

# **Cross Submission on the Cost of Capital Workshop**

From the Electricity Networks Association

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## 1. Introduction

1. This cross submission, from the Electricity Networks Association (ENA), is in response to specific issues raised at the Commerce Commission's workshop on the cost of capital held in Wellington on 12 and 13 November 2009 (the Workshop). The ENA's position on broader cost of capital issues has been made known to the Commission in its previous submissions, and those of its experts, and these prior submissions form part of the ENA's overall position on the Commission's approach to the regulatory cost of capital.
2. This cross submission is set out under seven headings corresponding to the seven sessions that were held at the Workshop.
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## 2. Cost of Capital Framework

4. The ENA considers the Cost of Capital Guidelines (the Guidelines) should sit above and be broader than the Input Methodologies (IM). For example, the Commission should remain open in the Guidelines to the use of models other than, and in addition to, the simplified Brennan-Lally CAPM. However, the IM needs to define which models are to be used and how.
5. The IM parameters should be reviewed, although not necessarily updated, each time they are to be applied. While the Commission has proposed regular review of debt premia, it is noted that market factors that affect debt premia are also likely to affect leverage, beta and the market risk premium (MRP). Accordingly, frequent review of parameters should not be restricted to just the risk free rate and the debt premium.
6. It is noted that the 'straw person' provided by the Commission for the Workshop does not address some key framework issues, such as asymmetric risk and real options. Nor does it deal with adjustments to and a final conclusion on asset

beta for New Zealand electricity distribution businesses (EDBs). Furthermore, assessment of a WACC range and selection of a point estimate from within that range are also not considered. It is acknowledged that the ‘straw person’ example was not intended to cover these matters, but for the record the ENA notes that these are all framework issues that would need to be covered before the Commission could conclude on a WACC estimate for EDBs.

7. In principle the ENA supports use of industry-wide cost of capital estimates for the purpose of Default Price Paths (DPPs). However, if a firm is to be subject to a Customised Price Path (CPP) it is the ENA’s position that such firms should be able to elect to use firm-specific cost of capital estimates, where they can provide supporting evidence (e.g. actual leverage, actual debt costs, and relative risk characteristics of the firm as may affect assessment of beta).
8. Under the Brennan-Lally CAPM model favoured by the Commission, the risk free rate, the investor tax rate and the tax adjusted market risk premium (TAMRP) can be viewed as market-wide parameters. Under the DPP it would therefore be necessary to obtain industry-wide estimates for the asset beta, leverage and the debt premium. An industry-wide asset beta estimate should be obtained from analysis of the betas for comparable companies (i.e. companies that primarily operate as EDBs), listed in New Zealand or overseas. Industry-wide leverage and debt premium estimates can be obtained from analysis of these parameters for New Zealand EDBs (discussed further below).

## **Evidence-based decision making**

9. The Commission, in relation to Part 4, has stated its intention to be guided by the implementation principles of consistency, flexibility, transparency and cost-effectiveness<sup>1</sup> (principles which the ENA supports). The ENA considers these implementation principles, applied to estimating the cost of capital, place an obligation on the Commission to set out the:
  - Evidence and factual basis the Commission has relied upon to come to its decision;
  - Reasons for choosing that evidence; and
  - Reasons for any change in the evidence relied upon relative to previous Commission decisions.

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<sup>1</sup> Paragraphs 2.73 – 2.82 of the *Input Methodologies Discussion Paper*, 19 June 2009, Commerce Commission

10. With respect to point (3) above, in Australia the National Electricity Rules require the Australian Energy Regulator (the AER), when undertaking a review of WACC parameters, to have regard to:<sup>2</sup>

*(4) where the credit rating levels or the values attributable to, or the method of calculating, parameters referred to in paragraph (d) cannot be determined with certainty:*

- (i) the need to achieve an outcome that is consistent with the national electricity objective; and*
- (ii) the need for persuasive evidence before adopting a credit rating level or a value for, or a method of calculating, that parameter that differs from the credit rating level, value or the method of calculation that has previously been adopted for it.*

11. The ENA considers the disciplines in the above approach could be applied in the Part 4 context along the lines of the need:

- To achieve an outcome that is consistent with the purpose of Part 4; and
- For persuasive evidence before adopting a parameter that differs from the value or the method of calculation that has previously been adopted for it.

12. The ENA considers this approach could be incorporated into the cost of capital IM and thereby provide additional guidance as to how the Commission will go about determining the regulated cost of capital.

### 3. Expectation of Normal Returns

13. The Commission sets out in its paper on Input Methodologies<sup>3</sup> its preliminary views on the levels of return a supplier of a regulated service under Part 4 should be able to expect *ex ante*, given the purpose of Part 4. Key paragraphs from that discussion are as follows:

*2.32 Under workable competition, the incentive for firms to improve efficiency and actively seek out opportunities for innovation is provided by the potential to earn a positive economic profit. So while profits will tend toward normal economic returns over time, they ought to be sufficient to*

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<sup>2</sup> *National Electricity Rules*, “Chapter 6 Economic Regulation of Distribution Services”, page 522, section 6.5.4 (e) (4), version 33, issued by the Australian Energy Market Commission,

<sup>3</sup> See paragraphs 2.26 – 2.72 and 8.16 – 8.28 of *Input Methodologies Discussion Paper*, 19 June 2009, Commerce Commission

*cover efficiently incurred costs and reward innovation, prudent investment and efficiency gains.*

*2.33 Implicit in this approach is the notion that, under workable competition there will be occasions in which, due to superior performance, the prices for some firms over the short term will be higher than prices that provide a return offsetting the costs of production (i.e., prices above the efficient long-run average cost of production including the cost of capital). However, over time, temporarily higher profits will be competed away and the benefits of that superior performance, in terms of both price and service quality, will be shared with consumers. Workable competition is therefore a mechanism that will generally move market participants closer towards, rather than further away from, efficient outcomes.*

*2.36 In summary, workable competition provides incentives for market participants to act in ways that are efficient, for a given level of service quality, while ensuring that efficiency gains are shared with consumers over time. In addition, firms are limited in their ability to earn excessive profits, but superior performances will be rewarded with profits above normal levels over the short to medium term.*

*2.53 The Commission considers that what matters most for dynamic efficiency is how new investment and innovations will be treated. If the regulated firm does not expect to make at least a normal return on its efficient incremental investments going forward, it would be unable to maintain the quality of its services and would have no incentive to invest further in order to meet the growth in consumer demand. Such an outcome would not promote the long-term benefit of consumers.*

*2.60 The Commission considers that under workable competition, the incentive for firms to improve efficiency and actively seek out opportunities for innovation is provided by the opportunity to earn a positive economic profit. While profits will tend toward normal economic returns over time, they ought to be sufficient to cover efficiently incurred costs and reward innovation, prudent investment and efficiency gains.*

*2.67 For example, a price-quality path is usually set on the basis of allowing suppliers to at least earn normal returns *ex ante*, in order to incentivise outperformance through the prospect of earning greater than normal returns *ex post*. However, in the context of input methodologies, the normal returns concept is useful in weighing up the different options and determining the most suitable. Most obviously, the cost of capital must explicitly attempt to estimate what a normal return in the regulated activity should be, given the associated risks. The return on efficient costs can then be specified *ex ante*,*

*or monitored ex post, but only if the other building blocks cost components are specified with similar concerns about profitability in mind.*

14. We consider key points that can be distilled from the above are that the Commission needs to ensure:
- A supplier of regulated services is able to at least recover its cost of capital from existing and new investments, provided those investments are reasonable at the time they are made;
  - A supplier of regulated services faces the opportunity to secure returns in excess of a normal return from innovation or efficiency improvements, while recognising that such returns will tend to a normal level over time; and
  - It takes into account the risks arising from the design and implementation of the regulatory regime as a whole, when estimating the cost of capital for a supplier of regulated services. Examples of such regulatory risks are the treatment of revaluations, depreciation and regulatory tax and their implications for the timing of cashflows<sup>4</sup>, the treatment of real options, and the asymmetric effect of regulatory rules (e.g. that the regulated supplier may carry unlimited downside risk but have its upside opportunities capped).
15. In this context it follows that the Net Present Value (NPV) rule as developed by the Commission should be used to test whether the supplier of regulated services is able to recover its reasonable costs (i.e.  $NPV \Rightarrow 0$ ), and to guide trends in pricing over time to share efficiency gains with consumers and to limit the supplier's ability to extract excessive profits.
16. However, in the Input Methodologies Discussion Paper the Commission presents the NPV rule as  $NPV=0$ .<sup>5</sup> In the Workshop discussion of the appropriate term for the risk free rate (i.e. whether this term should be the regulatory period or some longer period) one of the Commission's advisers (Dr Lally) raised the

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<sup>4</sup> There is some US evidence that the regulatory tax approach that delays recovery of taxes (being the approach that the Commission terms the 'tax payable' approach) increases the observed cost of debt for regulated firms, see page 83, "Regulatory Finance: Utilities' Cost of Capital," R. A. Morin, *Public Utilities Reports Inc.*, Arlington, Virginia, 1994.

<sup>5</sup> For example at paragraph X13, *Input Methodologies Discussion Paper*, 19 June 2009, Commerce Commission

issue that the use of a longer term potentially “violates” the NPV = 0 rule, suggesting that any such violation would be inconsistent with Part 4.<sup>6</sup>

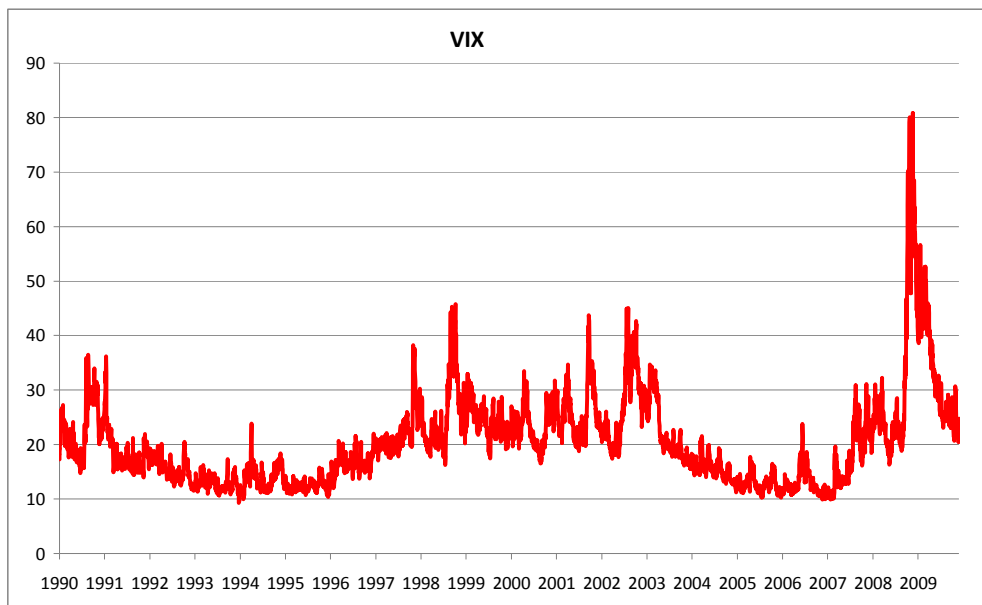
17. The ENA considers the purpose statement of Part 4 does not support the use of the NPV = 0 rule as a cap on expected returns in this mechanistic fashion over short periods of time (relative to the life of the assets involved) and, furthermore, the Commission’s own analysis of the purpose statement (as quoted above) does not support this approach either.

## **4. Cost of Capital and the Global Financial Crisis**

18. The Global Financial Crisis (GFC) has seen observable increases in debt margins and market volatility over the past year or so compared with levels observed in the preceding few years. Government bond rates (i.e. ‘risk free’ rates) have also declined over the same period. There is likely to be an (as yet unobservable) increase in the required equity market risk premium, particularly over the forthcoming period of relevance to the Commission.
19. Financial markets appear to have moved from a period where risk was priced at levels below longer run averages to levels that are now above those longer run averages. In the longer run the pricing of risk may be mean reverting or it is possible that for the foreseeable future risk premia have increased to a new level. Either way, the Commission’s focus is necessarily on the short to medium term so even a temporary increase in risk premia will be relevant to estimating the cost of capital under DPPs. A key international barometer of market risk is the ‘VIX’ index, which is a measure of option implied market volatility for the US S&P 100 stock market index. It is sometimes referred to as the ‘price of fear’. The chart below shows the level of the VIX from the beginning of 1990 (when data are first available for this index) through until late November 2009.

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<sup>6</sup> Transcript from Commerce Commission Cost of Capital Workshop, Friday 13 November 2009, page 135, lines 24 - 29



20. It is noted that the GFC has resulted in it being more difficult for firms to raise debt and equity capital. Debt refinancing risk has also been exposed. At the present time some firms are effectively excluded from longer term debt markets at reasonable pricing. These factors need to be taken into account when assessing the true, full cost of capital (in particular the cost of debt) in the current environment.

## 5. Leverage

21. There needs to be consistency between the assumed level of leverage, the assumed credit rating, debt premium estimation and the implied key financial ratios (e.g. interest cover). This level of analysis and internal consistency is not evident in the straw person example.
22. The use of an industry-wide leverage assumption is reasonable for DPPs. The industry-wide estimate should be estimated with primary reference to listed comparator firms in New Zealand and overseas that have 'normal' ownership arrangements (e.g. excluding firms from the sample whose ownership structure imposes a significant constraint on their access to new equity capital)<sup>7</sup>. Under

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<sup>7</sup> For example, EDBs that are wholly owned by community or consumer trusts are likely to operate at lower than otherwise levels of leverage in order to preserve their financing flexibility in the face of limited access to additional equity capital.

CPPs firms should be able to submit on use of their own actual leverage and debt premium, if they so choose, otherwise the industry-wide assumptions would continue to apply.

23. At the Workshop the Commission commented on the fact that under the simplified Brennan-Lally model the WACC increases with leverage, and this issue has been analysed in technical terms in the note prepared subsequently by Dr Lally titled “WACC and Leverage” of 17 November, 2009. As covered in that note, if a significant part of the debt premium is attributable to systematic risk (which is the conclusion of a recent study)<sup>8</sup> then incorporating debt betas into the analysis restores the expected outcome of the WACC being (largely) invariant to leverage.
24. However, as covered in other submissions, the introduction of debt betas makes little difference to the final WACC estimates, providing the firm of interest has broadly similar characteristics (e.g. leverage, cost of debt and asset beta) to the comparator firms that have been analysed. Hence, there are technical grounds to demonstrate that a more complex analysis can restore the expected invariance of the WACC to leverage, but from a practical perspective the Commission can continue to use the simplified Brennan-Lally model and ignore debt betas, providing it is estimating WACC parameters in accord with the leverage norms of comparator companies.
25. The ENA considers the practical application of a simplified model should not be allowed to be used as a theoretical framework for arguing for an extreme (nil) leverage position. It is not at all evident that use of the simplified Brennan-Lally CAPM by the Commission will drive firms to adopt higher leverage. Firstly, the effects on the Commission’s assessed WACC are small, so the presence of an economically significant incentive is questionable. Secondly, if the Commission is using industry-wide / benchmark WACC parameters, including having regard to overseas firms, it is unlikely that the leverage decisions of individual regulated New Zealand firms will have much, if any effect on the industry-wide estimates. Thirdly, the nature of any incentive is unclear – would firms try to increase leverage leading up to WACC determinations, then decrease it once a price path is set? It is unlikely that many firms would have sufficient flexibility over their capital structures to ‘play’ such ‘games’. Fourthly, firms and their shareholders make capital structure decisions based on a range of factors, not just the output of a WACC formula. They are also subject to monitoring and pressure from shareholders and bankers.

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<sup>8</sup> Elton J E, Gruber M J, Agrawal D, Mann C, 2001, “Explaining the Rate Spread on Corporate Bonds”, *Journal of Finance*, Vol. LVI (1), pp 247 – 277

## 6. Cost of Debt and Risk Free Rate

26. The ENA prefers the use of a long term (10 year) risk free rate in estimating the cost of equity in the WACC, consistent with market convention and the investment practice of firms. Furthermore, the analysis undertaken for the Commission by Dr Lally in this area ignores the presence of any term risk premium in the term structure of interest rates. If investors in long term government bonds demand such a premium it is not clear why long term equity investors in regulated firms should be denied such a premium by the Commission.
27. It is acknowledged that, theoretically, the term of the risk free rate used in the cost of equity should be the same as that used for estimating the MRP, but in practical applications this may not be a significant issue.
28. Submissions have noted that there may be grounds for using swap rates, rather than government bond yields, as the risk free rate. The ENA supports the Commission keeping a watching brief on this topic, but with continued use of government bond yields in the meantime.
29. The Commission practise of averaging measurement of government bond yields over the one month prior to the commencement of a regulatory period is reasonable. It is noted that where regulatory decisions are to be made in advance of the regulatory period it would be helpful for regulated firms wishing to manage interest rate risk if the Commission were to inform them of the specific measurement period and measurement basis it intends to use to determine the regulatory risk free rate.
30. The ENA supports the Commission's current practise of excluding estimation and application of debt betas as for most companies this should have no material effect on their WACC estimates. Inclusion of debt betas would add additional complexity and parameter estimation issues, for no apparent gain in the accuracy of the resulting WACC estimates.
31. The Commission has proposed use of a benchmark A-/BBB+ credit rating. It is noted that for many New Zealand firms a BBB+ rating will be more attainable than a A- rating. Accordingly the ENA considers that the benchmark for EDBs should be BBB+. However, if most firms in the industry were unable to achieve this target investment grade credit rating (for example, due to an industry-wide economic shock), then the Commission should remain open to using a lower credit rating as the industry-wide benchmark.
32. The Commission should estimate debt premia based on the observed practice of debt financing, including the optimal term of debt financing adopted by firms operating in unconstrained credit markets. If the Commission is minded to

notionally 'swap' the term of this borrowing to that of the regulatory period, then it should make allowance for interest rate swap costs. The ENA is of the view that since it is not practical for firms to swap the entire term of their debt premium, the Commission should not assume that this can be done 'notionally'.

33. The optimal borrowing term will be influenced by entities seeking to minimise their overall, long term cost of debt. This will be determined by their access to various debt markets, the then current conditions in those markets, managing re-financing risk and minimising total costs, including issuance costs. Accordingly, in the view of the ENA, it is sensible to incorporate facility fees and issuance costs into the debt margin analysis as these vary by type and scale of debt instrument and have an influence on optimal debt term.
34. In the first instance, the ENA supports the Commission's use of the debt margin on publicly traded corporate bonds, including amortised issuance costs, as the basis for estimating the debt margin for a benchmark credit rating. However, at the DPP consultation stage, the ENA considers that the industry should have the opportunity to submit evidence on the cost of borrowing from other sources if the public corporate bond data is unrepresentative of firms' average borrowing costs. In addition individual firms should have the opportunity to submit on their own, actual cost of debt at the CPP stage, if they consider that the DPP benchmark assumptions are not reflective of their own costs. Interest rate swap rate data can likely be sourced from information published by trading banks. In view of the ENA's position on the impracticality of hedging borrowing margins to different terms, no data is required to estimate these costs.
35. The straw person example contains risk free rate and debt margin estimates. However, the underlying raw data has not been provided, so it is not possible to provide any technical critique on these figures. When the Commission releases actual (as opposed to straw person) parameter estimates at the next round of consultation on EDBs' cost of capital (i.e. for DPPs), the ENA intends to undertake a detailed technical critique of parameter estimates. To facilitate this, the ENA requests that at that stage the Commission releases the full underlying raw data and its calculations for all parameter estimates in order to allow for an informed critique by interested parties.
36. In response to any financeability test problems, the second course of action proposed by the Commission is to reduce the assumed level of gearing. The ENA considers this proposed course of action renders financeability tests meaningless, as assumed leverage can be reduced until the financeability issues appear to 'disappear'. Accordingly, this proposed course of action should be dropped. The ENA supports the third and fourth courses of action proposed by the Commission (after first checking the building block inputs, the first course of action), which are to review the allowed timing of cash flow recovery and to review the allowed WACC. The ENA considers that the Commission should be cognisant of the effect its decisions on cash flow timing (e.g. via regulatory

treatment of revaluations, depreciation and taxes) can have on investors' perception of risk.

37. The Commission questioned at the Workshop as to whether anything other industry-wide values for leverage and other WACC parameters could be used with respect to the DPP.<sup>9</sup> The ENA considers it may be possible from a legal perspective to use firm specific values, as it is possible under the DPP to set "starting prices" and "rates of change" specific to firms (see subsections 53P (3) (b) and (8) of the Commerce Act). However, as discussed above, the ENA agrees with the Commission that implementation issues suggest an industry-wide approach to setting WACC parameters for the DPP is preferred.

## 7. Cost of Equity

38. At the Workshop the advisers that stated the TAMRP's used by their respective firms gave the following responses:

Mr Redmayne (PwC)	7.5%
Mr Ireland (Ireland Wallace)	7.5%
Mr Newton (KPMG)	7.75%
Dr Marsden	7.5%
Dr Layton (NZIER)	7.0%

39. The median estimate from this sample is 7.5%, compared to the Commission's current estimate of 7.0%. Furthermore, one advisor (Mr Newton) and two of the company representatives at the Workshop stated that they had recently increased their TAMRP estimates in response to current market conditions (KPMG +0.25%, Auckland International Airport +0.5% and Powerco +0.5%). The current market practice among valuation practitioners and the overall trend in the revision of TAMRP estimates lend weight to the view that the Commission should increase its TAMRP estimate.
40. On the topic of beta estimation, the ENA considers industry betas should be estimated from objective analysis of the closest possible group of comparator companies. The focus should be on selecting a good comparator group sample and estimating thoroughly the beta for these companies. The appropriate beta range can then be assessed objectively by reference to the statistics for the comparator group. If any qualitative assessment is introduced into the beta estimate itself, it should be done transparently and justified with reasons. Where the Commission seeks to depart from any adjustments previously made,

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<sup>9</sup> Transcript from the Commerce Commission Cost of Capital Workshop, Friday 13 November 2009, page 171.

evidence should be provided as to why such adjustments are no longer appropriate (consistent with the process we propose in paragraphs 9 -12 above for changing any WACC parameter). Cross-checks and qualitative assessments of the beta estimate could be used to inform decisions about selecting a WACC within the range.

41. Insufficient information has been provided to be able to critique the straw person beta estimates in any detail. However, it is noted that these estimates may be affected by factors such as the choice of measurement period, the choice of measurement interval and thin trading. As noted above, when the Commission releases actual (as opposed to straw person) parameter estimates at the next round of consultation on EDBs' cost of capital, the ENA intends to undertake a detailed technical critique of parameter estimates. To facilitate this, the ENA requests that at that stage the Commission releases the full underlying raw data and its calculations for all parameter estimates in order to allow for an informed critique by interested parties.
42. The ENA accepts as reasonable the Commission's current assumption that in New Zealand the investor tax rate for use in the simplified Brennan-Lally CAPM is presently 30%. However, it notes that the increased flow of investment funds into Kiwisaver and PIE investment products may lead to a more reasonable investor tax rate assumption being somewhat below 30% in future years.

## **8. Estimating the Cost of Capital**

43. When determining a WACC range or point estimate the Commission should account for both model error as well as parameter error. This assessment for error needs to be undertaken within the context of the widely recognised view that the economic costs arising from a regulator setting WACC too low are greater than those that arise from setting it too high.
44. Monte Carlo simulation can provide a useful tool to generate a cost of capital range where the individual parameter estimates are partially correlated and/or have non-normal distributions. There are strong grounds to expect that certain of the WACC parameters are correlated. For example, there is likely to be a positive correlation between the debt premium and the MRP. There may also be a negative correlation between the risk free rate and the MRP. Furthermore, as noted by Professor Guthrie, there may be positive correlation between parameter estimates from individual analysts (e.g. their beta and MRP estimates).
45. The Commission should also consider the WACC range resulting from the use of 'all minimum' and 'all maximum' WACC input parameters. This approach has the advantage of identifying the lowest and highest set of values resulting from the parameter values derived from market data, and is not reliant on the

assumption that parameter values are not correlated as per the Commission's percentile approach.<sup>10</sup>

46. At the Workshop Dr Lally expressed his view that the regulatory WACC point estimate should be drawn from above the 75<sup>th</sup> percentile of the WACC range.<sup>11</sup> In the ENA's view this is an area that warrants further research, but for now, if the Commission is minded to continue with its percentile approach, it should choose a WACC estimate at the 75<sup>th</sup> percentile or above.
47. The above techniques aim to address parameter error. In addition the ENA considers the Commission should, on the evidence before it, also add a margin to its calculated WACC for model error.<sup>12</sup> While the amount of this margin may be difficult to estimate precisely it is almost certainly not zero.

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<sup>10</sup> For a discussion of parameter and model error and how the Commission could address these issues see section 3 of *Comments on Commerce Commission Proposed Approach to Estimate the Cost of Capital*, by Glenn Boyle, Tim Irwin and Tony van Zijl of LECG, 11 August 2009

<sup>11</sup> Transcript from the Commerce Commission Cost of Capital Workshop, Friday 13 November 2009, page 225, lines 8 – 14.

<sup>12</sup> See section 3 of Glenn Boyle et al, 11 August 2009 for a discussion of model error and possible ways to address it.