



COMMERCE COMMISSION

**Determination of the Cost of Capital for Suppliers of Electricity
Distribution Services for a Customised Price-Quality Path Proposal
Under Part 4 of the Commerce Act 1986**

Decision Number 732

The Commerce Commission:

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Introduction

1. This determination specifies vanilla WACC estimates to apply in respect of any customised price-quality path proposal by a supplier of Electricity Distribution Services (EDB) in the next 12 months.

Customised Price-quality Paths for Electricity Distribution Businesses

2. Pursuant to clause 5.3.28 of the Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010, the Commission has determined a 75th percentile estimate of vanilla WACC for inclusion in any CPP application made by an EDB. The 75th percentile estimate of vanilla WACC for CPP periods of three years is 7.14%, of four years is 7.36% and of five years is 7.50%. The corresponding midpoint estimates of vanilla WACC are 6.42%, 6.64% and 6.79% for periods of three, four and five years, respectively. These WACCs are estimated as at 1 September 2011.



COMMERCE COMMISSION

Explanatory note to Decision 732

**Re: Determination of the Cost of Capital for Suppliers of Electricity
Distribution Services for a Customised Price-Quality Path Proposal
Under Part 4 of the Commerce Act 1986**

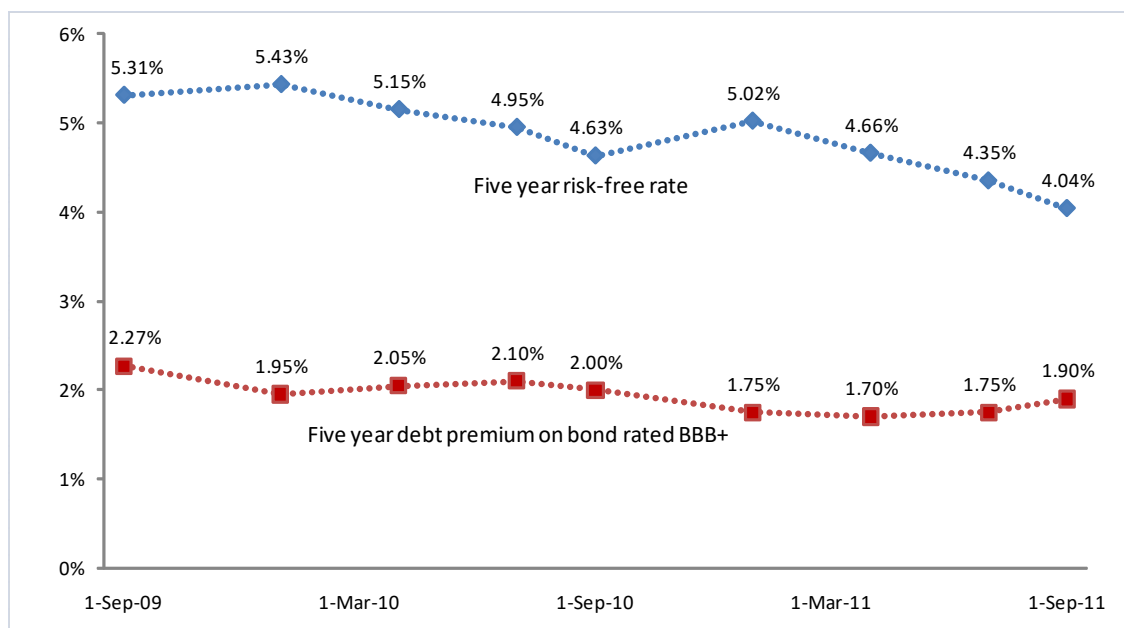
30 September 2011

Introduction

1. This paper provides additional information and commentary on the Commission's Decision 732 which sets the Weighted Average Cost of Capital (WACC) that will apply in respect of any customised price-quality path proposal by a supplier of Electricity Distribution Services (EDB) in the next 12 months.
2. The WACC estimates are set pursuant to the Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010 ("the EDS IM Determination"). They are summarised in the table below.

Estimate and application	Mid point	25 th percentile estimate	75 th percentile estimate
<i>Customised Price Path</i> (for any CPP applications. WACC estimated as at 1 Sept 2011).			
Vanilla WACC (3 years)	6.42%	-	7.14%
Vanilla WACC (4 years)	6.64%	-	7.36%
Vanilla WACC (5 years)	6.79%	-	7.50%

3. The table above includes estimates of the vanilla WACC. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity.
4. The input methodologies for the regulated services reflect that the risk-free rate (estimated based on an interpolation of bid yields on New Zealand government stock to a term to maturity of five years) and the debt premium on bonds (estimated on publicly traded corporate bonds according to the methodology specified in the input methodology determinations) change over time. These changes in the risk-free rate and debt premium on bonds over time are illustrated in the graph below (the graph shows the five year risk-free rate, and the debt premium on bonds rated BBB+ with a five year term).



5. The parameter values, estimates, and information sources used for each estimate of the WACC are set out below, with a commentary on key aspects, especially on the estimation of the risk-free rate and the debt premium. For example, this commentary explains how the Commission estimated the debt premium at each estimation date, identifying the issuers and bonds that were analysed, and the credit rating and remaining term to maturity, along with the estimated debt premium. The commentary also explains:
- which debt premium estimates were given greater weight than other estimates, and
 - that some estimates of the debt premium were given little or no weight as the debt premium estimate was out of line with the debt premium estimated for other issuers (recognising differences such as credit ratings and term to maturity). These differences appear to reflect company specific factors which affect the debt premium for bonds from individual issuers (for example, Telecom and Telstra).
6. The various WACC estimates specified under input methodologies reflect differences in:
- a. the date of estimation for these WACCs (which results in different estimates of the risk-free rate and debt premium at each estimation date);
 - b. differences in the periods to which they will apply;
 - c. differences in the context in which the WACCs will be used (75th percentile estimates of the WACC are used when considering default and customised price paths);
 - d. differences in the assessed riskiness of the various regulated services (EDBs and Transpower have an asset beta of 0.34, Gas Pipeline Businesses (GPBs) have an asset beta of 0.44, and Airports have an asset beta of 0.60); and
 - e. differences in the level of leverage for airports (17%) and for EDBs, GPBs, and Transpower (44%).

WACC for CPPs for EDBs

3. Pursuant to clause 5.3.28 of the EDS IM Determination, the Commission has determined a 75th percentile estimate of vanilla WACC for inclusion in any CPP application made by an EDB. The 75th percentile estimate of vanilla WACC for CPP periods of three years is 7.14%, of four years is 7.36% and of five years is 7.50%. The corresponding midpoint vanilla WACCs are 6.42%, 6.64% and 6.79% for periods of three, four and five years, respectively. These WACCs are estimated as at 1 September 2011.
4. These estimates of vanilla WACC reflect the parameters specified in the Transpower IM Determination and the risk-free rate and debt premium estimated in accordance with the Transpower IM Determination. The parameters are summarised in the table below.

Risk-free rate (3 yrs)	3.62%	Debt premium (3 yrs)	1.64%
Risk-free rate (4 yrs)	3.87%	Debt premium (4 yrs)	1.80%
Risk-free rate (5 yrs)	4.04%	Debt premium (5 yrs)	1.90%
Equity beta	0.61	TAMRP	7.0%
Average corporate tax rate	28%	Average investor tax rate	28%
Debt issuance costs (3 yrs)	0.58%	Debt issuance costs (4 yrs)	0.44%

Debt issuance costs (5 yrs)	0.35%	Leverage	44%
Standard error of debt premium	0.0015	Standard error of WACC	0.011
Cost of debt (3 yrs; pre-corporate tax)	5.84%	Cost of equity (3 yrs)	6.88%
Cost of debt (4 yrs; pre-corporate tax)	6.11%	Cost of equity (4 yrs)	7.06%
Cost of debt (5 yrs; pre-corporate tax)	6.29%	Cost of equity (5 yrs)	7.18%
Vanilla WACC (3 yrs, midpoint)	$5.84\% \times 0.44 + 6.88\% \times (1-0.44) = 6.42\%$		
Vanilla WACC (4 yrs, midpoint)	$6.11\% \times 0.44 + 7.06\% \times (1-0.44) = 6.64\%$		
Vanilla WACC (5 yrs, midpoint)	$6.29\% \times 0.44 + 7.18\% \times (1-0.44) = 6.79\%$		

5. The risk-free rate reflects the linearly-interpolated, annualised, bid yield to maturity on New Zealand government bonds with a term to maturity of five, four and three years. The estimates use data reported by Bloomberg for the month of August 2011 in respect of the April 2013 maturity bonds, the April 2015 maturity bonds and the December 2017 maturity bonds. The daily data reported by Bloomberg is annualised (to reflect the 6 monthly payment of interest), averaged to give a monthly average, and linearly interpolated to produce the estimate of a 4.04% interest rate on a NZ government bond with a five year term to maturity as at 1 September 2011. For terms to maturity of four years and three years, the risk-free rate is 3.87% and 3.62%, respectively.
6. The average corporate tax rate is the corporate tax rate of 28% for all years.
7. The average investor tax rate is the investor tax rate of 28% for all years.
8. The standard error of the WACC is determined in accordance with the formula in the IM Determination, and is shown to three decimal places only in the table above.
9. The methodology for determining the debt premium is set out in clause 5.3.25 of the EDS IM Determination. Clause 5.3.25(3)(d) requires the Commission to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ\$ denominated bond that:
 - a. is issued by an EDB or GPB, (that is neither majority owned by the Crown or a local authority);
 - b. is publicly traded;
 - c. has a credit rating of BBB+; and
 - d. has a five year remaining term to maturity (or four or three years as applicable under clause 5.3.25(6)).
10. In estimating the debt premium, clause 5.3.25(4) provides that the Commission will have regard to:
 - a. bonds issued by an EDB or GPB (that is not government-owned) with a rating of BBB+;
 - b. bonds issued by another entity (that is not government-owned) with a rating of BBB+;

- c. bonds issued by an EDB or GPB (that is not government-owned) with a rating other than BBB+;
 - d. bonds issued by another entity (that is not government-owned) with a rating other than BBB+; and
 - e. bonds issued by government-owned entities.
11. Clause 5.3.25(5)(a) provides that progressively lesser regard will ordinarily be given to the debt premium estimates in the order that the bonds are identified in clauses 5.3.25(4)(a) to (e).
12. The tables below shows the debt premium determined by the Commission as at 1 September 2011 and a summary of the debt premium information, for remaining terms of five years, four years, and three years, on investment grade rated bonds the Commission considered in determining the debt premium. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is on the Commission's website.
13. No weight has been placed on the estimated debt premium for Telecom (2.06%, 4.6 years, rated A) or Telstra (1.94%, 5.9 years, rated A) due to significant corporate actions affecting those companies.

Five-year debt premium

Determined debt premium on an EDB/GPB -issued bond rated BBB+ with a remaining term of 5 years as at 1 Sept 2011						
		Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
<i>Determined Debt Premium EDB / GPB BBB+ 5.0 1.90 Vector premium provides floor. Regard to results of 4(c) & 4(d). Not inconsistent with 4(e).</i>						
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	Vector ¹	EDB/GPB	BBB+	3.1	1.64	Minimum per subclause 5(b).
4(b)						No data on an applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	5.0	2.03	BBB+ would be less than this.
4(d)	Contact ³	Other	BBB	5.0	2.16	BBB+ would be less than this.
	AIAL ⁴	Other	A-	5.0	1.82	BBB+ would be more than this.
	Telecom ⁵	Other	A	-	-	Anomalous, due to significant corporate action.
	Telstra ⁶	Other	A	-	-	Anomalous, due to significant corporate action.
4(e)	Genesis ⁷	Other	BBB+	5.0	1.78	
	MRP ⁸	Other	BBB+	5.1	1.75	
	Transpower ⁹	Other	AA-	8.2	1.50	

Notes on bonds analysed:

- 1 Vector 7.8% bond maturing 15/10/2014.
- 2 Powerco 6.53% bond maturing 29/06/2015; 6.74% bond maturing 28/09/2017.
- 3 Contact Energy 8% bond maturing 15/05/2014; 7.855% bond maturing 13/04/2017.
- 4 AIAL 7.25% bond maturing 7/11/2015; 8% bond maturing 15/11/2016.
- 5 Telecom 7.04% maturing 22/03/2016.
- 6 Telstra 7.515% maturing 11/07/2017.
- 7 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.
- 8 Mighty River Power 7.55% bond maturing 12/10/2016.
- 9 Transpower 7.19% bond maturing 12/11/2019.

14. Consistent with clause 5.3.25(4)-(5)(a) greatest regard has been given to the estimated debt premium on Vector's October 2014 bond. This bond is issued by an EDB/GPB, is publicly traded, has a rating of BBB+, and a term to maturity of 3.1 years. As at 1 September 2011, the debt premium on the Vector bond was estimated at 1.64%. Consistent with clause 5.3.25(5)(b) this estimated debt premium is treated as the minimum debt premium for a bond rated BBB+ with a term of five years.
15. The interpolated 5 year debt premium on Powerco's bonds is 2.03%. Powerco's bonds are rated BBB, implying the 5 year debt premium on bonds rated BBB+ would be less than 2.03%.
16. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including AIAL (1.82%, 5 years, rated A-) and Contact Energy (2.16%, 5 years, rated BBB). Consistent with clause (5)(a) these were given less weight

as the issuers are not EDBs or GPBs, and the debt issues had different credit ratings than the BBB+ rating specified in clause (3)(d).

17. The estimated debt premium on the Genesis and Mighty River Power bonds (rated BBB+, and for a five year term to maturity) were 1.78% and 1.75% respectively.
18. Starting with the estimated debt premium on the Vector bond, but having regard to the debt premium on a range of other bonds, the Commission has determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of five years to be 1.90% as at 1 September 2011.

Four-year debt premium

Determined debt premium on an EDB/GPB -issued bond rated BBB+ with a remaining term of 4 years as at 1 Sept 2011						
	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment	
<i>Determined Debt Premium</i>	<i>EDB / GPB</i>	<i>BBB+</i>	<i>4.0</i>	<i>1.80</i>	<i>Vector premium provides floor. Regard to results of 4(c) & 4(d). Not inconsistent with 4(e).</i>	
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	Vector ¹	EDB/GPB	BBB+	3.1	1.64	Minimum per subclause 5(b).
4(b)						No data on an applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	4.0	1.94	BBB+ would be less than this.
4(d)	Contact ³	Other	BBB	4.0	1.90	BBB+ would be less than this.
	AIAL ⁴	Other	A-	4.2	1.71	4yr debt debt premium would be lower, and a BBB+ debt premium would be more than this.
	Telecom ⁵	Other	A	-	-	Anomalous, due to significant corporate action.
	Telstra ⁶	Other	A	-	-	Anomalous, due to significant corporate action.
4(e)	Genesis ⁷	Other	BBB+	4.0	1.62	
	MRP ⁸	Other	BBB+	5.1	1.75	
	Transpower ⁹	Other	AA-	8.2	1.50	

Notes on bonds analysed:

- 1 Vector 7.8% bond maturing 15/10/2014.
- 2 Powerco 6.53% bond maturing 29/06/2015; 6.74% bond maturing 28/09/2017.
- 3 Contact Energy 8% bond maturing 15/05/2014; 7.855% bond maturing 13/04/2017.
- 4 AIAL 7.25% bond maturing 7/11/2015.
- 5 Telecom 6.92% maturing 22/03/2013; 7.04% maturing 22/03/2016.
- 6 Telstra 7.515% maturing 11/07/2017.
- 7 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.
- 8 Mighty River Power 7.55% bond maturing 12/10/2016.
- 9 Transpower 7.19% bond maturing 12/11/2019.

19. Consistent with clause 5.3.25(4)-(5)(a) greatest regard has been given to the estimated debt premium on Vector's October 2014 bond. This bond is issued by an EDB/GPB, is publicly traded, has a rating of BBB+, and a term to maturity of 3.1 years. As at 1 September 2011, the debt premium on the Vector bond was estimated at 1.64%.

Consistent with clause 5.3.25(5)(b) this estimated debt premium is treated as the minimum debt premium for a bond rated BBB+ with a term of four years.

20. The interpolated four year debt premium on Powerco's bonds is 1.94%. Powerco's bonds are rated BBB, implying the 4 year debt premium on bonds rated BBB+ would be less than 1.94%.
21. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including AIAL (1.71%, 4.2 years, rated A-) and Contact Energy (1.90%, 4 years, rated BBB). Consistent with clause (5)(a) these were given less weight as the issuers are not EDBs or GPBs, and the debt issues had different credit ratings than the BBB+ rating specified in clause (3)(d).
22. The estimated debt premium on the Genesis bonds (1.62%, 4 years, rated BBB+) and Mighty River Power bonds (1.75%, 5.1 years, rated BBB+) were also considered.
23. Starting with the estimated debt premium on the Vector bond, but having regard to the debt premium on a range of other bonds, the Commission has determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of four years to be 1.80% as at 1 September 2011.

Three-year debt premium

Determined debt premium on an EDB/GPB -issued bond rated BBB+ with a remaining term of 3 years as at 1 Sept 2011						
		Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
<i>Determined Debt Premium EDB / GPB BBB+ 3.0 1.64 Vector almost exact match (3.1yrs). Broadly consistent with 4(c)-4(e).</i>						
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	Vector ¹	EDB/GPB	BBB+	3.1	1.64	Almost exact match.
4(b)						No data on an applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	3.8	1.93	3 yr BBB+ would be less than this.
4(d)	Contact ³	Other	BBB	3.0	1.64	BBB+ would be less than this.
	AIAL ⁴	Other	A-	4.2	1.71	3yr debt debt premium would be lower, and a BBB+ debt premium would be more than this.
	Telecom ⁵	Other	A	-	-	Anomalous, due to significant corporate action.
	Telstra ⁶	Other	A	-	-	Anomalous, due to significant corporate action.
4(e)	Genesis ⁷	Other	BBB+	3.0	1.50	
	MRP ⁸	Other	BBB+	5.1	1.75	
	Transpower ⁹	Other	AA-	8.2	1.50	

Notes on bonds analysed:

- 1 Vector 7.8% bond maturing 15/10/2014.
- 2 Powerco 6.53% bond maturing 29/06/2015.
- 3 Contact Energy 8% bond maturing 15/05/2014; 7.855% bond maturing 13/04/2017.
- 4 AIAL 7.25% bond maturing 7/11/2015.
- 5 Telecom 6.92% maturing 22/03/2013; 7.04% maturing 22/03/2016.
- 6 Telstra 7.515% maturing 11/07/2017.
- 7 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.
- 8 Mighty River Power 7.55% bond maturing 12/10/2016.
- 9 Transpower 7.19% bond maturing 12/11/2019.

24. Consistent with clause 5.3.25(4)-(5)(a) greatest regard has been given to the estimated debt premium on Vector's October 2014 bond. This bond is issued by an EDB/GPB, is publicly traded, has a rating of BBB+, and a term to maturity of 3.1 years. As at 1 September 2011, the debt premium on the Vector bond was estimated at 1.64%. Consistent with clause 5.3.25(5)(b) this estimated debt premium is treated as the minimum debt premium for a bond rated BBB+ with a term of three years. This is an almost exact match with the requirements set out in the EDS IM Determination.
25. The Commission has also had regard to the other bonds listed in the table above, but based primarily on the Vector estimate, the Commission has determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of three years to be 1.64% as at 1 September 2011.