Submission to the Commerce Commission

on

Input methodologies review: Update paper on the cost of capital topic

Made on behalf of 19 Electricity Distribution Businesses

PwC submission on behalf of group of 19 EDBs

5 February 2016

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Introduction

1. This paper forms our submission on the Commerce Commission's (Commission's) paper, "Input methodologies review: Update paper on the cost of capital topic" published on 30 November 2015 (the Paper). This submission has been prepared by PricewaterhouseCoopers (PwC) on behalf of the following 19 Electricity Distribution Businesses (EDBs):

   - Alpine Energy Limited
   - Aurora Energy Limited
   - Buller Electricity Limited
   - Counties Power Limited
   - EA Networks
   - Eastland Network Limited
   - Electricity Invercargill Limited
   - MainPower New Zealand Limited
   - Marlborough Lines Limited
   - Nelson Electricity Limited
   - Network Tasman Limited
   - Network Waitaki Limited
   - Northpower Limited
   - OtagoNet Joint Venture
   - The Lines Company Limited
   - The Power Company Limited
   - Top Energy Limited
   - Waipa Networks Limited
   - Westpower Limited.

2. Together these businesses supply 27% of electricity consumers, maintain 45% of total distribution network length and service 73% of the total network supply area in New Zealand. They include both consumer owned and non-consumer owned businesses, and urban and rural networks located in both the North and South Islands.

3. We provided some initial comments on the high-level approach to estimating the weighted average cost of capital (WACC) as part of our submission on the Commission's Problem Definition Paper.[1,2]

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[1] Commerce Commission (16 June 2015), *Input methodologies review: Invitation to contribute to problem definition*

[2] PwC (21 August 2015), *Submission to the Commerce Commission on Input methodologies review: Invitation to contribute to problem definition*, made on behalf of 20 Electricity Distribution Businesses

The Paper asks for additional evidence, particularly regarding the detailed methods used to estimate each of the individual WACC parameters.

4. We appreciate the opportunity to comment on the Paper. Our submission presents the views of the 19 supporting EDBs and sets out our views regarding the methods used to estimate the WACC parameters, including alternative methods. This submission is consistent with the evidence presented by the ENA.

5. We trust our submission provides useful input in your review of the Input Methodologies (IMs). We would be happy to answer any questions you may have regarding this submission.

6. The primary contact for this submission is:

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Summary

Scope of the review

7. The Paper usefully states that the starting point for the review of the WACC IM will be the current approach to estimating individual parameters. As we stated in our submission on the Problem Definition Paper, we support the intent to focus on changing only those aspects of the IMs where the change would better promote the purpose of Part 4, or would reduce costs or complexity.

8. We continue to support the recommendations for the framework for the IM review as set out in the ENA's submission on the Problem Definition Paper, and the legal opinion from Russell McVeagh which supported them.[3] We submit that it is particularly important to maintain this framework for the WACC IM which has many components, with a number of alternative options available for estimating specific parameters. Accordingly our comments on the WACC IM are limited to a few key issues.

9. We also note that the WACC is only one component of the risk allocation mechanisms which apply to EDBs under Part 4. Accordingly we submit that it is important that the WACC IM is viewed as part of the wider IM review and the remainder of the Part 4 regulatory framework.

Approach to estimating WACC

10. We agree with the Paper that there is limited value in undertaking substantive analysis of alternatives to the SBL-CAPM, and support excluding this as a key area of focus. We consider that this is a reasonable conclusion given the evidence set out in the Paper. 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 challenge those conclusions.

11. 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.

12. We are concerned about the potential use of Black's Simple Discount Rule (BSDR) as a cross-check on the cost of equity estimated using the SBL-CAPM. The BSDR is not designed to determine the cost of equity, and it has not been demonstrated how the BSDR could work in practice within the regulatory framework. Given the obvious complexity involved with the BSDR, which is likely to lead to considerable debate over how to apply it, we do not support further consideration of this option which we consider will provide little benefit to the regime.

WACC parameters – asset beta

13. We consider that there is no basis for making an adjustment to the asset beta method in the event that the form of control is changed to a revenue cap. Our reading of the empirical literature as to whether the regulatory form of control impacts beta is that it is, at best, mixed. Furthermore, even if it could be robustly demonstrated that the form of control has a material effect on the beta of a

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3 Electricity Networks Association (21 August 2015), *Response to the Commerce Commission's Input Methodologies review paper: Invitation to contribute to problem definition*, paragraphs 47-61

specific regulated firm, we do not accept that this means that an explicit change should be made to the method used to estimate the beta for EDBs in the IMs.

14. We are concerned that the suggestion of an unspecified 'adjustment' of some sort to the asset beta under a revenue cap will impede a fair and full consultation of the relative merits of price and revenue caps for EDBs in New Zealand. It is critical that the relative merits of price and revenue caps are fully considered given emerging technologies and the associated need for distribution pricing reform. We consider that the uncertainty over the asset beta at this point is particularly unhelpful in this respect.

15. The IM beta value was initially determined using weekly and monthly betas from sample comparators. We submit that it is more appropriate, and less biased, to take an average over daily, weekly and monthly data. Given the lack of evidence for one frequency over another, there is no reason to place more emphasis on weekly and monthly data at the expense of daily observations. This change would also make the sampling approach consistent with that used to estimate the tax-adjusted market risk premium (TAMRP).

WACC parameters – risk free rate and debt premium

16. The historical averaging period for bond yields, for the risk-free rate and debt premium should be reconsidered. 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.

WACC parameters – debt issuance costs

17. As part of an efficient debt management strategy, an EDB can be expected to maintain facilities for short-term funding, over and above the average amount of debt it requires. This is necessary as it is not possible to maintain the exact amount of bonds to meet daily debt requirements. The IMs currently do not allow EDBs to be compensated for the costs of these facilities. The notional leverage assumed in the WACC has been determined from information about debt actually drawn down. The cost of facilities which are not used for the majority of the time are not compensated for. We submit that an estimate of these costs should be included in debt issuance costs.

18. The Paper asks for evidence of whether EDBs should be compensated for issuing debt of longer than five years. Clearly, if this type of debt issuance is the most efficient financing method, then EDBs should be fully compensated for it. Not doing so would be inconsistent with financial capital maintenance and outcomes from workably competitive markets.

CPP and DPP WACCs

19. Our recommendations for changes to the estimation of the cost of debt are likely to reduce the volatility between DPP and CPP WACCs which have been experienced to date. However, some residual differences will remain which are likely to continue to influence, one way or another, whether an EDB subject to price quality regulation applies for a CPP. We consider that the most effective way to resolve this, is for the CPP WACC to be set equal to the prevailing DPP WACC, including a recoverable cost wash-up at the point the DPP WACC changes at the next DPP reset.

20. We note that one option that has been proposed is for the DPP WACC to apply to existing assets and DPP capex allowances, and the CPP WACC to apply to incremental capex approved under a CPP. We do not support this approach – for the reasons set out in this submission. Importantly we have serious concerns that the proposed approach can in fact be implemented in practice without adding considerable complexity to the CPP/DPP framework – which is counter to the CPP IM work stream which is attempting to reduce the costs and complexity of transitioning between DPPs and CPPs.

General matters

Decision-making framework

21. The Paper usefully states that the starting point for the review of the WACC IM will be the current approach to estimating individual parameters.[4] As we stated in our submission on the Problem Definition Paper, we support the intent to focus on changing only those aspects of the IMs where the change would better promote the purpose of Part 4, or would reduce costs or complexity.[5]

22. We continue to support the recommendations for the framework for the IM review as set out in the ENA's submission on the Problem Definition Paper, and the legal opinion from Russell McVeagh which supported them. We submit that it is particularly important to maintain this framework for the WACC IM which has many components, with a number of alternative options available for estimating specific parameters.

23. In this respect, we continue to support the following:

- The underlying policy intent for the WACC IM should be maintained and consistent with the core economic principles relied upon by the Commission when the IMs were initially determined (and as set out in the IM Reasons Paper[6])
- Any change to the WACC IM should maintain consistency with these core economic principles
- Any change which involves a modification to an underlying economic principle should require a very high evidentiary and economic threshold. New evidence or information should generally be required to justify such a change
- A change designed to reduce costs and/or complexity or address unforeseen consequences requires a lower threshold for change
- Judgment should not be exercised without reference to previous decisions or robust reasoning in the absence of evidence.

24. Our analysis and recommendations in this submission are consistent with this decision-making framework.

25. Lastly, we reiterate that the WACC is only one component of the risk allocation mechanisms which apply to EDBs under Part 4. Other elements include the form of control, price path re-opener provisions, allowances for pass-through and recoverable costs, indexation of the RAB and price path, and the option to apply for a CPP. Accordingly we submit that it is important that the WACC IM is viewed as part of the wider IM review and the remainder of the Part 4 regulatory framework. As the Problem Definition Paper noted, "*it is important to consider risk allocation and compensation in a holistic way, especially when considering potential changes to the IMs.*"[7]

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4 Commerce Commission (November 2015). *Input methodologies review: Update paper on the cost of capital topic*, para 2.3

5 Supra n2, para 49

6 Commerce Commission (December 2010), *Input Methodologies (Electricity distribution and gas pipeline services): Reasons Paper*

7 Supra n1, para 108

General approach to estimating WACC

26. The key areas of focus in the Paper refer to the methods for estimating individual WACC parameters. We consider that this is the appropriate focus. The EDBs which support this submission consider that the high-level approach currently used to estimate WACC is appropriate – that is, the approach which averages the costs of debt and equity, and estimates the latter using the SBL-CAPM formula.

27. 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.

28. 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.[8]

29. We support the Paper's stated intention that further work will not be undertaken on the 'split cost of capital' approach which has been previously proposed by 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 with the Paper that the potential benefits are uncertain. Given the recent change of the WACC percentile for price setting purposes, we are pleased that the Commission is not convinced that any 'economic rent' exists under the current single WACC approach. Lastly, we note the comment from PwC UK that the general view of UK regulators is that a single WACC is "*conceptually superior and more practical*" – a position we endorse for the New Zealand framework.[9]

30. Finally we agree that there is no need to re-consider the WACC percentile which applies for price-setting purposes. This issue was considered in 2014, and we do not consider that new evidence has emerged since then which justifies any further consideration of the percentile.

Cross-checks

31. The Paper considers the potential use of the BSDR as a cross-check on the cost of equity estimated using the SBL-CAPM. We remain concerned about this proposition.

32. The BSDR is not designed to determine the cost of equity. Rather, it is designed as a way of discounting future cash flows (eg for valuation purposes). The key benefit of the BSDR is that it avoids the need to estimate WACC parameters for the discount rate. However, it introduces additional complexity as the probability distribution of cash flows must be estimated.

33. It has not been demonstrated how the BSDR could work in practice within the regulatory framework. It is also not, to the best of our knowledge, used by other regulators. In particular, it has not been demonstrated how forecast regulatory revenues would be adjusted so that they could be discounted at the risk-free rate. Given the obvious complexity involved with the BSDR, which is likely to lead to considerable debate over how to apply it, we do not support further consideration of this option which we consider will provide little benefit to the regime.

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8 Supra n4, para 4.11-4.26

9 Supra n4 para 4.28-4.50

34. We also are concerned that a cross-check could be used to override any value determined using the main SBL-CAPM method, which we do not consider is appropriate given the evidence and precedent which supports using this method.

WACC parameters

35. In this section, we consider the methods currently used to estimate each of the individual WACC parameters, in particular the issues raised in the Paper. Each parameter is discussed in turn.

Asset beta

36. The asset beta of 0.34 for EDBs was determined as the mean of the observed betas for a sample of comparator regulated listed firms. If this approach is retained, then we consider that it is sensible for the data to be updated, in order to derive an up-to-date estimate of each comparator firm's beta. Given that some regulated firms have been listed or de-listed since the IMs were determined in 2010, it also makes sense to update the comparator firms included in the sample, while retaining the same approach that was used for the initial IMs.

37. The Paper also specifies three key areas of focus for the method for estimating beta, for further consideration:

- the effect of the form of control
- the sampling period
- adjustments between sectors.

38. We address each of these in turn below.

Effect of the form of control

39. The Paper states that the Commission intends to do further analysis as to whether the method for estimating the asset beta should be adjusted in the event that the form of control is changed to a revenue cap. We consider that there is no basis for making an adjustment to the asset beta method in such a case because of the way in which the asset beta estimate has been derived.

40. We submit that in order to justify such a change in method, there should be compelling empirical evidence that a change to the form of control has a significant effect on a regulated firm's beta, and a new method must be demonstrably more accurate in terms of estimation than the current method. We do not consider that either of these are the case.

Empirical evidence

41. Our reading of the empirical literature as to whether the regulatory form of control impacts beta is that it is, at best, mixed.

42. The IM Reasons Paper relied on two key papers for its empirical information. Alexander et al (1996) found evidence that the type of incentive regulation had a significant impact on asset beta. However, Buckland & Fraser (2001) called this into question, finding that betas in the time period considered by Alexander et al were materially affected by external events. The conclusion reached in the IM Reasons Paper was that the Commission did not have "*any recent empirical evidence that demonstrates different regulatory regimes affect or reduce the level of systematic risk in any material way.*"[10]

43. The only new evidence noted in the Paper comes from the Queensland Competition Authority (QCA), which investigated this issue in 2012. QCA states that "*the evidence of how the specific form of regulatory control affects non-diversifiable risk is mixed, although the most robust of the relevant*

[10] Supra n6, para H8.98-H8.110, H8.157

studies (Grout and Zalewska, 2006) finds support for the proposition that the form of regulation matters."[11]

44. The Commission engaged CEPA to review international regulatory approaches regarding the WACC, including the impact of the form of control on beta. CEPA refers to three sets of empirical work, two of which found evidence of a significant impact and one which did not. Of the two which found such evidence, one is the work by Alexander et al which could not be robustly relied upon in the IM Reasons Paper.[12]

45. We therefore consider that the empirical evidence identified in the IM Reasons Paper, the QCA Paper and the CEPA Paper is inconclusive and we caution against introducing a change to the current approach, where there is no clear consensus.

Adjustment method

46. Importantly, given the method adopted for estimating the EDB beta in the IMs we do not accept the proposition that a change in the form of control requires an adjustment to the EDB beta.

47. The sample of comparators used to determine the EDB beta includes businesses which are subject to a range of regulatory controls, including revenue caps and non-incentive regulation. No adjustments were made to account for these regulatory differences in determining the initial beta. In our view, it does not seem demonstrably incorrect to retain the existing approach in the event that the form of control becomes a revenue cap – the mean of the sample is just as relevant for a business subject to a revenue cap, as a price cap.

48. We also consider that it would be opportunistic to make an explicit adjustment to beta to account for one regulatory difference between the sample firms without also adjusting for other regulatory differences. Given that adjusting for all major regulatory differences would be prohibitively difficult, we submit that the current approach of using a large sample of regulated firms and making no specific adjustments is an appropriate method – as it was when the IMs were first determined.

49. Determining the appropriate magnitude of any adjustment would be difficult, because it would need to be specific to the sample of comparators used. As CEPA points out in its report to the Commission, the difficulty lies in controlling for the large number of other items that differ between firms and affect beta.[13] In addition, because the mean of the sample is based on a mix of forms of control, even if it was possible to robustly determine the beta difference between price cap and revenue cap businesses, it is unclear what adjustment should be made to the value derived from the current method.

50. We are also disappointed that the Paper raises this issue in isolation, without acknowledgement of why a revenue cap may now be more appropriate in the New Zealand context than a weighted average price cap. The characteristics of DPP and CPP forecasts are also relevant to this debate. We are concerned that the possibility of an unspecified 'adjustment' of some sort to the asset beta under a revenue cap will obstruct a fair and full consultation on the relative merits of price and revenue caps for EDBs in New Zealand.

51. Emerging technologies suggest that demand forecasting is likely to become more difficult in the foreseeable future, and as recently highlighted by the Electricity Authority,[14] there is a real and

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[11] Queensland Competition Authority (November 2012), *Risk and the Form of Regulation*, Discussion Paper, page 31

[12] Cambridge Economic Policy Associates Ltd (December 2015), *International comparison of regulatory precedent on the weighted average cost of capital: Final report*, a report for the New Zealand Commerce Commission, pages 10-11

[13] Ibid, page 12

[14] Electricity Authority (November 2015*), Implications of evolving technologies for pricing of distribution services*, Consultation paper

pressing need for distribution pricing reform. Both of these factors have emerged since the IMs were first determined, and are directly relevant to the form of control debate.

Sampling period

52. The beta for a listed business can be estimated using returns over any frequency, but daily, weekly and monthly observations are commonly used. The beta in the current IMs is based on monthly and weekly data.[15] In the recent UCLL/UBA decision, most weight was placed on monthly betas but weekly betas were also considered.[16] Neither decision explicitly stated why these frequencies were preferred.

53. Financial theory does not suggest that one such frequency is better than the others, and suggests that each has its own disadvantages. Given the lack of supporting evidence for preferring one time period over another, we suggest that the method could be improved by amending the approach to derive an average from daily, weekly and monthly data.

54. While not explicitly stated in the IM Reasons Paper, we deduce that the rationale for using both weekly and monthly betas was that neither was theoretically preferable. On this basis, it is also reasonable to include daily betas. We submit that averaging daily, weekly and monthly observations is a better, less biased, way of implementing this policy intent.

55. Importantly, this approach would be consistent with the approach used to estimate the TAMRP, where an average over multiple methods is taken. In fact, the following paragraph about TAMRP, taken from the UCLL/UBA Decision, could equally be applied to beta:[17]

> "*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 (…), rather than strongly preferring one approach (…) over others.*"

Adjustments between sectors

56. The beta value for EDBs is derived from the sample beta estimates referred to above. Adjustments are then made to this value to determine beta values for other sectors.

57. Since no adjustment is made to determine the electricity distribution beta, the EDBs who support this submission do not have a view on the appropriate magnitude of adjustments to derive other sectors' betas.

Tax-adjusted market risk premium

58. The TAMRP is not sector-specific, and so decisions for other sectors may be as relevant as those for EDBs. The Commission's most recent decision regarding the TAMRP was part of the December 2015 UCLL/UBA decision. The Paper states that this decision contains the Commission's most recent view of how the TAMRP should be estimated.

59. In the UCLL/UBA decision, five different methods were used, with a TAMRP derived for each method for both New Zealand and international markets (10 estimates in total). The mean and median of the five methods were derived, for each of the New Zealand and international estimates. The mean and median values were all equal to 7.0% when rounded to the nearest 0.5%, and hence the value adopted for the TAMRP was 7.0%.

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15 Supra n6, para H8.211(iv)

16 Commerce Commission (15 December 2015), *Cost of capital for the UCLL and UBA pricing reviews: Final decision*, para 153.4

17 Ibid, para 192.1

60. This approach is very similar to that used to determine the TAMRP value in the IMs. Consistency of methods over time is important to promote regulatory certainty, and we therefore support the similarity of these approaches.

61. However, we make the following observations about the approach used:

- *Means or medians*: When the IMs were determined, both mean and median values were derived, and the mean values were used to determine the final estimate.[18] In the UCLL/UBA decision, only median values are stated but the text suggests that 'average' values were primarily used.[19] We consider that mean values are more relevant than median values – means incorporate information from all of the methods, and are not overly impacted by the value of one method. We submit that means should be the primary basis for determining the overall TAMRP estimate.

- *Rounding*: We consider that the estimates are sufficiently robust that the mean values can be rounded to the nearest 0.1% rather than 0.5%. We understand that there is a limited degree of precision with at least some of the methods used, and that this was the rationale for rounding to a relatively high unit of measure.[20] However, the averaging over multiple approaches mitigates that problem somewhat. Furthermore, we do not consider that there is less precision in the TAMRP than there is in the estimates of other WACC parameters that are rounded to a lower unit of measure.

Risk-free rate and debt premium

62. We discuss the risk-free rate and debt premium together, because many of the areas of focus relate to both parameters.

63. The Paper specifies a number of areas of focus for the method for estimating the risk-free rate and debt premium:

- the use of government bonds or swap rates for the risk-free rate
- the efficient credit rating of BBB+
- the specific corporate bonds used to estimate the debt premium
- the use of prevailing bond yields versus trailing averages
- annual updating of the risk-free rate and/or debt premium
- the term of the bonds used, and the use of the term credit spread differential allowance (TCSD).

Government bonds or swap rates

64. The Paper repeats much of the discussion included in the IM Reasons Paper about the choice of government bond yields or swap rates as a means for estimating the risk-free rate. We are comfortable retaining the bond yields, as we do not consider there is sufficient evidence to justify a change.

65. We note that another way of disaggregating the cost of debt which EDBs face, and which is more aligned to actual funding practices, is to measure swap rates (as the risk free portion of funding) plus the credit spread over swap rates.

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[18] Supra n6, para 7.79

[19] Supra n16, para 191

[20] Supra n6, para H7.61

BBB+ credit rating

66. The credit rating does not appear to be a key area of focus for the Commission, although the Paper states that it will be reassessed. We submit that there is little evidence to support a change from the current notional credit rating of BBB+.

67. The following statements from the IM Reasons Paper, which set out the rationale for the choice of BBB+, remain relevant:

> "*... the notional long-term credit rating should be, and remain, comfortably within an 'investment grade' credit rating ..., and a S&P long-term credit rating of BBB+ (...) is the minimum notional long-term credit rating that provides an adequate margin of safety with respect to EDBs, GPBs and Transpower. Setting the minimum notional long-term credit rating at, for example, BBB (being only one notch above BBB-, the lowest investment grade long-term credit rating) provides a materially lower margin of safety that a reasonable investment grade is maintained in the long-term.*"[21]

The specific corporate bonds used

68. As noted in the Paper, ideally the debt premium would be estimated using yields on BBB+ corporate bonds issued by privately-owned EDBs, but since there are relatively few of those a wider set of bonds must be considered.

69. In our view, the current approach makes a reasonable effort of using a range of bonds to estimate the debt premium, and we have no specific suggestions for its improvement.

Prevailing bond yields or trailing averages

70. The Paper presents consideration of the merits of using trailing average yields to estimate the risk-free rate and debt premium. We support the intent to further consider this issue before the IMs are determined.

The trade-off

71. The decision to use either prevailing yields or a trailing average involves a trade-off between the use of up-to-date information reflecting current market conditions, and the ability to average out the short-term fluctuations over a business cycle leading to relatively stable estimates over time.

72. The IM Reasons Paper states that prevailing rates better meet the Part 4 purpose than trailing averages, and that there may also be dynamic efficiency benefits. It noted that using prevailing rates would mean that changes in expectations in the financial markets will be signalled more rapidly to suppliers and to consumers.[22]

73. The fact that the AER used prevailing rates was also a factor considered by the Commission in 2010. The IM Reasons Paper stated that:[23]

> "*The [AER's] approach to the averaging period is to allow the regulated businesses discretion to choose the length of the averaging period within the span of 10 to 40 business days. In the opinion of the AER, the range of 10 to 40 business days represented an optimal length of time to balance the trade-off between 'volatility driven error' and 'old information driven error'. Other Australian regulators use a similar approach.*"

74. Prevailing rates were also adopted in the UCLL/UBA decision. That decision simply stated that prevailing rates would be used because of their benefits in terms of signalling changes in

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[21] Supra n6, para H5.57

[22] Supra n6, para H4.10-H4.13.

[23] Supra n6, para H4.24.

expectations most quickly to suppliers and consumers. It did not explicitly weigh up this benefit against the benefit of stability over time.[24]

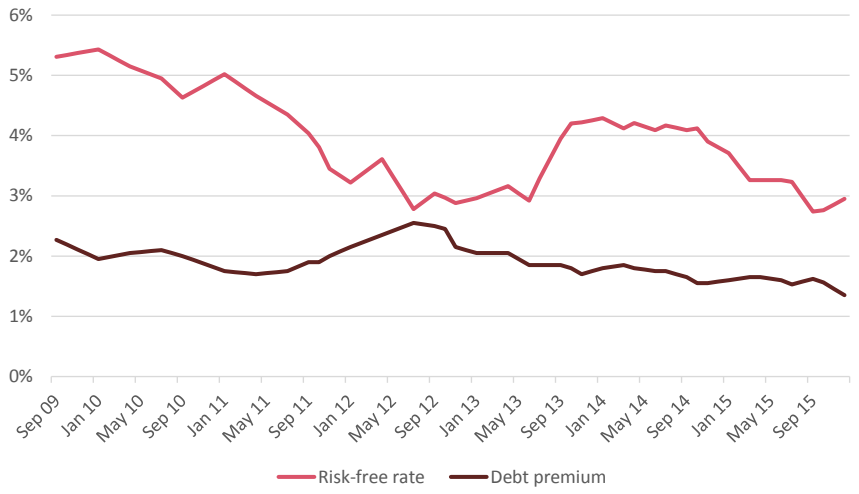
Experience using prevailing rates

75. In practice we consider that the use of prevailing rates has had a significant impact on the regulatory WACCs since 2010, and we suggest that this may not have been fully anticipated at the time the decision was made. Bond yields, especially on government bonds, have been particularly volatile over the past decade (as shown in Figure 1). The month-to-month volatility exhibited has meant individual estimates of the risk-free rate or debt premium can be artificially above or below what might be representative of its level more generally at that time.

Figure 1: Five-year government bond yields (2006 – 2016)

76. The volatility experienced with the risk-free rate (in particular) and debt premium estimates (as illustrated in Figure 2 below) has led to the WACC estimates themselves being volatile over time with real exposure to month on month observations. This has introduced regulatory uncertainty, made revenue forecasting difficult, and has had unintended side-effects in terms of the incentives for CPP applications.

Figure 2. Risk-free rate and debt premium values, 2009-2015



[24] Supra n16, para 73-76.

Efficient financing practices

77. We are not persuaded that it is necessary to have these parameter estimates fully reflect current market conditions. This reasoning implicitly assumes that an efficient EDB can (and would) refinance all of its debt, and hedge all interest rate risk, at the start of the regulatory period using prevailing rates at the time. But this is not how an efficient EDB would operate, and cannot in practice be achieved. It is also impractical for exempt EDBs, where the WACC estimates which apply to Information Disclosure regulation are updated annually.

78. EDBs raise and manage their funding requirements over a number of years, often using a combination of bank debt, bond issuance and debt placements to do so. Full refinancing and interest rate hedging by all non-exempt EDBs at the start of a regulatory period is not only impractical from a debt market perspective, but it is also imprudent as such behaviour would become anticipated within the NZ debt capital markets, potentially leading to pre-emptive, artificial price behaviour by the market.

79. Furthermore, some EDBs access international debt capital markets and rely on access to these markets during what is considered 'issuance efficiency' windows. Such decisions take into consideration basis swaps for currency risk management as well as particular credit/investor appetite, and therefore they are hard to forecast.

80. The current approach exposes EDBs to a significant risk of misalignment between the regulatory debt premium and their actual weighted average credit cost. This is because the credit margin is the result of financial market forces and sentiment, and over such a short timeframe (one month) EDBs are unable to influence or take protection against these risks.

81. In our view, best practice and prudent interest rate risk management is where firms make a large number of small hedging decisions, rather than a heavy concentration of large hedging decisions in a short space of time. While each EDB will have different funding requirements and individual debt refinancing profiles, a longer-term rolling average calculation of the risk-free rate and debt premium will better reflect the efficient cost of financing for EDBs.

Regulatory precedent

82. We note that there is now a considerable amount of regulatory precedent for the use of trailing averages for determining regulatory cost of debt estimates. As stated in the Paper and the CEPA Report, the AER, Economic Regulatory Authority Western Australia (ERAWA), Essential Services Commission of South Australia (ESCOSA), Ofgem and Ofwat all use the trailing average approach, while New South Wales' Independent Pricing and Regulatory Tribunal (IPART) uses a hybrid approach. In this respect we note that 10 years is the most common period over which an average is taken.[25]

83. Many of these regulators have changed their approach since the IMs were initially determined, which in our view is a compelling trigger for reconsideration at this time in New Zealand. The primary reason for the AER changing to the trailing average approach is that it better reflects efficient financing arrangements. The AER stated that the trailing average method "*performs well in terms of minimising the potential difference between the return on debt allowance and the expected return on debt of the benchmark efficient entity*" and "*is capable of providing the benchmark efficient entity with a staggered debt portfolio with a reasonable opportunity to recover at least the efficient debt financing costs*." Reducing volatility over time was stated as a secondary reason.[26]

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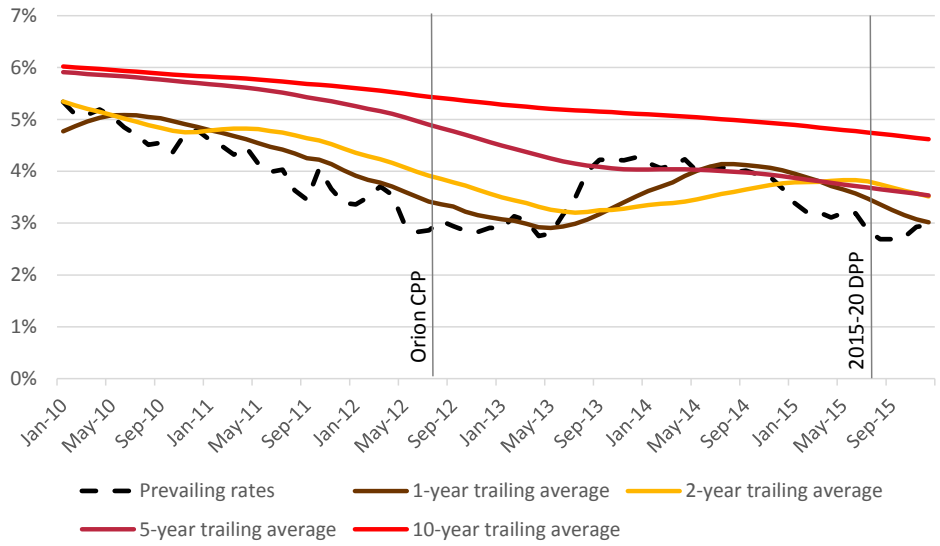
[25] Supra n4, paragraph3.23; Supra n12, pages 24 & 30.

[26] Australian Energy Regulator (December 2013), *Better Regulation – Explanatory Statement: Rate of Return Guideline*, page 109.

Stability of estimates using trailing averages

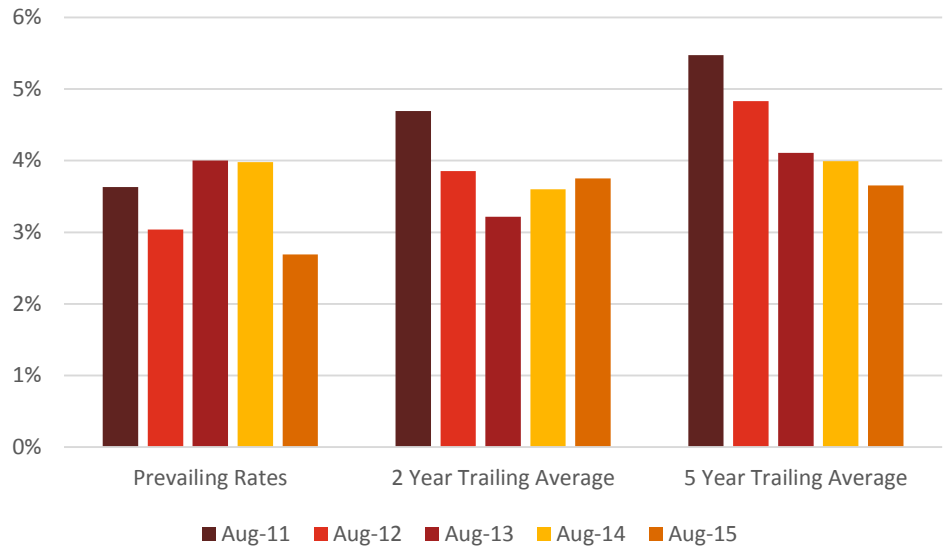
84. Figure 3 below shows the 1, 2, 5 and 10-year trailing averages compared with prevailing rates, for the risk-free rate, since the Commission first began determining WACC values in accordance with the IMs for EDBs. The chart shows that even shorter-term trailing averages would lead to more stable estimates over time. We note that the chart shows a downward trend, which is more lagged the longer the trailing average. It is important to recognise that the lag would also apply for an upward trend, and hence, over time consumers would not be disadvantaged.

Figure 3. Risk-free rate, using prevailing rates and trailing averages, 2010-2015



85. CPP WACCs are determined each year in September, using August data. DPP WACCs are determined once every five years using August data. Figure 4 below shows the risk free rate estimates in August for 2011-2015, using three different methods. The current method (prevailing rates) shows greater volatility in the estimates over the past five years.

Figure 4: Risk free rate estimates under different methods (for the month of August)



Conclusion and implementation

86. We submit that the same approach – either prevailing rates or trailing averages – should be used for both the risk-free rate and the debt premium.

87. On the basis of the experience with prevailing rates to date, and the changes to information since the IMs were determined, we recommend a change in approach by adopting trailing averages. This will reduce volatility in WACC estimates, which has been higher than anticipated. It will better reflect efficient financing practices of EDBs, and it will be consistent with recent regulatory decisions, where a number of Australian regulators have switched to using trailing averages.

88. In our view, a historical period of five years seems appropriate. This implicitly means that an EDB would fully refinance its debt over a period of five years (20% each year). We consider that this is consistent with the NZ market, on average.

89. The EDBs which support this submission do not consider that there are any problems with the transition to the use of a trailing average. With the next DPP not beginning until April 2020, EDBs will have a sufficient amount of time to adjust their financing if necessary to reflect new regulatory rules.

Annual updating of the risk-free rate and/or debt premium

90. 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.[27]

91. The Paper states that the current approach means that the WACC will depart from the true cost of capital over the course of regulatory period, and that annual updating of the risk-free rate and/or debt premium will help mitigate this.[28] This is clearly true. However, we do not consider that the Paper has demonstrated why this is a problem in a regulatory sense.

92. The current approach provides for NPV=0 *ex-ante*, but not necessarily NPV=0 *ex-post*. Far from being a problem, this is exactly how incentive regulation is intended to work.

93. We do not consider that it has been demonstrated why the estimate of WACC should not last for five years. Nor do we consider that the Commission has demonstrated why the risk-free rate and/or debt premium should be updated each year when other inputs to the regulated price paths are not. We therefore do not support annual indexation of the risk-free rate or debt premium.

The term of the bonds used, and the TCSD

94. The Paper asks for evidence of whether EDBs should be compensated for issuing debt of longer than five years.[29] Clearly, if this type of debt issuance is the most efficient financing method, then EDBs should be fully compensated for it. Not doing so would be inconsistent with financial capital maintenance and outcomes from workably competitive markets.[30]

95. Many EDBs issue debt with a term of more than five years. This was noted by the Commission when the IMs were initially set, and was the reason for the TCSD.[31]

96. In order to compensate EDBs for the cost of this debt, we consider that there are two options available:

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[27] Supra n4, para 3.40.

[28] Supra n4, para 3.37-3.38.

[29] Supra n4, para 3.63.1.

[30] See, for example, IM Reasons Paper, paragraph 2.6.28.

[31] Supra n6, para H5.20.

- The cost of debt could be based on bonds with a term which reflects the average tenor of EDB-issued bonds (likely to be greater than five years).
- An explicit allowance for longer-term debt can be added to the BBAR formula. This is what the TCSD achieves.

97. The former approach was proposed by PwC on behalf of the ENA, at the time the IMs were initially determined.[32] We continue to support this approach. We do not accept that the term of either the risk-free rate or the debt premium should necessarily be matched to the length of the regulatory period.

98. We note that the UCLL/UBA decision used a five-year term for the risk-free rate (based on the length of the regulatory period) but a seven-year term for the debt premium (based on the average debt term).[33] We submit that the Commission should give serious consideration to the use of a bond term of longer than five years for the estimation of the cost of debt.

99. 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.

Debt issuance costs

Process for updating estimates

100. We acknowledge that the Commission has requested details of debt-raising costs from EDBs for the purpose of updating the debt issuance cost estimates.

101. We note that the Commission needs to be as transparent as possible about how it determines its final value for issuance costs. Despite the confidentiality of the input data, we suggest that the Commission considers whether it can make some form of aggregated data public so that the method can be assessed by interested parties, and the final estimate fully justified.

Prudential committed liquidity

102. At the time the IMs were determined, Asia Pacific Risk Management (for Unison) and Bancorp (for Vector) submitted that an allowance should be included within debt issuance costs for the costs of maintaining committed bank liquidity lines. This reflected the observation that as part of an efficient debt management strategy, an EDB maintains facilities available for short-term funding, over and above the average amount of drawn-down debt it requires.

103. The IM Reasons Paper states that the debt premium for these liquidity lines is similar to that of corporate bonds, and therefore concludes that the (current) approach of estimating a premium on public bonds is reasonable.[34]

104. While the statements about relative costs are not incorrect, the fact remains that this decision has not allowed EDBs to be compensated for the costs of these facilities. The notional leverage assumed in the WACC reflects debt actually drawn down. Accordingly the cost of facilities which are not drawn down are not compensated for.

105. We submit that an estimate of these costs should be included in debt issuance costs. Actual cost information from EDBs could be requested for this purpose.

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[32] PricewaterhouseCoopers (August 2010), *Electricity Networks Association: Submission on the Cost of Capital Parameter Estimates in the Commerce Commission's (Draft) Electricity Distribution Services Input Methodologies Determination 2010*, paras 4.5 & 5.13-5.17.

[33] Supra n16, paragraphs 77 & 133.

[34] Supra n6, paragraph H5.88.

Leverage

106. We support retention of the current method for determining the EDB leverage assumption. The method used to determine the IM value was aligned with the beta method – in particular, leverage was based on the same set of comparators as the beta. We consider that this should still be the case. As we stated for the beta, the values for each comparator should be updated. If the comparator sample for the beta is amended, then the sample for the leverage value should be amended consistently.

Standard error

107. The Paper notes that NZ Airports has submitted that the standard error may be understated.[35] NZ Airports' primary concern is that the error of the asset beta for airports was set at broadly the same level as that for the energy sector, whereas it considered there may be more error in an airport context.[36]

108. The EDBs which support this submission do not have a view on the relative degree of error between the airport and the energy sectors. However, they do wish to ensure that the standard error for electricity distribution is not understated, since that would reduce incentives to invest through its effects on DPP price paths. We therefore support the stated intention to review the standard error of the WACC estimate as part of this IM Review.[37]

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35 Supra n4, paragraph 2.21.

36 NZ Airports (21 August 2015), *Submission on Commerce Commission's Input Methodologies Review: Invitation to Contribute to Problem Definition*, paras 76-77.

37 Supra n4, paragraph 2.22.

CPP & DPP alignment

109. In practice, the CPP WACC in a given year has often been materially different from the prevailing DPP WACC. This is partly a consequence of the volatility in the estimates of the risk-free rate and debt premium discussed above. As the Paper points out, this creates perverse incentives for EDBs to apply or not apply for a CPP, and this is not in the long-term interests of consumers.[38] We support the Paper's implied intention to achieve greater alignment between the two WACCs.

Effect of changes to parameter estimation methods

110. We note that changes to other methods (discussed above) may reduce the size of the problem. In particular if a trailing average method is adopted for the risk-free rate and debt premium, as we suggest it should be, this will reduce the difference between DPP and CPP WACCs.

Dr Lally's proposals

111. The Commission engaged Dr Lally to consider the incentive problems created by the WACC methods for CPP applications.[39] Dr Lally has identified four possible 'solutions' for better aligning the DPP and CPP WACCs to counteract these incentive issues. Two involve changes to the method for setting the risk-free rate and debt premium; the details and merits of which are discussed above. If changes to these parameters are not made, or not deemed to generate sufficient alignment between DPP and CPP WACCs, Dr Lally has identified two other potential solutions.

112. Dr Lally's preferred solution is to apply the prevailing DPP WACC to existing assets and any capex already approved in the prevailing DPP, and to apply the CPP WACC to any capex over and above that. The EDBs which support this submission are strongly opposed to this suggestion. They strongly favour the use of a single WACC to apply to the entire RAB in a given year, and do not consider the introduction of multiple WACC values for different sets of assets is appropriate.

113. We note that Dr Lally's method helps address the lack of WACC alignment, but does not completely solve the problem. CPP applications are still subject to WACC arbitrage incentives on new capex. The EDBs which support this submission consider that if the fundamental problem is that the methods for estimating the WACC result in volatile estimates over time, then the preferable solution is to make those estimates more stable. The improvements suggested above would address that.

114. Dr Lally's '2nd-best' solution is to simply apply the prevailing DPP WACC to the CPP. In our view, this option can be improved by switching from the prevailing DPP WACC to the subsequent DPP WACC at the time that the DPP is reset. This is the option set out in paras 89-90 of our submission on the Problem Definition Paper and supported by the EDBs party to this submission. It can be implemented via a recoverable cost adjustment, similar to recoverable cost adjustments already provided for in the current DPP.

Wider effects on the CPP methods

115. The primary use of the WACC is to calculate the return on capital element of building blocks allowable revenue (BBAR). But the WACC, and elements of it, are also used in other parts of the regulatory methods. These impacts need to be worked through before any changes are made, to ensure that they can be implemented.

116. If multiple WACC values are adopted in a given year (as per Dr Lally's preference), this will impact other parts of the BBAR formula where a single WACC value is used. For example, the use of the cost

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[38] Supra n4, paragraph 3.65

[39] Lally, M. (18 September 2015), *Complications arising from the option to seek a CPP*

of debt in the notional deductible interest formula and formulae for certain recoverable costs, the calculation of financing costs for commissioned assets, and the WACC used in the capex IRIS. We consider that multiple WACCs will introduce considerable cost and complexity to the regime, which we do not support.

117. We also note that it is not clear how distinguishing between DPP capex and CPP capex can be achieved in practice for the purpose of calculating the return on asset component of the CPP BBAR. We note that WACC is applied to the RAB, not capex. The BBAR used for determining DPP and CPP price paths are based on entirely different methods for:

- capex forecasting – as the CPP forecasts are built up on a project/programme basis and the DPP forecast is an annual allowance
- RAB roll forward – as the CPP roll forward incorporates asset specific depreciation, and end of life adjustments, which are not included in the DPP RAB roll forward.

118. Thus there is no readily identifiable DPP component of the asset based building blocks within the CPP BBAR. We therefore have serious concerns that the preferred approach can in fact be implemented in practice without substantial changes to the CPP BBAR method and also possibly the DPP BBAR method. In our view this could add considerable complexity to the CPP/DPP framework – which is counter to the CPP IM work stream which is attempting to reduce the costs and complexity of transitioning between DPPs and CPPs.