



**Cross Submission to Commerce
Commission on the Weighted Average
Cost of Capital Workshop**

2 December 2009

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INTRODUCTION

1. Vector welcomes the opportunity to provide this cross submission to the Commerce Commission ("**Commission**") on the Cost of Capital Workshop. In this submission we provide further information on a number of matters raised at the workshop and provide a more general discussion of the Commission's decision-making framework.
2. Attached to this submission is an expert report from Synergies Economic Consulting ("**Synergies Cross Submission Report**").
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EXECUTIVE SUMMARY

4. Vector submits that the Commission needs to proceed extremely carefully in establishing the WACC input methodology. A significant element of the required return on investment in regulated utilities pertains to the regulator's perceived impact on risk.
5. In order to ensure that investors' perception of regulatory risk does not increase, Vector submits that the Commission should adopt the "persuasive evidence" test used in Australia by the Australian Energy Regulator ("**AER**") to determine whether it should depart from a previous approach or parameter. This approach reflects the principle of consistency which is a best practice regulatory principle.
6. Vector submits that the logical starting point for the evolution of WACC is the Gas Authorisation released in October 2008, which in itself built on years of Commission consultation, particularly with respect to electricity and gas pipeline businesses. The Commission should have "persuasive evidence" for departing from the approaches and parameters used in that decision.
7. In this cross-submission we have sought to follow that framework. We conclude that there is not persuasive evidence for the Commission to:

- Depart from the simplified Brennan-Lally CAPM;
 - Depart from using anything less than the 75th percentile of the WACC range at this point in time, but acknowledge there is a clear need to undertake a work programme to establish whether there is a higher percentile that should be used given the consensus among the experts and practitioners that the range under past Commission methodologies is likely to be understated; and
 - Depart from the 0.5 (electricity distribution) and 0.6 (gas distribution) asset beta estimates used previously by the Commission.
8. We also conclude that there is persuasive evidence that:
- Leverage of 60% should be adopted as this is consistent with gearing levels obtained by BBB+ rated utilities and widely adopted by overseas regulators;
 - The long-term estimate of the TAMRP should be set at 7.5%;
 - Further work should be carried out on an adjustment to the TAMRP for the GFC, but evidence from debt markets indicates that a 150 basis point increase would be a reasonable starting point;
 - The Commission should adopt 10 years for the term of risk-free rate to align with prudent, observed commercial practice; and
 - The Commission's calculation of debt premium should be based on a portfolio approach, recognising that prudent debt management leads businesses to borrow from a range of domestic and international sources, with varying costs. Clear evidence exists to demonstrate that the businesses do source debt from multiple sources and costs differ in each of the markets. Independent treasury advisors will be able to provide the Commission with verifiable information on the costs of accessing different markets, which the Commission can then consult on.
9. In the remainder of this cross-submission we set out the basis for these views. While Vector recognises that the Commission's WACC strawperson example was intended to facilitate discussion, it is critical that the Commission now set out its current thinking and provide reasons and

evidence in support. The parties should then have an opportunity to respond to the Commission's evidence.

DECISION FRAMEWORK

10. Vector is concerned that the Commission is adopting an approach that grants itself significant discretion to depart from its previous approaches to WACC and to adopt new WACC parameters. The regulatory uncertainty associated with such a decision-making framework in itself would raise the cost of capital. Two examples from critical areas of the WACC calculation highlight this concern:

1. Commissioner Duignan's description of the Commission's view on choice of WACC percentile:

"In the Gas Control Inquiry the 50 percentile was used and then in the Airports Inquiry there were of course ranges for the different airports and something above the 50% level was adopted. **I did want to stress that the gas authorisation is an example of past practise rather than something that the Commission regards as having set a level that it's sort of established a precedent with**, so we are open on this issue."¹ **(emphasis added)**.

2. With respect to asset beta, in the straw-person example, footnote 24 the Commission observed:

"The Commission previously applied an approach where it adjusted estimated asset betas by 0.2 to reflect differences in regulatory regimes between the US and other countries. The Commission will consider proposals for adjustments that outline how and why such adjustments should be made in the future supported by data and other evidence."

11. We appreciate the Commission's apparent openness through-out the input methodology process to considering all available evidence and making an appropriate decision, consistent with the requirements of Part 4. However, this openness must not undermine the consistency principle. In Vector's view, on the matter of WACC which must include compensation for perceived regulatory risk, there is a significant counter-productive danger of not applying this principle and being too open to changing positions. In an area where there are high levels of imprecision in models and parameters, the more that investors perceive that past regulatory positions have no

¹ Conference transcript 13 November 2009 page 207.

precedent value and the Commission will exercise discretion based on unknown criteria, the greater the perceived regulatory risk and hence higher the cost of capital. Similarly, the Commission's requirement that submitters must prove their case with data and evidence is an unrealistic standard to apply, and would detrimentally impact on investors' perceptions of risk.

12. From Vector's point of view, we absolutely perceived that the Commission's WACC position articulated in the Gas Authorisation established a precedent for a number of WACC parameters for both gas pipeline businesses (GPBs) and electricity distribution businesses (EDBs).² The Gas Authorisation was the first time the Commission had used the WACC calculation to directly establish a price path designed to incentivise investment.^{3,4} Its approach was established following extensive consultation with interested parties and reasons and evidence were provided. The Commission's apparent willingness to so readily depart from the Authorisation decision is therefore a highly unsettling development. The decision was only made 13 months ago and the Commission has not set out the criteria that it has applied to distance itself from the previous decision, which raises concerns about institutional commitment.
13. In this regard, Vector recommends that the Commission should follow the Australian approach, whereby the AER is required to adopt past parameters and approaches unless there is "persuasive evidence" to change. We understand this approach was informally the Australian regulators' practices, but is now codified in the National Electricity Rules. Building such inertia into the evolution of WACC over time would contribute to greater investor confidence – a key motivation for the Part 4 reforms and a requirement implicit in the purpose statement and Part 4 as read as a whole.

² For example, the Commission derived its gas asset beta in a direct relationship to electricity asset beta.

³ While the Commission has also used WACC calculations for Transpower and in Dairy and TSO regulation, we have not taken these as indicative of likely approaches to gas or electricity distribution price control. The Transpower Administrative Settlement involved a number of trade-offs by both parties a perceived lack of commercial imperative on Transpower due to its SOE ownership, and apparently low risk position, given the regulatory protection afforded to its approved grid investments. Dairy and TSO regulation involve quite different situations.

⁴ The advice that the Commission received and upon which it based its decisions on WACC in the 2008 Gas Final Authorisation was consistent with that provided in 2005 in the context of setting WACC for regulated electricity utilities, both in regard to setting asset beta for a price-cap regulated electricity utility and in the need to recognise the impact of input error and to draw a WACC from the upper end of the range when regulating prices.

14. This approach reflects the principle of consistency which is a best practice principle (also characterised as the concept of a regulatory compact). That is, a regulator should not lightly disregard or renege on its past decisions without compelling reasons and consideration of any negative implications for investors.⁵
15. In that regard, rather than consider that the Commission has a blank sheet in which to establish new WACC models and parameters, Vector submits that the Commission should adopt a decision-making framework that considers whether there is “persuasive evidence” for the Commission to depart from the following parameters and approaches established in the Gas Authorisation:

Approach/parameter	Approach/value
Form of CAPM	Simplified Brennan-Lally
Term of the risk free-rate	5 years
Market risk premium	7.0%
Asset beta	0.5 (electricity distribution) 0.6 (gas distribution)
Leverage	40%
Point in the WACC range	75 th percentile
Debt premium	Observed debt premium on traded retail bonds

16. In the remainder of our cross-submission we comment on the various parameters and approaches using this decision framework.

CHOICE OF WACC MODEL

17. Historically the Commission has adopted the simplified Brennan-Lally CAPM. It was evident from the conference that there was little dispute that this is an acceptable approach to use.
18. Workshop participants’ views on CAPM model, as far as we can ascertain from the transcript were as follows:

⁵ Vector refers to its submissions on regulatory consistency in its *Submission to Commerce Commission on Input Methodologies Discussion Paper*, 14 August 2009, paras 81-82 and its *Cross Submission to Commerce Commission on Input Methodologies Conferences*, 15 October 2009 paras 28 to 31 (in the context of asset valuation) and the expert report from Synergies Economic Consulting dated August 2009.

Participant	Model view
Mr Redmayne (PwC)	Simplified Brennan Lally (SBL)
Mr Ireland (Ireland Wallace)	SBL
Mr Newton (KPMG)	SBL/Classical as Cross-check
Mr Ingham	SBL / Classical and Officer as cross-checks
Dr Marsden	SBL/ Classical as cross-check
Dr Layton (NZIER)	SBL / International CAPM
Dr Lally	Useful to use Fama French and Dividend Growth models as cross-checks
Professor Bowman	Officer
Mr Balchin	SBL as a starting point
Mr Shelley	SBL / Classical
Mr Guthrie	Multiple models should be used to ensure potentially valuable information is not discarded

19. It was noted at the workshop, however, that the widespread use of the simplified Brennan-Lally model does not necessarily indicate the model provides the right answer, but it is an acceptable model to work with given the tax regime operating in New Zealand. There was widespread support for the proposition that the Commission also needs to allow for parameter and model error. This is most relevant to selection of the WACC percentile, which we discuss further below.

20. While, in principle the Commission could carry out cross-checks using the classical CAPM as was most commonly suggested at the workshop, there was no specific discussion at the workshop on how such a cross-check might proceed. In order to meet the requirements for an input methodology, the Commission would need to set out how a cross-check might be used to adjust WACC values derived from the simplified Brennan-Lally CAPM or used in setting the WACC range, so that stakeholders can reasonably predict the impact of applying the input methodology. In the timeframe for preparing cross-submissions we have not developed a method for applying a cross-check. It is likely to be an area that stakeholders and the Commission need to discuss further.

TERM OF THE RISK FREE RATE

21. The Commission's straw-person proposal indicated that a five-year term for the risk-free rate be used. The Commission asked workshop participants:
1. What tenors are currently sought; and
 2. Whether companies would be comfortable managing their debt positions if the yield curve was inverted between five and ten year terms?
22. In relation to the first issue, Vector notes that its own debt book⁶ clearly demonstrates that we seek to fund operations through long-dated debt. For the majority of Vector's debt instruments the original tenor of the loan has been at, or in excess of ten years. This was consistent with a number of other workshop participants. Where businesses did not have long-dated debt, this appeared to be because they couldn't access such products rather than lack of appetite for them.
23. In relation to the second issue, we note that when we first submitted on the Commission's cost of capital guidelines, the yield curve was indeed negative.⁷ Vector took the principled position that the Commission should align the term of the risk free rate with 10-year Government bonds. Vector submitted then:
- "In making investments Vector does not consider what short-term bond rates are. Instead investment decisions are based on long-term views, best proxied by 10-year bond rates."
24. Vector maintains that the Commission should adopt the 10-year term for Government bonds in establishing the risk-free rate, consistent with the fact that as infrastructure businesses, we seek to best match the long-term nature of our investments with funding arrangements.
25. Vector does not accept the proposition that the Commission must operate the regulatory regime to a NPV=0 framework for each five year regulatory period. The NPV=0 framework is most appropriately applied over the lifetime of assets: the length of regulatory period is an artificial construct and while of significant commercial importance to infrastructure businesses, it does not dictate commercially appropriate funding arrangements. Indeed,

⁶ In information provided separately to the Commission.

⁷ For example, in November 2005, the yields on five and ten year Government bonds were 6.16% and 5.95%, respectively. (Source RBNZ website).

it is likely that if the Commission adopts a five year term for the risk-free rate, then businesses operating what we would consider a normal and prudent treasury policy for an infrastructure business will be NPV negative, given an assumption that the yield curve will normally reflect a term premium for longer-dated debt.

26. In the alternative, if the Commission is insistent that businesses “should” seek to align their terms to five year regulatory periods, then the Commission must allow the full notional costs for businesses to swap their long-term debt into effectively shorter dated instruments (recognising that it will not be possible to avoid a term premium through derivatives). In addition the Commission must allow recognition and appropriate compensation for risk imposed on businesses that are induced by the Commission’s imposition of a five year maturity.
27. We suspect that this would be a complicated and likely contentious exercise, which is a further reason why we continue to favour a ten year term for the risk-free rate.
28. We note that the Commission would be acting consistently with the Australian and UK regulators who use ten-year terms for establishing the risk-free rate, under Vector’s proposed approach.⁸ We also observe that the Australian Competition Tribunal considered the rationale for the NPV=0 concept to be applied to the regulatory period and the CAPM, determining that the ACCC was wrong to use the five-year term, and a ten-year term was consistent with the application of the CAPM to assets with lives of thirty years.⁹
29. Vector submits that there is persuasive evidence for the Commission to adopt a ten-year term for the risk-free rate:
 1. Evidence from workshop participants is that original debt tenors are closer to ten years than five. In Vector’s case, our debt portfolio has the majority of issuance with original tenor of at least ten years;
 2. Most other regulators use longer-dated terms for the risk free rate; and

⁸ In the CRA International submission on the draft WACC guidelines issued in 2005, evidence was presented from a range of regulators on their practices. It was shown that the Commission would be a relative outlier in using the five year term. We have reproduced CRA International’s table in Appendix A.

⁹ *Application by GasNet Australia (Operations) Pty Ltd [2003] ACompT 6*

3. It is commercially rational for businesses to seek to best match the terms of their funding arrangements with their investments, recognising as a practical matter that markets do not exist for debt that would match the physical asset lives of infrastructure assets.

MARKET RISK PREMIUM

30. Vector submits that it is important for the Commission to distinguish between a long-term estimate for the tax adjusted market risk premium (TAMRP) used in the simplified Brennan-Lally CAPM and the impacts due to the global financial crisis ("GFC").

Long-term estimate of the TAMRP

31. The conference identified the following positions amongst independent experts and practitioners:

Participant	Position on TAMRP
Mr Redmayne (PwC)	7.5% (no change since GFC)
Mr Ireland (Ireland Wallace)	7.5% (no change since GFC)
Mr Newton (KPMG)	7.75% (up from 7.5% prior to the GFC)
Professor van Zijl	7.5% (no change since GFC)
Dr Marsden	7.5% (no change since GFC)
Dr Layton (NZIER)	7.0%
Dr Lally	not stated, but the GFC has led to an increase
Professor Bowman	not stated
Mr Balchin (PwC)	not stated for New Zealand

32. It appears that the median and mode position amongst those present at the conference were in favour of at least a 7.5% MRP, although there was variance amongst those who had shifted or held their positions at 7.5%, with some at 7.5% prior to the GFC and others who had shifted to 7.5% or above because of it.

33. Vector submits that the Commission could reasonably widen the sample of practitioners for an opinion on what mid-point TAMRP is used in the real world to inform decision-making. Nevertheless, given the calibre of independent experts and practitioners at the conference, in Vector's view there is persuasive evidence that the Commission should set the long term mid-point estimate of the TAMRP at 7.5%.
34. Further information is set out in the Synergies reports on factors the Commission should consider in establishing the TAMRP.¹⁰

Impact of the GFC

35. Dr Lally observed at the workshop that the TAMRP must have gone up as a result of the GFC, but there is a question about the duration of the crisis. Dr Lally's expectation is that over time the TAMRP will revert to a long-term average, but it is an open question about how long that will take.
36. In respect of the duration of the GFC, Vector submits that there is reason enough to adopt a 7.5% TAMRP even absent the GFC, given that many practitioners present at the conference used 7.5% before the GFC struck. However, the impacts of the GFC add weight to a move beyond 7.5%. Vector considers that there is significant reason to believe that financial markets will not return to 'normality' within any short timeframe, if ever. It is clear that the GFC has brought home the high degree of interconnectedness and systemic nature of risks across the global financial system, in particular that risk was being systematically underpriced.
37. The biggest and most daunting risk to ongoing international financial stability is how western Governments deal with significant fiscal operating deficits and unwinding of significant increases in public liabilities. In the face of rising fiscal pressures due to aging populations (welfare payments and medical care costs) and an ultimate need to repay debts through higher taxation receipts, western Governments will face extremely difficult and very likely unpopular choices. There is strong reason to believe that Governments may seek to devalue their debts through inflation as the least domestically unpopular option, which is likely to lead to significant rises in both real and nominal interest rates as investors lose confidence in Government issuance. In short, the global financial system has built up significant new imbalances in the form of public liabilities and there remain

¹⁰ Synergies Economics (2009) *WACC Review: Final*, 31 August pages 68 to 84 and Synergies Economics, Robert Bowman (2009) *Cost of Capital Cross Submission* 2 December page 15

significant risks to investors for the foreseeable future.¹¹ In that context, it is extremely unlikely for a five year regulatory period beginning in the next few years that there will be a substantial moderation in global market risk aversion.

38. As was also noted at the conference, the AER was sufficiently persuaded that the MRP had increased that it raised its long-standing MRP from 6.0% to 6.5%.¹²
39. Vector considers that there is a case to be made that the market risk premium should be increased to account for the impact of the GFC. At the conference Professor Bowman observed that there has been an increase in debt premium by 150-200 basis points and this would be a basis for estimating the impact on market risk premium, as equity is riskier than debt.¹³ Dr Lally responded that this might imply that lenders perceive an increase in default risk. While that may be true, there are two responses to that proposition:
- equity providers are also likely to have perceived an increase in default risk as well; and
 - more importantly, the increase in cost of debt can be observed across the board. In an efficient capital market, we would expect to see much more differentiation in changes in debt premia in similarly rated businesses with different product market exposures. The relatively uniform lift in debt premia also suggests a change in underlying risk appetite, rather than solely a uniform increase in the probability of default.

Recommendations - TAMRP

40. Overall, Vector considers that there is persuasive evidence for the Commission to adopt a mid-point estimate for the long-term TAMRP of 7.5%.
41. Vector considers that there is also persuasive evidence that the GFC has led to an increase in TAMRP, which will at least prevail over the period covered

¹¹ The recent announcement that Dubai is seeking to delay debt repayments and the consequential unsettling impacts on global markets further highlights that the GFC is highly likely to continue for a significant period.

¹² As noted by Mr Balchin and Dr Lally at the conference the MRP in Australia is not directly comparable to the TAMRP used in the simplified Brennan-Lally model. However, the directional move by the AER is relevant.

¹³ Conference transcript 13 November 2009, page 180

by the initial setting of input methodologies. The extent of the uplift can be proxied by the lift in debt premium, which at a minimum would indicate an increase of 150 basis points. At the next input methodology review, which the Commission must conduct within seven years of setting the first input methodologies, the Commission can assess whether, or to what extent, the GFC-related premium has been transitory or permanent.

42. At a minimum, Vector submits that persuasive evidence exists for the Commission to conduct further research into the impact of the GFC on the TAMRP before finalising the WACC input methodology. Dr Lally observed that the expert panel reached its recommendation on the TAMRP prior to the GFC, so it would at least be worth consulting the experts on potential approaches for adjusting the TAMRP for the impact of the GFC.

ASSET BETA

43. In the straw-person example the Commission concluded that asset beta for EDBs would fall in a range of 0.3 to 0.4. It is unclear how this range has been determined given the range in Table Three of the straw-person example has unadjusted beta estimates ranging from 0.1 to 0.74. The Commission also does not explain how it has derived the range of 0.3 to 0.4 in light of the Commission's proposals in paragraph 41 to make qualitative adjustments for changes in systematic risk due to the regulatory environment applying to EDBs. It is necessary for the Commission to provide further information on the basis for its new views on asset beta, in order for submitters to make meaningful comment on the Commission's approach. On the face of it, it appears that the Commission should be selecting an asset beta for EDBs from a range of 0.1 to 0.74, (based only on the Commission's evidence).
44. More relevantly, Vector submits that the starting point for evaluating asset beta is the Commission's Gas Authorisation released in October 2008. On pages 168 through 175, the Commission sets out its extensive reasoning on how it reached the asset beta decision for the controlled GPBs. The Commission stated that¹⁴:

714... Overall, an estimate of around 0.30 for the US rate-of-return regulated gas distribution and electric utilities is indicated.

¹⁴ Footnotes omitted.

715 UK price capped gas distribution and electricity businesses provide further useful information on the appropriate asset beta for the New Zealand gas pipeline businesses, with (five year) price caps applying in the period 1990-1994.⁴⁰³ There was only one listed UK gas distribution company during this period and this is not sufficient to draw conclusions from. In respect of electricity lines businesses, and drawing on work by Alexander et al,⁴⁰⁴ Lally estimated an increment for UK-style five year price capped companies over US rate-of-return regulated businesses at 0.20.⁴⁰⁵ This estimated margin is in the expected direction, because the UK firms would in general face a greater delay in having their prices reset in response to unexpected changes in macroeconomic conditions.

716 Turning to the New Zealand businesses, the Commission is setting a four year price cap from 2008 in conjunction with imposing a remedy that refunds approximately 50% of the difference between the provisional price cap set in 2005 and the final price cap set in 2008 (on an after tax basis). This is equivalent to simultaneously applying a four year price cap for the period 2008-2012 and a three year price cap for the period 2005-2008. It is reasonable to suppose that, absent RAB optimisation, firms' exposure to systematic risk reduces as the regulatory period is shortened. Regulation tends to exert a "buffering" effect on firms' cash flows (e.g. Binder and Norton, 1999);⁴⁰⁶ cash flow shocks are smoothed out with each price review, and the more frequent these reviews, the more often the firm's allowed cash flows can be brought in line with market conditions. This will tend to reduce the regulated firm's asset beta. It is therefore reasonable that the exposure to systematic risk (and therefore the appropriate asset beta) for the control period should be closer to that experienced under a three year price cap or a four year price cap scenario. In recognition of this the Commission has calculated the asset beta applying for the Authorisation by placing weight of 3/7th on the asset beta for a three year price cap scenario and 4/7th on that for a four year price cap scenario.

717 Dr Lally has estimated the beta for a three year price cap on electricity lines businesses as 0.40, being a linear interpolation between the beta for US rate-of-return regulated firms at 0.30 and the equivalent five year result of 0.50 (implied by the 0.20 increment observed for UK five year price-capped firms). In respect of a four year price cap on electricity lines businesses, Dr Lally has estimated this at 0.45, adopting a similar linear interpolation between the 0.30 and the 0.50 results above.⁴⁰⁷ Applying the weights described above, the appropriate asset beta for the regulatory scenario contemplated by the Commission would then be 0.43. This estimate reflects the estimated asset beta for US rate-of-return regulated electric and gas utilities, plus a margin of 0.13 to reflect the form of control proposed by the Commission.

...

720 In deriving the asset beta for New Zealand gas distribution businesses, it is also necessary to consider whether differences between gas and electricity businesses in New Zealand justify different asset betas. Gas pipeline and electricity lines businesses are similar in respect of many of the underlying factors that influence betas, namely pricing structure (use of both fixed and variable charges), their operating leverage and size relative to the market.

721 However, unlike electricity lines businesses, the gas businesses have significant options to expand their networks, which may raise their betas. Further, gas supply is

more heavily tilted towards commercial and industrial users (as opposed to residential users) than for electricity. Consequently, the demand for gas is likely to be more sensitive to real economy-wide shocks. This suggests that gas pipeline businesses warrant a modestly higher asset beta than the electricity lines businesses, and a margin of 0.10 is adopted.

722 Overall, the Commission believes that the asset beta for the controlled gas distribution businesses is 0.53 calculated as 0.30 (for the US companies) + 0.13 (adjustment for regulatory environment) + 0.10 (adjustment for risk of New Zealand gas businesses relative to electricity lines businesses). Dr Lally has estimated the standard error associated with the estimate of asset beta for the controlled gas distribution businesses to be 0.176.⁴¹¹

45. The Commission's position and approach to asset beta for EDBs dates from Dr Lally's advice in 2003¹⁵ released as part of the thresholds reset process and reiterated in his further advice in 2005 on the Intention to Declare Control of Unison Networks¹⁶. Given that beta estimates are based on time series data, it is unclear what information has changed since the Gas Authorisation that would cause the Commission to take a different position after essentially six years of expressing a view that a five year regulatory period would warrant a 0.5 asset beta for EDBs.
46. In the further evidence that the Commission has amassed on beta¹⁷ and the additional materials researched by Synergies Economics¹⁸, there continues to exist evidence that beta is estimated with high levels of imprecision and the mid-point estimates of beta for EDBs comfortably includes the 0.5 estimate previously adopted by the Commission in the Gas Authorisation and in prior Commission documents.
47. In addition, there is nothing to indicate that the Commission's past approach of taking the 0.3 estimate for US utilities and adding a margin for the length of the regulatory period was an irrational or unreasonable assessment for the Commission to make. It is intuitively reasonable to expect that price cap regulation will increase the degree of correlation between a movement in a utility's returns and those of the market.
48. Finally, the Commission's own review set out in paragraph's 8.26 to 8.28 and in Table 8.1 of the *Input Methodologies Discussion Paper* showed the impact of different regulatory regimes on beta estimates, so it appears that

¹⁵ Lally, M (2003) *The Weighted Average Cost Of Capital For Electricity Lines Businesses* August 2005

¹⁶ Lally, M (2005) *The Weighted Average Cost Of Capital For Electricity Lines Businesses* September 2005

¹⁷ Commerce Commission (2009) *Cost of Capital Straw Person Example – Electricity distribution industry*, table 3 page 8

¹⁸ Synergies Economics (2009) *WACC Review: Final* pages 60-61

the Commission's possible new position on beta (at least as indicated in the straw-person example) has developed since June 2009. It is critical for investor confidence for the Commission to set out, after such a long history of using the 0.5 mid-point estimate for EDBs, what evidence has caused the Commission to take a different view on the possible beta range.

Does the availability of CPP regulation have an impact on asset beta?

49. We have given consideration to whether the availability of CPP regulation is likely to disturb the Commission's and Dr Lally's past position that a five year regulatory period warrants a 0.2 uplift to the 0.3 beta estimate taken from US rate-of-return regulated utilities.
50. In Vector's view, a CPP application is only likely to be made by companies requiring a step change in investment or where the Commission has misjudged materially a businesses' projected profitability at the commencement of the DPP period.¹⁹ Firms are likely to apply for a CPP either immediately or not at all during the regulatory period. Given the costs and risks associated with a CPP businesses will not seek to apply for a CPP to merely address market-related variability in returns. Accordingly, businesses will almost certainly be subject to a five-year regulatory period and therefore there is no reason to consider that the Commission's approach of adjusting US asset betas for length of the regulatory period, in the context of the DPP regime, is no longer appropriate.
51. We also note that CPP regulation is designed to be used only in exceptional circumstances, so the presumption should be that businesses will be subject to five year DPP regulation.

Recommendation – asset beta

52. Overall, Vector submits there is not persuasive evidence (empirical or theoretical) to suggest that the Commission's previous 0.5 (electricity distribution) and 0.6 (gas distribution) mid-point estimates for asset betas are now inappropriate. Unless there is a significant structural change that impacts on these industries relative to the rest of the market, we would not expect these parameters to move markedly over time.

¹⁹ We anticipate that the CPP process will be costly and intrusive, exposing the firm's detailed financial forecasts to regulatory scrutiny. As a result the CPP process will bring a high degree of risk with the potential that cost assumptions and other inputs, including WACC, may be adjusted down, resulting in a worse outcome for the firm than under the original DPP proposal.

LEVERAGE

53. The Commission has previously adopted a gearing assumption of 40%. We believe there is persuasive evidence that this is too low. The single most important factor in determining the prudent level of debt for a business is the marginal cost of debt it faces in the debt market. As companies increase their leverage, the risk of default increases, and hence the cost of the marginal borrowing. It is clear in the debt markets that gearing levels much higher than 40% are attained by EDBs and GPBs without being subject to significant increases in borrowing costs.
54. The Commission's apparent concern with leverage is that there is an anomaly in the simplified Brennan-Lally CAPM, whereby as the proportion of debt increases, the WACC increases. This runs counter to the accepted wisdom that debt (up to a point) should lower the calculated WACC. As a result, the Commission is concerned that businesses might face an incentive to take on too much debt. Experts at the workshop were of the view that potential solutions, such as introduction of a debt beta, would create additional problems, such that it is not worth trying to correct the technical anomaly.
55. Vector submits that the Commission's concern about the incentive effect is over-stated and can be managed through adopting a benchmark approach to leverage, rather than using firm-specific estimates (including under CPP regulation). More relevantly, however, financial market disciplines (e.g., the need to maintain investment grade credit ratings and comply with loan covenants) will prevent businesses from taking on undue debt positions. These financial market disciplines are far stronger than any regulatory incentive that might theoretically exist even if the Commission were to use firm-specific leverage.
56. Vector also submits that rather than focus on the difference between WACC estimates at different levels of gearing, the Commission should be focussed on obtaining a gearing estimate that is consistent with commercial practice for the relevant businesses and precedents from other regulators. It does not follow that the estimate of the WACC would be wrong if the Commission adopted a leverage assumption of 60%. As noted above, Vector has been able to maintain a gearing level of around 60% at a BBB+ credit rating, and

regulators in Australia and the UK have adopted gearing assumptions of 60%²⁰ and 57.5%²¹ respectively, based on observed gearing levels.

57. Vector submits that there is persuasive evidence that BBB+ rated utility infrastructure stocks have gearing closer to 60% than 40%. Vector submits that the Commission should adopt a benchmark gearing assumption of 60%, consistent with the decisions of the AER and OFGEM and commercial practices of EDBs and GPBs operating in similar price-cap regulated environments.

DEBT RISK PREMIUM

58. The Commission has proposed to use evidence from traded BBB+/A- rated retail bonds in order to establish the debt risk premium and/or Bloomberg A long-term credit-rated fair value curves.
59. Vector submits that these approaches would not provide a representative estimate of the forward-looking cost of debt for regulated businesses:
- a) In respect of ratings, Vector submits that there is a material difference between debt costs for an A- rated business and that achieved by BBB+ rated businesses. If there were no difference in debt costs then businesses with an A- rating would not have any particular logic for seeking to maintain that rating. Specifically, Vector submits that it is not appropriate for the Commission to treat information on the Bloomberg A long-term credit-rated fair value curves as providing a basis for establishing a debt risk premium for BBB+ rated businesses.
 - b) Retail bonds represent a small proportion of the portfolio of debt raised by EDBs, given liquidity/portfolio constraints in the New Zealand market. Businesses also obtain funds from banks and off-shore markets. The costs of funds from these other markets are materially different to those obtained from limited retail bond offers. International markets, particularly in recent times and likely for the foreseeable future, have been expensive to access and there are additional costs of accessing those markets.

²⁰ AER (2009) *Electricity transmission and distribution network service providers, Review of the Weighted Average Cost of Capital (WACC) parameters*, Final Decision, May 2009.

²¹ OFGEM (2004) *Electricity Distribution Price Control Review, Policy Document*, March 2004. Distribution Price Control Review 4.

60. Vector submits that the Commission must take a portfolio approach in order to accurately establish the debt risk premium. There is persuasive evidence that retail bond offers represent only a very small proportion of EDB's debt portfolios.²² While the international markets are less observable to the Commission through public information sources, the Commission will be able to obtain independent advice from specialist treasury advisory services or New Zealand banks on the costs of obtaining funds overseas and fixing interest payments in New Zealand dollar terms. Vector submits that the Commission should adopt an approach of obtaining independent expert advice on the costs of raising debt from multiple sources prior to each regulatory period and consulting on the results of the analysis, prior to use in setting the debt premium.
61. If the Commission continues to adopt the approach of using traded retail bonds for evidence of EDB and GPBs' debt costs, then Vector submits that the Commission should also cross-check the results with Australian BBB+ rated businesses, recognising that there is a reasonable linkage between Australia and New Zealand capital markets.

POINT IN THE WACC RANGE

62. In this section we comment on three issues raised at the conference:
1. The relevance of the potential to earn greater than WACC returns under DPP/PPP regulation;
 2. Compensation for unsystematic and asymmetric risks; and
 3. The social consequence rationale for selection of the WACC estimate from the upper-end of the WACC range.

Relevance of price cap regulation

63. At a number of points during the conference, the Commission observed that it is not strictly applying an NPV=0 framework, as there is always potential for businesses to earn above WACC due to improvements in efficiency.²³ While we agree that such potential exists, there is also potential for businesses to under-perform on WACC due to adverse movements in input

²² Information being provided separately to the Commission on Vector's debt portfolio demonstrates this point.

²³ E.g., Commission Duignan, Conference transcript 13 November 2009 at page 117 lines 8-15

price inflation, demand movements or capital investment requirements compared to those assumed by the Commission in setting or resetting DPPs. Unless the under-performance is extreme, businesses are very unlikely to apply for a CPP given the regulatory risks and costs involved.

64. Accordingly, Vector submits that the possibility of upside potential due to efficiencies should not impact on the Commission's selection of the point in the WACC range because there is also a potential for sub-WACC performance.

Compensation for unsystematic and asymmetric risks

65. The Commission observed at the conference that the 75th percentile of the WACC range has also been used to compensate for asymmetric and unsystematic risks:

I just wanted to note that the other references that the Commission has made to its choice in the past are that in the Input Methodologies Discussion Paper the Commission stated it considered a main practise to reduce the impact of any uncompensated asymmetric or unsystematic risks by choosing a WACC that is above the midpoint of the range.²⁴

66. In response, Professor Bowman observed:

Now I think we need to avoid complicating or co-mingling some important issues. I think that procedurally what needs to be done is we need to have what we regard as our best estimate of WACC as a midpoint type of an estimate, a mean type of estimate, all things considered. And then we talk about a range or some mechanism, and I think a range is an appropriate one, but some mechanism for deciding how we're going to add a margin where the purpose of that margin is to deal with this asymmetry of the social costs and benefits. It's not some catch all, that's specifically what it's for. And the key point I'd make then is our starting point needs to be our best estimate of what we think the appropriate cost of capital is. So we make a bad mistake, I think, if we start talking about asymmetric risks and unsystematic risks and so forth with respect to this range idea. It's a totally different issue

....

but I think in the past the Commission and some people have sort of used this add on, the 75% as a bit of a carpet you could lift up and sweep stuff under and say that will be captured by the 75%. The purpose of the 75% or whatever it is should be very clear.²⁵

67. Vector concurs that the purpose of the selection of the point in the WACC range should be to explicitly deal with the trade-off between the social consequences of setting a WACC too high relative to the social consequences of setting it too low. Unsystematic and asymmetric risks should be dealt with explicitly and separately from the selection of the point

²⁴ Conference transcript 13 November page 206, lines 29-33

²⁵ Conference transcript 13 November page 222 lines 30 to page 223 line 28

in the WACC range, which is to deal with uncertainty in WACC models and parameter estimates. Vector submits that these topics need to be dealt with separately in the discussion of input methodologies for re-openers, depreciation rates and allowances in cash flows for self-insurance.

The social consequence rationale for selecting a WACC from the upper end of the WACC range

68. As noted above, we are concerned that the Commission's position on point in the WACC range appears to be in doubt. In our view, there is no new evidence to suggest that the Commission should not continue to adopt a WACC estimate from the upper end of the WACC range as it did in the Gas Authorisation. Indeed a strong view emerged at the conference that the 75th percentile of the simplified Brennan-Lally CAPM would be the bare minimum, as model error has not previously been accounted for. For example, Dr Lally observed:

DR LALLY: I have listed ten things here that I would like to comment on but clearly that's not possible... So I'll limit myself to two of them. One of them is model error. I think that's important. It would push out the standard deviation in this kind of analysis, by how much I don't know, but I think it's desirable to consider that question. The second question I'd like to comment on is the 75th percentile. ...I've never before expressed a view on this question to the Commission. Tony's analysis provides a framework, the loss function provides a framework for thinking about where you might choose in that distribution, and interestingly when I saw Tony's analysis I'd been thinking along similar lines myself. That kind of analysis, that loss function analysis, while it doesn't tell you what the answer is it does suggest to me that the 75th percentile is probably the lower bound on what you might choose. And you could easily choose something well above that.²⁶

69. In terms of selecting the point in the range, workshop participants observed that the social costs of under-investment (most likely to manifest in economic losses from lower levels of network reliability) will exceed the social costs of prices that are too high. A number of workshop participants were supportive of further work to establish a quantitative loss function, where there could be an explicit trade-off between the social impacts of the risk of under-investment against the social impacts of setting a WACC too low.
70. We observe that in the Grid Investment Test applied by Transpower to its investment decisions, the value of unserved electricity is estimated at \$20,000/MWh. Compared to an average delivered electricity price of around \$200/MWh there is strong evidence of the value consumers place on

²⁶ Conference transcript 13 November 2009, page 225

investment in networks compared to the price they pay, which suggests that further examination through an empirical investigation is warranted.

71. Overall, Vector submits that there is no persuasive evidence for the Commission to drop below the 75th percentile of the simplified Brennan-Lally model. Given the stated views of the majority of workshop participants that the range is likely to be significantly understated, Vector submits that there is persuasive evidence for the Commission to carry out further research to establish improved estimates of the range (e.g., by undertaking cross-checks with other versions of the CAPM) and the point in the range to select.

CONCLUDING COMMENTS

72. Overall, Vector considers that the WACC workshop provided an excellent forum for submitters to present their views and respond to the Commission's questions. In many ways, it was surprising the degree to which there was relative consensus on a large number of issues amongst workshop participants, given the potential for a wide divergence in views on WACC.
73. While we appreciate that the workshop and straw-person example lacked some degree of formality and comprehensiveness in setting out underlying reasons for different positions in order to spark discussion and move the issues forward, Vector submits that it is critical that in further discussion documents the Commission is clearer on the basis for its positions, particularly where they differ from past values and approaches. The reference we make above to the apparent inconsistency of the Commission's proposed asset beta range and the actual evidence cited by the Commission is a good example. Clarity and transparency will be critical to ensuring that the very process of establishing a WACC input methodology does not in itself lead to an increase in the required return on investment for regulated businesses. We look forward to engaging further with the Commission on these important issues.

APPENDIX A

Excerpt from CRA Submission on Commerce Commission WACC Guidelines, December 2005

Table 2: Regulatory approaches to risk free rate

Country	Regulator	Approach
Australia	All regulators	10-year Commonwealth bond
Canada	Canadian Radio-television and Telecommunications Commission	10 years
Canada	National Energy Board	10-30 years
Canada	British Columbia Utilities Commission	10-30 years
Canada	Canadian Transportation Agency	Range of short and long term bonds
Canada	Alberta Energy & Utilities Board	10 years
Canada	New Brunswick Board Commissioners	10 years
France	Autorite de Regulation des Telecommunications (ART)	10 years
Ireland	Commission for Energy Regulation	10 years (German nominal bond)
Ireland	Commission for Aviation Regulation	10 years (German nominal bond)
Netherlands	Dte	10 years
Singapore	Energy Markets Authority	20 years
UK	Ofcom	Range incorporating longer term yields and regulatory period
UK	Ofgem	Current yield on gilts of maturity 5-20 years
UK	Ofwat	Current yield of gilts of maturity 5-20 years
UK	Civil Aviation Authority	Longer term yields – historic and current data
UK	Office of the Rail Regulator	Historic yield on long dated gilts
UK	Competition Commission	Historic yield on long dated gilts

Source: CRA International analysis of regulatory decisions.

CRA International concluded:

As seen in the table above the common approach of regulators is to estimate the risk free rate from the yield of Government bonds of 10 year maturity. Where longer

dated bonds are available longer maturities are also used. To date only two regulators have applied the approach recommended by Associate Professor Lally. In both cases these regulators have either fully or at least partially moved away from this approach. Partly as a result of advice from Associate Professor Lally the ACCC based the bond maturity on the length of the regulatory period in decisions between 1998 and 2003. However, following the successful appeal by GasNet at the Australian Competition Tribunal, the ACCC has since reverted to using the 10-year bond rate.²⁷

²⁷ CRA International (2005) *Response to the Commission's Draft Guidelines on the Cost of Capital* page 30