission and noted another argument against an enduring IRR. In assessing whether the FCM principle is being followed in the longer term, an enduring IRR would have to be measured against a comparable WACC for the same time frame. NZAA acknowledged in its submission the complexity involved in the development of such a corresponding WACC.<sup>73</sup>
190. Requiring airports to disclose an enduring IRR under information disclosure is not our preferred solution because:
- 190.1 of the support by airports and airlines for using an ex-ante IRR that is supplemented by a carry forward mechanism in order to assess airports' profitability; and
  - 190.2 of some possible complexities involved in the development of a corresponding WACC.
191. In any event, we can calculate a multi-period IRR under summary and analysis if we considered that doing so would assist interested persons in better understanding airport profitability performance over time.

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<sup>72</sup> Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), Attachment C, para 15.

<sup>73</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 18.

## Chapter 5: Time profile of capital recovery

### Purpose of chapter

192. This chapter discusses the problems and potential 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 chapter

193. 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. We then discuss each mechanism in turn. Discussion on each mechanism covers:
- 193.1 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;
  - 193.2 our proposed solutions and the respective reasons associated with this solution; and
  - 193.3 a discussion of any alternative solutions that we considered.
194. We conclude the chapter with a discussion of an additional problem, and our proposed solution to that problem, that is unique to Auckland Airport. This problem arises from our proposed solution with respect to asset revaluation.

### Introduction to the mechanisms which can adjust time profile of capital recovery

195. 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:
- 195.1 through its approach to the revaluation of its asset base; and
  - 195.2 by explicitly (or implicitly) using non-standard depreciation.
196. The default positions under the current Airport IMs Determination assumes that:<sup>74</sup>
- 196.1 revaluations of land assets must be calculated by applying the consumers price index (**CPI**), although airports have the option of undertaking valuations at periodic intervals based on a MVAU methodology;
  - 196.2 revaluations of non-land assets must be calculated by applying CPI-indexation; and

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<sup>74</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clauses 3.4 (depreciation) and 3.7 (revaluation).

- 196.3 depreciation of non-land assets must be calculated by applying straight line depreciation.
197. 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)).
198. 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.<sup>75</sup>
199. The remainder of this chapter focusses on the problems and proposed solutions associated with these mechanisms for adjusting the time profile of capital recovery.

#### **Asset revaluations – problem definition**

##### *Targeted profitability could be assessed on a different basis from actual profitability*

200. When they set prices, airports can apply different asset revaluation approaches to those specified in the Airport IMs Determination, which currently means that targeted profitability may be assessed on a different basis from ex-post profitability. This is because:
- 200.1 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;<sup>76</sup> whereas
- 200.2 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.
201. The current Airport IMs Determination on asset revaluation does not allow the pricing decisions that differ from the Airport IMs to be reflected in the RAB value that is disclosed. This means the value of the asset base can differ between ex-ante and ex-post disclosure purely due to the different treatment of the revaluations in each situation.

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<sup>75</sup> 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.

<sup>76</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clause 2.5 and Schedule 18. See also definition of “forecast revaluations”: *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), p. 18.

202. These differences mean that, all else equal, the returns that we assess under ex-post information disclosure may not be consistent with the airports expected returns when setting prices. This is because the airports may have treated revaluations differently than assumed under the IMs.

*How stakeholders see the problem*

203. 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:<sup>77</sup>

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.

204. 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.
205. NZAA is of the view that there is sufficient information already provided under information disclosure regulation for interested persons to understand airport profitability.<sup>78</sup> 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*

206. 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.<sup>79</sup> This moratorium was first applied during PSE1 (2007 – 2012) and will continue in effect until at least the end of PSE2 (2012 – 2017).
207. 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 from pricing than are required if CPI-indexation is applied. However, either approach can be NPV-neutral over time.

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<sup>77</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 10-11.

<sup>78</sup> NZ Airports "Submission on IM review problem definition" (21 August 2015), para 216.

<sup>79</sup> 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.



*Under s 56G profitability assessed consistent with Auckland Airport's pricing approach*

208. 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.
209. 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.<sup>80</sup>
210. 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.
211. 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.
212. 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. In particular, the restatement of Auckland Airport's asset values is discussed in paragraphs 302 to 318.
213. The remainder of this section focusses on the extent to which input methodologies can be 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 proposed solution in respect to the problem**

*Proposed changes to the Airport IMs Determination*

214. Our proposed 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.
215. We consider that this solution will allow us and other interested persons to better assess if airports are targeting excessive profits.

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<sup>80</sup> 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.

216. We have proposed this solution because:
- 216.1 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));
  - 216.2 the benefit of ensuring that the approach 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
  - 216.3 it provides additional flexibility to airports to disclose costs on a consistent basis to the approaches used by airports when setting prices.
217. When an indexed approach is applied in pricing, it can be shown that ex-post returns will comprise:
- 217.1 a performance-related real return, through cash-flows during the period; and
  - 217.2 compensation for inflation, through inflation indexed asset revaluations.
218. 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.
219. 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.<sup>81</sup>
220. The decision between an indexed and an un-indexed approach can affect both the time profile of capital recovery, and the implied exposure of real returns to inflation risk. However, we have proposed additional changes to the information disclosure requirements in Chapter 6 which allows an airport to manage exposure to inflation risk.
221. To give effect to this, we propose to introduce a definition of 'Forecast CPI' which can be used to calculate the returns airports require by way of compensation for inflation risk. This definition is required if an airport chooses to manage its exposure to inflation risk when using an un-indexed approach to revalue assets because it allows an objective calculation of the difference in returns that airports would have recovered ex-post, when an indexed approach has been applied.

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<sup>81</sup> 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.

222. The reasons for our proposed approach to the definition of 'Forecast CPI' are explained in Electricity Distribution Services IMs relating to the setting of default price-quality paths.<sup>82</sup> We encourage you to provide your views on the approach and reasons set out in that paper.

*Proposed changes to information disclosure requirements*

223. We propose that an airport be required to provide information on the approach used by it to revalue assets (ie, indexation or non-indexation) and the forecast value of revaluations at an asset category level. We also propose that airports be required to 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.
224. This will provide us and interested persons with sufficient information to understand the airport's approach to forecasting revaluations. It also allows us to understand the forecast value of the assets had the CPI calculated under the Airport IMs been applied.
225. In our view, it would be appropriate for the proposed changes to the input methodologies to be accompanied by a new requirement in the Airports ID Determination. This new requirement would require airports to:
- 225.1 disclose information about the forecast revaluation rate that the airport has applied at an asset category level; and
  - 225.2 provide information on the level of revaluations at an asset category level had the airport applied the IM-consistent approach to forecast CPI.
226. This information would make the airport's approach to revaluations transparent. It would also assist in the management of inflation risk, where required, and provide supporting information to summary and analysis.
227. We also encourage views on the level of justification and additional information that airports should be required to provide in support of applying an un-indexed approach. For example, we could require information about the reasons for requiring advanced cash-flows. Such a discussion might sensibly refer to the approach taken to depreciation given that it also affects the implied time profile of capital recovery.

*Specific implications for Auckland Airport's existing valuations*

228. One implication of our proposed approach would be that Auckland Airport would be required to restate its historic disclosed asset values consistent with the approaches it adopted in pricing. This would be required in order to:
- 228.1 ensure that our forward-looking and backward-looking profitability assessments are consistent; and

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<sup>82</sup> Commerce Commission "Input methodologies (Electricity Distribution and Gas Pipeline Services) reasons paper" (22 December 2010), para E12.5 – E12.11.

- 228.2 provide enough transparency for us and interested parties to assess whether Auckland Airport is limited in its ability to earn excessive profits.
229. At our April 2016 workshop, Auckland Airport indicated that restating asset values would be complicated and create significant additional compliance costs.<sup>83</sup> 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.
230. We consider that Auckland Airport's concern could be addressed through the use of an alternative approach with an equivalent effect. In paragraphs 306 to 309 we discuss how such an alternative approach might be accommodated under the Airports ID Determination.
231. We also note that the approach discussed in paragraph 306 to 309 might provide a mechanism for addressing similar issues if they arise in future. For example, it could be used if airports adopt a non-standard depreciation methodology that is determined at the aggregate asset base level rather than by individual assets.

*Our proposed solution reflects past stakeholder views*

232. In reaching our proposed solution on the treatment of asset revaluations, we have taken into account past stakeholder views on the matter. For example, in its submission to the IM review problem definition paper, BARNZ indicated that it would support an approach like our proposed solution to this problem:<sup>84</sup>
233. BARNZ supports 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 does not support the introduction of complete or unconstrained flexibility).
234. BARNZ also requested clarity on:
- 234.1 when an airport can make an election of the approach to revaluing assets;
  - 234.2 whether the election can be subsequently changed; and
  - 234.3 how an election by the airport is to be disclosed.

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<sup>83</sup> Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 8.

<sup>84</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review", (21 August 2015), p. 2.

235. 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 proposed solution provides clarity which addresses the points raised by BARNZ because:
- 235.1 the Airport IMs and ID Determinations will be amended so that an airport can only elect its approach to revaluing assets when setting prices, and it must use the same approach in its forward-looking and backward-looking disclosures (this will address the points in paragraphs 234.1 and 234.2).
- 235.2 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 234.3).
236. NZAA recently 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 revaluations approach to be included in the Airport IMs Determination, noting that:<sup>85</sup>
- 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.
237. In addition, NZAA sees benefit in creating greater flexibility in the Airport IM treatment of revaluations if it was decided to capture non-forecast revaluation gains in a carry forward mechanism. We address this point in the section that follows.

*We also considered an alternative solution of using a carry forward mechanism*

238. Another option for resolving the problem associated with asset revaluations without changing the Airport IMs Determination would be to use the proposed carry forward mechanism as we describe it in Chapter 4 of this paper.
239. Under this approach, airports would disclose information about costs on the basis of approaches that are consistent with the Airport IMs Determination. The impact arising from airports using alternative revaluation approaches when setting prices would then be captured in the carry forward mechanism, ie, the impact of applying an alternative to CPI-indexation would be calculated and taken into account when assessing profitability in future.<sup>86</sup>

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<sup>85</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 39.

<sup>86</sup> Further information about the proposed calculation of carry forward amounts can be found in Chapters 6 and 7.

240. This approach would allow us and other interested persons to more easily identify the impact on profitability of airports applying alternative approaches to revaluing assets. We could then comment on how appropriate the airports' approach was through summary and analysis.
241. This is not our preferred approach as we are concerned that any carry forward amount may be perceived by the airport and interested parties as a temporary adjustment whereas our proposed solution makes it clear that the airports' approach to revaluations is a permanent adjustment to the asset values. However, we do note that this alternative approach would not require Auckland Airport to restate past disclosures. We therefore encourage submitters (in particular Auckland Airport) to submit on our recommended solution, noting our concerns about transparency.

*Our consideration of other alternative approaches to revaluations*

242. In reaching our proposed solution, we also considered the alternative approach of allowing airports full flexibility in terms of the alternative approaches they may apply to revaluations. However, this is not our preferred solution, primarily for pragmatic reasons:
- 242.1 other than periodic land valuations, airports have not used anything other than an indexed or un-indexed approach to asset revaluation for pricing purposes since the information disclosure regime was introduced in 2010; and
- 242.2 airports have not indicated that they are likely to apply alternative indexation approaches in future.
243. In addition, we consider the method proposed in paragraphs 306 to 309 (ie, allowing alternative methodologies with equivalent effect) to ensure sufficient flexibility. This is because if airports apply an alternative approach to revaluations in future, it allows for the possibility that asset values can be restated to reflect the pricing approach.

### Depreciation – problem definition

244. 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.<sup>87, 88</sup> Airports are allowed to apply non-standard depreciation as they see fit, but they must provide an explanation in their disclosures of what they have done. This is required so that interested persons can assess how it meets the Part 4 purpose.<sup>89</sup>
245. 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.
246. 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.<sup>90</sup> This made Christchurch Airport the first airport to disclose a non-standard depreciation methodology.
247. Having reviewed the approach applied by Christchurch Airport, we considered that it was an improvement on the previously disclosed information because it:
- 247.1 provides a relatively straightforward way to calculate depreciation that was intended to better reflect the assumptions inherent in Christchurch Airport’s pricing approach; and
- 247.2 is 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)).

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<sup>87</sup> Non-standard depreciation is any methodology other than straight line depreciation as set out in the Airport IMs Determination. *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010 (Commerce Commission Decision 709, 22 December 2010)*.

<sup>88</sup> 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. *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010 (Commerce Commission Decision 709, 22 December 2010)*.

<sup>89</sup> *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.

<sup>90</sup> Our s 56G report on CIAL 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).

248. Nevertheless, our experience with Christchurch Airport’s use of a non-standard depreciation methodology has raised a number of problems:
- 248.1 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
- 248.2 in addition, airlines found it difficult to engage with Christchurch Airport’s approach to non-standard depreciation. This may in part be due to the fact that the non-standard approach adopted by Christchurch was intended to better reflect the lower current utilisation of assets, but (counterintuitively) was associated with an increase in disclosed depreciation.
249. This suggests that there is scope to improve the current requirements for non-standard depreciation to ensure that:
- 249.1 an airport discloses a depreciation methodology that is consistent with its pricing decisions; and
- 249.2 there is sufficient information disclosed to allow us and interested persons assess the depreciation methodology an airport has disclosed.
250. 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 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).
251. Our consideration of each of these matters is explored in greater detail below.

*Identification and application of non-standard depreciation approach*

252. 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.<sup>91</sup>

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<sup>91</sup> 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).



253. 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.<sup>92</sup> As noted earlier, our view is that these changes have resulted in improvements in the transparency of Christchurch Airport's pricing approach.
254. As a consequence of this experience, we are interested in receiving views on ways in which we can assist airports to identify the situations in which non-standard depreciation approaches might be appropriate in future.

*Stakeholders have found it difficult to engage with the approach to non-standard depreciation*

255. Stakeholders found it difficult to engage with the approach to non-standard depreciation in Christchurch Airport's revised disclosure.<sup>93</sup> 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*

256. 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)).
257. 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).
258. 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.
259. 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.<sup>94</sup>

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<sup>92</sup> Christchurch Airport "Supplementary voluntary disclosures" (28 November 2014).

<sup>93</sup> 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).

<sup>94</sup> Darryl Biggar "Updating the regulatory asset base: revaluation roll forward and incentive regulation" (1 April 2004).

260. The following example (from Biggar) demonstrates the impact of an airport rolling forward the RAB using actual capital expenditure and forecast depreciation:<sup>95</sup>

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.

261. The next example demonstrates the impact of an airport rolling forward the RAB using actual capital expenditure and actual depreciation:<sup>96</sup>

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.

262. 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.
263. 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.
264. We recognise that different incentives may be suitable in different situations. For this reason, we encourage views on what additional information (if any) airports should provide in order to assess whether the incentives to improve efficiency are appropriate.

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<sup>95</sup> Darryl Biggar “Updating the regulatory asset base: revaluation roll forward and incentive regulation” (1 April 2004), para 13.

<sup>96</sup> Darryl Biggar “Updating the regulatory asset base: revaluation roll forward and incentive regulation” (1 April 2004), para 17.

**Depreciation – proposed solution in respect of this problem**

265. To help improve interested persons understanding about non-standard approaches to depreciation, our proposed solution is to amend 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.
266. Table 5.1 outlines the principles we consider should apply and whether the principles will result in a change to the Airports IM and ID Determinations.

**Table 5.1: Proposed principles and whether these are IM or ID Determination changes**

|   | <b>Principle</b>   | <b>Airport IM or ID</b> |
|---|--|-------------------------|
| 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 justify or explain why the time profile of capital recovery implied in its price setting is appropriate.   | IM                      |
| 4 | 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.   | IM/ID                   |
| 5 | It should be clearly explained and evidenced how the non-standard depreciation profile reflects the airport’s expected value or utilisation of the existing RAB.   | ID                      |
| 6 | 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.  | 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 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*

267. 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)).
268. Our proposed 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.
269. 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).
270. 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*

271. 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.
272. In the absence of this principle, it is 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.
273. We would also be 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*

274. This principle seeks to ensure that the use of non-standard depreciation by an airport improves the transparency of its 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.
275. Without this principle an airport could use a non-standard depreciation profile that is inconsistent with the time profile of capital recovery that would be implied by its pricing methodology. This would mean 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 the effect of making the disclosure less transparent, making it more difficult for us and other interested parties to assess profitability over time.

*Principle three: despite principle 2, an airport can only apply or disclose a non-standard depreciation profile if it is able to justify or explain why the time profile of capital recovery implied in its price setting is appropriate*

276. This principle seeks to prevent an airport from using non-standard depreciation in its disclosure where an airport cannot adequately explain or justify the time profile of capital recovery used to set prices. That is, we are seeking to ensure that non-standard depreciation is only used in appropriate situations.
277. In the absence of this principle, we are concerned that an airport could use non-standard depreciation to explain any time profile of capital recovery, even those that would not be considered reasonable given the airport's particular circumstances. For example, if an airport used a non-standard depreciation profile to increase depreciation on the RAB due to increased utilisation, supporting evidence (such as passenger numbers) should demonstrate that there has been an increase in utilisation.

*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*

278. 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 *during* a pricing period.
279. Without this principle, airports could set prices using straight line depreciation then partway through the pricing period begin to disclose using non-standard depreciation (or vice versa). This would make it difficult for us and other interested parties to assess profitability.

*Principle five: it should be clearly explained and evidenced how the non-standard depreciation profile reflects the airport's expected value or utilisation of the existing RAB*

280. This principle seeks to ensure that non-standard depreciation is being used because it better reflects the expected value or utilisation of the RAB than straight line depreciation. We would expect airports to disclose sufficient evidence to support this position.
281. 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 non-standard depreciation compared to standard depreciation on expected returns. Without this information it would be difficult to reach a view on the approach taken.

*Principle six: 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*

282. This principle seeks to ensure that we are able to understand the consequence, and test the 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.
283. Without this principle we would not have enough information to conduct a thorough profitability assessment as we would not be able to compare what the airport has done to what would have occurred had straight line depreciation been applied. In the absence of the disclosure of the roll forward of the RAB under straight line depreciation, we would not have sufficient information to accurately approximate this roll forward ourselves.

*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*

284. Under the current 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.
285. If we do not have this principle then airports can allocate 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.

*Principle eight: where an airport has disclosed straight line depreciation but has 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*

286. 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.
287. 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. This would not require airports to disclose or explain a non-standard depreciation approach.
288. The current information disclosure requirements do not currently collect sufficient information about the asset lives used to determine the disclosed depreciation using straight line depreciation or how these have changed over time.
289. In the absence of this principle, it may be 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 parties.

*We are not proposing any amendments to specify how airports disclose information about the value of non-standard depreciation ex-post*

290. We are not proposing any amendments to 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.
291. In practice, incentives to be efficient will be affected by a range of decisions made by airports including:
  - 291.1 the approach to the disclosure of depreciation;
  - 291.2 the WACC businesses expect to earn;
  - 291.3 the choice of whether or not to index the RAB;
  - 291.4 the use of the carry forward mechanism; and
  - 291.5 proposed wash ups and other adjustments for forecasts versus actuals.
292. 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).



293. 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.
294. 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, similar to our view on cost of capital. For example, we use different mechanisms across Transpower and EDBs when designing incentive schemes. Transpower also has different incentives applied to different classes of capex.

#### **Depreciation – assessment of other potential solutions to this problem**

295. The alternative solutions that we have considered include:
- 295.1 allowing airports to use a carry forward approach instead of non-standard depreciation; and
  - 295.2 issuing additional guidance rather than introducing additional requirements.

#### *Use of a carry forward approach instead of non-standard depreciation*

296. Another option for resolving the problem associated with non-standard depreciation would be to use a carry forward mechanism instead of the non-standard depreciation methodology provided for in the existing Airport IMs. The carry forward mechanisms are described in more detail in Chapter 4 of this paper.
297. The airport could use straight line depreciation in disclosing its asset base and the impact of the change to the airport's time profile of capital recovery when setting prices would be captured in a carry forward mechanism rather than a non-standard depreciation methodology.
298. This is not our preferred solution as we are concerned that any carry forward amount may be perceived by the airport and other interested parties to have a different status to an adjustment to asset values.

#### *Issuing guidance around the existing Airport IMs Determination*

299. We also considered maintaining the status quo by not making changes to the Airport IMs and ID Determinations but issuing guidance around it to help steer airports when applying non-standard depreciation. In this solution, the principles we outline above would form the guidance rather than being amendments to the Airport IMs Determination.
300. We did not progress this alternative or consider in detail how practical and effective it would be. However during our April 2016 airports profitability workshop some stakeholders suggested that guidance may be more appropriate than amending the existing Airport IMs and ID Determinations on non-standard depreciation.

301. One rationale provided for this view is that our current proposed solution potentially creates a layer of complexity that would act as a deterrent against airports applying non-standard depreciation. We are keen to hear stakeholder's views on this.

**Restatement of asset values for Auckland Airport and other airports affected in future**

302. This section outlines Auckland Airport's concern with our proposed approach, and our proposed solution to that concern.
303. As identified in paragraph 228 to 231, under our proposed solution for asset revaluations, Auckland Airport would have to adjust past disclosures to reflect the moratorium. This will result in write-downs relative to the values that have been disclosed under information disclosure regulation.
304. 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 the proposed 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.<sup>97</sup>
305. More generally, the issue arises because input methodologies require asset values to be rolled forward on an individual asset basis, rather than in aggregate.

*Proposed solution*

306. We propose to allow alternative methodologies with equivalent effect within the Airport IMs and ID Determinations. These alternative methodologies could only be applied in place of the current requirements to roll forward the asset base under the Airport Asset Valuation IMs.
307. The alternative methodology could be used when an airport makes a disclosure (either forward-looking or backward-looking) so long as it results in an equivalent overall valuation outcome to the application of the Airport Asset Valuation IMs and it does not detract from the purpose of Part 4.
308. In applying an alternative methodology, an airport would also have to comply with additional information disclosure requirements that would require an airport to:
- 308.1 identify any alternative methodology applied;
  - 308.2 identify where the alternative methodology has been applied in the disclosure;
  - 308.3 discuss the reasons for the alternative methodology;

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<sup>97</sup> Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 9.

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- 308.4 provide evidence the methodology has equivalent effect (and does not detract from the part 4 purpose); and
  - 308.5 provide appropriate certification (eg, senior management).
309. Airports would still be 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*

- 310. Consistent with our decision-making framework, we consider that the inclusion of alternative methodologies with equivalent effect could result in a reduction in complexity and compliance costs while still promoting the purpose of Part 4.
- 311. 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.
- 312. We have considered whether this amendment could cause 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 invite you to provide your views on whether the lack of transparency of the value of individual assets could present concerns in the future.

*Other potential solutions to this problem*

313. An alternative solution to the problem facing Auckland Airport would be to provide a mechanism for a one-off adjustment to Auckland Airport's asset value. Such a mechanism would be more targeted towards the specific issue facing Auckland Airport, as opposed to the more general alternative methodologies with equivalent effect mechanism included in our proposed solution.
314. The specific mechanism that we could introduce would be a 'pseudo-asset' with a negative value, defined as being equal in value terms to the impact of unwinding the moratorium at Auckland Airport. The pseudo-asset could be depreciable or non-depreciable depending on the views of interested persons.<sup>98</sup>
315. One benefit of this approach is that the mechanism would be provided for by the Commission, rather than Airports having to consider and justify their own approach. However, we have favoured the proposed solution on the basis that it provides greater flexibility to Airports.
316. We therefore invite views on whether the proposed solution would result in more or less compliance and complexity costs for Auckland Airport than the introduction of a pseudo-asset.
317. The solution above would only allow for the aggregation of the asset base for revaluations. If we also wanted to allow for aggregation of the asset base for an airport applying a non-standard depreciation approach, we would also have to amend the Airport IMs Determination to allow for non-standard depreciation to be applied either on individual assets or on collections of assets.
318. These combined amendments are potentially more complex than allowing for flexibility through the use of alternative methodologies with equivalent effect. As such it is not our preferred solution at this time.

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<sup>98</sup> 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.

## Chapter 6: Ex-post effects of risk allocation

### Purpose of this chapter

319. The purpose of this chapter is to explain our proposed solutions to the problem associated with the ex-post effects of risk allocation in the context of the profitability assessment of airports.
320. In this chapter we consider to what extent the opening investment value should be adjusted in order to appropriately reflect the ex-post effects of risk allocation.<sup>99</sup>
321. In the context of this chapter:
- 321.1 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 5 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
- 321.2 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

322. 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 proposed solutions.
323. We then explain our proposed solutions and the reasons for our proposed solutions.

### Problem definition

324. 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 proposed solutions.

### *Summary of problem definition*

325. The Airports ID Determination does 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.
326. This is problematic as it impacts our and other interested persons' ability to accurately assess if an airport is targeting excessive profits.

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<sup>99</sup> As discussed in Chapter 4, the opening investment value comprises the opening RAB and a carry forward mechanism to adjust the opening investment value.

*A forward-looking profitability indicator requires assumptions on the opening investment value*

327. As discussed in Chapter 4, we propose to include a forward-looking profitability indicator (**IRR**) in the Airports ID Determination for future price setting events. We consider the IRR to comprise:
- 327.1 forecast cash-flows over the duration of the pricing period;
  - 327.2 the opening investment value; and
  - 327.3 the forecast closing investment value.
328. 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.
329. As explained in Chapter 4, in order to establish an **opening investment value** that is a good reflection of an airports' pricing intent and the initial capital to be recovered, we consider it should comprise:
- 329.1 the IM-compliant **closing RAB** from the ex-post disclosure of the year preceding the start of the current price setting event; and
  - 329.2 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.

*Ex-post effects of risk allocation are better addressed through adjustments to the opening investment value*

330. 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 historic annual 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.<sup>100</sup>
331. 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:
- 331.1 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

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<sup>100</sup> 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.

- 331.2 where over and under-recoveries that had occurred in previous price setting events were already reflected in the opening RAB.
332. In the s 56G report for Wellington Airport, we discussed the concept of matching the cash-flows (or revenues) to the opening investment value.<sup>101</sup> 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.<sup>102</sup> However, if we used unadjusted target revenue to inform our cash-flows, we should back the revaluation gain out of the opening investment value.
333. 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.<sup>103</sup>
334. 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*

335. 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.<sup>104</sup> 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.<sup>105, 106</sup>

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<sup>101</sup> 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), paras F55 – F59.

<sup>102</sup> 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.

<sup>103</sup> 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.

<sup>104</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>105</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 21.

<sup>106</sup> BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 2.

336. 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:<sup>107</sup>
- 336.1 control the probability of the occurrence;
  - 336.2 mitigate costs of occurrence; and
  - 336.3 absorb costs where they cannot be mitigated.
337. 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.<sup>108</sup> 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.
338. 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.
339. 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 consultation process.
340. At the airports profitability assessment workshop held on 1 December 2015, we discussed how the disclosure requirements could make the way risks have been allocated when airports set prices more transparent. We 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.<sup>109, 110</sup>

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<sup>107</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>108</sup> As explained further below, the exception to the above statement is any differences in forecast and actual inflation, where objective inflation forecasts have been used in setting prices.

<sup>109</sup> Commerce Commission "Airport profitability assessment workshop 1 – workshop papers" (18 December 2015), slide 30.

<sup>110</sup> In Chapter 4, we are proposing 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.



341. 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.<sup>111</sup>
342. 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.<sup>112</sup>
343. BARNZ argued that differences between forecasts and actuals should be carried forward into the next pricing period to the extent they reflect:<sup>113</sup>
- 343.1 un-forecast revaluation gains;
  - 343.2 timing differences of major capital expenditure;<sup>114</sup>
  - 343.3 any undertaking by an airport to wash-up a risk as recorded in the price setting event disclosures; and
  - 343.4 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.
344. 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 proposed solutions regarding the elements that should be captured in a carry forward adjustment.
345. 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.

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<sup>111</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 22.

<sup>112</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 24.

<sup>113</sup> BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 2

<sup>114</sup> BARNZ suggests major capex should be defined as projects costing \$30 million or more.

**Our proposed solution in respect of this problem**

346. This section explains our proposed solution in respect of this problem.

*Our proposed solution*

347. We do not propose any change to the Airport IMs Determination to address this problem. Instead, we propose amendments to the Airports ID Determination.

348. Our proposed 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:

348.1 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;

348.2 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;

348.3 require airports to provide information on the 'degree of acceptance' by airlines regarding those 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; and

348.4 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).<sup>115</sup>

349. Our proposed 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.

350. We explain our reasons in more detail in the remainder of this section.

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<sup>115</sup> 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.

*Our proposal to include un-forecast revaluation gains or losses (in real terms) in the carry forward adjustment to the opening investment value*

351. As explained in Chapter 5, our proposed solution regarding asset revaluations requires airports to disclose forward and backward-looking costs on a consistent basis to the approaches used when setting prices. However, it limits airports in their approaches to revaluing assets 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.<sup>116</sup>
352. 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.<sup>117</sup> 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.
353. The risk is that actual revaluations may vary from forecast to the degree that actual values increase at a rate greater to that assumed in the price setting event disclosures.
354. 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 three scenarios:
- 354.1 **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.<sup>118</sup>
- 354.2 **Scenario 2:** As above, but the airport revalued its land in the previous pricing period using a periodic MVAU valuation.
- 354.3 **Scenario 3:** An airport does not revalue its asset base at all.
355. In discussing these scenarios, we assumed that airports treat revaluation gains (or losses) as income for price setting purposes.<sup>119</sup>

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<sup>116</sup> Airports Information Disclosure Determination 2010 (Commerce Commission Decision 715, 22 December 2010), clause 3.7.

<sup>117</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para X21.

<sup>118</sup> As discussed in Chapter 5, we intend to include in the Airport IMs an approach to determining an unbiased CPI forecast. If an airport uses a CPI forecast that is different from our proposed approach to determining a CPI forecast, we would consider the implications in our summary and analysis.

<sup>119</sup> This is to ensure the FCM principle (NPV=0), as outlined in the topic paper on the framework for the IM review, is being met 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". See Christchurch Airport, Untitled submission on the problem definition paper (21 August 2015), para 6.

*Our proposed solution in terms of scenario 1*

356. When an airport forecasts asset revaluations using CPI-indexation and did not revalue its land using a periodic MVAU valuation in the previous pricing period, we consider that no adjustment to the opening investment value of the current pricing period is required.
357. This is because when actual inflation is lower (higher) than forecast:
- 357.1 an airport's nominal revenues are unchanged, while its real revenues are higher (lower); but
- 357.2 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.

*Our proposed solution in terms of scenario 2*

358. When an airport forecasts asset revaluations using CPI-indexation and revalued its land using a periodic MVAU valuation in the previous pricing period, we consider that the opening investment value of the current pricing period should be adjusted for the un-forecast revaluation gain (or loss) that occurred in the previous pricing period as a result of the MVAU valuation.
359. In particular, we propose to adjust it 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, we do not consider that an adjustment for variances arising from actual CPI being different to forecast CPI is required.
360. In practice, provided the un-forecast revaluation (in real terms) is a gain, the un-forecast revaluation gain would 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 historic annual disclosures).

*Our proposed solution in terms of scenario 3*

361. When an airport does not revalue its asset base at all, we consider that the opening investment value of the current pricing period should 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:
- 361.1 decides for the current pricing period to move from an un-indexed approach to asset revaluations to an approach based on CPI-indexation; and
- 361.2 revalues its land using a periodic MVAU valuation.

362. We note that an airport that does not revalue its asset base exposes itself and its customers to inflation risk.<sup>120</sup> In order to protect itself and its customers from that risk, an airport can include variances arising from actual CPI being different to forecast CPI in the carry forward adjustment to the opening investment value in a way as explained under scenario 2.<sup>121, 122</sup>

*Reasons for including un-forecast revaluation gains or losses (in real terms) in the carry forward adjustment to the opening investment value*

363. Un-forecast revaluation gains would be reflected:

363.1 in our ex-post assessment of actual returns for the prior price setting event;  
and

363.2 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.

364. While an ex-post assessment of returns would always identify actual revaluation gains 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.<sup>123</sup>

365. 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:

365.1 is taken into account in the ex-ante profitability assessment of the current pricing period; and

365.2 is appropriately treated as income.

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<sup>120</sup> 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.

<sup>121</sup> We are seeking submissions on whether we should put in place a mechanism to adjust for Transpower's exposure to inflation risk because it does not index its RAB for inflation. However, we think in the context of the airport's information disclosure regime, a similar default adjustment to deal with Auckland Airport's asset moratorium is likely to be an unnecessary complication for our proposed solution. For more information on the mechanism considered for Transpower, please refer to: Commerce Commission "Input methodologies review draft decisions: Topic paper 1 – Form of control and RAB indexation for EDBs, GPBs and Transpower" (16 June 2016).

<sup>122</sup> As discussed in Chapter 5, we intend to include in the Airport IMs an approach to determining an unbiased CPI forecast. We would expect an airport to use this approach when determining the amount to be included in the carry forward adjustment to the opening investment value.

<sup>123</sup> Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), Attachment C, para 3 and 4.

366. 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.
367. For clarification, not including the un-forecast revaluation gains (or losses) in the carry forward adjustment to the opening investment value would:
- 367.1 allow airports to justify cash-flows in future that do not recognise the un-forecast revaluation gain as income when setting prices;
- 367.2 would only recognise un-forecast revaluation gains (or losses) in the ex-post assessment of airport profitability; and
- 367.3 result in forecast cash-flows that may not be consistent with the opening investment value of the current pricing period.

*Alternative risk sharing arrangements proposed by the airports*

368. 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.<sup>124</sup> 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.<sup>125</sup> We agree with BARNZ.
369. 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.<sup>126</sup>
370. 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.<sup>127</sup>
371. We consider that the proposed 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.

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<sup>124</sup> 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'.

<sup>125</sup> BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 2.

<sup>126</sup> 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.

<sup>127</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 26 and 27.

372. 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. For the purpose of this chapter we use the term 'degree of acceptance' to reflect the extent to which airlines either objected to or accepted the proposed risk sharing arrangements during consultation.
373. We would want to collect additional information regarding the 'degree of acceptance' that existed between airports and airlines at the time of price setting.
374. During the s 56G review, the consultation material provided a clear indication of the 'degree of acceptance' of 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.
375. BARNZ submitted that the consultation documents provide a good record of the 'degree of acceptance' from airlines on an airport's approach regarding risk allocation.<sup>128</sup>
376. As the information on the 'degree of acceptance' 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. However, we propose to require airports to provide information under ID on the 'degree of acceptance' from 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).
377. Interested persons will have the opportunity to comment on an airport's disclosures on allocation of risks following the airports disclosures under information disclosure, but prior to our summary and analysis.
378. This is important so that we can assess the 'degree of acceptance' of any proposed risk sharing arrangements by airlines. This approach would 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 major capex expenditure*

379. We do not consider that we need to adjust the opening investment value for any timing differences of major capex expenditure from what was forecast unless it is proposed by airports at the time of their previous price setting event disclosure.
380. This is consistent with our approach for other regulated industries were we generally do not require making adjustments for differences in actual capex compared to forecast capex.

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<sup>128</sup> BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 3.

381. We would still be able to discuss the impact and implications of any timing differences relating to major capital expenditure as part of summary and analysis.

*Summary and analysis*

382. The amount to be carried forward as an adjustment to the opening investment value is needed to inform the airport's next pricing decision.
383. 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.
384. 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 5 months after the new prices have come into effect.
385. 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.
386. 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.
387. We therefore propose to require airports to disclose in their annual historic information disclosure 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).
388. 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:
- 388.1 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
- 388.2 to identify the outstanding value of the over recovery.
389. We can use these disclosed variances to consider whether the airports have 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.



390. With the relevant variances disclosed, we would 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.
391. We would 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 would allow airports the opportunity to reflect our comments when determining the carry forward adjustment to the opening investment value used to set prices.

## **Chapter 7: Treatment of forecast over and under-recoveries**

### **Purpose of this chapter**

392. The purpose of this chapter is to explain our proposed solution to the problem associated with the treatment of forecast over and under-recoveries in the context of the profitability assessment of airports.
393. In this chapter we consider to what extent the forecast closing investment value as discussed in Chapter 4 should be adjusted in order to appropriately reflect forecast over and under-recoveries.<sup>129</sup>

### **Structure of this chapter**

394. This chapter begins with a section on the problem definition, before going on to explain our proposed solution to this problem.

### **Problem definition**

395. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

#### *Summary of problem definition*

396. There are 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.
397. This is problematic as it impacts our and other interested persons' ability to accurately assess if an airport is targeting excessive profits.

#### *A forward-looking profitability indicator requires assumptions on the forecast closing investment value*

398. As discussed in Chapter 4, we propose to include a forward-looking profitability indicator (IRR) in the Airports ID Determination for future price setting events. We consider the IRR to comprise:
- 398.1 forecast cash-flows over the duration of the pricing period;
  - 398.2 the opening investment value; and
  - 398.3 the forecast closing investment value.
399. 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.

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<sup>129</sup> 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.

400. As explained in Chapter 4, in order to establish a **forecast closing investment value** that is a good reflection of an airports' pricing intent and the remaining capital to be recovered, we consider it should comprise:
- 400.1 the **forecast closing asset base** used by airports when setting prices reflecting an airport's assumed time profile of capital recovery; and
  - 400.2 any **adjustments reflecting decisions made by airports** that affect 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.

*The forecast closing investment value should reflect the airport's expectation of the remaining capital to be recovered*

401. The forecast closing investment value is an important input assumption for the calculation of a forward-looking profitability indicator of the current pricing event as it should reflect an airport's expectation of the remaining capital to be recovered at the end of the current pricing period.
402. In this function, the forecast closing investment value should link the current pricing event together with subsequent pricing events enabling a profitability assessment across pricing events.
403. 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.<sup>130</sup> We had to determine the forecast closing investment value in a way that it best reflected the airports' pricing intent and the remaining capital to be recovered.
404. 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.<sup>131</sup>
405. 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.<sup>132</sup>

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<sup>130</sup> In our assessment of how effectively information disclosure is promoting the Part 4 purpose we examined the performance and conduct of airports. 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 Christchurch Airport" (13 February 2014), para 2.52.

<sup>131</sup> 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.

<sup>132</sup> Commerce Commission "Input methodologies review – Airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 10.

406. If Auckland Airport expected to unwind the asset moratorium in a subsequent pricing event, the forecast closing investment value for the calculation of an IRR of the current pricing event should be based on asset values reflecting Auckland Airport's likely future pricing behaviour.
407. This approach would result in assessed targeted returns of the current pricing 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.
408. 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.<sup>133</sup>
409. The current Airports ID Determination does not provide sufficient transparency for us and interested persons to identify such expected or intended over- (and under) recoveries of airports that are intended to be offset in future pricing events.
410. We consider this problematic as it impacts us and other interested persons to accurately assess if an airport is targeting excessive profits.

**Our proposed solution in respect of this problem**

411. This section explains our proposed solution in respect of this problem.

*Our proposed solution*

412. We do not propose any amendment to the Airport IMs Determination at this stage. Instead, we propose that airports can use the carry forward mechanism proposed in Chapter 4 to adjust the forecast closing investment value in a way that it reflects forecast over and under-recoveries that are intended by airports to be offset in future pricing events.
413. In addition, we propose the following amendments to the Airports ID Determination.<sup>134</sup>
- 413.1 Require airports to provide information on the 'degree of acceptance' by airlines regarding those forecast over and under-recoveries included in the carry forward mechanism. We would give interested persons, following the airports disclosures under information disclosure but prior to our summary and analysis, the opportunity to comment on the airports' disclosures; and

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<sup>133</sup> See, for example: Auckland Airport "Problem definition for input methodologies review: submission to Commerce Commission" (21 August 2015), para 72.

<sup>134</sup> Under s 52Q of the Act.

- 413.2 Require airports to provide information on the purpose and the appropriateness of including those forecast over and under-recoveries in the carry forward mechanism. This must comprise an explanation of 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.
414. This is our proposed 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:
- 414.1 better reflecting an airport's pricing intent in information disclosure; and
- 414.2 being able to take into account multiple pricing periods in the profitability assessment (ie, the carry forward mechanism to adjust the forecast closing investment value links the current pricing event together with subsequent pricing events).
415. In addition, our proposed solution:
- 415.1 clearly identifies where airports have decided to under or over-recover in a pricing event (but with the intent to offset this over or under-recovery in future pricing 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
- 415.2 does not impact on airports' ability to set prices as they see fit, as it only creates greater transparency around decisions made by airports when setting prices.
416. 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 what these circumstances are is provided later in this chapter.
417. However, an additional benefit of using 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. We expect this contributes to future-proofing the Airports ID Determination further.

*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*

418. 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 effect the airport's expected recovery in future price setting events.

419. Our proposed solution would allow 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.
420. For clarification, when the carry forward to adjust the forecast closing investment value is used as an input to the opening carry forward of the next pricing 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.

*Stakeholders consider a carry forward should only occur in limited and pre-defined circumstances*

421. 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.<sup>135</sup>
422. 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 pricing event.<sup>136</sup>
423. 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 events should only occur in limited and pre-defined circumstances.<sup>137, 138</sup>

*Circumstances where a carry forward mechanism to adjust the forecast closing investment value can be used*

424. We have discussed with stakeholders at the workshop held in April 2016 circumstances where the proposed 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 discrete issues listed below.
425. **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.

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<sup>135</sup> Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), para 2 and 3.

<sup>136</sup> Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 1 – Summary of views expressed" (18 December 2015), Attachment C, para 11 - 13.

<sup>137</sup> BARNZ's post workshop submission on airports profitability assessment workshop 1 "Post profitability workshop comments" (21 December 2015), p. 1.

<sup>138</sup> NZ Airports "Airport profitability assessment post-workshop submission" (22 December 2015), para 17.

426. **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.
427. **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.<sup>139</sup> 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.<sup>140</sup>
428. 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 proposed carry forward mechanism to adjust the forecast closing investment value provided that it intends to offset these over-recoveries in a later period.
429. 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 the other solution proposed in Chapter 8 (ie, as an offset to the value of the assets held for future use balance).
430. This is of particular importance for Auckland Airport, as Auckland Airport might include additional revenues associated with the planned second runway for 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).<sup>141</sup> This approach would signal Auckland Airport's intention to return the value of any identified over-recoveries in future pricing events.

*'Degree of acceptance' by airlines on proposed carry forwards by airports*

431. Consistent with our proposed solution regarding the ex-post assessment of risk, we propose to include a requirement in the Airports ID Determination for airports to disclose their understanding of the 'degree of acceptance' that was achieved between airlines and airports during pricing consultations on proposals made by airports.<sup>142</sup>

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<sup>139</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clause 3.1.

<sup>140</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 4.3.74.

<sup>141</sup> 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.

<sup>142</sup> In Chapter 6, we use the term 'degree of acceptance' to reflect the extent to which airlines either objected to or accepted the proposed risk sharing arrangements during consultation. We are using the

432. This disclosure requirement regarding the ‘degree of acceptance’ would apply in the event airports include carry forwards as adjustments to the forecast closing investment value in their price setting event disclosures.
433. This is important so that we can assess the ‘degree of acceptance’ of any proposed carry forwards that are aimed at adjusting the forecast closing investment value. This approach would 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 might impact on our assessment of an airport’s profitability.
434. We intend giving interested persons the opportunity, after the airports’ price setting disclosures under information disclosure, but prior to our summary and analysis, to comment on these disclosures.
435. 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 intent that carry forwards “will be the exception rather than the norm”.<sup>143</sup>

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same expression for the purpose of this chapter. We provide more information on this matter in the Chapter 6.

<sup>143</sup> NZ Airports “Airport profitability assessment post-workshop submission” (22 December 2015), para 45.



## **Chapter 8: Assets held for future use**

### **Purpose of this chapter**

436. The purpose of this chapter is to explain our proposed 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**

437. This chapter begins with a section on the problem definition, before going on to explain our proposed solution to this problem. The chapter finishes with a discussion of alternative solutions that we considered.

### **Problem definition**

438. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

#### *Summary of problem definition*

439. Our current Airport IMs and ID Determinations requirements mean that it may become difficult to assess the impact revenues associated with assets held for future use have on the expected profitability of regulated airport services. The current Airport IMs and ID Determinations may 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, can make it difficult for interested persons to assess airports profitability.

#### *Current requirements for assets held for future use in information disclosure*

440. 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.<sup>144, 145</sup>

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<sup>144</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clause 3.1 and definition of “excluded assets”.

<sup>145</sup> 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).

441. 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).<sup>146</sup>
442. 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.<sup>147</sup> 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.
443. The Airports ID Determination requires that the value of assets held for future use is tracked over time on an ex-post basis.<sup>148</sup> 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.<sup>149</sup> The relevant value will enter the RAB when the assets become used in the supply of specified airport services.
444. As we explain later in this section however, the current requirements and the information currently disclosed by airports to us may be insufficient for interested persons to understand the impact on profitability if an airport includes charges for assets held for future use in its price setting event and respective disclosures.

*Charging for assets held for future use before they are used to supply regulated services*

445. 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.<sup>150</sup> 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.<sup>151</sup>

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<sup>146</sup> 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.

<sup>147</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), para 4.3.77.

<sup>148</sup> 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.

<sup>149</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clause 3.11.

<sup>150</sup> 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).

<sup>151</sup> Auckland Airport “Problem definition for input methodologies review: submission to Commerce Commission” (21 August 2015), para 44 and 45.

446. 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.
447. 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.<sup>152</sup> In particular, Auckland Airport submitted that:

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.<sup>153</sup>

448. 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:
- 448.1 **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).
- 448.2 **Scenario 2:** An airport increases prices in a way that does not distinguish between revenues on the RAB and revenues relating to assets held for future use.

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<sup>152</sup> 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.

<sup>153</sup> Auckland Airport "Problem definition for input methodologies review: submission to Commerce Commission" (21 August 2015), para 50 and 51.

**Our proposed solution in respect of this problem**

449. This section explains our proposed solution in respect of this problem.

*Our proposed solution*

450. Our proposed solution involves both IM and ID amendments.

IM amendments

451. We do not propose 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.<sup>154</sup> This is further explained under “Assessment of alternative solutions to this problem”.

452. However, consistent with our framework for the IM review, we propose 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

453. We propose amendments to the Airports ID Determination to increase the transparency relating to revenues associated with assets held for future use. In this regard, our proposed solution to the problem associated with assets held for future use addresses the two scenarios discussed earlier.

454. **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 propose amending 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.

455. Under this scenario:

455.1 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;<sup>155</sup> and

455.2 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.

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<sup>154</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010*, clause 3.1.

<sup>155</sup> 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.

456. **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 propose:
- 456.1 that airports 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
- 456.2 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.
457. 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.<sup>156</sup> However, 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.

#### Summary

458. In summary, our proposed solution will allow us and other interested persons to better assess if airports are targeting excessive profits.
459. We explain the reasons for our proposed solutions in more detail in the remainder of this section.

#### *Revenues derived from assets held for future use*

460. As explained in the Airport IMs Reasons paper:<sup>157</sup>

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.

461. The reasoning above has been endorsed by the High Court.<sup>158</sup>

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<sup>156</sup> 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).

<sup>157</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 4.3.79.

<sup>158</sup> *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 905 - 908.

462. 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:<sup>159</sup>

*base value + holding costs – net revenue<sup>160</sup> – tracking revaluations*

463. 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.

464. As explained in the Airport IMs Reasons paper:<sup>161</sup>

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)

465. As explained in the ID reasons paper:<sup>162</sup>

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)

466. 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 are proposing an amendment to 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*

467. 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.

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<sup>159</sup> Airports Information Disclosure Determination 2010 (Commerce Commission Decision 715, 22 December 2010), definition of "assets held for future use".

<sup>160</sup> (c) 'net revenue' means the sum of amounts, other than those included in regulatory income under an **ID determination** or preceding regulatory information disclosure requirements, for all **disclosure years** derived from holding 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** (*Commerce Act (Specified Airport Services Input Methodologies) Determination 2010*, clause 3.11)

<sup>161</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para C3.9.

<sup>162</sup> Commerce Commission "Information disclosure (Airport Services) reasons paper" (22 December 2010), para 3.139.

468. 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.
469. This is our proposed solution because, where an airport chooses to price in a way that revenues associated with assets held for future use can be separated:
- 469.1 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;
- 469.2 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
- 469.3 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).
470. However, as discussed earlier in this chapter, information related to assets held for future use is currently only disclosed on an ex-post basis. This information does 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.
471. Therefore, we propose amendments to the Airports ID Determination so 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*

472. 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.
473. 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.
474. 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.

475. 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.<sup>163</sup>
476. 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:
- 476.1 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);
  - 476.2 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
  - 476.3 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).

*Summary and analysis*

477. 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.
478. Our proposed 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:
- 478.1 **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.
  - 478.2 **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.

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<sup>163</sup> 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.



479. Given that our proposed 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 do not consider that the Airports ID Determination has to be amended to include a separate IRR for the RAB that would also take into account revenues collected on assets held for future use.<sup>164</sup>
480. 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:
- 480.1 to keep track of these early revenues and to assess the extent to which an airport has returned them to airlines; and
  - 480.2 in the long-term, to assess if an airport's approach to charging for assets held for future use is NPV-neutral.
481. We also want to 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.

#### **Assessment of alternative solutions to this problem**

482. This section explains our assessment of alternative solutions that we considered.
483. Aside from our proposed solutions, the other two options we considered as alternative solutions to this problem were:
- 483.1 amending the Airport IMs in order to allow for assets held for future use to be recognised in the RAB before they are used to provide specified airport services; and
  - 483.2 making use of the provision for non-standard depreciation that is already allowed for by the Airport IMs.

#### *Alternative solution 1 – Amending the Airport IMs in order to allow for assets held for future use to be recognised in the RAB before it is used to provide specified airport services*

484. When we set the Airport IMs in 2010 we decided that assets held for future use should not be included in the RAB.<sup>165</sup>
485. As noted above, at that time we indicated that our decision to exclude assets held for future use from the RAB was based on the incentives that the treatment of assets held for future use would likely create under information disclosure regulation.

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<sup>164</sup> 'Separate' means in addition to the proposed IRR as discussed in Chapter 4 (ie, based on the RAB and taking into account all revenues associated with the RAB).

<sup>165</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010*, clause 3.1.

486. We noted that if assets held for future use were included in the RAB before it was used for specified airport services, there would be little incentive for airports to avoid investment in assets they own but do not use and would provide greater incentive to invest in assets speculatively.<sup>166</sup>
487. In addition, requiring that an asset is used before it enters the RAB was consistent with our general approach to risk allocation as it ensures that the disclosure of returns is consistent with the risk of non-development being managed by airports because they are best placed to manage that particular risk.
488. To date, we have not received any new information that would support a change in the Airport IMs relating to assets held for future use. We consider that our original decision and its reasoning, as outlined in the 2010 reasons paper, is still valid.<sup>167</sup> Furthermore, our approach has been endorsed by the High Court.<sup>168</sup>

*Alternative solution 2 – Making use of the provision for non-standard depreciation that is already allowed for by the Airport IMs*

489. If an airport wanted to include revenues related to assets held for future use, it could potentially make use of the provision for non-standard depreciation that is already allowed for by the Airport IMs, given there are limited restrictions on the current application of this provision.
490. In this case, the airport could accelerate the depreciation on its current RAB with the expectation that the value of the RAB would be increased at a future date by the introduction of assets held for future use once they were commissioned.
491. The Airport IMs specify that a straight line depreciation method must be applied as the standard depreciation profile, but provide for flexibility under certain circumstances by allowing airports to use a non-standard depreciation methodology. In doing so, airports are required to explain the reasoning for their divergence from the default straight line depreciation assumption.<sup>169</sup>
492. By increasing the rate of depreciation on the current RAB, the airport would be able to increase revenues in the short term without necessarily giving rise to an expectation of excessive profits.

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<sup>166</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), para 4.3.78.

<sup>167</sup> Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), para 4.3.77.

<sup>168</sup> *Wellington International Airport Ltd v Commerce Commission* [2013] NZHC 3289, para 904 - 921.

<sup>169</sup> The IM Reasons Paper outlines how Airports may use a non-standard depreciation method (Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), Appendices C11 and C12).

493. Additional information relating to non-standard depreciation is provided in Chapter 5. As discussed in that chapter, we propose to set principles describing when we would consider the use of non-standard depreciation to be appropriate. In particular, we are making clear that “it should be clearly explained and evidenced how the non-standard depreciation profile reflects the airport’s expected value or utilisation of the existing RAB”.
494. In case of land held for future use, we also note that land is not depreciated under the Airport IMs so using a non-standard depreciation methodology for fixed assets to resolve a land related issue seems to be an artificial justification.<sup>170</sup> We do not consider the use of non-standard depreciation would provide transparency to interested persons about an airport’s pricing intent.

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<sup>170</sup> No depreciation is to be applied to land and easements (other than fixed life easements) (Commerce Commission “Input methodologies (Airport Services) reasons paper” (22 December 2010), Appendix C11.2).

## Chapter 9: Pricing assets

### Purpose of this chapter

495. The purpose of this chapter is to explain our proposed solutions to the problem associated with the treatment of pricing assets in the Airports ID Determination.
496. This problem has previously been referred by us and submitters in this consultation process as relating to the treatment of leased assets.<sup>171</sup> 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.<sup>172</sup>
497. 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

498. This chapter begins with a section on the problem definition, before going on to explain our proposed solution to this problem.

### Problem definition

499. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

### Summary of problem definition

500. 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 have been included in our s 56G analysis.<sup>173</sup>
501. A different asset base for pricing and information disclosure purposes in itself may not be a concern, but reconciling the differences has been problematic.<sup>174</sup> We consider that this has impacted on our and other interested persons’ ability to accurately determine an airport’s targeted return.

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<sup>171</sup> Therefore, we use the term ‘leased assets’ when referring to submissions, as this was the expression used by submitters.

<sup>172</sup> Commerce Commission “Input methodologies review – Airports profitability assessment – Workshop 2 – Summary of views expressed” (16 June 2016), Attachment C, para 43.

<sup>173</sup> 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.

<sup>174</sup> 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.

502. For example, in case of Auckland Airport, the asset base used to set prices comprised airfield and terminal activities but excluded:<sup>175</sup>
- 502.1 aircraft and freight activities;<sup>176</sup> and
- 502.2 certain specified passenger terminal activities, namely leased identified tenancies and collection facilities for duty free.

*How the problem evolved*

503. We first identified the problem associated with pricing assets during the s 56G review of airports.
504. All airports have been excluding certain asset values and cash-flows from their pricing decisions which have been 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).
505. 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.
506. 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:
- 506.1 ~0.5% for Auckland Airport;<sup>177</sup>
- 506.2 ~0.6% for Christchurch Airport;<sup>178</sup> and
- 506.3 ~0.2% for Wellington Airport.<sup>179</sup>

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<sup>175</sup> 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 section 56A of the Act. However, we understand that they largely comprise 'leased assets'.

<sup>176</sup> 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.

<sup>177</sup> 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.

<sup>178</sup> 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.

<sup>179</sup> 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.

507. This analysis indicates that the impact of different asset bases for pricing and ID purposes on the profitability assessment can be material. However, we recognise that we only have a limited historic series to rely on and that airport behaviour can change over time.<sup>180</sup>
508. We discussed the problem associated with different asset bases for pricing and ID purposes in our invitation to contribute to problem definition for the IM review.<sup>181</sup>
509. NZAA submitted that leased assets are appropriately recorded in annual and price setting event disclosures, and considered further analysis as unwarranted.<sup>182</sup>
510. 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.
511. In particular, BARNZ stated the following:<sup>183</sup>
- 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.
512. BARNZ reiterated this view at our workshop held in April 2016.<sup>184</sup>

### **Our proposed solution in respect of this problem**

513. This section explains our proposed solution in respect of this problem.

#### *Our proposed solution*

514. We do not propose any amendment to the Airport IMs Determination at this stage. We propose amendments to the Airports ID Determination under s 52Q of the Act to increase the transparency relating to targeted returns on pricing assets. In particular, our proposed solution in respect of this problem is:

514.1 to add a new schedule to the Airports ID Determination reflecting airports targeted returns based on pricing assets; and

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<sup>180</sup> 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.

<sup>181</sup> 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.

<sup>182</sup> NZ Airports “Cross-submission on Commerce Commission’s input methodologies review: invitation to contribute to problem definition” (4 September 2015), para 48.

<sup>183</sup> BARNZ “Cross-submission on problem definition submissions” (5 September 2015), p. 3-4.

<sup>184</sup> Commerce Commission “Input methodologies review – airports profitability assessment – Workshop 2 – Summary of views expressed” (16 June 2016), Attachment C, para 44.

- 514.2 to require airports to explain any differences in profitability based on the pricing asset base and the profitability based on the RAB.
515. Following this approach, we and other interested persons would 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.
516. In addition, we and other interested persons would be in a position to:
- 516.1 separately identify targeted returns inherent in the airports' pricing decision; and
- 516.2 understand why those targeted returns might differ from the disclosed IRR associated with the total RAB.
517. Our proposed solution creates transparency in ID by requiring airports to disclose targeted returns based on pricing assets. Our proposed solution would only require airports to provide information based on an aggregated asset level that airports already have determined in their pricing decision.
518. For clarification, it is not our intent:
- 518.1 to specify the pricing asset base that airports would have to provide information on in ID; and
- 518.2 to 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 raised at the workshop held in April 2016.
519. We explain our reasons in more detail in the remainder of this section.

*Proposed 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*

520. 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.

521. We continue to consider that an adequate disclosure of information related to the pricing assets enables interested persons to understand airports' approach to pricing.

522. 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.

523. 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.

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 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.

525. 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.<sup>185</sup>

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<sup>185</sup> "Substantial customers" are defined in section 2A of the AAA.



*Proposed solution contributes to future-proofing the Airports ID Determination*

526. We consider that our proposed 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 proposed solution addresses BARNZ's transparency concern*

527. Our approach 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".
528. We do not propose following BARNZ's suggestion to separate out leased assets and associated costs and revenues into a separate schedule (or table).<sup>186</sup> 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 proposed solution also provides transparency in the event that airports decide to change the items included the pricing assets, but which remain included in the RAB (for ID purposes).
529. 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 outweigh the additional benefit of increased transparency.

*We disagree with NZAA that leased assets are appropriately recorded under the ID disclosures*

530. 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".<sup>187</sup>
531. 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 is created under the Airports ID Determination.

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<sup>186</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 11.

<sup>187</sup> NZ Airports "Cross-submission on Commerce Commission's input methodologies review: invitation to contribute to problem definition" (4 September 2015), para 46.

## **Chapter 10: Forecast timing of cash-flows**

### **Purpose of this chapter**

532. The purpose of this chapter is to explain our proposed 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**

533. This chapter begins with a section on the problem definition, before going on to explain our proposed solutions to this problem.

### **Problem definition**

534. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

#### *Summary of problem definition*

535. The Airports ID Determination currently does not explicitly specify cash-flow timing expectations for airports, but it includes a year-end ROI calculation in the ex-post information disclosure requirements from which year-end cash-flow timings can be inferred.
536. However, these year-end cash-flow timing assumptions consistently and materially underestimate airport returns, because they do not reflect the time value of money of cash-flows occurring throughout the year.
537. In addition, the current year-end cash-flow timing assumptions are 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).<sup>188</sup>

#### *Year-end cash-flow timing assumptions understate targeted profitability*

538. 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.

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<sup>188</sup> See, for example: our reasons paper on the ID amendments 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.

539. 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 as compared to cash-flows occurring mid-year.<sup>189</sup>
540. 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.
541. 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.<sup>190</sup>
542. BARNZ supported our intent to update the information disclosure requirements. In particular, BARNZ stated in its submission the following:<sup>191</sup>
- 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.
543. 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.<sup>192</sup>

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<sup>189</sup> 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.

<sup>190</sup> Commerce Commission “Input methodologies review – Invitation to contribute to problem definition” (16 June 2015), para 331-333.

<sup>191</sup> BARNZ “Submission by BARNZ on problem definition paper for the input methodologies review” (21 August 2015), p. 13-14.

<sup>192</sup> NZ Airports “Cross-submission on Commerce Commission’s input methodologies review: invitation to contribute to problem definition” (4 September 2015), para 56.

### **Our proposed solution in respect of this problem**

544. This section explains our proposed solution in respect of this problem.

#### *Our proposed solution*

545. We do not propose any amendments to the Airport IMs Determination at this stage. Instead, we propose amendments to 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 propose to amend the Airports ID determination to:

545.1 specify, in the **price setting event disclosures**, mid-year timing assumptions for all revenues and expenditures; but

545.2 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

545.3 specify, in the **annual ex-post disclosures**, mid-year timing assumptions for all revenues and expenditures.<sup>193, 194</sup>

546. 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.<sup>195</sup>

547. We explain our reasons in more detail in the remainder of this section.

#### *Better assessment of airports profitability*

548. We consider that our proposed solution is appropriate, because mid-year cash-flow timing assumptions:

548.1 better reflect the actual timing of cash-flows;

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<sup>193</sup> The current Airports ID Determination requires airports to provide an ROI in the ex-post disclosures. *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clause 2.3.

<sup>194</sup> 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.

<sup>195</sup> 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.

- 548.2 result in improved accuracy as compared to assuming cash-flows occur year-end, as they can take into account intra-year effects;
- 548.3 consequently, allow interested persons to better assess if airports were targeting excessive profits; and
- 548.4 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 proposed solution would still require the same revenue and expenditure amounts to be disclosed each year.
549. In addition, by allowing airports to use different cash-flow timing assumptions than mid-year 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.
550. We consider that under the current year-end cash-flow timing assumptions airports do not have an incentive to comment on the appropriateness of the default assumption, because a year-end assumption is in favour of airports.
551. Our proposed solution could potentially result in an over-estimate of expected returns, if the actual timing of cash-flows lies between mid-year and end-of-year. Our proposed solution incentivises airports to provide evidence on the reason why the new default assumption of mid-year could be inappropriate.
552. 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 assumption. We would then comment on the appropriateness of the mid-year cash-flow assumptions in our summary and analysis.

*Proposed solution is consistent with our approach to cash-flow timing assumptions in other regulated industries*

553. Our proposed solution is consistent with our approach to cash-flow timing assumptions for the EDBs and GPBs regulated under Part 4.
554. 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 20<sup>th</sup> day of each following month, which is equivalent to the aggregate annual revenue being received 148 days before year-end.<sup>196</sup>

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<sup>196</sup> 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.

555. Consistent with our decision for the EDBs and GPBs, our proposed solution does also allow to include 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.

## **Chapter 11: Other adjustments to an airport's price path**

### **Purpose of this chapter**

556. 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**

557. This chapter begins with a section on the problem definition, before going on to explain our proposed solution to this problem. The chapter finishes with a discussion of an alternative solution that we considered.

### **Problem definition**

558. 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:

558.1 commercial concessions; and

558.2 route incentives.

559. 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*

560. 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. Currently, there is no requirement for airports to report on commercial concessions or whether a planned under-recovery is intended to be permanent.

561. 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.<sup>197</sup>

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<sup>197</sup> Christchurch International Airport Limited, Price Setting Disclosure, 19 December 2012.

562. 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.<sup>198</sup> 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.
563. 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.
564. 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.
565. 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*

566. 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 currently only specifies a need to disclose information on financial incentives (which can be route incentive or other incentives) on an ex-post basis. There is no requirement to disclose information on route incentives in price setting event disclosures.
567. 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.

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<sup>198</sup> Christchurch International Airport Limited, Price Setting Disclosure, 19 December 2012.



568. A recent example of route incentives is what Wellington Airport has offered for new routes and increased passenger numbers, as described in its publicly disclosed pricing schedule.<sup>199</sup> Wellington Airport has included consideration of its route incentives in the forecast of demand and revenue in its last price setting event.<sup>200</sup>
569. 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. There generally does 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 are higher as a result of the incentives.
570. Route incentives are, therefore, another problem of transparency. Interested persons may be prevented from assessing the impact of route incentives on the ex-ante assessment of airport profitability because there is no specific price setting event disclosure requirement for airports to report on route incentives.
571. BARNZ has supported the need to amend the ID requirements to add further detail on route incentives.<sup>201</sup>
- “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”.
572. In contrast, NZAA said in its cross submission that “BARNZ fails to identify and fully explain any problem with the current disclosure of pricing incentives.”<sup>202</sup>

### **Our proposed solution in respect of this problem**

573. This section provides a description of our proposed 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).
574. There may be additional ways in which the price path may be adjusted that are yet to be identified. However, we consider that our proposed solution is flexible enough to also deal with other adjustments to the price path that may arise.

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<sup>199</sup> 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/yk-files/48022a68a248d08df0f53c80efce5a86/WIAL%20Schedule%20of%20Charges%20-%201%20June%202014%20to%2031%20March%202019.pdf>.

<sup>200</sup> 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.

<sup>201</sup> BARNZ “Submission by BARNZ on problem definition paper for the input methodologies review” (21 August 2015).

<sup>202</sup> NZ Airports “Cross-submission on Commerce Commission’s input methodologies review: invitation to contribute to problem definition” (4 September 2015).

575. In respect of the commercial concessions problem, we do not propose any changes to the Airport IMs or ID Determinations. We consider that the carry forward mechanism to adjust the forecast closing investment value proposed in Chapters 4 and 7 could be used to make the expectations regarding commercial concessions sufficiently transparent. As such we do not propose any changes to the Airport IMs or ID requirements specifically in response to this problem. We explain our reasoning for this in paragraphs 578 to 586.
576. In respect of the route incentive problem, our proposed solution is:
- 576.1 not to make any amendments to the Airport IMs Determination at this stage;  
and
- 576.2 to amend the Airports ID Determination under s 52Q, as explained in paragraph 587.
577. 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 587 to 589.

*Commercial concessions*

578. In respect of the commercial concessions problem, we do not propose 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 proposed in Chapters 4 and 7 could be used to make the expectations regarding commercial concessions sufficiently transparent.
579. 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.
580. 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.<sup>203</sup> 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.
581. 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 forecast carry forward mechanism. Therefore, our view is that an additional ID requirement would not provide any additional benefit.

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<sup>203</sup> 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.

582. NZAA seems to generally support this approach.<sup>204</sup> 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.”
583. 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.”<sup>205</sup> This suggests that NZAA may consider that the carry forward mechanism is not required.
584. 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 proposed solution accommodates this.
585. NZAA also said that “greater clarity is required from the Commission on the principles that will guide the assessment of historical under and over-performance.”<sup>206</sup> This supports our proposed solution, which will provide guidance on how we will treat a specific decision to under-recover due to a commercial concession. However, Chapter 6 provides more specific detail on ex-post risk allocation arrangements when actual outcomes differ from forecast.
586. BARNZ questioned in its submission how the amount of a commercial concession should be calculated.<sup>207</sup> Our proposed solution will make an airport’s expected returns, including commercial concessions which an airport intends to recover at a later date, more transparent.

*Route incentives*

587. Our proposed solution is to amend the Airports ID Determination under s 52Q of the Act to improve transparency of route incentives. In particular, we propose to require airports to disclose the forecast total annual dollar amount of route incentives in the same manner of the ex-post ID requirement to disclose financial incentives.<sup>208</sup>
588. We consider that this additional information should be 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.

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<sup>204</sup> NZ Airports “Submission on Commerce Commission’s input methodologies review: Invitation to contribute to problem definition” (21 August 2015), para 238-240.

<sup>205</sup> NZ Airports “Submission on Commerce Commission’s input methodologies review: Invitation to contribute to problem definition” (21 August 2015).

<sup>206</sup> NZ Airports “Submission on Commerce Commission’s input methodologies review: Invitation to contribute to problem definition” (21 August 2015).

<sup>207</sup> BARNZ “Submission by BARNZ on problem definition paper for the input methodologies review” (21 August 2015).

<sup>208</sup> Ie, require airports to disclosed the amount of revenue foregone compared to applying standard charges.

589. Requiring airports to disclose the aggregate impact of route incentive forecasts as part of price setting event disclosures will help interested persons understand whether or not the forecast effect of route 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.<sup>209</sup>

**Assessment of another potential solution to this problem**

590. This section describes the potential alternative solution we considered to the transparency problems around other adjustments. The alternative solution was considered in the context of commercial concessions.

*Alternative solution – add specific ID requirements for commercial concessions*

591. We considered whether to add ID requirements for airports to specifically identify any commercial concessions. As suggested by BARNZ, this could be seen as an improvement to the level of transparency of airport pricing which could potentially provide insight into how commercial concession should be calculated.<sup>210</sup>
592. However, this is not our proposed solution as it is difficult to define what a commercial concession is other than when it is identified by the airport themselves. For example, a price of \$10 per passenger could simply be \$10 per passenger, or it could be a target of \$12, minus a \$2 concession. In cases where it is identified by the airport itself, then additional ID requirements will not provide any benefit.
593. Further, we only consider that the disclosure of commercial concessions is required where airports are specifically intending to recover the amounts in future price setting events. In these cases it is in the airport's interest to disclose this intention, therefore an additional separate ID requirement would not provide any additional benefit.

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<sup>209</sup> 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.

<sup>210</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015).

## Chapter 12: Initial RAB value of land

### Purpose of this chapter

594. The purpose of this chapter is to explain our proposed solution to the problem associated with the initial RAB value of land.

### Structure of this chapter

595. This chapter begins with a section on the problem definition, before going on to explain our proposed solution to this problem. The chapter finishes with a discussion of an alternative solution that we considered.

### Problem definition

596. This section explains the problem definition, including how it evolved through consultation, which included submissions and workshops.

597. 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.<sup>211, 212</sup>

598. 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.<sup>213</sup>

599. The problem has been well-canvassed with interested parties since the High Court issued its judgment in December 2013. Various discussions have been ongoing between airports, airlines and us about possible approaches to addressing the problem. Auckland Airport presented on the problem at the IM Forum.<sup>214</sup> NZAA, BARNZ and Auckland Airport also submitted on the problem as per the views presented in this chapter.

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<sup>211</sup> Commerce Commission "Publication of Electricity, Gas, and Airport Input Methodologies Amendments ordered by the High Court" (27 November 2014).

<sup>212</sup> *Wellington International Airport Ltd and others v Commerce Commission* [2013] NZHC 3289, para 892.

<sup>213</sup> The value of land assets in the initial RAB for all airports must be established using the Market Value Alternative Use (MVAU) valuation approach (*Commerce Act (Specified Airport Services Input Methodologies) Determination 2010*, clause 3.2 and Schedule A).

<sup>214</sup> Auckland International Airport Limited "Initial regulatory asset value for land" (30 July 2015), available at <http://www.comcom.govt.nz/dmsdocument/13513>.

**Our proposed solution in respect of this problem**

600. This section explains our proposed solution in respect of this problem.

*Our proposed solution*

601. Our proposed solution in order to be consistent with the High Court judgment is to amend the Airport IMs Determination:

601.1 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

601.2 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.

602. This is our proposed solution because:

602.1 an interpolation of 2009 and 2011 MVAU land valuations would likely result in a similar value to a 2010 MVAU land valuation as the existing MVAU land valuations are from nearby dates; and

602.2 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.

603. Implementing our proposed solution requires amending the Airport IMs as these currently provide that the “unallocated initial RAB value of land is its value determined as on the last day of the **disclosure year** 2010 in accordance with Schedule A.”<sup>215</sup>

*Proposed solution is consistent with the High Court judgment*

604. 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 proposed amendments are also consistent with the High Court judgment.

605. 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.<sup>216</sup>

606. We consider that our proposed approach is a pragmatic and cost-effective way to be consistent with the High Court judgment. Our proposed 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 without imposing significant costs on airports, with little identifiable benefit.

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<sup>215</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010*, clause 3.2.

<sup>216</sup> 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*

607. 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.
608. Therefore, we propose 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:
- 608.1 most accurately reflect the initial RAB value for land as per 2010; and
- 608.2 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.

*Proposed solution is widely accepted in industry*

609. Our proposed solution seems to be supported by most submitters.<sup>217, 218</sup> Also, we have recently presented our proposed solution at our workshop held with airports stakeholders in April 2016, and no one raised any concerns.<sup>219</sup>
610. 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.<sup>220, 221</sup>
611. Despite the industry-wide support for our proposed solution, BARNZ did not initially support interpolating existing 2009 and 2011 MVAU land valuations in the case of Wellington Airport.<sup>222</sup>
612. BARNZ was of the view that Wellington Airport's 2009 and 2011 MVAU land valuations were not IM-compliant, therefore Wellington Airport needed to provide a 2010 MVAU land valuation.

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<sup>217</sup> NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 194.

<sup>218</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 2.

<sup>219</sup> Commerce Commission "Input methodologies review – airports profitability assessment – Workshop 2 – Summary of views expressed" (16 June 2016), Attachment C, para 49.

<sup>220</sup> Email from Ruth Nichols (Commerce Commission) Consultation on impact of IM judgement on s56G reports for airports regulated under Part 4 of the Commerce Act (6 January 2014), available at <http://www.comcom.govt.nz/dmsdocument/11451>

<sup>221</sup> 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>

<sup>222</sup> BARNZ "Submission by BARNZ on problem definition paper for the input methodologies review" (21 August 2015), p. 2.

613. 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 does not consider this to be an issue. This is because NZAA considers all airports' MVAU land valuations to be IM-compliant.
614. We disagree with BARNZ's early 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.<sup>223</sup>
615. 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.

**Assessment of an alternative solution to this problem**

616. This section explains our assessment of an alternative solution.
617. Aside from our proposed solution, another option we considered is requiring airports to undertake and disclose a 2010 MVAU land valuation.

*Alternative solution – requiring airports to undertake and disclose a 2010 MVAU land valuation*

618. Requiring airports to undertake and disclose a 2010 MVAU land valuation could possibly result in a more accurate initial RAB value as compared to using a pragmatic proxy derived from interpolated existing 2009 and 2011 MVAU land valuations. Therefore, it could possibly increase transparency and better enable interested persons to assess if airports were targeting excessive profits from the beginning of the Part 4 regime.
619. In addition:
- 619.1 this is also consistent with the High Court judgment, which requires that the initial RAB value for land has to be assessed as at 2010;
  - 619.2 an adjustment to the initial RAB value for any capex or disposals of land that occurred during the years 2010 to 2011 would not be required as a 2010 MVAU land valuation would accurately reflect the value of land at that particular point in time; and
  - 619.3 no amendments to the Airport IMs would be required.

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<sup>223</sup> Commerce Commission "Summary and analysis of Wellington Airport's third price setting event" (30 June 2015), para A14.



620. However, this is not our preferred solution because:
- 620.1 the aim to providing an initial RAB for land as at 2010 can be more efficiently, but potentially slightly less accurately, met by using interpolated 2009 and 2011 land values;
  - 620.2 a 2010 valuation would have no practical impact on current airport land values, since all airports have revalued their land since 2009;
  - 620.3 a 2010 MVAU land valuation would result in airports incurring significant cost; and
  - 620.4 in our view, the cost of requiring a 2010 valuation outweighs the benefit of increased accuracy in the initial RAB value.

## **Attachment A: Transitional arrangements**

### **Purpose of this attachment**

- A1 The purpose of this attachment is to explain our proposed transitional arrangements for information disclosures based on the amended Airport IMs and ID Determinations.

### **Current requirements**

#### *Information required in price setting event disclosure*

- A2 Under the current 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 current Airports ID Determination requires airports to make their historical financial disclosure within 5 months after the end of each disclosure year.<sup>224</sup> For Auckland and Christchurch airports this means that they must make their annual historical disclosure in November of each year.
- A5 Amendments to the Airport IMs and ID Determinations as a result of the IM review are not expected to be implemented until December 2016. This means that the historical financial disclosures that Auckland and Christchurch airports make in November 2016 will be based on the current Airport IMs and ID Determinations-*ie*, they will not reflect the changes as a result of the IM review.

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<sup>224</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), 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 current 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.<sup>225</sup>
- A7 As noted above, the November 2016 historical disclosures will not reflect any of the changes proposed as part of the IM review since any consequential amendments to the ex-post ID requirements will only be implemented following the IM review (ie, post 2016). To account for this, Auckland Airport and Christchurch Airport may have to provide significant explanation to us in their price setting event disclosures made following the July 2017 price setting events.<sup>226</sup>
- A8 Therefore the current wording of the Airports ID Determination is likely to result in complex disclosures by Auckland Airport and Christchurch Airport. It may also obscure the differences between their pricing setting methodologies and the amended 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 proposed transitional arrangements for Auckland and Christchurch airports next price setting disclosures**

- A9 This section explains our proposed 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 are not proposing any amendment to the Airport IMs Determination at this stage. We propose amendments to the Airports ID Determination to introduce transitional requirements in the Airports ID Determination to require Auckland and Christchurch airports to:
- A10.1 restate some of key information provided by in their November 2016 historical financial disclosure, in a manner consistent with the amended Airport IMs and ID Determinations;<sup>227</sup> and

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<sup>225</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clause 2.5.

<sup>226</sup> 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.

<sup>227</sup> 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.<sup>228</sup>
- A11 Auckland and Christchurch airports could provide a re-stated 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 proposed 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 proposed transitional requirements are also consistent with the approach within airport information disclosure requirements we have taken in the past.<sup>229</sup> We have also requested other regulated businesses to restate past disclosures to reflect amendments to IM and ID Determinations requirements.<sup>230</sup>

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<sup>228</sup> 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.

<sup>229</sup> 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.

<sup>230</sup> 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.

### **Alternative transitional approach**

A15 This section explains our assessment of an alternative approach that we considered.

#### *Alternative approach – require airports to explain differences compared to the most recent IM requirements*

A16 We considered amending the clause that relates to explanations of differences compared to historic disclosures so that it required the comparison to be made to the most recent Airport IMs Determination.<sup>231</sup> The difficulty with this is that some of the components of airports forecast revenue that would need to be compared are not defined in the Airport IMs Determination but are required under the Airports ID Determination.<sup>232</sup>

A17 This means that any comparison would have to be made in relation to both the most recent Airport IMs Determination and the most recent Airports ID Determination. However, Auckland and Christchurch airports will have to make their next price setting event disclosure before having made a historical financial disclosure using the amended Airport IMs and ID Determinations. Therefore when making these comparisons they could only provide explanations of how they would expect to disclose historical financial information as opposed to how they have actually disclosed it.

A18 This is not our preferred approach because we consider that trying to explain pricing setting methodologies against disclosures that have not yet been provided would add an additional layer of complexity compared to our proposed approach. We do not consider this alternative approach would make the explanations provided by airports more transparent or better enable us to make an objective decision about whether the price setting disclosure has met the information disclosure determination requirements.

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<sup>231</sup> *Airports Information Disclosure Determination 2010* (Commerce Commission Decision 715, 22 December 2010), clause 2.5.

<sup>232</sup> For example, information on cash-flow timing or the carry forward mechanism we have proposed in this topic paper.





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| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Electricity Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 26                           |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input Methodologies Determination 2012</i> [2012] NZCC 27                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input Methodologies Determination 2012</i> [2012] NZCC 28                                   |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport Services Input Methodologies) Determination 2010</i> (Decision 709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies Determination 2012</i> [2012] NZCC 17  |

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 airports weighted average cost of capital (**WACC**) percentile topic:
  - X1.1. the problems we have identified within this topic area;
  - X1.2. our proposed solutions to these problems;
  - X1.3. the reasons for our proposed solutions; and
  - X1.4. how we have taken stakeholders' submissions into account in considering the above.
- X2. This paper relates to regulated airports but will also be of interest to airlines and other airport stakeholders.

### **Overview of the airports WACC percentile topic**

- X3. The existing Input Methodologies (**IMs**) approach includes a WACC percentile range for airports based on the 25<sup>th</sup> to 75<sup>th</sup> percentile estimates of a probability distribution of the WACC estimate.
- X4. The High Court commented that the use of the 50<sup>th</sup> percentile is a suitable starting position for information disclosure regulation. However, as part of this review we have identified two problems with the application of the existing 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 75<sup>th</sup> percentile as the upper limit of the current WACC percentile range.
- X5. Table X1 summarises the areas in this topic 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 proposed changes in relation to this topic**

| Proposed change   | Outcomes of the proposed change  | Chapter  |
|---|--|--|
| <p>Our draft decision is to remove a specific WACC percentile range for information disclosure. Therefore, we will no longer publish the 25<sup>th</sup> and 75<sup>th</sup> percentiles. Instead we will publish the 50<sup>th</sup> 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 proposed change is likely to contribute to an information disclosure framework that is best able to allow interested parties to assess whether airports are extracting excess profits or not. As a result, this approach best promotes the long-term benefit of consumers.</p> <p>Our proposed solution 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 the airport’s required return expectations, or the expectations of a particular project.</p> | <p>This proposed change is discussed in Chapter 4.</p> |

- X6. This topic paper forms part of our package of draft decisions papers on the IM review. As part of the package of papers, we have also published:
- X6.1. a summary paper of our draft decisions;
  - X6.2. an introduction and process paper which provides an explanation of how the papers in our draft decisions package fit together; and
  - X6.3. a framework paper which explains the framework we have applied in reaching our draft decisions on the IM review.
- X7. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
- X8. Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
- X9. Please clearly indicate within your submission which aspects of this paper it relates to.

## Chapter 1: Introduction

### Purpose of this paper

1. The purpose of this paper is to explain in relation to the airports WACC percentile topic:
  - 1.1 the problems we have identified within this topic area;
  - 1.2 our proposed solutions to these problems;
  - 1.3 the reasons for our proposed 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 draft decisions papers

2. This topic paper forms part of our package of draft decisions 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 draft decisions package.<sup>1</sup>
3. This paper explains our proposed solutions to problems identified within the WACC percentile for airports topic. All other areas of cost of capital are covered by Topic paper 4,<sup>2</sup> and Topic paper 5 is focussed on how we assess airports profitability.<sup>3</sup>
4. To the extent our preferred solutions involve changes to the IMs, this paper identifies how we propose to change our existing IM decisions to account for our preferred solutions to problems within this topic area. The report on the IM review then collates our proposed changes to the existing IM decisions.<sup>4</sup>
5. Our proposed drafting changes to the IMs, including any resulting from this topic area, are shown in the draft determinations, which we expect to publish on 22 June 2016.

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<sup>1</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).

<sup>2</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016).

<sup>3</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 5 – Airports profitability assessment" (16 June 2016).

<sup>4</sup> We expect to publish the Report on the IM review on 22 June 2016.

6. The framework we have applied in reaching our draft decisions on the IM review is set out in a separate framework paper, published alongside this paper.<sup>5</sup> The framework paper explains that we have only proposed changing the current IMs where this appears 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 current range for airports and why we have identified it as an issue to address as part of the IM review;
  - 8.2 Chapter 3 explains how we envisage using a regulatory WACC in the context of information disclosure;
  - 8.3 Chapter 4 explains our draft decisions on the WACC percentile for airports and how they deal with the main issues that we have 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 justified.
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 draft decisions.

### **Introduction to this topic**

10. The WACC percentile range for airports was one of the topics we discussed in our problem definition paper.<sup>6</sup>

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<sup>5</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

<sup>6</sup> 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 current WACC percentile range for airports (ie, the 25<sup>th</sup> to the 75<sup>th</sup> percentiles) and whether the current IMs related to airport information disclosure best meet the purpose of Part 4 in the Commerce Act.<sup>7</sup>
12. We have focussed on the WACC percentile for airports following our previous consideration of the WACC percentile for energy businesses,<sup>8</sup> and our experience of undertaking ex-ante profitability assessments of airports.<sup>9</sup>
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 information disclosure. We subsequently commissioned Professor Yarrow to consider the impact of our WACC percentile estimate on airports through information disclosure regulation.<sup>10</sup>
14. After considering Professor Yarrow's advice we published an emerging views paper in February 2016.<sup>11</sup> This paper outlined our emerging view that:
  - 14.1 we should reduce focus on specific percentile estimates, including the 25<sup>th</sup> and 75<sup>th</sup> 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 and stakeholder comments on the emerging views paper and Professor Yarrow's advice have informed our draft decision.

#### **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;

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<sup>7</sup> Commerce Act 1986, s 52A.

<sup>8</sup> 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).

<sup>9</sup> 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).

<sup>10</sup> 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).

<sup>11</sup> Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016).



16.2 Wellington Airport;

16.3 Christchurch Airport.

17. This paper may also be of interest to other stakeholders interested in information disclosure regulation of the airport sector. For example, exempt electricity distributors who may see some parallels with information disclosure for airports.<sup>12</sup>

#### **Invitation to make submissions**

18. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.

19. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)

20. Please clearly indicate within your submission which aspects of this paper it relates to.

21. The Introduction and process paper contains further details about the submissions process. This includes:<sup>13</sup>

- 21.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
- 21.2 providing guidance on requesting an extension to the submissions timeframes;
- 21.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
- 21.4 providing guidance on making confidential submissions.

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<sup>12</sup> This is not exhaustive. Rather it is intended to provide some guidance to readers about whether this paper might be of interest to them.

<sup>13</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016), Chapter 5.

## Chapter 2: Context for our draft decision on the airports WACC percentile

### Purpose of this chapter

22. This chapter explains the WACC percentile range, the issues with the current range and why we have identified it as an issue to address as part of the IM review.

### WACC percentile range

23. 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 information disclosure to help interested parties assess airport profitability. The airport cost of capital IM specifies how this WACC is determined.<sup>14</sup>
24. The WACC must be estimated since 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.
25. To illustrate the potential for estimation risk, the current IMs include a WACC percentile range based on the 25<sup>th</sup> to 75<sup>th</sup> percentile estimates of a probability distribution of the WACC estimate.<sup>15</sup> The probability distribution is determined from our estimate of the standard error of the WACC.<sup>16</sup>
26. The current information disclosure requirements provide WACC estimates for the 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentiles. However, the IMs do not specify how the WACC should be used by interested parties when assessing profitability. In the IM reasons paper we stated that the appropriate starting point for any assessment of airport profitability is the 50<sup>th</sup> percentile.<sup>17</sup>

### Problems with the use of the WACC percentile range

27. The existing approach as outlined in the airport IMs, including the use of the 50<sup>th</sup> percentile as the starting point for profitability assessment, has been accepted by the High Court as appropriate for information disclosure regulation.<sup>18</sup>

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

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<sup>14</sup> 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 draft decisions: Topic paper 4 – Cost of capital issues" (16 June 2016).

<sup>15</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para 6.7.9.

<sup>16</sup> *Commerce Act (Specified Airport Services Input Methodologies) Determination 2010* (Commerce Commission Decision 709, 22 December 2010), clause 5.7.

<sup>17</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para E11.2.

<sup>18</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1490-1492.

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.

28. We accept and agree with the Court's comments. However, we have identified two related practical problems with the application of the existing IMs. These problems are that:

28.1 the upper limit of any range we specify may become the de facto benchmark when assessing airport profitability; and

28.2 there is limited and weak rationale for the use of the 75<sup>th</sup> percentile as the upper limit of the current WACC percentile range.

*Use of the upper limit of the range*

29. Under s 56G, we were required to review how effective information disclosure 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.<sup>19</sup>

30. The existence of the WACC percentile range (25<sup>th</sup> to 75<sup>th</sup> percentile) resulted in the upper limit of the WACC percentile range (75<sup>th</sup> percentile) being used as the 'de facto' limit of an 'acceptable range' that was used to assess airport profitability. The use of the 75<sup>th</sup> percentile as a 'bright-line' limit in this way appears contrary to the purpose of information disclosure regulation.

*Choice of the 75<sup>th</sup> percentile as the upper limit*

31. 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 75<sup>th</sup> percentile. This led us to reconsider the specific percentile used in that context.<sup>20</sup>

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<sup>19</sup> 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).

<sup>20</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1479-1481.

32. Similarly, in our view there is a lack of evidence for the 75<sup>th</sup> percentile currently used as the upper limit for the airport WACC percentile range. We note the High Court did not take issue with our approach to the specification of a WACC range for airports.<sup>21</sup>

#### **Previous consideration of the airport WACC percentile**

33. 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.<sup>22</sup>
34. We extended the timescale 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.<sup>23</sup>
35. However, given the timing of the IM review, we proposed in February 2015 to discontinue the existing 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.<sup>24</sup>
36. 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<sup>25</sup> and a further emerging views paper in February 2016.<sup>26</sup>

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<sup>21</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289.

<sup>22</sup> Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

<sup>23</sup> Commerce Commission "Further work on cost of capital input methodologies: Process update" (23 June 2014), para 6-7.

<sup>24</sup> 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 NZ, AIAL, CIAL, WIAL and Infratil.

<sup>25</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), Topic 7.

<sup>26</sup> Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016).

### Chapter 3: Use of WACC under information disclosure for airports

#### Purpose of this chapter

37. This chapter:
  - 37.1 explains how we envisage the use of a regulatory WACC in the context of information disclosure; and
  - 37.2 considers advice we received from Professor Yarrow on this topic.

#### How WACC operates in the context of information disclosure

38. The purpose of information disclosure 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.<sup>27</sup>
39. The existing IMs require us to publish the mid-point estimate of the WACC defined by the IMs, together with the 25<sup>th</sup> and 75<sup>th</sup> WACC percentile estimates. The range covered by the 25<sup>th</sup> to 75<sup>th</sup> percentile WACC estimates form the WACC percentile range. Under information disclosure regulation airports are not required to apply our estimate of the WACC when setting prices.
40. The published WACC range is then used as a benchmark for assessing airport profitability. Interested persons can 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.
41. 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.<sup>28</sup>
42. Assessment of profitability can be undertaken on either an *ex-ante* or *ex-post* basis.

#### *Ex-ante assessment*

43. As part of the s 56G review described in paragraph 29, we were required to review how effective information disclosure 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).

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<sup>27</sup> Commerce Act 1986, s 52A.

<sup>28</sup> 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 ex-post disclosures of financial information.

44. Although the s 56G review was a 'one-off' exercise, we would expect to conduct similar assessments of expected profitability over the airport's pricing period (normally 5 years), as part of our general summary and analysis of disclosed price setting event information (s 53B).
45. The current IM review addresses a number of problems our s 56G review identified with the IMs and the information disclosure requirements that made expected profitability assessments difficult for interested parties.<sup>29</sup> In particular, to help provide greater clarity when undertaking *ex-ante* airport profitability assessments we propose to require airports to disclose a headline 'forward-looking profitability indicator'.<sup>30</sup> 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*

46. Airports are required to provide annual information disclosures 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 their targeted return on investment, as well as to the relevant WACC at the time that prices were set.
47. *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.
48. Also, as noted in the introduction to this paper, the IM review has focussed on proposed amendments to the airport IMs or information disclosure requirements on a forward-looking basis. We have currently only proposed amendments relating to 0 disclosures made by airports where those amendments are required to support our forward-looking profitability assessment.

#### **Advice from Professor Yarrow**

49. As part of the IM review, we commissioned independent expert advice from Professor Yarrow on our current use of WACC with regards to information disclosure and in particular our current publication of the WACC percentile range.

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<sup>29</sup> 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).

<sup>30</sup> Commerce Commission "Input methodologies review draft decisions: Topic paper 5 – Airports profitability assessment" (16 June 2016).

50. Professor Yarrow's advice noted that assessing *ex-ante* and *ex-post* returns are "distinct exercises that rely on different types of information".<sup>31</sup> He also emphasised the need to consider airport-specific contexts when making judgments about whether an airport is targeting excessive profitability.<sup>32</sup>

51. In considering the contextual factors (as opposed to rigidly comparing the targeted returns against the WACC), Professor Yarrow notes that:<sup>33</sup>

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.

52. On the specific question of how the WACC should be published in the IMs he suggests:<sup>34</sup>

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.

53. Another focus of the report is a general recommendation to act proportionately when considering the impact from any deviations from the WACC. We consider that this includes:

53.1 a proportionate regulatory response as an airport's return diverges further from our estimate of the WACC; and

53.2 proportionately increasing requirements on an airport to identify and explain any divergence from our WACC estimate as the magnitude of that divergence increases.

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<sup>31</sup> 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.

<sup>32</sup> 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.

<sup>33</sup> 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.

<sup>34</sup> 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

54. 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.
55. For example the New Zealand Airports Association (**NZ Airports**) recommend that:<sup>35</sup>

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 AEEMP<sup>36</sup> (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).

56. Similar views were put forward in other airport submissions.<sup>37</sup> 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:<sup>38</sup>

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.

57. 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

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<sup>35</sup> NZ Airports "Submission on Commerce Commission emerging views on the WACC percentile for airports" (16 March 2016), para 15.

<sup>36</sup> Adverse effects arising from the exercise of market power (AEEMP).

<sup>37</sup> 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).

<sup>38</sup> 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:<sup>39</sup>

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.

58. For this reason, airlines strongly submit we should not set the WACC at a level higher than the mid-point when undertaking an assessment of airport profitability.
59. 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 information disclosure regime, which gives airports commercial freedom, and that airports regularly discuss investment plans with airlines.<sup>40</sup>

*WACC vs. allowed rate of return*

60. 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:<sup>41</sup>

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.

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<sup>39</sup> Air New Zealand "Emerging views on the airport WACC percentile" (11 March 2016), p. 2.

<sup>40</sup> Covec "Airport WACC: Comments on emerging views and Professor Yarrow" (report prepared for BARNZ, 9 March 2016), para 4.

<sup>41</sup> Sapere "The distance between the 'allowed rate of return' and the 'cost of capital'" (report prepared for NZ Airports, 16 March 2016), p. 2.

61. Sapere also noted a number of reasons why it considers a targeted return may be above a mid-point WACC.<sup>42</sup> These reasons include:
- 61.1 increased costs from government intervention (or the threat of government intervention);
  - 61.2 that investors expect to derive a positive net benefit from investment programmes; ensuring incentives to innovate;
  - 61.3 asymmetries arising from truncation of probabilistic distributions of future rates of return; and
  - 61.4 the “option values” associated with investments.<sup>43</sup>
62. We agree that care needs to be taken when using the WACC to assess profitability and our emerging views paper outlines how we are attempting to reduce the focus on specific WACC values.

*A general uplift to WACC is not appropriate for airports*

63. We consider there could potentially be legitimate reasons why the appropriate return targeted by airports is above the mid-point estimate of the WACC.<sup>44</sup> 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.
64. 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.<sup>45</sup>
65. 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 asymmetric social costs from under-investment as compared to a supplier earning excessive returns or overinvesting.

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<sup>42</sup> 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.

<sup>43</sup> 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.

<sup>44</sup> Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016), para 7.

<sup>45</sup> Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014).

66. For airports, the context is different. Airports, rather than us, determine both:
- 66.1 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
  - 66.2 the estimate of WACC that determines whether and when each investment will proceed.
67. 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.<sup>46</sup>
68. 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
69. 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 67<sup>th</sup> percentile estimate of WACC for setting price-quality paths.

*An uplift for business-specific asymmetric risks*

70. When setting the original IMs we decided not to make any adjustments to the cost of capital due to asymmetric risk to businesses. We stated that:<sup>47</sup>

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).

71. 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

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<sup>46</sup> 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.

<sup>47</sup> Commerce Commission "Input methodologies (Airport Services) reasons paper" (22 December 2010), para E12.1.

- risk. This would potentially increase the targeted rate of return above the WACC estimate.
72. 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).<sup>48</sup>
73. 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 information disclosure regime.<sup>49</sup>
74. 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”.<sup>50</sup> Auckland Airport also provided a report from Uniservices who suggested that we make an allowance for asymmetric risks and that a 1% margin to the WACC would not be unreasonable where “the cashflows are upward “biased” and inadequate allowance is made for all asymmetric risks and other market frictions”.<sup>51</sup>
75. 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.<sup>52</sup> Airports will also have insurance which covers some asymmetric risk.
76. We also note that the High Court’s comments, as part of its judgment on the merits appeal to the setting of the original IMs, agreed with our view that limited evidence

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<sup>48</sup> 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/>

<sup>49</sup> 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.

<sup>50</sup> Auckland Airport “Section 56G review of Auckland airport post-conference submission” (15 March 2013), p. 36-37.

<sup>51</sup> 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.

<sup>52</sup> 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 service” (July 2015), para 1362 and Dixit, A.K, and Pindyck, R.S., “Investment under Uncertainty” (1994) Princeton University Press, p. 205.

had been presented to date on how additional compensation for asymmetric risks would provide long-term benefits to consumers:<sup>53</sup>

[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.

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<sup>53</sup> *Wellington Airport & others v Commerce Commission* [2013] NZHC 3289, para 1472-1744.

## **Chapter 4: Our draft decisions on the WACC percentile for airports**

### **Purpose of this chapter**

77. This chapter explains our draft decisions on the WACC percentile for airports and how they deal with the main issues that we have identified.
78. It explains how and why we think we should just publish the mid-point WACC estimate together with an estimate of the standard error of the WACC. It also explains alternative solutions that could be used to fix a specific WACC percentile or continue to provide a range.

### **Problems with the current approach**

79. As discussed in Chapter 2, we consider that there are two related practical problems with the application of the existing IMs regarding the WACC percentile for airports. These problems are that:
  - 79.1 our publishing of a WACC range has led to the de facto use of the upper limit of the WACC range to assess airport profitability in practice;<sup>54</sup> and
  - 79.2 there is limited and weak rationale for the use of the 75<sup>th</sup> percentile as the upper limit of the current WACC percentile range.
80. This raises the danger that the 75<sup>th</sup> 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.

### **Proposed solution in respect of these problems**

81. Our emerging views paper outlined how we consider that the most appropriate change to the IM is to no longer focus on specific WACC percentiles other than the mid-point.<sup>55</sup>
82. 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

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<sup>54</sup> 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 75<sup>th</sup> 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 targeted returns at, or close to, the 75<sup>th</sup> 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.

<sup>55</sup> 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.<sup>56</sup>

*Our proposed solution – Publication of the mid-point and standard error*

83. Our preferred solution for the airport WACC percentile is to publish our mid-point estimate of the cost of capital together with our view of the standard error of that estimate. The standard error can be used to determine the probability distribution of the WACC estimate and any individual WACC percentile required.
84. Our intention is for this approach to be combined with modifications to information disclosure requirements to require airports to publish:
  - 84.1 their own estimate of WACC;
  - 84.2 the effective rate of return they targeted (ie, the new forward-looking profitability indicator);
  - 84.3 the equivalent percentiles of our mid-point WACC estimate; and
  - 84.4 evidence that provides justification for differences between their WACC and our estimate of the WACC; and their targeted return and their WACC.
85. Therefore, we propose to no longer publish the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates of the WACC. Instead the IMs will provide the WACC standard error from which any WACC percentile can be calculated.
86. Changes to the timing of our airport WACC determinations are also being proposed as part of the IM review. These timing issues are considered in the separate cost of capital topic paper.<sup>57</sup>

*Reasons for preferring this solution*

87. Having considered the pros and cons of this and other solutions (including maintaining the status quo), we consider that this approach is likely to contribute to an information disclosure regime that is best able to allow interested parties to assess whether airports are limited in their ability to extract excessive profits or not.
88. This approach would enable a certain amount of flexibility in assessing the acceptability of airport returns and would reduce 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 or outcomes consistent with those promoted in workably competitive markets. It is also consistent with the original intentions of the IMs to start any assessment at the mid-point estimate of the WACC.

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<sup>56</sup> For example, taking into account their customer investment requirements, or the extent of their complementary unregulated revenues.

<sup>57</sup> See Chapter 8 of Topic paper 4 – Cost of capital issues.

89. This proposed 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 circumstances, or other factors that should be taken into account in assessing airport profitability.
90. The proposed solution would not prevent airports targeting (*ex-ante*) returns above the mid-point when they have legitimate reasons for doing so. However, we consider the airports would be required to provide information and evidence to justify those reasons to interested parties. This justification could 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.
91. We consider that this approach is consistent with both the High Court's view provided in paragraph 27 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.<sup>58</sup>
92. 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).
93. Although the onus would 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.
94. At this stage we do not propose to provide 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 appears to be consistent with the views from submissions. For example, Wellington airport submitted that:<sup>59</sup>

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.

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<sup>58</sup> 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.

<sup>59</sup> Wellington Airport "IM review: Professor Yarrow report and emerging views on the airport WACC percentile" (16 March 2016), p. 3.



95. Submissions from airlines suggested that there are no reasons to depart from the mid-point<sup>60</sup> and Covec (on behalf of BARNZ) noted that:<sup>61</sup>

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**

96. As discussed above, our proposed 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.
97. We consider that the two problems identified in paragraph 79 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 they ultimately proposed an alternative approach that published the WACC at regular percentile estimates.<sup>62</sup>
98. We also considered two alternative potential solutions to the identified problems. These alternatives were to:
- 98.1 determine one specific point estimate that would act as the benchmark; and
  - 98.2 publish a wide range of WACC percentile estimates (eg, every 5<sup>th</sup> percentile).

#### *Alternative option 1 – Determine a specific point estimate*

99. A further option that was considered was to publish a specific WACC percentile point estimate in addition to the current WACC percentile range.
100. 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 67<sup>th</sup> percentile used for energy businesses but would be estimated for the airports to take into account differences between the sectors.
101. Submissions from airlines generally supported this approach on the basis that the specific percentile chosen would be the mid-point estimate. For example the Board of Airline Representatives New Zealand (**BARNZ**) suggests that:<sup>63</sup>

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.

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<sup>60</sup> Air New Zealand "Emerging views on the airport WACC percentile" (11 March 2016), p. 3.

<sup>61</sup> Covec "Airport WACC: Comments on emerging views and Professor Yarrow" (report prepared for BARNZ, 9 March 2016), para 40.

<sup>62</sup> Sapere "The distance between the 'allowed rate of return' and the 'cost of capital'" (report prepared for NZ Airports, 16 March 2016), p. 12.

<sup>63</sup> BARNZ "Emerging views on airport WACC percentile" (11 March 2016), p.2.

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.

102. However, it is not necessarily the case that the specific percentile chosen would be the 50<sup>th</sup> 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.
103. 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.
104. We consider that allowing flexibility in how a WACC applied to the assessment of airport profitability is determined is a more appropriate approach. Justification 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*

105. We suggested in the emerging views that one potential solution would be to publish a wider range of percentile estimates. For example, we could publish every 5<sup>th</sup> percentile. (ie, 5<sup>th</sup>, 10<sup>th</sup>, 15<sup>th</sup> etc.)
106. Submissions from airports strongly agreed with this option.<sup>64</sup> For example NZ Airports submit:<sup>65</sup>

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.

107. We agree this option provides flexibility and will 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.
108. However, we have rejected this approach compared to our proposed 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

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<sup>64</sup> 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.

<sup>65</sup> NZ Airports "Submission on Commerce Commission emerging views on the WACC percentile for airports" (16 March 2016), para 22.

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.

109. 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.<sup>66</sup>
110. 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 proposed solution that allows specific percentile estimates to be calculated when required will become embedded over time.

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<sup>66</sup> Auckland Airport "Response to Commerce Commission's emerging views on the WACC percentile for airports" (16 March 2016), para 12.

## **Chapter 5: Consideration of the rationale for an uplift**

### **Purpose of this chapter**

111. This chapter explains:
  - 111.1 why an airport's targeted return could legitimately be above our mid-point estimate and how that might be justified;
  - 111.2 why we consider the ability of the WACC to constrain airport investment is more limited than for energy businesses;
  - 111.3 why our consideration focusses on the potential asymmetric consequences to consumers from us mis-estimating the WACC; and
  - 111.4 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**

112. An airport's return on investment may differ from the specified mid-point estimate of the WACC outlined in the IMs because:
  - 112.1 an airport's own estimate of the cost of capital is different from that estimated by us; and/or
  - 112.2 an airport is targeting returns above (or below) its estimate of the WACC.<sup>67</sup>
113. We also consider that a key aspect of our proposed 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.
114. In particular, airports would 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 (e.g. any asymmetric risks (such as catastrophic risk) or factors that warrant a further margin to arrive at the targeted return).
115. We would also expect greater justification, reasoning and evidence to be required as any divergence from the mid-point increases. Such reasoning and evidence should be

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<sup>67</sup> We describe in paragraph 66 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).

specific to the circumstances of the airport or specific project at the time of the 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**

116. 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.
117. The link between the WACC under information disclosure 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.
118. 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.<sup>68</sup> We recognise this could, potentially, adversely affect investment where we have mis-estimated the WACC.
119. 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 information disclosure – this means that the regulated WACC is not as strong a binding constraint on the airport's pricing and investment decisions.
120. 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 the Commission as to why a targeted return in excess of the mid-point WACC is required to fund investment which is to the long-term benefit of consumers.
121. Consequently we consider the risk of our estimate of WACC constraining investment, to the long-term detriment of consumers, is much lower for airports.
122. 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

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<sup>68</sup> Commerce Commission "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.<sup>69</sup>  
Namely that airports:

- 122.1 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;
  - 122.2 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); and<sup>70</sup>
  - 122.3 there could be other regulatory requirements (such as safety) that result in the investment being made.
123. Of these reasons, the value of complementary revenue streams perhaps provide the strongest rationale for the limited ability of our estimate of WACC to constrain airport investment.
124. 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 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.<sup>71</sup> However, unregulated revenue streams make up only 30% of the total operational costs and 48% of property, plant and equipment of Auckland airport.<sup>72</sup>
125. This illustrates there is a significant amount of Auckland airport's value that is associated with unregulated, complementary revenue streams. Given the value of these revenue streams that are associated with a significant proportion of airport investment, it is less likely such investment would be constrained by the Commission mis-estimating the mid-point WACC.

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<sup>69</sup> Commerce Commission "Input methodologies review invitation to contribute to problem definition" (16 June 2015), para 395, Commerce Commission "Input methodologies review – Professor Yarrow report and emerging views on the airport WACC percentile" (19 February 2016), para 16.

<sup>70</sup> 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.

<sup>71</sup> MEUG "Comments on advice by Dr Lally to the Commerce Commission on WACC issues" (24 March 2016), para 17-18.

<sup>72</sup> Auckland Airport "Specified Airport Services Annual Information Disclosure For the year ended 30 June 2015" (2015).

126. There may be some classes of investments in regulated services where non-regulated revenues have a limited impact on the decision to invest.<sup>73</sup> 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 still appears 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).

**Are there asymmetric consequences from us mis-estimating the airport WACC?**

127. 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 outweigh 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.
128. For energy businesses we applied an uplift because there is a potential for us to misestimate 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.
129. 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 67<sup>th</sup> percentile.<sup>74</sup>

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<sup>73</sup> 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.

<sup>74</sup> 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.

130. 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’).<sup>75</sup> 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.
131. For airports the context again appears different. Given the factors given in paragraphs 121–122 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).
132. We note that while there is a 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:
- 132.1 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
- 132.2 the potential for some users to adapt travel arrangements (eg, alternative timing or transport).<sup>76</sup>
133. 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.
134. 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**

135. 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.<sup>77</sup>

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<sup>75</sup> 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%.

<sup>76</sup> This could include alternative airports for some customers.



136. 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.<sup>78</sup>
137. We also considered using this type of analytical framework to help consider whether an uplift was appropriate for the cost of capital for a hypothetical telecommunications operator when setting the UCLL/UBA final pricing principle.<sup>79</sup> However, we ultimately determined that the link between the WACC and effect on investment was not sufficient to justify any uplift.<sup>80</sup>
138. If we were to apply a similar approach to airports, the steps would be to:
- 138.1 Estimate the direct costs of a WACC uplift from an increase in regulated prices.
  - 138.2 Estimate the potential benefits of a WACC uplift using two key inputs:
    - 138.2.1 the potential for our estimate of the WACC to affect the airport's targeted return and for this to constrain airport investment; and<sup>81</sup>
    - 138.2.2 the size of net annual lost benefits from investments that are not undertaken in the absence of a WACC uplift.
  - 138.3 Using these two inputs, estimate the total net annual lost benefits to consumers from using a particular WACC percentile estimate.<sup>82</sup>

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<sup>77</sup> 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.

<sup>78</sup> This framework was originally developed by us 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.

<sup>79</sup> Commerce Commission "Agenda and topics for the conference on the UCLL and UBA pricing reviews" (2 April 2015), Attachment C.

<sup>80</sup> Commerce Commission, "Cost of capital for the UCLL and UBA pricing reviews: Final decision" (15 December 2015), para 279.

<sup>81</sup> 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'.

<sup>82</sup> The 'margin of error'.

- 138.4 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.
139. 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 best 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.
140. Given the importance of contextual factors, we consider airport-specific evidence is very relevant when making judgements in this area.

#### **Evidence from submissions**

141. 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:
- 141.1 the ability of the regulatory WACC to constrain airport investment; and
- 141.2 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*

142. NZ Airports submitted that they disagree 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.<sup>83</sup>
143. In particular NZ Airports considers that airline consultation does not guard against under-investment:<sup>84</sup>

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.

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<sup>83</sup> These are described in paragraphs 121-122.

<sup>84</sup> NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 143 and 144.

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, there are numerous cases of where airlines have sought to delay or prevent investment from proceeding.

144. NZ Airports also outlines how it considers that the current regulation places a strong limit on returns.<sup>85</sup>

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.

145. On the dual till aspect it considers.<sup>86</sup>

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.

146. BARNZ cross-submitted disagreeing with NZ Airports' conclusions. On the dual till point they consider that:<sup>87</sup>

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.

147. On the impact of airline consultation, BARNZ suggest that airlines do in fact support projects when they are justified.<sup>88</sup>

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.

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<sup>85</sup> NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 149.

<sup>86</sup> NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 156.

<sup>87</sup> BARNZ "Cross-submission on problem definition submissions" (5 September 2015), p. 5.

<sup>88</sup> BARNZ "Cross-submission on problem definition submissions" (5 September 2015), p. 6.

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.

148. There is a clear divergence of views on these issues. However, submissions on this topic have not changed our view that these factors will have a significant effect on airport investment decisions. We continue to consider that the regulatory WACC will have a lower impact on investment decisions compared to the energy sector.
149. We 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 consider that there is only a limited amount of investment that is not subject to these factors. In addition, the nature of information disclosure 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.
150. 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.
151. 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.<sup>89</sup> Sapere maintained the value of 0.5% as the assumed divergence between the estimated and actual WACC that would lead to under-investment. This was the value that was used for energy businesses in the model provided by Oxera. Sapere noted that:<sup>90</sup>

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

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<sup>89</sup> 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).

<sup>90</sup> Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 32.

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).

152. 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 on investment decisions on aeronautical activities.
153. 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*

154. 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.
155. Sapere's report provides an estimate of these costs using two different methods. The first method is to use existing studies on the costs of airport delays, while the second method undertakes bottom-up analysis of estimated costs.<sup>91</sup>
156. The first method results in two separate estimates based on different studies:
- 156.1 The first estimate is derived from US studies that suggest the economic cost of air traffic delays was between 0.2-0.3% of GDP. Their conversion to an equivalent New Zealand cost results in an annual cost to consumers of \$472m to \$618m.<sup>92</sup>
- 156.2 The second estimate (of the first method) uses a UK study that estimates the cost of failing to alleviate capacity constraints at the UK airports. A New Zealand estimate of \$90m p.a. is estimated by assuming similar costs in New Zealand as a proportion of GDP.<sup>93</sup>
157. The second method applies a bottom-up approach to the cost of delay. It assumes that:

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<sup>91</sup> Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 53.

<sup>92</sup> Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 55.

<sup>93</sup> Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 58.

- 157.1 under-investment in airports results in a 5 minute delay for all flights;
- 157.2 an estimate of the number of passengers affected; and
- 157.3 a Value of Travel Time (VoTT) of ~\$59 per hour for each passenger affected.
158. Using these assumptions the annual cost of delay from under-investment is estimated as \$350m.
159. After estimating these costs Sapere calculates the ratio between the estimated costs to consumers from under-investment against a range of different percentile estimates.
160. Two of the estimates (using the US study and the bottom-up approach) imply higher asymmetric impacts from under-investment in the airport sector. They imply that these estimated costs would justify a higher uplift than for the energy sector. The other estimate (using the UK study) results in lower asymmetric effects and therefore potentially a lower uplift.
161. From this Sapere conclude that:<sup>94</sup>

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*

162. 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.
163. 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 maintenance/replacement, staffing issues, etc.) and so would have nothing to do with airport investment.
164. 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.<sup>95</sup>

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<sup>94</sup> Sapere "Asymmetric impact on consumers from underinvestment by airports – an indicative view" (report prepared for NZ Airports, 17 March 2016), para 82.

<sup>95</sup> 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).

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.

165. 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.
166. Even the cost estimate derived from the UK study may need to be further refined. For example:
- 166.1 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.<sup>96</sup> 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.
- 166.2 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.<sup>97</sup> In general we consider it is important that any cost estimates of this type are shown to apply in the New Zealand context.
- 166.3 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 have previously submitted require an uplift to the WACC because they will not result in complementary revenue streams.<sup>98</sup>
167. 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

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<sup>96</sup> 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.

<sup>97</sup> 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.

<sup>98</sup> NZ Airports "Submission on Commerce Commission's input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 159.

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.

168. However, we continue to be open to reasoning from airports as part of information disclosure as to why they consider an uplift to WACC is necessary when making a comparison against their targeted or actual return.





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## **Input methodologies review draft decisions**

### **Topic paper 7: Related party transactions**

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|----------------------------|-------------------|---|
| 16 June 2016               | 978-1-869455-08-8 | Input methodologies review draft decisions:<br>Summary paper  |
| 16 June 2016               | 978-1-869455-09-5 | Input methodologies review draft decisions: Introduction<br>and process paper   |
| 16 June 2016               | 978-1-869455-10-1 | Input methodologies review draft decisions:<br>Framework for the IM review  |
| 16 June 2016               | 978-1-869455-11-8 | Input methodologies review draft decisions:<br>Topic paper 1 – Form of control and RAB indexation for<br>EDBs, GPBs and Transpower                  |
| 16 June 2016               | 978-1-869455-18-7 | Input methodologies review draft decisions:<br>Topic paper 2 – CPP requirements   |
| 16 June 2016               | 978-1-869455-12-5 | Input methodologies review draft decisions:<br>Topic paper 3 – The future impact of emerging technologies<br>in the energy sector                   |
| 16 June 2016               | 978-1-869455-13-2 | Input methodologies review draft decisions:<br>Topic paper 4 – Cost of capital issues   |
| 16 June 2016               | 978-1-869455-14-9 | Input methodologies review draft decisions:<br>Topic paper 5 – Airports profitability assessment  |
| 16 June 2016               | 978-1-869455-15-6 | Input methodologies review draft decisions:<br>Topic paper 6 – WACC percentile for airports   |
| 22 June 2016<br>(expected) | 978-1-869455-16-3 | Input methodologies review draft decisions:<br>Report on the IM review  |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Electricity Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 26                              |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Distribution Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 27                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Gas Transmission Services Input<br/>Methodologies Determination 2012</i> [2012] NZCC 28                                      |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Commerce Act (Specified Airport<br/>Services Input Methodologies) Determination 2010</i> (Decision<br>709, 22 December 2010) |
| 22 June 2016<br>(expected) | 1178-2560         | Draft amendments to <i>Transpower Input Methodologies<br/>Determination 2012</i> [2012] NZCC 17   |

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 related party transactions topic:
  - X1.1. the issues we have identified to date within this topic area;
  - X1.2. that, although we consider that the identified issues may be symptomatic of a broader problem, we have not yet identified this broader problem;
  - X1.3. our proposed approach for further exploring whether the identified issues amount to a broader problem with the related party transactions regime and considering what the best solution to any such problem might be; and
  - X1.4. how we have taken stakeholders' submissions into account in considering the points above.
- X2. The issues described in this paper and our proposed approach to addressing them apply to electricity distribution businesses (**EDBs**), gas distribution businesses (**GDBs**) and gas transmission businesses (**GTBs**).

### Overview of the related party transactions topic

- X3. The result of our review of the related party transaction provisions in the input methodologies (**IMs**) so far is that the policy intent behind them remains appropriate. That policy intent is to ensure that related party arrangements cannot be manipulated by regulated suppliers in a way that allows them to extract excessive profits.
- X4. We have, however, identified a number of issues (outlined in Chapter 2) that suggest that there might be opportunities to improve the effectiveness of the related party transactions provisions – across the IMs and information disclosure (**ID**) – in achieving that policy intent.
- X5. The issues describe a range of symptoms that indicate that the related party rules may not be functioning as well as they could on a practical level. We have concerns that they are also indicative of a broader problem. We do not yet know the precise nature of this broader problem.
- X6. Based on the information currently available, we consider the potential benefits of making IM amendments now, while we do not have a complete problem definition, do not outweigh the likely benefits from taking more time.
- X7. Our proposed approach to addressing the issues we have identified is therefore to:
  - X7.1 not propose any changes to the related party transactions provisions in the IMs at this stage of the IM review process; and

- X7.2 instead further explore whether the identified issues amount to a broader problem with the related party transactions regime and consider what the best solution to any such problem might be. In doing so, we will assess the extent to which the related party transaction provisions in both the IM and ID determinations for the EDB, GDB and GTB sectors achieve the policy intent of the related party transaction regime.

*Timeframes for our further work on the related party transactions regime*

- X8. The further work we propose to do on the related party transactions regime would be carried out within the current IM review.<sup>1</sup>
- X9. If our further work confirms a problem with the related party transactions provisions requiring changes to the IMs, this is likely to extend beyond the December 2016 timeframe for the rest of the review. On the other hand, if our further work does not identify a problem requiring changes to the IMs, we may be able to reach draft and final decisions on the related party IMs by December 2016.
- X10. We aim to update stakeholders in early September 2016 on our timing for draft and final decisions in respect of the related party transactions IMs.<sup>2</sup>

**Invitation to make submissions**

- X11. We invite submissions on this paper by **5pm on 28 July 2016**. We will then invite cross submissions by **5pm on 11 August 2016**.
- X12. Please address submissions and cross submissions to:
- Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
- X13. Please clearly indicate within your submission which aspects of this paper it relates to.

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<sup>1</sup> Any changes to the ID requirements would be consulted on and made under s 52Q of the Act, rather than under s 52Y.

<sup>2</sup> As discussed in the Introduction and process paper, we anticipate providing a general process update at this time.

## Chapter 1: Introduction

### Purpose of this paper

1. The purpose of this paper is to explain in relation to the related party transactions topic:
  - 1.1 the issues we have identified within this topic area;
  - 1.2 that, although we consider that the identified issues may be symptomatic of a broader problem, we have not yet identified this broader problem;
  - 1.3 our proposed approach for further exploring whether the identified issues amount to a broader problem with the related party transactions regime and considering what the best solution to any such problem might be; and
  - 1.4 how we have taken stakeholders' submissions into account in considering the points above.

### Where this paper fits in to our package of draft decisions papers

2. This topic paper forms part of our package of draft decision 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 draft decision package.<sup>3</sup>
3. While this paper does not propose any changes to the IMs, we note that the framework we have applied in reaching our draft decisions on the IM review is set out in a separate paper, published alongside this paper. The framework paper explains that we have only proposed changing the current IMs where this appears likely to:<sup>4</sup>
  - 3.1 promote the Part 4 purpose in s 52A of the Commerce Act 1986 (**Act**) 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. The framework paper also describes key economic principles that can provide guidance as to how we might best promote the Part 4 purpose.

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<sup>3</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016).

<sup>4</sup> Commerce Commission "Input methodologies review draft decisions: Framework for the IM review" (16 June 2016).

### Structure of this paper

5. Two chapters follow this introductory chapter. Chapter 2, “Issues identified with related party transaction rules”, provides a description of three issues or potential issues we have identified in the related party transactions topic area.
6. Chapter 3, “The proposed approach to addressing issues with the related party transaction rules”, provides an explanation of proposed approach for further exploring whether the identified issues amount to a broader problem with the related party transactions regime and considering what the best solution to any such problem might be.
7. In describing the issues and our proposed approach to addressing the issues, we explain how we have taken stakeholders’ submissions into account and how they have helped to shape our proposed approach to addressing the issues we have identified in our review so far.

### Introduction to the related party transactions topic

8. This topic stems from submissions on our problem definition paper,<sup>5</sup> the IM forum discussions and our analysis of symptoms that indicate a potential problem with the related party transactions regime.
9. In our June 2015 problem definition paper, we suggested four areas that might particularly benefit from a review for unwarranted complexity and compliance costs: related party transactions, regulatory taxation, cost allocation, and cost definitions. Related party transactions generated the most attention out of those four areas in submissions.
10. Around one third of EDBs’ operating expenditure (**opex**) and capital expenditure (**capex**) is made under a related party transaction.
11. Our preliminary analysis of available information and data indicated that a large amount of information about related party transactions is not visible to us under the current rules for related party transactions (which sit across the IMs and information disclosure (**ID**) requirements. Given the scale of related party transactions, we need to better understand whether there is a larger problem with how the related party transaction rules operate to limit suppliers gaining excessive profits.
12. As a result of the sector interest and our own preliminary analysis, we have classified this topic as a key topic for the IM review in its own right.

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<sup>5</sup> Commerce Commission “Input methodologies review: Invitation to contribute to problem definition” (16 June 2015).



**Who is this paper relevant to?**

13. The issues described in this paper and our proposed approach to addressing them apply to regulated suppliers under the IM determinations for electricity distribution businesses (**EDB**), gas distribution businesses, (**GDB**) and gas transmission businesses (**GTB**).
14. This paper may also be of interest to:
  - 14.1 Entities involved in (or planning to be involved in) related party transactions with regulated suppliers under the EDB, GDB, and GTB IM determinations;
  - 14.2 Other gas and electricity firms, such as generator-retailers; and
  - 14.3 Consumers of electricity lines services and gas pipeline services.

**Invitation to make submissions**

15. We invite submissions on this paper by **5pm on 28 July 2016**. We then invite cross submissions by **5pm on 11 August 2016**.
16. Please indicate clearly in your submission that it is a submission on this topic paper, and which aspects of this paper your submission relates to.
17. Please address submissions and cross submissions to:

Keston Ruxton  
Manager, Input Methodologies Review  
Regulation Branch  
[im.review@comcom.govt.nz](mailto:im.review@comcom.govt.nz)
18. The Introduction and process paper contains further details about the submissions process. This includes:<sup>6</sup>
  - 18.1 explaining that material provided outside of the indicated timeframes without an extension might not be considered in reaching our final decisions;
  - 18.2 providing guidance on requesting an extension to the submissions timeframes;
  - 18.3 noting that we prefer submissions on our draft decisions in a file format suitable for word processing, rather than the PDF file format; and
  - 18.4 providing guidance on making confidential submissions.

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<sup>6</sup> Commerce Commission "Input methodologies review draft decisions: Introduction and process paper" (16 June 2016), Chapter 5.

## **Chapter 2: Issues identified with the related party transaction regime**

### **Purpose of this chapter**

19. The purpose of this chapter is to:
  - 19.1 explain issues we have identified with the related party transactions regime in our review of the IMs; and
  - 19.2 explain that we have not yet reached a view on whether these issues amount to a defined problem.
20. Our proposed approach to further exploring whether the identified issues amount to a broader problem with the related party transactions regime, and what the best solution to any such problem might be, is described in Chapter 3.

### **There may be opportunities to improve the effectiveness of the related party transactions provisions in the IMs and ID**

21. The results of our review of the related party transaction provisions in the IMs so far indicate that the policy intent behind them remains appropriate. That policy intent is to ensure that related party arrangements cannot be manipulated by regulated suppliers in a way that allows them to extract excessive profits.
22. We have, however, identified a number of issues (outlined below) that suggest that there might be opportunities to improve the effectiveness of the related party transactions provisions (across the IMs and ID) in achieving that policy intent.
23. In reaching our current views, we have considered a number of submissions on the complexity and compliance cost aspects of the related party transaction provisions in the IMs. These concerns about complexity and compliance costs are reflected in the issues we have identified.
24. The issues we have identified describe a range of symptoms that indicate that the related party rules may not be functioning as well as they could on a practical level. We have concerns that they are also indicative of a broader problem. We do not yet know the precise nature of this broader problem.
25. Compounding our concerns is that:
  - 25.1 We have observed issues with suppliers' compliance with the related party transaction rules across the IMs and ID. These are concerning in their own right. However, the compliance issues also make it harder to understand the bigger problem, as, for example, it means the data and information we have been provided under information disclosures is in some cases incomplete or inaccurate.
  - 25.2 Related party transactions accounted for a third of operating expenditure and one quarter of capital expenditure declared by EDBs, GDBs and GTBs under ID in 2015.

- 25.3 The value of these transactions is high, both in relative terms and in absolute terms (\$155 million in opex and \$179 million in capex). These values have also increased over time.<sup>7</sup>
- 25.4 We have limited visibility of related party transactions on the non-regulated entities' side. Combined with regulated suppliers' level of control over related party transactions, we are concerned with the risk that suppliers may be able to generate excessive profits under the current rules.

#### **Issues and potential issues with the related party transaction provisions**

26. Based on our review of the related party provisions in the IMs so far, we have identified three issues:
- 26.1 **Issue 1:** There appear to be interpretation and implementation issues with the related party transaction provisions.
- 26.2 **Issue 2:** There may be opportunities to better align or explain the rules between related party operating expenditure rules and related party capital expenditure rules.
- 26.3 **Issue 3:** Related party transaction values are proportionately significant for regulated entities and are increasing in overall value. We are concerned that suppliers are able to generate excessive profits under the current rules.

#### *Challenges in dealing with the identified issues*

27. The most significant challenges with this topic area are:
- 27.1 It cuts across IMs, ID, and compliance with price-quality determinations – we therefore need to consider the related party transaction rules across all of the relevant aspects of the regulatory regime for EDBs, GDBs and GTBs.
- 27.2 We do not know enough about all of the current applicable types of transactions (including their structures) and need to better understand the relationship between these and the trends we are observing in related party transactions. We need more transaction data and more information on typical transaction arrangements before we can reach a well-informed view on what, if any, changes to the related party transactions regime might be beneficial.
28. We would like to further engage with industry in exploring whether the identified issues amount to a broader problem with the related party transactions regime and considering what the best solution to any such problem might be. We want to do this

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<sup>7</sup> Total related party opex for EDBs, GDBs and GTBs was \$70 million in 2012, \$115 million in 2013 and \$137 million in 2014. Total related party capex for the sector was \$128 million in 2012, \$143 million in 2013 and \$138 million in 2014.

looking at the related party transactions regime holistically – ie, looking at both the relevant IMs and ID requirements.

**We have identified one specific problem regarding the related party transactions information requirements for CPP proposals**

29. We have identified one specific problem in relation to the information requirements on related party transactions required for a customised price-quality path (CPP) proposal. That problem is more relevant to the CPP requirements topic, and so is discussed, along with our proposed solution to that problem, in Topic paper 2: CPP requirements.<sup>8</sup>

**Explanation of each issue we have identified**

30. This section outlines the three issues we have identified regarding the related party transactions provisions from our review so far.

*Issue 1: There appear to be interpretation and implementation issues with the related party transaction provisions*

31. In our review of the related party provisions of the IMs so far, we have identified interpretation and implementation issues with the related party valuation options across both the ID and IM determinations.
32. Specific points raised by submissions to the IM review include:
- 32.1 Interpretation of the term, “directly attributable costs” in both the IM and ID rules;
  - 32.2 The appropriateness of director certification as a valuation option; and
  - 32.3 The interpretation and application of the “17.2% margin” option in the ID rules.
33. Changes to the IMs alone may not be the best way to address these issues and there may be other solutions (such as guidance/education or compliance activity) that would be more appropriate.

**“Directly attributable costs”**

34. The related party transactions rules in the EDB, GTB and GPB IMs provide a valuation option for capital expenditure that allows a supplier to use the “directly attributable cost” to a “group” to which the supplier and a related party belong under GAAP.
35. Under this option, intra-group charges used to determine direct costs to the related party should be attributed in accordance with the cost allocation IM, or as would

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<sup>8</sup> Commerce Commission “Input methodologies review draft decisions: Topic paper 2 – CPP requirements” (16 June 2016).

otherwise be disclosed by the supplier under an information disclosure determination.

36. We received submissions that the term “directly attributable costs” is defined too narrowly<sup>9</sup> and is not appropriate unless “not directly attributable cost” is also included in the related party rules (as it is in the cost allocation IM).<sup>10</sup> The term also appears in different contexts in the IMs and in the ID, which makes it difficult to interpret.
37. We agree that the current uses of the term “directly attributable costs” in the related party provisions in the current IM and ID determinations can make the rules difficult to interpret.

#### Director certification option

38. When no other valuation options are available, the related party rules in the IMs allow a supplier to use the price paid for an asset by a related party if at least two directors of the supplier provide written certification that the price of the assets reflect what would have been received in an arm’s-length transaction.<sup>11</sup> This is commonly referred to as the “director certification” option.
39. We received submissions that the appropriateness of the director certification option is an issue:
- 39.1 The director certification option can only be used where none of the other valuation options are available. PwC submitted that this is problematic because in some cases, other options may be technically available but would not lead to sensible outcomes as they would restrict the value of related party transactions to less than those that would be established on an arms’-length basis.<sup>12</sup>
- 39.2 Alpine Energy submitted that director certification is not ideal, as it asks directors to delve deeper into operations than directors can be expected to.<sup>13</sup>

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<sup>9</sup> Alpine Energy “Submission to Commerce Commission on input methodologies review: Invitation to contribute to the problem definition” (21 August 2015), paras 18-22.

<sup>10</sup> PwC “Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), paras 135-140. In the submission, PwC also raised that using the term in the context of GAAP is problematic because GAAP does not recognise the term.

<sup>11</sup> *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 2.2.11(5)(h); *Gas Distribution Services Input Methodologies Determination 2012* [2012] NZCC 27, clause 2.2.2.11(5)(h); and *Gas Transmission Services Input Methodologies Determination 2012* [2012] NZCC 28, clause 2.2.11(5)(h).

<sup>12</sup> PwC “Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), paras 135-140.

<sup>13</sup> Alpine Energy “Submission to Commerce Commission on input methodologies review invitation to contribute to the problem definition” (21 August 2015), para 9.

40. We are also aware (anecdotally) of management and boards of regulated suppliers experiencing issues with obtaining (or being sufficiently comfortable to provide) director certification for the purposes of the related party transaction rules.
41. Although we are not convinced, at this stage, that the director certification option is not achieving the policy intent of the related party rules, we acknowledge the submissions and are interested in receiving evidence about any potential unintended outcomes of the option.

The “17.2% option”

42. Under the ID rules, a supplier can apply a mark-up of up to 17.2% to the directly attributable cost of a related party’s contracting services to maintain or develop the supplier’s network. This is commonly referred to as the “17.2% rule” or the “17.2% margin” option.
43. Alpine Energy submitted that the method used to set the 17.2% threshold for the 17.2% margin option should be reviewed.
44. We note that the valuation option is set in the ID determinations and not in the IM provisions. Nonetheless, we have identified that there are interpretation and/or compliance issues with the 17.2% margin option in ID,<sup>14</sup> arising from some suppliers incorrectly applying the 17.2% margin option to related party capital expenditure.
45. The interpretation issues with the 17.2% margin option, where some suppliers are incorrectly using ID valuation options for capital expenditure (or incorrectly using IM valuation options for related party operating expenditure), suggest that some regulated suppliers may not fully understand the related party provisions across both IM and ID.
46. Issues with suppliers understanding, interpreting and applying the valuation options across ID and IM can potentially lead to compliance issues for suppliers and, in some circumstances, suppliers being able to recover more (or less) from consumers than if a correct valuation option had been used.

*Issue 2: There may be opportunities to better align or explain the rules between related party operating expenditure and capital expenditure rules*

47. The IMs deal with related party capital expenditure, but not related party operating expenditure, which is only addressed in the ID requirements.

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<sup>14</sup> *Electricity Distribution Information Disclosure Determination 2012* [2012] NZCC 22, clause 2.3.6(1)(b);  
*Gas Distribution Information Disclosure Determination 2012* [2012] NZCC 23, clause 2.3.6(2)(b);  
*Gas Transmission Information Disclosure Determination 2012* [2012] NZCC 24, clause 2.3.7(2)(b).

48. We received submissions that the current design of the related party transaction rules (ie, across the IMs and ID) gives rise to unnecessary confusion and complexity and that the provisions are inconsistent across the various determinations.<sup>15</sup>
49. PwC submitted that improved consistency could be achieved by:<sup>16</sup>
- 49.1 better aligning the sequencing of the valuation options;
  - 49.2 ensuring the terminology is consistent and unambiguous; and
  - 49.3 ensuring the valuation criteria which have substantially the same effect are expressed consistently.
50. We agree that there are opportunities to better align the related party rules between operating expenditure (in ID) and capital expenditure (in the IMs).
51. While these issues could potentially be addressed by amending the IMs now to better align with the ID requirements, we do not consider that to be the best solution. A piecemeal approach to addressing inconsistency by only making changes to the IMs could lead to further change at a later date, when related party rules in ID are reviewed. (It is possible that the related party rules in ID may not be fit for purpose).
52. We consider that better aligning or explaining the rules between related party operating expenditure and capital expenditure is a problem that cannot be fully addressed by considering only the IMs, without also engaging with stakeholders further and looking at the related party regime holistically, in light of more information.
53. We consider that the issue requires a broader perspective beyond reviewing only the IMs to reduce complexity and compliance costs. Whether and how provisions should work between the IMs and ID needs to be considered holistically, with the objective of having a cohesive set of rules for related party transactions that:
- 53.1 achieve the policy intent of the related party transactions regime;
  - 53.2 are easy to understand; and
  - 53.3 can be implemented without unnecessary compliance costs and uncertainty.

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<sup>15</sup> PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), para 130.

<sup>16</sup> PwC "Submission to the Commerce Commission on input methodologies review: Invitation to contribute to problem definition (21 August 2015), para 132.

*Issue 3: Related party transaction values are significant and the overall value is increasing*

54. Related party transaction values are a significant and increasing aspect of some regulated suppliers' expenditures. We are curious as to why this is, and would like to understand this better; for example:
  - 54.1 Why has the value of related party transactions been increasing? Is this driven by genuine commercial efficiency or for regulatory reasons?
  - 54.2 What is the impact and magnitude of the observed trends on the long-term benefit to consumers?
  - 54.3 Why do suppliers choose the transaction valuation methods they use?
  - 54.4 Are there policy, interpretation or compliance issues that need to be considered? What is the best response to these issues?
  - 54.5 What are the implications for the related party provisions in the IM and ID determinations? What changes, if any, should we make to the rules?

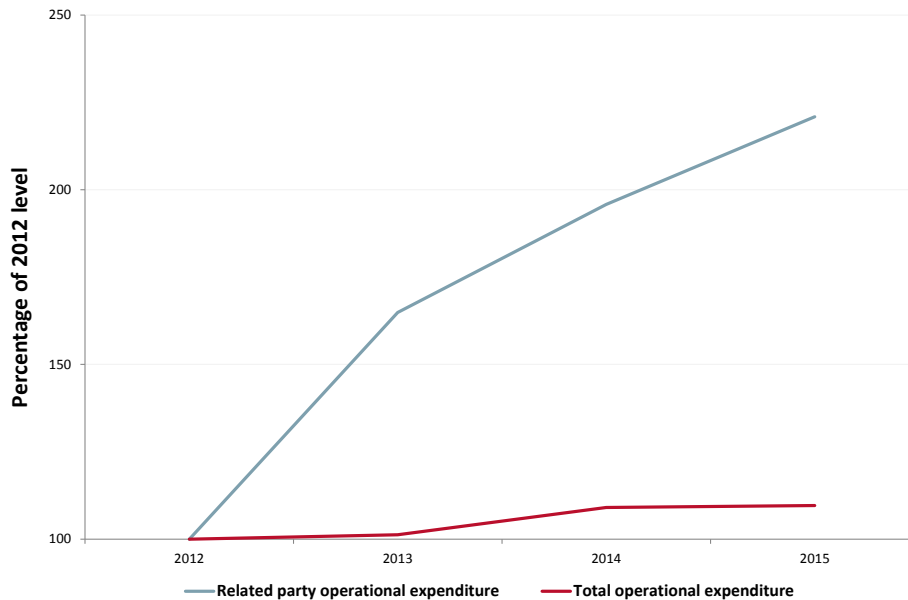
Examples of trends we are interested in

55. We have observed some trends with related party transactions in information disclosures made by regulated suppliers. These trends are of interest to us, as they could be indicative of a bigger problem with the related party rules across both the IMs and ID.
56. We do not know the reasons for these trends. For example, we do not know whether more related party transactions are taking place, or certain valuation options are being chosen because they produce the most efficient outcome. Nor do we know the extent to which the related party rules are influencing suppliers' decisions (ie, if suppliers were choosing particular valuation options or structures primarily to increase profits via an unregulated related party).
57. Examples of the trends we are interested in are:
  - 57.1 large increases in related party operating expenditure in absolute terms;
  - 57.2 increased related party operating expenditure as a proportion of total operating expenditure;
  - 57.3 related party transactions appear to feature strongly in the operating expenditure or capital expenditure for some EDBs, GDBs and GTBs and not others; and
  - 57.4 increasing levels of avoided cost of transmission (**ACOT**) payments made by regulated suppliers and some outliers in ACOT pricing.



58. Figure 1 shows that between 2012 and 2015, EDBs' related party operating expenditure has more than doubled, while total operating expenditure for all EDBs has remained relatively stable over the same time period.

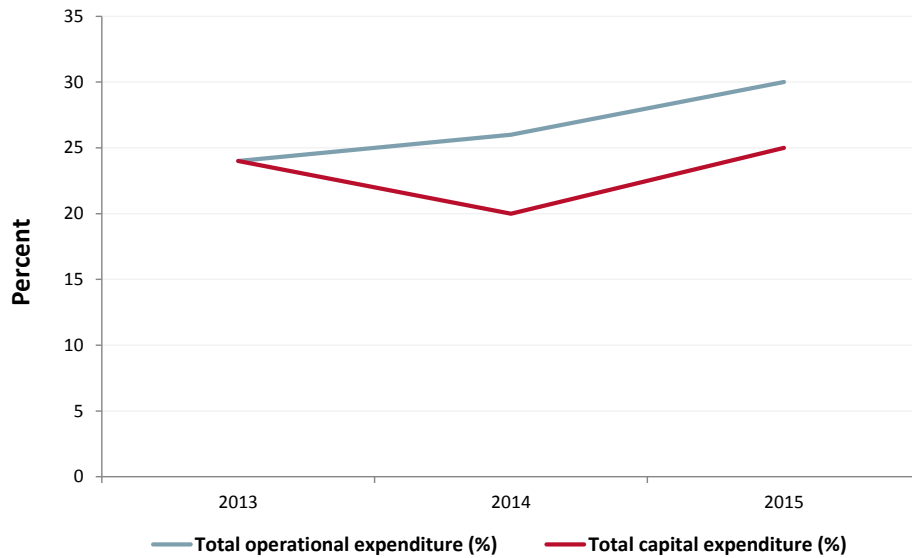
**Figure 1: Trend in operational expenditure 2012-2015**  
**Total vs related party for all EDBs**



*Source: Commerce Commission analysis of information disclosures made by regulated suppliers*

59. Figure 2 shows that related party operating expenditure as a percentage of all EDBs' total operating expenditure increased steadily from 24% to 30% between 2013 and 2015. Related party capital expenditure as a percentage of total capital expenditure has not experienced a similar upward trend.

**Figure 2: Proportion of EDBs' total opex and capex from related parties 2013-2015**



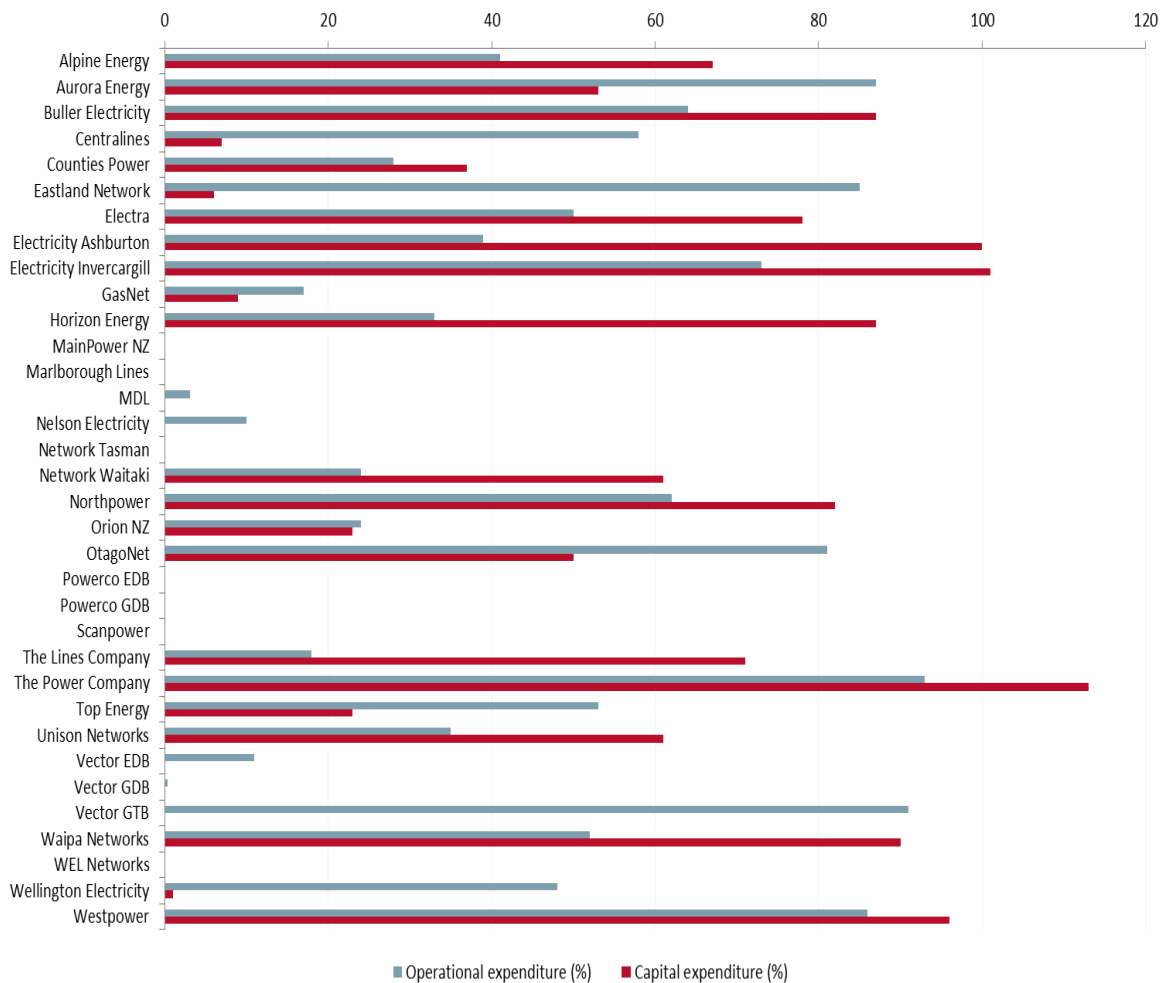
*Source: Commerce Commission analysis of information disclosures made by regulated suppliers*

60. Figure 3 shows that, while some suppliers do not have high levels of related party transactions, related party transactions feature prominently in opex or capex for other suppliers.
61. We were surprised by the levels of related party transactions disclosed by particular suppliers shown in Figure 3 as our understanding was that they have more significant related party transactions than reported. We also note that some suppliers have disclosed more related party capex than their total capex for 2015.<sup>17</sup>

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<sup>17</sup> This results in percentage results greater than 100% for Electricity Ashburton, Electricity Invercargill and The Power Company on the graph.

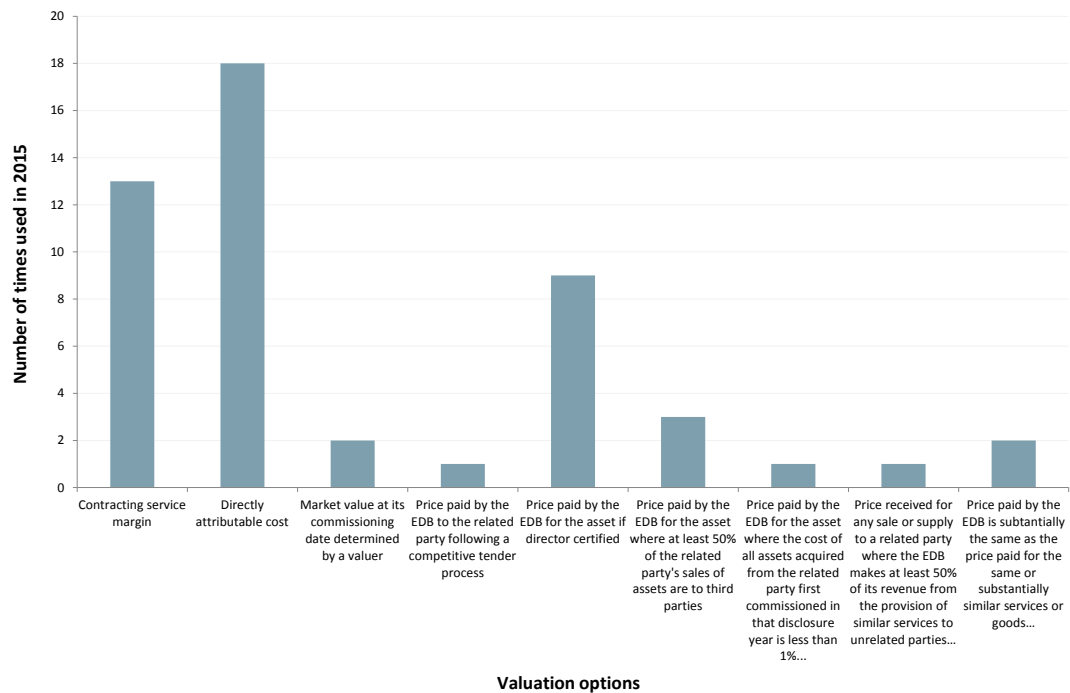
**Figure 3: Percentage of total opex and capex from related parties for each EDB/GPB in 2014/2015**



Source: Commerce Commission analysis of information disclosures made by regulated suppliers

62. Some valuation options are used much more frequently than others. Figure 4 shows the distribution of valuation options used by EDBs for related party capital expenditure in 2015. The second most popular option, the “contracting service margin” option, is being used incorrectly, as it is not a valuation option available for capex in the IMs and is a valuation option only allowed under the ID rules for opex.

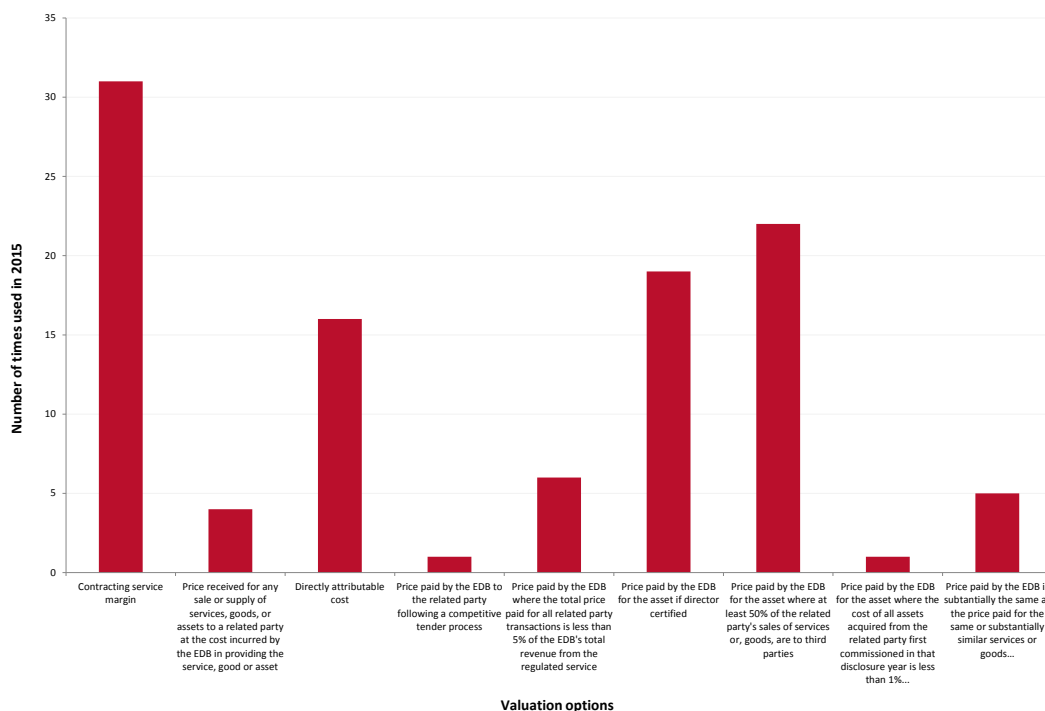
**Figure 4: Related party options used by EDBs for capital expenditure in 2015**



Source: Commerce Commission analysis of information disclosures made by regulated suppliers

63. Figure 5 below shows that the “contracting service margin” option is the most popular valuation option used under the related party ID rules for operating expenditure. We are curious about why this valuation option is preferred by suppliers and what the implications of this are for consumers and suppliers.

**Figure 5: Related party options used by EDBs for operational expenditure in 2015**



Source: Commerce Commission analysis of information disclosures made by regulated suppliers

- 64. In addition to related party transactions identified in information disclosures, we have also observed increasing levels of ACOT payments made by regulated suppliers for distributed generation over the last few years and are aware of some outliers in ACOT pricing for distributed generation.
- 65. ACOT payments have been increasing at a much higher rate than generation over the last four years.

**Table 1: ACOT payments disclosed by EDBs from 2011/2012 to 2014/2015**

|                         | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|-------------------------|---------|---------|---------|---------|
| <b>ACOT (\$m)</b>       | 37      | 57      | 62      | 52      |
| <b>Generation (GWh)</b> | (?)     | 3,100   | 3,001   | 3,173   |

Source: Commerce Commission analysis of information disclosures made by regulated suppliers

- 66. We are also concerned that some of the outliers in ACOT pricing have been incurred in related party transactions. For example, the highest per-kWh ACOT payments made by an EDB are 15 times higher than the lowest ACOT payment made by an EDB. The highest per-kWh ACOT payments are being made in related party transactions.

67. Although what we have observed does raise some flags, an issue is that our data on ACOT payments is not complete. We would particularly welcome submitters' views on this issue, especially on some of our observations where we have noted that additional information would be useful.

### **Chapter 3: Proposed approach for addressing the issues identified**

#### **Purpose of this chapter**

68. The purpose of this chapter is to explain our proposed approach for further exploring whether the identified issues amount to a broader problem with the related party transactions regime and considering what the best solution to any such problem might be.

#### **Proposed approach for addressing the issues we have identified with the related party transactions IMs**

69. Our proposed approach for addressing the issues we identified with the related party transactions provisions in the IMs is to:
- 69.1 not propose any changes to the related party transactions provisions in the IMs at this stage of the IM review process; and
  - 69.2 instead further explore whether the identified issues amount to a broader problem with the related party transactions regime and consider what the best solution to any such problem might be. In doing so, we will assess the extent to which the related party transaction provisions in both the IM and ID determinations for the EDB, GDB and GTB sectors achieve the policy intent of the related party transaction regime. We propose to do this within the current IM review,<sup>18</sup> and will update stakeholders on the timing for our draft and final decisions in September 2016.

#### *Reasons for preferring this approach*

70. The key reason for not proposing changes at this stage and instead spending more time on problem definition is that, based on current information, we consider the potential pros of making amendments now are not sufficiently clear to outweigh the potential cons of doing so. The cons are:
- 70.1 amending the IM determinations now may not be the best way to address the implementation and interpretation issues we have identified in our review;
  - 70.2 there may be a broader problem that exists with the related party transaction provisions in ID;
  - 70.3 we do not consider it appropriate to make changes to the related party transaction provisions of the IM determinations without fully understanding the bigger problem with the related party regime; and

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<sup>18</sup> Any changes to the ID requirements would be consulted on and made under s 52Q of the Act, rather than under s 52Y.

- 70.4 we do not fully understand how changes to the IM determinations would affect suppliers, their related parties or any commercial arrangements or structures they may have under the current rules.
71. We are not confident that any changes we could propose at this stage would address a broader problem of which these issues are symptoms, so the pros are limited.
72. We consider that taking more time to explore any potential problems with the related party transactions regime is useful because:
- 72.1 it will allow us to look at a wider context than the IM determinations and would consider the regime holistically, including the ID determinations and compliance concerns;
- 72.2 it will provide opportunities for us to provide further guidance for stakeholders about the purpose and meaning of the related party options and how to comply with them; and
- 72.3 it will provide greater opportunity for further input from stakeholders to develop and test possible solutions.
73. We have only heard from a small number of stakeholders on related party issues, and given the increasing importance of the related costs involved in setting price-quality paths, we would like to engage with a broader range of stakeholders about the related party transaction valuation rules.
74. In particular, we wish to further engage with stakeholders and get more information and explanations to better understand a range of matters, including (but not limited to):
- 74.1 the commercial rationale for the ownership structures or joint venture structures of related party suppliers of commissioned assets and services to regulated suppliers;
- 74.2 the types of ownership structures of related party suppliers of commissioned assets and services to regulated suppliers;
- 74.3 the terms of the contracts entered into between the relevant parties;
- 74.4 the mix of business undertaken by the related party suppliers with the regulated suppliers and with other unrelated parties;
- 74.5 the reasons for the growing value of related party transactions being disclosed;
- 74.6 why suppliers use certain related party options; and
- 74.7 the extent to which implementation and compliance issues reflect problems of dealing with any of the above from a regulatory point of view.



75. Taking more time to explore any potential problems with the related party transactions regime takes into account Powerco's submission on our problem definition paper, where it made the following statement about timeliness of the IM review:<sup>19</sup>

...the Commission should consider whether this review process is the most appropriate time to be considering an issue, or conversely whether it would be more appropriate to address the issue in a future review. The Commission might decide that consideration of an issue is not timely if the issue depends on market developments that are uncertain, or unlikely to crystallise before the next opportunity to review the IMs.

76. We note that submissions from PwC,<sup>20</sup> ENA<sup>21</sup> and Pioneer Energy<sup>22</sup> on our process and update paper,<sup>23</sup> indicated a preference for us to complete a review of the related party regime across both IM and ID together, if not within the same time frame as the IM review. We also note PwC's acknowledgement that the topic area is complex.

77. Having considered the submissions that have been made on our process and update paper and based on our review of the related party transaction IM provisions so far, we do not consider that issues 1–3 need to be addressed urgently.<sup>24</sup> We note that:

77.1 with a Gas DPP reset occurring in 2017, we have considered the impact of related party transactions on GDBs and GTBs.<sup>25</sup> Most of the related party transaction expenditure for GDBs and GTBs is in operating expenditure and is therefore not covered by the IMs;

77.2 the next EDB DPP reset is not until 2020. Although, we are aware that there is a need for a significant lead-in time for any changes we make to be reasonably bedded in prior to the reset; and

77.3 we do not have any immediate compliance concerns that are material enough to demand limited and potentially short-term changes to the IM provisions.

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<sup>19</sup> Powerco "Submission on input methodologies review: Invitation to contribute to problem definition" (21 August 2015), para 21.

<sup>20</sup> PwC "Submission to the Commerce Commission on input methodologies review: Emerging views papers – Made on behalf of 16 Electricity Distribution Businesses" (24 March 2016), para 9.

<sup>21</sup> ENA "Input methodologies review: Emerging views papers – Submission to the Commerce Commission" (24 March 2016), p. 4.

<sup>22</sup> Pioneer Energy "Input methodologies review – Process update paper" (24 March 2016) pp. 1-2.

<sup>23</sup> Commerce Commission "Input methodologies review – Process update paper" (29 February 2016).

<sup>24</sup> As noted in paragraph 80, we are accordingly open to extending the timeframe for our final decisions on the related parties IMs beyond December 2016.

<sup>25</sup> Less than 1% of GDBs' capex and only 2% of GDBs' opex was identified as a related party transaction in 2015. Although significant GTB opex was identified to be related party transactions in 2014 and 2015, the data is incomplete and this may change when the ownership structure of the sector changes under the First Gas transaction.

**Next steps for further work on the related party transactions regime**

*Purpose of the further work on the related party transactions regime*

78. The purpose of the further work is ultimately to further explore whether the identified issues amount to a broader problem with the related party transactions regime and further consider what the best solution to any such problem might be. In doing so:

78.1 we will assess the extent to which the related party transaction provisions in both the IM and ID determinations for the EDB, GDB and GTB sectors achieve the policy intent of the related party transaction regime;

78.2 we hope to gain a better understanding of a range of matters relevant to the related party transactions regime, including:

78.2.1 the commercial rationale for the ownership structures or joint venture structures of related party arrangements in relation to commissioned assets and services to regulated suppliers;

78.2.2 the types of ownership structures of related party suppliers of commissioned assets and services to regulated suppliers;

78.2.3 the terms of the contracts entered into between the relevant parties;

78.2.4 the mix of business undertaken by the related party suppliers with the regulated suppliers and with other unrelated parties;

78.2.5 the reasons for the growing value of related party transactions being disclosed;

78.2.6 why suppliers use certain related party options; and

78.2.7 the extent to which implementation and compliance issues reflect problems dealing with any of the above from a regulatory point of view.

78.3 We will propose solutions to any problems identified. Solutions may include:

78.3.1 changes to the related party provisions in the IMs or ID; and/or

78.3.2 providing further guidance or clarifications for suppliers about how the related party transactions regime works.

*Timeframes for our further work on the related party transactions regime*

79. The further work we propose to do on the related party transactions regime would be carried out within the current IM review.<sup>26</sup>
80. If our further work confirms a problem with the related party transactions provisions requiring changes to the IMs, this is likely to extend beyond the December 2016 timeframe for the rest of the review. On the other hand, if our further work does not identify a problem requiring changes to the IMs, we may be able to reach draft and final decisions on the related party IMs by December 2016.
81. We aim to update stakeholders in early September 2016 on our timing for draft and final decisions in respect of the related party transactions IMs.<sup>27</sup>

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<sup>26</sup> Any changes to the ID requirements would be consulted on and made under s 52Q of the Act, rather than under s 52Y.

<sup>27</sup> As discussed in the Introduction and process paper, we anticipate providing a general process update at this time.

