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Input Methodologies review draft decisions – cross submission on cost of capital

Final

Submission to the Commerce Commission

From the Electricity Networks Association

Contents

1. Introduction....3
2. Key points....4
3. Debt compensation....4
4. Beta estimation....7
5. Cross-sectional comparison within the Commission's sample....10
6. Term of risk free rate....12
7. Equity raising costs....12
8. Appendix....13

1. Introduction

1. The Electricity Networks Association (**ENA**) appreciates the opportunity to make a cross-submission to the Commerce Commission (**Commission**) in respect of submissions received on the 2016 **Input Methodologies review draft decision on cost of capital** published by the Commission on 5 August 2016. This cross submission covers only the cost of capital IM draft as other draft decisions topics were covered in the ENA cross-submission dated 18 August 2016.

2. The ENA represents all of New Zealand's 26 electricity distribution businesses (**EDBs**) or lines companies, who provide critical infrastructure to NZ residential and business customers. Apart from a small number of major industrial users connected directly to the national grid and embedded networks (which are themselves connected to an EDB's network) electricity consumers are connected to a distribution network operated by an ENA member, distributing power to consumers through regional networks of overhead wires and underground cables. Together, EDB networks total 150,000 km of lines. Some of the largest distribution network companies are at least partially publicly listed or privately owned, or owned by local government, but most are owned by consumer or community trusts.

3. This cross-submission responds to selected parts of the following submissions made to the Commission regarding the cost of capital IM draft decision:

    - Contact Energy, *Input Methodology Review*, 4 August 2016 (**Contact submission**)
    - Major Electricity Users' Group, *Submission on Input methodologies draft review decisions*, 4 August 2016 (**MEUG submission**)
    - First Gas, *Submission on Input Methodologies Review Draft Decisions: Cost of Capital Issues*, 4 August 2016 (**First Gas submission**)
    - First State Investment, *Input Methodologies Review: Cost of Capital,* 4 August 2016 (**First State submission**)
    - Wellington Electricity, *Input methodologies review: response to draft decision,* 4 August 2016 (**WE submission**)

4. As with the ENA submission on the WACC IM draft decision[1] this cross submission is also prepared using empirical evidence wherever possible to assist the Commission make the best informed decisions that it can.

5. The ENA responds to selected parts of these submissions in the order of the contents page of the ENA submission on the cost of capital IM draft decision.

6. Three documents from advisors CEG (TCSD update, memo re debt costs and a report on Oxera submission) should be read with this submission and are attached.

[1] See ENA submission *IM review – Topic paper 4 cost of capital issues.* 4 August 2016.

2. Key points

7. Some submitters, including Contact and MEUG, have argued for lower debt costs than proposed in the draft decision, by removal of the TCSD allowance. In addition WE has identified issues with the Commission's calculations supporting its proposed TCSD premium. Based on the Commission's draft decision and submissions on the WACC IM draft, and analysis by CEG, the ENA submits that EDBs will be undercompensated for debt costs. This is explained in section three and the attached CEG reports.

8. Analyses submitted by Contact and First Gas on the differences between gas and electricity gas betas in the Commission sample set is unreliable. This is explained in section four and the attached CEG reports.

9. In regard to paragraph seven, assumptions that debt beta should be set at zero only holds in certain circumstances. Section five shows when this assumption is not appropriate.

10. ENA members endorse the submission of Wellington Electricity regarding the inclusion of equity raising costs in EDB compensation and the proposal to use a ten year risk free term for estimating cost of equity.

3. Debt compensation

11. The draft decision proposed several changes to the way EDBs are compensated for their debt costs - both interest costs and debt transaction costs. The Commission proposed to not make changes to the methodology for assessing debt costs and continue to use the "on-the-day" approach rather than a trailing average methodology. It proposed a new methodology for assessing term credit spread differential (TCSD) and a restructure of the approach to debt transaction costs.

12. The ENA members have made numerous submissions on the benefits of the trailing average approach and continue to assert that it is the preferred approach for estimating the cost of debt.

TCSD calculations

13. Several submitters suggested that TCSD should be removed completely (Contact[2] and MEUG[3] though for slightly different reasons, but both appear to have submitted on the basis of no evidence as to the existence and scale of the debt premium).

14. The reality from the evidence ENA advisors CEG has prepared is that the TCSD is not an opportunity for "gaming", as Contact asserts. It is a premium that lenders require for longer tenor debt and is a non-trivial number that sits between 10.5 and 14.5 bppa. In response to the submissions by Contact and MEUG, CEG has expanded its review of the Commission methodology for estimating the TCSD. The CEG review accompanies this cross submission.

[2] See Contact letter to Commission: *Input Methodology Review*. 4 August 2016.

[3] See MEUG letter to Commission: *Submission on Input methodologies draft review decision*. 4 August 2016, para 29.

15. Contact's submission argues that a regulated business can manage efficient debt at a 5 year tenor and longer tenors are not necessary. It points to its own circumstances as an example of this approach. In light of this evidence, Contact asserts a TCSD is not warranted. The Contact argument is inconsistent with the evidence concerning the debt arrangements of network businesses that the ENA presented in its 4 August submission. That material clearly shows that the debt portfolio of an efficient network operator is close to a weighted average 10 year tenor, rather than 5 years.

16. As further justification for limiting tenor to 5 years, Contact also refers to para 205 of the Commission draft, which notes that 24 of 29 survey respondents had debt less than 5 years.

17. The ENA notes that para 205 goes on to describe the Commission's reasoning – that is, it does not want to compensate these firms for costs they do not incur. ENA notes that all efficient costs should be compensated to maintain investment by a prudently run business.

18. However, the ENA would point out that the Contact argument regarding para 205 is incorrect. The vast majority (83% by number and 70% by value) of total debt is issued as long-term bonds by four network businesses.[4] Because of their longer tenor debt, these four fall outside the "24 of 29" classification in paragraph 205. ENA members would further argue that, if it accepts the Contact arguments to remove the TCSD, the Commission is materially under-compensating those network businesses who have longer tenor debt. The earlier evidence in the ENA submission regarding industry debt statistics has not been repeated here.[5]

19. Further to the points made in paragraph 18, the ENA notes that the Commission has decided to retain the TCSD component but to change the TCSD estimation methodology to remove administrative burdens and make the result more representative of the true costs of long tenure debt.[6] In the event the Commission continues with the on-the-day approach, ENA members agree with the Commission's proposal to retain the TCSD but consider that improvements can be made to the new methodology that the Commission proposes for estimating the TCSD. CEG addresses the improvements in its advisory report to the ENA.

20. The CEG report that accompanies both the 4 August ENA submission, and the update with this cross submission, provides evidence regarding the aspects of the proposed TCSD decision that ENA members disagree with. They also offer proposals for providing businesses with debt compensation that better reflects the efficient costs that they incur.

Bond sample - quality

21. In its submission, Wellington Electricity (WE) drew attention to a particular aspect of the Commission's approach to calculating the TCSD premium that may be impacting the results of this component. WE's concerns relate to the inclusion of bonds with poor quality data in the Commission sample. The submission goes on to suggest that bond quality could be assessed

[4] See CEG memorandum: *Industry debt statistics*. 3 August 2016. Figure 3.1.

[5] See CEG memorandum: *Industry debt statistics*. 3 August 2016 for full details of the earlier ENA submission.

[6] See Commerce Commission: *Input methodologies draft decisions – Topic paper 4 cost of capital issues*. 16 June 2016. Para 184 to 190.

using the Bloomberg approach, which is based on the reliability of the data about the bond price and other characteristics (BVAL).[7]

22. The quality of the bond data that the Commission uses in its sample set is important. This is because a higher BVAL score reflects the fact that a high scoring bond has been valued based on its own market data, and that data is of sufficient quality to warrant the high score.[8] Scores below 6 reflect either poor-quality bond data, or an absence of own market data, both of which cause this class of bond to be valued on market comparators (proxies) rather than on a standalone 'in the market' basis. Care needs to be taken when using these bonds in the comparator sample.

23. Because of the point raised by WE the ENA asked CEG to extend its earlier review of the Commission's TCSD calculations[9], to assess the impact of the quality rating of the bonds in the Commission sample, using the Bloomberg BVAL score. The updated CEG review is attached.[10]

24. The results are material to the Commission draft decision. CEG has determined that if bonds in the Commission sample that are below a minimum quality threshold are excluded (a BVAL score of 6 is recommended), the Commission's TCSD estimate doubles from 5.56 to 11.19 bppa. Significantly, this figure (based on the 'corrected' Commission methodology) sits very close to the results that CEG calculated in its earlier report using both its own methodology and an amended version of the Commission approach. A comparison of the estimates from the various methodologies is in Table 1.

Table 1: Results summary

Methodology	Original Report Estimate (bppa)	Update Report Estimate with min BVAL Score of 6 (bppa)
Commerce Commission Estimate	5.56	11.19
CEG estimates since January 2014 as per modified Commission method (Table 23 in original report)	9.8 (2014) to 14.9 (2016)	10.5 (2014) to 14.5 (2016)
CEG estimates since January 2014 averaged across individual issuers (Table 25 in original report)	8.6 (2014) to 14.4 (2016)	11.1 (2014) to 14.4 (2016)
CEG Monthly NSS estimate January 2010-July 2016 (Table 11 in original report)	9.4 to 12.1 (average since 2010)	10.7 to 13.1 (average since 2010)
CEG Monthly average slopes of individual BBB+ issuers January 2010-July 2016 (Table 13 in original report)	10.5 to 12.5 (average since 2010)	11.8 to 12.6 (average since 2010)

Debt premiums – trailing average methodology

25. The Contact submission proposes that various adjustments be made to the Commission sample set to improve the relevance to New Zealand situation.

[7] WE submission p7.

[8] Bloomberg use a scale of 1 to 10 to describe BVAL (Bloomberg Valuation) scores across all asset classes. The score reflects the quality of the market pricing information.

[9] See CEG *Review of the proposed TCSD calculations*. August 2016

[10] See CEG *Review of the proposed TCSD calculations – Update report*. August 2016

26. ENA members have submitted several times about the need to avoid contentious and arbitrary adjustments such as proposed by Contact to the bonds comparator set, about improvements to the Commission on-the-day methodology, and about ENA member's preference for the trailing-average approach to calculating debt costs, because this approach better reflects the reality of network businesses debt arrangements.

27. The trailing average approach is gaining acceptance as the preferred debt cost methodology and members consider that the evidence presented to the Commission in previous submissions from the ENA and other parties is sufficient for the Commission to decide to now make the change. Provided the trailing average approach is defined and set up appropriately (including the transition) it should better represent the debt costs of an efficient network business. Arbitrary adjustments and contentious longer tenor bond cost estimates should not be necessary.

Debt transaction costs

28. The Contact submission proposes that debt issuance costs are set at about 10 bps, including swap costs.[11] In a similar fashion, the MEUG submission references the Contact position and also argues for 10 bps including swap costs[12] but it also questions the Commission not using a bottom-up approach to estimate these costs. The Commission proposes a more global approach to transaction costs (no higher than 20 bps) based on the variable nature of the various transaction costs.

29. The ENA included the CEG analysis of industry debt statistics from the 2016 confidential survey in its 4 August 2016 submission to the Commission. The CEG analysis was based on actual debt survey data. It provides accurate evidence that actual efficient debt costs are well above the proposed allowance of 20 bps. A memo from CEG regarding the specific points made by the Contact submission is attached and is not repeated here.

4. Beta estimation

30. The Commission's draft decision reviewed the energy company sample comparator from its 2010 review and updated observations of asset beta accounting for weekly and four weekly observations of beta from the comparator set. The Commission's refinement of the comparator sample and updated view of the beta based on two sets of five yearly observations resulted in an asset beta of 0.34. This value is consistent with a review of a comparator sample of companies conducted in 2010.

31. A number of submitters argued that the Commission should change this aspect of the draft WACC IM decision. The following matters are covered in this cross submission.

32. The Contact submission proposes an approach that would see a number of adjustments to beta, substantially based on information of US regulated electricity and gas businesses.[13] Contact

[11] See Contact submission p30/p31.

[12] See MEUG submission p9/p10.

[13] See Contact submission p34.

engaged consultants TDB Advisory to review the Commission's proposed approach. Using the TDB analysis, Contact argues that the Commission should use a smaller comparator sample set and, among other things, specifically exclude high beta observations.

33. The Contact submission also presents other arguments in support of a lower overall WACC. One is that Contact wants a WACC reduction if the Commission decides to implement revenue cap control, because the proposal to allow for accelerated depreciation will reduce systematic risk.[14] CEG's examination of this latter issue, earlier in 2016, revealed that there are no reliable differences between betas for price cap or revenue cap forms of regulation.

34. The First Gas submission argues that observed beta estimates for regulated gas-only businesses are materially different to both regulated electricity utilities and to integrated entities, and are above 0.44.[15] First Gas cites the analysis of its advisors Oxera in support of a 'refined' Commission analysis that gives rise to a beta estimate of 0.44 to 0.50.[16]

35. In the same way as Contact, the First Gas submission mounts arguments for a higher beta (WACC) for regulated gas businesses. For example, it argues that the Commission should limit the comparator set only to directly comparable US gas pipeline businesses and that there is strong support for this approach.[17]

36. In its submission, First Gas owners First State Investments, forwards arguments that support the First Gas submission.

37. The MGUG submission proposes that beta for regulated gas businesses should be further reduced to 0.30, because this is consistent with Commission evidence.

38. Because these submitters traverse similar issues, this cross submission combines responses to the various points.

39. The ENA 4 August submission supported the Commission's approach. It referred back to work on asset beta that CEG undertook for the ENA in February 2016. Following the 4 August submissions, the ENA asked CEG to review the arguments from submissions regarding beta, as are set out in paragraphs 32 to 37 above. The CEG report on this and other matters regarding submissions on the draft WACC IM is attached.[18] The key points concerning beta estimates are summarised as follows.

40. There are two different challenges in the Commission's draft decision regarding beta estimation. These can be characterised as:

    - An argument that because gas betas are significantly different to electricity betas in a statistical sense, that an uplift should be retained for gas betas and, by implication, a decrement applied to electricity businesses. This argument is advanced by First Gas and its consultants Oxera.

[14] See Contact submission p27.

[15] See First Gas submission. 4 August 2016. P2/p3.

[16] See Oxera: *Asset beta for gas pipelines in New Zealand.* 3 August 2016. Section 2.

[17] See Fist Gas submission p7/p8.

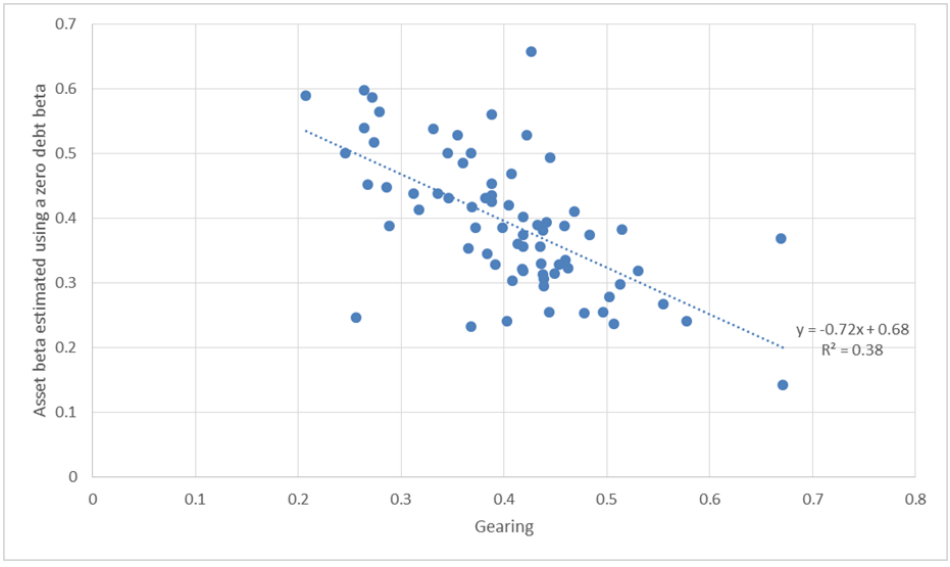
[18] See CEG: Asset and Equity betas for gas versus electricity businesses. August 2016.

- An argument that the high beta estimates in the Commission's sample, including among many gas businesses in the most recent five year period, are not due to the standard variation in measurement of asset betas across firms with fundamentally similar underlying risk. Rather, it is argued that high beta estimates in the Commission's sample are due to the underlying risk of those firms being greater than the average in the sample and, more specifically, greater than the underlying risk for a regulated electricity or gas transport business. This is the argument advanced by Contact Energy and its consultant TDB.

41. CEG makes a number of important observations regarding these arguments, including the following key points.

42. The analysis presented by Oxera and TDB relies entirely on asset betas (predominately for US firms) that have been estimated assuming a zero debt beta. It is well understood that this assumption is not accurate and that, in reality, debt betas will typically be positive and increase with gearing (just as equity betas increase with gearing). Consequently, assuming zero debt betas tend to underestimate the asset beta for firms generally and, in particular, for firms with the highest gearing.[19] This point is illustrated in figure 1, which captures the Commission's estimates of daily betas over 2011 to 2016 against firm specific leverage.

Figure 1: Asset beta estimated with zero debt beta vs gearing (daily estimates over 2011-16)



43. CEG argues that it is a mistake to rely on the most recent five-year period and disregard previous periods. CEG's advice is that relying on the most recent five year periods is only relevant if one believes that the fundamental risk of gas businesses has very recently increased relative to the fundamental risk of non-gas businesses. If this is not the case, then examining only the most

[19] This is not necessarily a cause for concern if the regulated equity beta is set using the (underestimated) sample average asset beta by re-levering to the sample average gearing. In that situation it can be expected that most of the underestimate in sample average asset beta is 'cancelled out' by using the same leverage formula (without a debt beta) to return to the sample average gearing.

recent estimates of beta will leave relevant information out of the assessment, and make the application of any statistical test subject to bias and error.

44. No submitter has provided a credible basis for believing that gas businesses in the sample set have only recently, in the last five years, experienced an increase in risk relative to electricity businesses. Similarly, any formal statistical test should be applied using a long time horizon.

5. Cross-sectional comparison within the Commission's sample

45. In the draft decision, the Commission maintained the assumption, entirely appropriately for its purpose of estimating an average equity beta at the sample average gearing, that debt beta would be zero for all businesses and for businesses in the Commission's comparator sample.

46. Oxera (for First Gas) and TDB Advisory (for Contact) have taken the asset betas so estimated and used them in a manner that is not consistent with their construction. Specifically, they have used comparisons of asset betas (derived with a zero debt beta) across firms that have very different leverage. As the Commission clearly notes in its discussion of the 'leverage anomaly' this is not appropriate because, in reality, debt betas are unlikely to be zero – especially for highly geared firms.

47. The Commission discusses this issue under the heading "The Leverage Anomaly" on page 117 of Topic Paper 4. The Commission explains why it would not countenance adopting a higher leverage than sample average leverage for Transpower unless it also adopted a positive debt beta assumption to accurately account for the impact of differences in gearing between Transpower and the sample average.[20]

48. Precisely the same logic applies when attempting to compare asset betas for individual firms (or subsets of firms) within the wider sample. Asset betas for a firm with high gearing cannot be meaningfully compared to asset betas for a firm with low gearing unless a non-zero debt beta has been used in the de-leverage process.

CEG analysis of impacts of a positive debt beta

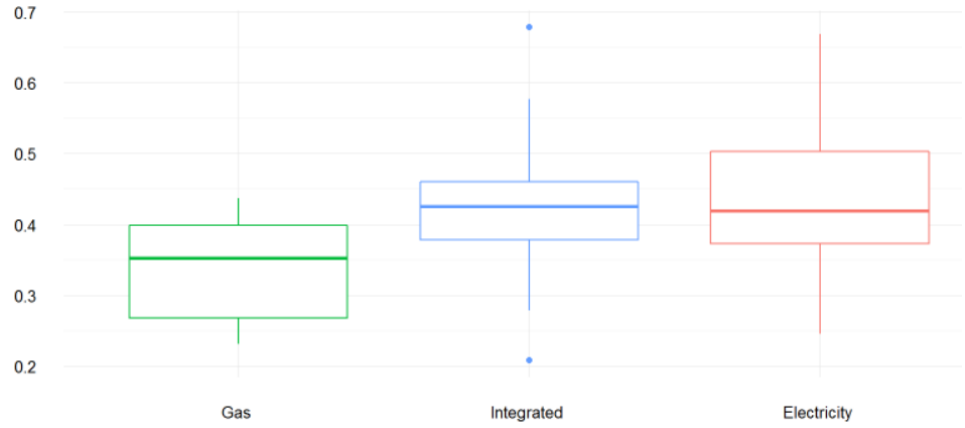
49. Figure 1 above illustrates a very strong, and statistically significant, negative relationship between gearing and asset beta (when the former is estimated assuming zero debt beta). Of course, there should be no relationship between asset beta and gearing because asset beta is, by definition, supposed to remove the impact of differences in gearing across businesses.

50. This analysis strongly suggests that the differences in measured asset betas within the sample is largely explained by the failure to account for the impact of debt betas when estimating asset betas. Moreover, this underestimation of asset beta is strongest for firms outside the gas subsample because these firms happen to have the highest gearing. It can be seen in figure 2 that the average gearings for gas firms is lower than for electricity and integrated firms. This

[20] Paragraph 458 beginning on page 117 of Topic Paper 4.

indicates that the observed higher asset betas for gas firms could be attributed to the lower level of borrowings, instead of different exposure to systematic risks.

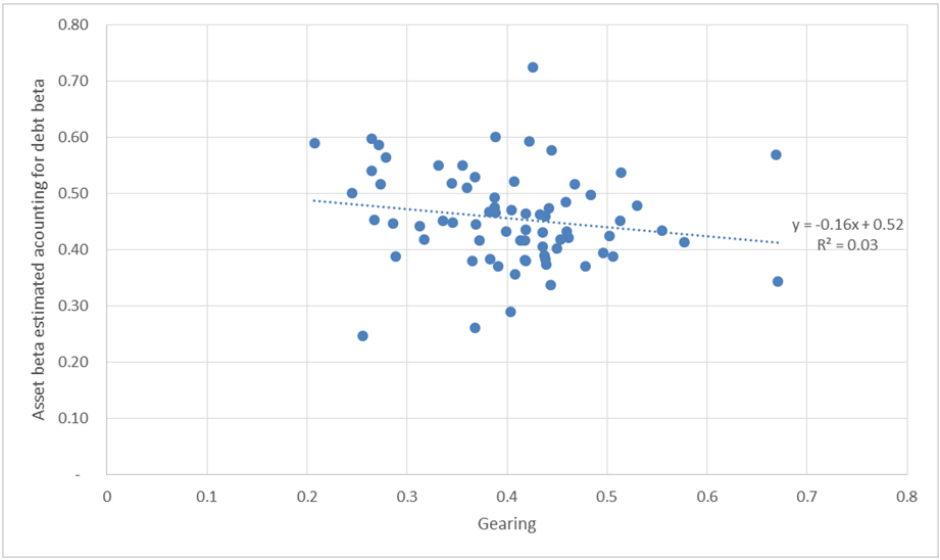
Figure 2: Average gearings adopted in calculating the recent five-year asset betas for gas, electricity and integrated sub-samples



51. None of these observations effect the validity of the Commission's analysis – which is to estimate an average asset beta (assuming a zero debt beta) and re-lever that asset beta to the sample average leverage also using a zero debt beta.

52. However, it does create a fatal flaw in the analysis presented by Oxera and TDB which both rely, in different ways, on the observed differences in asset betas (measured with zero debt betas) to make their claims. In particular, both rely heavily on the apparent relatively high asset betas for gas-only firms with unusually low gearing. However, when debt betas are accounted for, these observations cease to be so high relative to the wider (more heavily geared) sample. Figure 1 illustrates that much, if not most, of the variation relied on by Oxera and TDB within the sample is attributable to the failure to adjust for debt betas and does not reflect fundamental differences in systematic risk.

Figure 3: Asset beta estimated with positive debt betas vs gearing (daily estimates over 2011-16)



53. When CEG applies a plausible adjustment for debt beta,[21] the apparent negative relationship between asset beta and gearing largely disappears and the variation in measured daily asset beta across the sample is greatly reduced, as shown in figure 3.

54. Estimating debt betas is difficult, which is why the Commission and other regulators tend not to do so. The ENA does not propose that the Commission needs to do so in order to arrive at a reasonable estimate of the cost of equity (provided a zero debt beta is used in both the de-levering and re-levering). However, ENA members believe that, if cross-sectional analysis is performed of the type done by Oxera and TDB, the existence of positive debt betas must be accounted for in the manner illustrated by CEG.

6. Term of risk free rate

55. ENA members endorse the use of a ten year risk free rate for estimating cost of equity as proposed by WE in its submission.

7. Equity raising costs

56. Wellington Electricity noted in its submission that under the current IMs there is no provision for equity raising costs that the businesses incur. These costs include legal and investment banking fees (e.g. brokerage, due diligence, underwriting fees, etc) and are incurred by businesses when they raise equity from new or existing shareholders.

57. New equity is needed to maintain a given capital structure (in the case of a benchmark operator, a 44 per cent gearing ratio) and credit rating (BBB+). The Australian Energy Regulator (AER) also compensates the businesses for these costs in its post-tax revenue model (PTRM). The ENA members note that these are necessary efficient costs that the businesses incur and these should be compensated for in the Input Methodologies.

[21] CEG's estimate results in an average debt beta across the sample of 0.14 and it limits debt betas to fall between 0 and 0.3 depending on the firms gearing. Specifically, CEG makes the assumption that debt beta is zero for gearing below 30%, is equal to [0.35-0.5*(1-G)]/[0.7*(1-G)] for gearing above 30% but cannot exceed 0.30.

8. Appendix

The Electricity Networks Association makes this submission along with the explicit support of its members, listed below.

Alpine Energy
Aurora Energy
Buller Electricity
Counties Power
Eastland Network
Electra
EA Networks
Horizon Energy Distribution
Mainpower NZ
Marlborough Lines
Nelson Electricity
Network Tasman
Network Waitaki
Northpower
Orion New Zealand
Powerco
PowerNet
Scanpower
The Lines Company
Top Energy
Unison Networks
Vector
Waipa Networks
WEL Networks
Wellington Electricity Lines
Westpower