Commerce Commission's Proposed Amendment to the WACC Percentile for Electricity Lines Services and Gas Pipeline Services dated 22 July 2014

Report to Major Electricity Users' Group

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I, Garth Ireland have read the Code of Conduct for Expert Witnesses as contained in Schedule 4 of the New Zealand High Court Rules, and agree to comply with it.:

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1 Instruction

1.1 The Major Electricity Users' Group (MEUG) has asked Ireland, Wallace & Associates Limited (IWA) to review the "Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services" consultation documentation related to Regulatory Asset Base (RAB) multiples.[1]

1.2 Specifically, the review is to cover the Commerce Commission framework, calculations and conclusions which relate to Powerco Limited and Vector Limited.

2 Approach

2.1 The Commerce Commission is proposing to reduce the uplift from the mid-point of the estimate range for cost of capital, from the 75th percentile to the 67th percentile. To support that proposal it considers implied "commercial" values (or Enterprise Values) of Powerco and Vector relative to their respective RAB values.

2.2 In theory if the regulatory rate of return meets market expectations for risk (or close to true cost of capital) then the Enterprise Value (EV) should approximate RAB (i.e. a RAB multiple of 1). Hence the expected future cash flows of the enterprise discounted at a "market" WACC should equal the RAB.

2.3 An RAB multiple greater than 1 indicates that the expected corporate return exceeds the regulatory cost of capital. The return in excess of the regulated return should have a net present value being the difference between the EV and RAB.

2.4 As the Commission says, under the incentive-based regime, an RAB multiple may also reflect the Commission's expectation of corporate outperformance of expected cash flows including from unexpected changes in WACC parameters. There are many other reasons why in practice the RAB multiple may vary from 1.[2]

2.5 The Commission cite a UK regulator adviser suggesting that "… it was highly unlikely outperformance on incentives and cost would contribute any more than 10% of a premium to RAB." This lead the Commission to state that it has "… seen no evidence to suggest a premium of anything nearing 10% is warranted for Powerco's outperformance of its current price quality path (and which expires in 2015)."[3]

[1] "Proposed amendment to the WACC percentile for electricity lines services and gas pipeline services", 22 July 2014 para. 6.36 to 6.38 and Attachment A: Analysis of RAB multiples".

[2] CC A25 to A40

[3] CC A11.3 and A11.4

2.6 Based on the Commission's analysis the implied RAB multiples were assessed at 1.33 for Powerco and for Vector at between 1.09 and 1.16. The Commission concluded that:

> *"… it is evidence of how investors assess the returns in the sector, the premium was large for a minority stake [in Powerco], and Vector too trades at a significant premium to RAB."*[4]

> *"… we are not persuaded that other factors identified in submissions adequately explain the price, relative to RAB, in these transactions."*[5]

3 Response

3.1 The RAB multiple (or Market Asset Ratio (MAR) as it is termed in the UK and Australia) is a simple concept but can be problematic in application.[6] The basic formula adopted by the Commission is:[7]

$$\text{RAB multiple} = \frac{\text{Enterprise Value of the Regulated Entity}}{\text{Regulatory Asset Base.}}$$

3.2 The Commission calculates the EV "… as the sum of the market value of net debt and the market value of shareholders' equity.[8] The denominator, RAB, is the Property, Plant Equipment (PP&E) less Capital work in progress (C-wip) as defined by the Commission. The EV represents the market value of the business entity. The RAB is just one asset of the business. The EV, transaction or appraised value, is the future expected value of the free cash flows of the business inclusive of the prices/revenue set by the Commission linked to the major asset the PP&E less C-wip. The RAB multiples relate the financing side of the business to a class of its assets on the operating side. The business or entity value however includes a whole bundle of assets and liabilities.

3.3 The Regulator uses the RAB as a reference for assessing a "normal return" by relating a cost of capital rate to the RAB. In contrast an investor relates his expected return to the capital invested in the business overtime regardless of accounting name or financing form.

3.4 The RAB value is a surrogate for the "capital" invested in the business.[9] The EV is the "market value" of capital of the business of which the RAB is a component, albeit the dominating asset.

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[4] CC A40

[5] CC A1.2

[6] The Commission refers to RAB multiples as "… a useful indicator …" [A2] and conditions the formula with "… broadly" implying there may be variants to it.

[7] CC A3

[8] Footnote 214

[9] The RAB is a "deemed asset" value and treated as "cash equivalent" investment.

3.5 The Commission has simply applied a RAB multiple to Powerco and Vector as if there are only two variables, EV and RAB, in play and the companies are similar. In my view the Commission should go beyond this simple approach by using all of the information publicly available on the companies or at least utilise the information contained in the referenced balance sheets.

3.6 The Commission focused on the balance sheets of Powerco and Vector for 2013 as a snapshot for determining a RAB multiple. In the next section I reconcile alternative approaches to the RAB approach adopted by the Commission to test and refine the Commission's conclusion that the implied RAB multiples for Powerco and Vector support the Commission views.

4 EV and RAB Measurement and Alternatives

4.1 I proceed by extending the Commission's EV/RAB multiple approach by adjusting the EV for other sources of finance. Then information in the balance sheet is used to calculate, from an investor perspective, the invested capital (or sum of "cash invested" in the business) and the Market Value of capital and thereby the multiple of invested Capital implied by the market. The Market Value Added (MVA) (or equity premium value) is converted into implied returns on capital invested relative to 67th and 75th cost of capital percentiles. The implied annual equivalent returns are then derived. Finally the RAB rule of thumb of 1.1 advised to a UK regulator is related to the analysis.[10]

4.2 The assessment of the financing of a Regulated Business is problematic particularly for Vector. Based on the Deutsche Bank valuation of the non-regulated businesses an estimate is made of the asset and liabilities which would be absent given a notional sale of the non-regulated businesses.

4.3 The Economic Capitals of Powerco and Vector are compared as a cross check of the Regulated Businesses given that the RAB methodology is a common standard for both.

5 Powerco Limited

5.1 Powerco is a relatively uncomplicated business for testing the EV and RAB approaches, alternatives and applications. The business is predominantly a "pure play" regulated network business operator.[11]

5.2 The 2013 market transaction for the sale and purchase of a 42% shareholding in Powerco was subject to an open bidding process. The buyer, AMP Capital, was an informed and experienced fund manager and investor in Australasia. Michael Cummings, a past director of Powerco and Richard Krogh, a previous CEO of Powerco led and advised respectively on the purchase. The New Zealand regulatory advisor was Sapere. No external financial advisors were employed as

[10] CC A11.3

[11] CC A10.1

AMP Capital assumed that function.[12] PricewaterhouseCoopers disclosed in its submission on behalf of Vector that it advised the vendor Brookfield on the sale of the 42% shareholding.[13]

5.3 **Table 1** shows two approaches for establishing implied RAB multiples first based on the Commission's approach and then by adjusting the EV for other sources of finance disclosed by Powerco Limited in the 2013 Annual Report.

[12] "Power Grab – AMP Capital's acquisition of Powerco's stake", Acquisition International, October 2013

[13] PricewaterhouseCoopers submission on behalf of Vector, 28 March 2014, page 3.

Table 1						
Powerco						
	$'000		**Commerce Commission**		**IWA**	
column	**A**		**B**	**C**	**D**	**E**
	Balance Sheet		**Enterprise Value**		**adj. Enterprise Value**	
March	**2013**		**Financing**		**Operating**	**Financing**
Current Assets						
Cash	428		(428)	(428)	(428)	(428)
Trade/receivables	31,469					
Financial Lease	366					
Inventories	50					
Other Financial Assets	35					
	32,348				32,348	
Non-current Assets						
PP&E	1,785,799				1,785,799	
Capital WIP	53,918	1				(53,918)
Finance Lease Receiva	10,298				10,298	
Other Financial Assets	15,672				15,672	
Intangible Assets	14,707				14,707	
	1,880,394					
Total	1,912,742					
Current Liabilities						
Trade/other	26,474				(26,474)	
Employee Entitlement	3,231					3,231
Other Financial	8					8
Borrowings	132,161		132,161	132,161		132,161
	161,874					
Non-current Liabilities						
Employee Entitlement	604					604
Other Financial	145,029					145,029
Borrowings	946,542		946,542	946,542		946,542
Deferred Tax Liability	180,787					180,787
	1,272,962					
Equity	698,165					
Reserves	(220,259)					
	477,906		477,906	477,906		477,906
Equity Premium				**772,094**	**772,094**	**772,094**
Total	1,912,742					
Enterprise Value at Book Value			1,556,181			
Enterprise Value at Market Value				2,328,275	2,604,016	2,604,016
Regulatory Asset Value 2013			1,755,000	1,755,000	1,755,000	1,755,000
add change PP&E			-	-	-	-
Est. Regulatory Asset Value 2014			1,755,000	1,755,000	1,755,000	1,755,000
Implied RAB multiple - A			0.89	1.33	1.48	1.48
Implied RAB multiple - B			0.86	1.30	1.45	1.45
(inclusive of C-wip)						
		1	Disclosure C-wip			

5.4 The Powerco Group balance sheet is taken at face value. It is a snapshot of the business as at March 2013. The Powerco balance sheet is replicated in column A. The EV is calculated before and after inclusion of the equity premium derived by the Commission from the AMP Capital transaction. The EV at book value is $1,556.181m (column B) and at market value (column C) is $2,328.275m based on the financing of Powerco with net debt plus equity (at book and market values respectively). The equity premium of $772.094m is the difference between the implied $1,250.000m for 100% of Powerco and the book value of equity of $477.906m. The RAB is $1,755.000m.[14]

5.5 The RAB multiples are 0.86 on EV at book value and 1.30 on an EV adjusted for the market value of equity. As the RAB multiple excludes C-wip but the EV market does not, an adjustment downwards is appropriate.[15] The Market RAB multiple of 1.33 prior to adjusting for C-wip is consistent with the Commission's calculation. It is noted that EV at book value is lower than the RAB. In theory with Commission setting price-quality paths including the appropriate cost of capital the book value RAB multiple should be about 1.

5.6 The next version of the implied RAB multiple approach (columns D and E) includes all sources of finance in the build up to an EV. Powerco like Vector has financing in addition to equity and debt which matches the operating assets of the business including the RAB. The IWA adjusted EV includes the other sources of finance such as provisions, other financial liabilities and deferred tax liabilities. The inclusion of sources of finance that support the operating assets of the business is logical. The Commission RAB multiple is selective. It relates its defined RAB, just one asset, to the market value of the business which reflects a bundle of assets and liabilities and equity. The perspective of an investor is the business not just one asset the RAB. For its Price-Quality Regulations the Commission references the RAB for assessing a capital charge for pricing. This approach can result in a material disconnect to the investor's approach. The RAB is not the business. Alternatives approaches are therefore desirable for the Commission's assessment of whether or not the regulatory return has been set at the appropriate level.

5.7 The adjusted EV results in an implied RAB multiple of 1.45 inclusive of the C-wip adjustment. The EV and calculations have been presented for the financing side of the balance sheet as well as for the operating side. The Commission refers to allowances for "other financial liabilities" and C-wip and tested the RAB multiple for their effects.[16]

5.8 Another approach is to estimate the Economic Capital of Powerco. This approach is based on value-based methodologies of McKinsey & Company,[17]

[14] CC A7-A9

[15] Capital work in progress has been extracted from the Financial Disclosures to the Commission and not the Annual Report.

[16] CC A10.3 and A10.4

[17] Koller K, M Goedhart, D Wessels, "Valuation Measuring and Managing the Value of Companies", 5th ed.

Professor Damodaran,[18] et al. and practiced for example by Transpower and Airways Corporation through their EVA/Economic Profits accounting and performance measurement and as adopted by EY in an SOE performance review for The Treasury.[19]

5.9 Economic Capital asks the question what value does the market add to the capital invested in a business? The capital invested is the sum of all "cash and cash equivalents" invested in the business over time and regardless of accounting or financing form. Capital can be measured from either the financing or operating perspectives: Financing capital includes all net debt (including operating leases) plus equity including equity equivalents such as provisions and deferred tax. Operating capital is net working capital plus net fixed assets and intangibles and other assets.

5.10 **Table 2** sets out the Capital for Powerco for 2013 based on the balance sheet in **Table 1**. The Economic Capital is $1,831.922m while the Total Capital including the non-operating capital (C-wip) is $1,885.840m.

5.11 Given the equity premium of $772.094m implied by the AMP Capital transaction the "cash" out value or Market Value of Capital is $2,657.934m. The MVA is also $772.094m. This equates to a MVA/Total Capital of 41% or a multiple of capital of 1.41.

5.12 The Capital based approach is important from the market or investor perspective as the valuation of the whole business is what matters rather than the RAB multiple which considers one class of asset and not the complete sources of financing of the business.

[18] http://pages.stern.nyu.edu/~adamodar/

[19] "SOE Economic Profit Analysis", Ernst & Young for The New Zealand Treasury, 25 November 2011.

http://www.treasury.govt.nz/commercial/publications/information-releases/soe-economic-profit-analysis/index.html

Table 2			
Powerco			**2013**
			$'000
	F		**G**
Economic Capital Approach			
Capital Operating		**Capital Financing**	
Current Operating Assets	31,920	ST Debt	132,169
Less NIBCLs	(26,474)	LT Debt	1,091,571
Net Working Capital	5,446	less Cash	(428)
		Net Debt	1,223,312
Net PP&E	1,785,799		
		Other	
Intangibles	14,707		
Other Assets	25,970	Equity	477,906
		Employee Entit.	3,835
		Deferred Tax	180,787
			1,885,840
		Less C-wip	(53,918)
Capital	1,831,922		1,831,922
add Cwip	53,918		53,918
Total Capital	1,885,840	-	1,885,840
add Equity Premium	772,094		772,094
Market Value	2,657,934		2,657,934
Market Value Added	772,094		772,094
MVA/Total Capital	41%		41%
MVA/NetPP&E	43%		na

5.13 How might the premium value or MVA be explained? A simple approach is to express the MVA as an annuity and derive an implied return on capital relative to the cost of capital (COC) in his case relative to the 75th and 67th percentile cost of capitals.

5.14 **Table 3** shows that a MVA of $772.094m is equivalent to a perpetual annuity of $52.662m a year given a cost of capital of 6.82% at the 75th percentile. Expressing the annual annuity as a percentage of Total Capital of $1,885.840m (from **Table 2**) the implied annual excess return is 2.79% a year. The annual return is 9.6% a year. The same approach applied to the 67th percentile cost of capital results in an annuity of $50.736m a year, an excess return of 2.69% and annual return of 9.3%.

Table 3				
Powerco				**2013**
Explaining the Premium Value				
AMP investor perspective:				
Annuity Amount in Perpetuity		$'000		
COC 75th		6.82%	52,662	pa for ever
MVA		772,094		"
Excess return 75th percentile WACC			**2.79%**	pa for ever
Implied annual equivalent return			9.6%	"
COC 67th		6.57%	50,736	pa for ever
MVA		772,094		
Excess return 67th percentile WACC			**2.69%**	pa for ever
Implied annual equivalent return			9.3%	"

5.15 A summary of the balance sheets and hence capital structures provides a simple way to further test Powerco and Vector by the Commission's RAB multiple approach. **Table 7** below compares the two businesses, albeit Powerco is virtually a regulated business whereas for Vector adjustments are made to derive a notional regulated business.

5.16 Support for the Commission's RAB multiple 1.3 for Powerco is provided by Grant Samuel also adopting a RAB multiple of 1.3 in its Expert Report related to the same 42% shareholding in Powerco dated 24 September 2010 which AMP Capital subsequently purchased.

5.17 The transaction involved Brookfield Infrastructure Partners acquiring all the securities in Prime Infrastructure Group in late 2010.[20]

> *"The transactions show a diversity of RAB multiples although more recent transactions, albeit prior to the global financial crisis, have generally been at RAB multiples in excess of 1.4 times). In any event, the evidence is supportive of RAB multiples of around 1.3 times implied by the valuation of Powerco."*[21]

5.18 It was Grant Samuel's view that there was no basis for a minority discount:

> *"However, there are also change of control and shareholder deadlock provisions and a basis for assessing fair market value in these*

[20] http://www.primeinfrastructure.com/primeinfrastructure/media/436989/pih%20scheme%20booklet.pdf

[21] Ditto. Annexure A p57.

Grant Samuel also says "… listed companies support RAB multiples of around 1.2 times …" However, it warns that identifying the full effects of other activities and what appropriate adjustments are necessary is problematic.

circumstances is set out in the shareholders' agreement. Having regard to all of these factors, Grant Samuel has not allowed for any minority discount for Prime's 42% interest in Powerco."[22]

5.19 The Grant Samuel valuation of Prime's 42% interest in Powerco represents the value attributed to its interests in loan notes and subordinated loans issued by Powerco NZ Holdings, as well as the equity in Powerco. Whether or not the shareholders' agreement carries over with the subsequent AMP Capital purchase of 42% interest in Powerco is not known.

6 Vector Limited

6.1 Vector is a mix of regulated and non-regulated business. Unlike Powerco, Vector's balance sheet needs to be deconstructed to establish a best estimate of its regulated businesses given publicly available information.

6.2 The Commission's first approach was to adjust Deutsche Bank's EV for Vector Group of $5,046.000m by subtracting its valuation of the Gas Trading and Technology businesses of $1,047.000m. The balance of $3,999.000m is therefore the assumed EV for the regulated businesses.

6.3 Given an RAB of $3,533.000m the RAB multiple was calculated by the Commission at 1.13 as at June 2013. (1.11 at December 2013).[23]

6.4 The Commission's second approach was to establish an EV which included the equity premium (the excess of equity value based on Vector market capitalisations above the book value as at June and December 2013). The EV for the regulated businesses is calculated as the market values of equity plus net debt (after deducting the non-regulatory businesses' assumed EV of $1,047.000m).

6.5 To keep my analysis relatively simple I have based my analysis on Vector's June 2013 balance sheet (the Commission also uses Vector's interim balance sheet). The shareholder equity premiums of $533.755m and $326.233m adopted by the Commission are tested.[24]

6.6 The Vector balance sheet is taken at face value. It is a snapshot of the business as at June 2013. The Vector balance sheet is replicated in **Table 4** column A. The EV is calculated before and after inclusion of the equity premium derived by the Commission. The EV at book value is $3,575.728m (column B) and at market value (column C) is $4,109.483m based on the financing of Vector with net debt plus equity (at book and market values respectively). The RAB is $3,533.728m (December 2013 $3,609.900m).[25]

[22] Ditto page 53.

[23] CC spreadsheet attached to its report.

[24] ditto

[25] ditto

6.7 In **Table 4** column B the RAB multiple is 0.99 (0.99) based on the EV at book value and 1.14 based on market value. The multiple for EV adjusted for the market value of equity (share premium of $533.755m) is 1.14 and 1.08 (share premium of $326.233m). The RAB multiples exclude C-wip.[26] Note that these multiples do not take account of the minority discount on the market value of asset backing, which is implicit in non-control transaction trading in listed markets. That issue is discussed further on.

6.8 The next version of the implied RAB multiple approach includes all sources of finance in the build up to an adjusted EV (columns D and E). Vector, like Powerco, has financing in addition to equity and debt which must match the operating assets of the business including the RAB component. Consistent with the Powerco analysis the IWA adjusted EV includes the other sources of finance such as provisions, other financial liabilities and deferred tax liabilities. The inclusion of sources of finance that support the operating assets of the business is logical.

6.9 The adjusted EV assessment results in an implied RAB multiple of 1.35 inclusive of the C-wip adjustment. The EV and calculations have been presented for the financing side of the balance sheet as well as for the operating side. The Commission refers to an allowance for other financial liabilities and C-wip and tested the RAB multiple for their effects.[27] This multiple similarly does not take account of the minority discount implicit in listed company share prices.

[26] C-wip has been extracted from the Financial Disclosures to the Commission and not the Annual Report.

[27] CC A10.3 and A10.4

Table 4									
Vector				**Commerce Commission**		**IWA**			
	column	**A**		**B**	**C**	**D**	**E**	**F**	**G**
		$'000		**Enterprise Value**		**adj. Enterprise Value**		**Balance Sheet**	**Adjusted**
		Balance Sheet		**Financing**		**Operating**	**Financing**	**Adjustments**	**Balance Sheet**
	June	**2013**		**Book Value**	**Market Value**	**Market Value**			**2013**
Current Assets									
Cash		56,164		(56,164)	(56,164)	(56,164)	(56,164)		56,164
Trade/receivables		170,437							170,437
Financial Lease									-
Inventories		5,513							5,513
Other Financial Assets		4,170							4,170
		236,284				236,284			236,284
Non-current Assets									
PP&E		3,779,702				3,779,702		(555,695)	3,224,007
Capital WIP		69,689	1				(69,689)		69,689
Finance Lease Receivables						-			-
Other Financial Assets		28,033				28,033			28,033
Intangible Assets		1,633,369				1,633,369		(313,075)	1,320,294
		5,510,793							4,642,023
Total		5,747,077				-	-	(868,770)	4,878,307
Current Liabilities									
Trade/other		273,187				(273,187)			273,187
Provisions		12,262					12,262		12,262
Other Financial		2,065					2,065		2,065
Borrowings							-		-
		287,514							287,514
Non-current Liabilities									-
Provisions		8,690					8,690		8,690
Trade Other Payables		20,136					20,136		20,136
Borrowings		2,420,430		2,420,430	2,420,430		2,420,430	(1,047,000)	1,373,430
Derivatives		226,331					226,331		226,331
Deferred Tax Liability		525,514					525,514		525,514
		3,201,101							2,154,101
									-
Equity		2,258,462							2,258,462
Reserves									-
		2,258,462		2,258,462	2,258,462		2,258,462		2,258,462
Equity Premium					**533,755**	**533,755**	**533,755**		-
Surplus on Notional Sale (non-regulated)								178,230	178,230
Non-regulated Market Value Est.				(1,047,000)	(1,047,000)	(1,047,000)	(1,047,000)		
Total		5,747,077						(868,770)	4,878,307
Enterprise Value at Book Value				3,575,728					
Enterprise Value at Market Value					4,109,483	4,834,792	4,834,792		
Regulatory Asset Value				3,533,474	3,533,474	3,533,474	3,533,474		
Implied RAB multiple - A				1.01	1.16	1.37	1.37		
Implied RAB multiple - B				0.99	1.14	1.35	1.35		
(inclusive of Cwip)									
			1	Disclosure C-wip					

6.10 Another approach is to estimate the Economic Capital of Vector. The question asked is what value does the market add to the capital invested in a business? The capital invested is the sum of all "cash and cash equivalents" invested in the business over time and regardless of accounting or financing form. Capital can be measured from either the financing or operating perspectives: Financing capital includes all net debt (including operating leases) plus equity including equity equivalents such as provisions and deferred tax. Operating capital is net working capital plus net fixed assets and intangibles and other assets.

6.11 The EV of the non-regulated businesses of $1,047.000m has been apportioned into categories by reference to Notes 16 and 17 of the 2013 Financial Statement.

Goodwill and other assets which appear to relate to non-regulated businesses have deducted from Vector Group accounts.[28] The balance sheet adjustments including changes in assets, equity and net borrowings are listed in **Table 4** column F. The resulting pro-forma "Regulated business" balance sheet in shown in column G.

6.12 **Table 5** sets out the Capital for Vector for 2013 based on the balance sheet in **Table 4**. The Economic Capital is $4,479.267m while the Total Capital including the non-operating capital (C-wip) is $4,548.956m.

6.13 Given the equity premium of $533.755m implied, derived from Vector's market capitalisation the "cash" out value or Market Value of Capital is $5,082.711m. The MVA is also $533.755m. This equates to a MVA/Total Capital of 12% or a multiple of capital of 1.12 (unadjusted for the minority discount).

6.14 The alternative equity premium adopted by the Commission was $326.233m. The MVA/Total Capital reduces to 7% or to a multiple of capital of 1.07.

Table 5			
Vector			**2013**
	H		I
Economic Capital Approach			
Capital Operating		**Capital Financing**	
	$'000		$'000
Current Operating Assets	180,120	STDebt	2,065
Less NIBCLs	(273,187)	LTDebt	1,599,761
Net Working Capital	(93,067)	less Cash	(56,164)
		Net Debt	1,545,662
Net PP&E	3,224,007		
		Other	
Intangibles	1,320,294		
Other Assets	28,033	Equity	2,436,692
Other		Provisions	41,088
		Deferred Tax	525,514
			4,548,956
		Less C-wip	(69,689)
Capital	4,479,267		4,479,267
add C-wip	69,689		69,689
Total Capital	4,548,956	-	4,548,956
add Equity Premium	533,755		533,755
Market Value	5,082,711		5,082,711
MVA	533,755		533,755
MVA/Total Capital	12%		12%
MVA/NetPP&E	17%		na

[28] See Appendix Note 1 Balance sheet adjustments.

6.15 How might the premium value or MVA be explained? A simple approach is to express the MVA as an annuity and derive an implied return on capital relative to the cost of capital in his case relative to the 75th and 67th percentile cost of capitals.

6.16 **Table 6** shows that a MVA of $533.755m is equivalent to a perpetual annuity of $36.405m a year given a cost of capital of 6.82%. Expressing the annual annuity as a percentage of Total Capital of $5,082.711m (from **Table 5**) the implied annual excess return is 0.80% a year. The annual return is 7.6% a year. The same approach applied to the 67th percentile cost of capital results in an annuity of $35.074m a year, and an excess return of 0.77% a year and annual return of 7.3%.

6.17 Based on the Commission's alternative MVA of $326.233m it is equivalent to a perpetual annuity of $22.251m a year given a cost of capital of 6.82%. Expressing the annual annuity as a percentage of Total Capital of $5,082.711m (from **Table 5**) the implied annual excess return is 0.49% a year. The annual return is 7.3% a year. The same approach applied to the 67th percentile cost of capital results in an annuity of $21.438m a year, an excess return of 0.47% and annual return of 7.0%.

Table 6

Vector				**2013**
Explaining the Premium Value:				
Investor perspective:				
Annuity Amount in Perpetuity		$'000		
COC 75th	**6.82%**	36,405	pa for ever	
MVA	533,755		"	
Excess return 75th percentile WACC		0.80%	pa for ever	
Implied annual equivalent return		7.6%	"	
COC 67th	**6.57%**	35,074	pa for ever	
MVA	533,755			
Excess return 67th percentile WACC		0.77%	pa for ever	
Implied annual equivalent return		7.3%	"	

6.18 Mention is made above of the problem that prices derived from trading in minority parcels of an entity's shares is not a direct proxy for trading in the corresponding proportion of its assets and cash flow entitlements from them. The risks from the intermediary position of the company and its management result in a discount that has many labels or explanations. It vanishes when a buyer for the whole of the asset base determines price, and the amount of that discount which vanishes when control passes is often referred to as the takeover or control premium. It is commonly expected for practical purposes to fall within a range found empirically,

to result in non-control trading at a discount of between 15% and 35% to trading in control parcels or complete takeovers.

6.19 Accordingly all the calculations of RAB multiples that derive them from routine share market pricing should be increased by a figure in that range. 25% might be a common rule of thumb estimate. It is important to note that to make it easier for users to relate the material to the Commission's work the concluding discussion in this advice does not increase the Vector multiples as they should be. But for assessing the impact or significance of the multiples, it should be remembered that they are likely to underestimate the Vector multiple substantially.

7 Powerco and Vector

7.1 A summary of the 2013 Powerco and Vector balance sheets and hence capital structures/asset mix provides a simple way to further test the Commission's RAB multiple approaches. **Table 7** below compares the two regulated businesses on a comparable basis (subject to possible material estimation errors in respect to Vector) based on Total Capital in **Tables 2** and **5**.

7.2 Powerco and Vector are similar business and operate under the same regulations. Based on my estimate of the Vector regulated business the apparent differences in composition of assets and capital structure are striking. For example, the asset mix differences are Net PP&E (Powerco 94.7% and Vector 70.9%) and Other Assets (Powerco 2.2% and Vector 29.6%). The Other Assets of Vector is Goodwill representing 29.6% of Total Capital or $1,320.294m (Powerco's Intangibles are just $14.707m).

7.3 Goodwill has been subjected to "Impairment Testing" as disclosed in Vector's 2013 Annual Report.[29] The carrying amount of goodwill for Electricity ($852.200m) and Gas Transportation ($220.700m) meet the test as the recoverable amount exceeded the goodwill plus net assets allocated. The valuation methodology and assumptions backing the goodwill are disclosed including assumption about the Commission's behaviour, cost of capital, terminal growth rates, 10 year forecast duration, etc. This test was subject to external audit.[30]

7.4 From this Impairment Testing information the Commission should take notice that Vector's Capital at book value is validated including goodwill. Also, it suggests that there is an expected excess return despite the uplift to the 67th percentile COC and given a natural conservatism associated with an impairment process. How and if this fits into the RAB multiple assessments can be surmised but has

[29] Note 14, page 35. Also, see "Impairment Testing" in the 2014 Financial Statements, p60.

[30] See Note 12. Intangible Assets in the 2014 Financial Statements. "In calculating the recoverable amount for the electricity segment, the potential impact of the Commerce Commission's draft decisions on 4 July 2014 on the default price-quality path from 1 April 2015, and the proposed amendment announced on 22 July 2014 to reduce the weighted average cost of capital (WACC) have been considered. For the gas transportation segment, the recoverable amount exceeds the carrying value based on the initial default price-quality path for gas pipeline services applying from 1 July 2013 through to 30 September 2017.

not been analysed. What is the link between RAB determined on the Commission's regulated basis and the PP&E and Goodwill recorded in Vector's Financial Accounts? The asset mix contrast with Powerco is striking. The total Net Debt and Equity is 90.2% for Powerco and 87.6% for Vector.

Table 7

Powerco 2013	$'000				
Net Working Capital	5,446	**0.3%**	Net Debt	1,223,312	**64.9%**
Net PP&E	1,785,799	**94.7%**	Equity	477,906	**25.3%**
Other Assets	40,677	**2.2%**	Equity Equiv	184,622	**9.8%**
			Less C-wip	(53,918)	**-2.9%**
Capital	1,831,922			1,831,922	
Total Capital	1,885,840	**100.0%**	-	1,885,840	**100.0%**
MV	2,657,934				
MVA	772,094				
MV/Total Capital	1.41				
Vector 2013	$'000				
Net Working Capital	(93,067)	**-2.0%**	Net Debt	1,545,662	**34.0%**
Net PP&E	3,224,007	**70.9%**	Equity	2,436,692	**53.6%**
Other Assets	1,348,327	**29.6%**	Equity Equiv	566,602	**12.5%**
			Less C-wip	(69,689)	**-1.5%**
Capital	4,479,267			4,479,267	
Total Capital	4,548,956	**100.0%**		4,548,956	**100.0%**
MV	5,082,711				
MVA	533,755	(CC high case)			
MV/Total Capital	1.12				

8 Consistency with previous work

8.1 During the consultation process leading to the IM Determination of 2010 I drew attention to the multiples implicit in the pricing for sales of businesses including regulated assets[31]. MEUG submitted that they should be taken into account by the Commission.

8.2 Consideration of transactions before 2010 remains relevant because it shows the long persistence of what should be anomalous multiples if regulatory levels of return were near the "true" market WACC and were all that were being derived. There is no indication from the market pricing before (but in anticipation of the IM) of any investor fear that the regulated returns would be less than "true" WACC, or insufficient to justify further investment.

[31] IWA submission of 13 August 2010 on cost of Capital in the IM (Electricity Distribution Services) Draft Reasons Paper June 2010 p10

8.3 I attach also a copy of a 2010 report by Cameron Partners to Transpower[32]. It assessed the RAB multiple for Transpower at between 1.20 and 1.35[33], relying on the Vector share trading price.

8.4 The persistence of substantial positive RAB multiples begs the question whether a preferred direction of regulatory bias for the risk of error err should not move to be more toward limiting the extraction of returns above the "true" WACC. The market appears to have perceived throughout the period no material risk of regulatory error in fixing the regulatory WACC below the return the market needs to supply capital to these businesses.

9 Evaluation

9.1 The Commission acknowledges that the RAB multiple provides "… a useful indicator of whether the regulatory rate of return has been set at level sufficient to compensate investors for putting their capital at risk."[34] There is a gap between the RAB multiple approach and other alternatives as I have demonstrated. Part of the differences relate to EV related to the whole business while the Commission's focus is a RAB.

9.2 The Commission has based its equity premium on the minority price for Vector when estimating an EV for 100% of the business. The minority parcel share price is unlikely to be a suitable proxy to derive such a value. The value of 100% of Vector should recover any minority discounts implicit in the share price. Grant Samuel's valuation assessment of Prime's 42% interest in Powerco assumed no minority discount. Vector share price reflects a minority discount. The Commission should obtain advice to adjust the minority share price to derive a better value estimate for 100% for estimating an EV.

9.3 Powerco RAB and my derivative analysis support the Commission' opinion that the permitted regulatory cost of capital is materially greater than necessary to attract capital. An RAB multiple of 1.3 under the Price-quality Regulations is inexplicable except on the expectation of higher returns, or lower risks, than are implicit in the regulated WACC. . Translating the MVA into equivalent rates of return as illustrated in **Tables 3** and **6** is instructive especially as the change from the 75th to the 67th percentile cost of capital is 0.25% a year. This compares with the implied annual annuity excess return of about 2.7% a year for the high equity premium assumed by the Commission.

9.4 The multiples analysis is summarised in **Table 8**. Both Powerco and Vector have higher RAB multiples based on the adjusted EV approach which includes all sources of finance. It ranges from for Vector: 1.29 (with a low equity premium) to 1.35 (with a high equity premium) to Powerco with 1.45 calculated on the same basis as for Vector. I have pointed out some differences of asset/capital mix but

[32] Cameron Partners, Report to Transpower New Zealand Ltd 15 August 2010.

[33] At p 12

[34] CC A2

haven't resolved why there are such differences for similar companies under the same regulations.

9.5 A preliminary analysis of the Powerco and Vector 2014 Financial Statements confirms that there appears to be little change from the results of my analysis pertaining to 2013.

9.6 In the absence of specific empirical justifications I agree with the Commission that the Powerco RAB (and derivative measures) of 1.3 is indicative of a return on RAB capital substantially higher than the regulated WACC.

9.7 For Vector the outcome may seem less clear without the adjustment for the minority parcel issue. The suggested UK regulator RAB multiple bright line of 1.1 may be crossed or not. That depends on resolving what constitutes financing of the business and the appropriate equity value for the EV. The Commission would need more information to make a judgment, but the issue is rendered moot if there is an appropriate adjustment to reflect the minority discount.

Table 8

RAB and Alternative Multiples Summary

		Book Value	Market Value
RAB Multiples			
Powerco	CC		1.33
	IWA	0.86	1.30
Vector	CC		1.09 to 1.16
	IWA	0.99	1.08 to 1.14
Adjusted EV Multiples			
Powerco	IWA		1.45
Vector	IWA		1.29 to 1.35
MVA Multiples			
Powerco	IWA		1.41
Vector	IWA		1.07 to 1.12

9.8 The long persistence and consistency of strong positive RAB multiples suggests that there is no practical problem of inadequate return to incentivise investment by suppliers at any regulatory WACC setting near to current levels, or indeed levels derived without an uplift from the mid-point of the WACC data range. That would suggest that any exercise of judgement to address the risk of error should drive in the opposite direction from the direction of the risk postulated to support an uplift.

Appendix

Appendix

Notes								
	Vector Annual Report 2013							
1	**EV Non-regulated B/S adjustments**		$'000		Source/notes			
	EV Non-regulated		1,047,000		DB/CC	DB p6		
	Balance Sheet adjustments							
	Goodwill		(238,900)		Note 16			
	Other Intangibles		(74,175)		Note 16	Consumer Contracts/Easements/Software/ETUs		
	PP&E							
	PP&E Meters	(300,133)			Note 17			
	Cogen	(367)			Note 17			
	Computer/Telco	(104,039)			Note 17			
	Venicles	(4,106)			Note 17			
	Other	(108,049)			Note 17			
	Freehold Land	(3,675)			Note 17			
	Buildings	(2,197)			Note 17			
	Leasehold Improv.	(2,943)			Note 17			
	Capital wip	(30,186)			Note 17	Group $99,875 less Information Disclosures $69,689		
	Working Capital	?						
		(555,695)	(555,695)					
	Surplus (tax free) on notional "Sale"		(178,230)		Equity addition			
			(1,047,000)					
	Debt Reduction		1,047,000					
2	**Fair Value Testing**							
	Goodwill		$'000					
	Electricity	852,200			Note 16			
	Gas Trans.	468,100	1,320,300		Note 16			
	Gas Wholesale	220,700			Note 16			
	Technology	18,200	238,900		Note 16			
		1,559,200	1,559,200					

Biographical note:

Garth Ireland is a director of Ireland, Wallace & Associates Limited and Ireland & Co. and since 1989 has provided value-based financial advisory services. He specialises in valuation and related issues such as performance measurement, cost of capital, debt rating assessments, investor communications and value-based management compensation.

In the public sector he has been involved in value-based reporting processes, SOE commercial value audits and scoping studies and valuation-related issues in the health, tertiary and housing areas.

In the private sector he has worked with many companies on introducing value based-financial systems, performance measurement and investor communications.

He has also acted as an expert valuer and valuation arbitrator.

He has BCA (Economics) Victoria University, 1967.

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Garth has used the "economic value added" frameworks in the New Zealand market since 1989.