

Cost of capital determination for electricity distribution businesses to apply to a customised price-quality path proposal [2012] NZCC 25

The Commission: S Begg
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Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates to apply in respect of any customised price-quality path proposal by a supplier of Electricity Distribution Services (EDS) in the 12 months following the date of this decision.
2. Vanilla¹ WACCs have been estimated for inclusion in any CPP proposal made by an Electricity Distribution Business (EDB). The 75th percentile estimate of vanilla WACC for CPP periods of three years is 6.63%, of four years is 6.77% and of five years is 6.92%.
3. The WACC estimates are summarised in Table 1 below. The WACCs are estimated as at 1 September 2012.

Table 1: Summary of vanilla and post-tax WACC estimates

	Mid-point	25 th percentile	75 th percentile
Customised Price-quality Path			
Vanilla WACC (5 years)	6.21%		6.92%
Vanilla WACC (4 years)	6.06%		6.77%
Vanilla WACC (3 years)	5.92%		6.63%

¹ The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity.

Introduction

4. This determination specifies WACC estimates to apply in respect of any customised price-quality path proposal by an EDB in the 12 months following the date of this decision.
5. The WACC estimates are set pursuant to clause 5.3.28 of the EDS input methodology (IM) Determination.
6. The Commission has estimated a vanilla WACC. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity.
7. The parameter values, estimates and information sources used for each estimate of the WACC are set out in this determination. Additional commentary on the estimation of the risk-free rate and the debt premium is also provided.
8. For example, this determination identifies the issuers and bonds that were analysed (including the credit rating and remaining term to maturity) when estimating the debt premium. The commentary also explains which debt premium estimates were given greater weight than other estimates.

Background

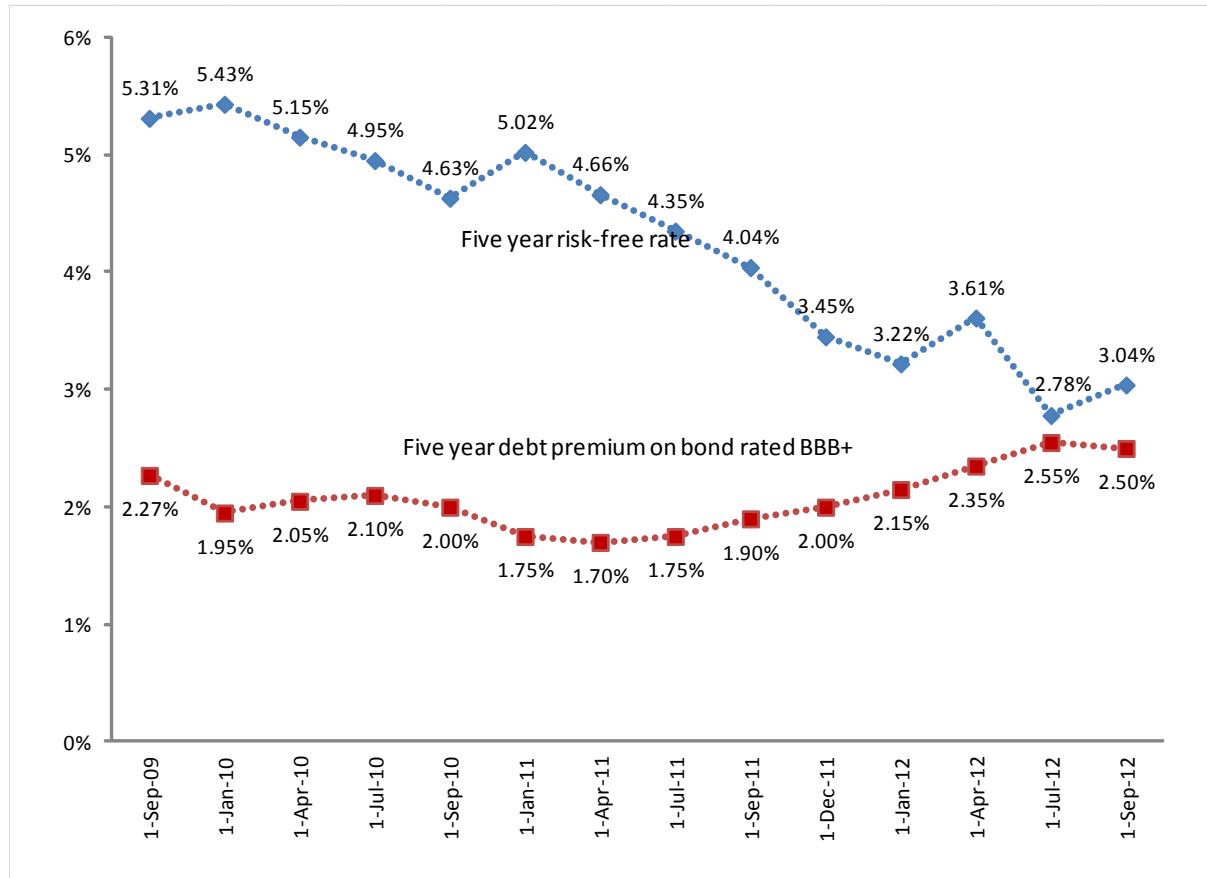
Changes in the risk-free rate and debt premium over time

9. The cost of capital input methodologies for the regulated services reflect that both the risk-free rate² and the debt premium on bonds³ change over time.
10. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows, as at 1 September 2012, both:
 - 10.1 the five year risk-free rate; and
 - 10.2 the debt premium on bonds rated BBB+ with a term of five years.

² The risk-free rate is estimated based on an interpolation of bid yields on New Zealand government stock to a term to maturity of five years, four years and three years.

³ The debt premium is estimated on publicly traded corporate bonds according to the methodology specified in the EDS input methodology determinations.

Figure 1: Changes in the risk-free rate and debt premium over time



Reasons for differences in WACC under the various cost of capital input methodologies determinations

11. Differences in the WACCs estimated under the various cost of capital input methodologies reflect differences in:
 - 11.1 the date of estimation for the WACCs, which results in different estimates of the risk-free rate and debt premium;
 - 11.2 the periods in which the WACCs will apply;
 - 11.3 the context in which the WACCs will be used (75th percentile estimates of the WACC are used when considering default and customised price-quality paths, while a midpoint and range is determined for information disclosure);
 - 11.4 the assessed risk of the various regulated services (EDBs and Transpower have an asset beta of 0.34, GPBs have an asset beta of 0.44 and Airports have an asset beta of 0.60); and
 - 11.5 the value of leverage for airports (17%) and for EDBs, GPBs, and Transpower (44%).

WACC for EDB CPP proposals

12. Under clause 5.3.28 of the EDS IM Determinations, the Commission has determined a 75th percentile estimate of vanilla WACC of:
- 12.1 6.92% for a five year period;
 - 12.2 6.77% for a four year period; and
 - 12.3 6.63% for a three year period.

Parameters used to estimate the WACC

13. These estimates of vanilla WACC reflect the parameters specified in the EDS IM Determination. The risk-free rate and debt premium are also estimated in accordance with the EDS IM Determination.

Summary of parameters

14. The parameters used to estimate the WACCs are summarised in Table 2 below.

Table 2: Parameters used to calculate WACC for CPPs

Risk-free rate (5 years)	3.04%	Debt premium (5 years)	2.50%
Risk-free rate (4 years)	2.89%	Debt premium (4 years)	2.35%
Risk-free rate (3 years)	2.73%	Debt premium (3 years)	2.20%
Equity beta	0.61	TAMRP	7.0%
Average corporate tax rate	28%	Average investor tax rate	28%
Debt issuance costs (5 years)	0.35%	Debt issuance costs (4 years)	0.44%
Debt issuance costs (3 years)	0.58%	Leverage	44%
Standard error of debt premium	0.0015	Standard error of WACC	0.011
Cost of debt (5 year)	5.89%	Cost of equity (5 years)	6.46%
Cost of debt (4 year)	5.68%	Cost of equity (4 years)	6.35%
Cost of debt (3 year)	5.51%	Cost of equity (3 years)	6.24%
Vanilla WACC (5 year, midpoint)	$5.89\% \times 0.44 + 6.46\% \times (1-0.44) = 6.21\%$		
Vanilla WACC (4 year, midpoint)	$5.68\% \times 0.44 + 6.35\% \times (1-0.44) = 6.06\%$		
Vanilla WACC (3 year, midpoint)	$5.51\% \times 0.44 + 6.24\% \times (1-0.44) = 5.92\%$		

Risk-free rate

15. 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 2012 in respect of the April 2015 and December 2017 maturity bonds. The April 2015 and December 2017 bonds have simple average annualised bid yields to maturity of 2.67% and 3.09% respectively.
16. 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:
 - 16.1 a 3.04% interest rate on a NZ government bond with a five year term to maturity as at 1 September 2012;
 - 16.2 a 2.89% interest rate on a NZ government bond with a four year term to maturity as at 1 September 2012; and
 - 16.3 a 2.73% interest rate on a NZ government bond with a three year term to maturity as at 1 September 2012.

Tax rates

17. The average corporate tax rate is the corporate tax rate of 28% for all years. The average investor tax rate is the investor tax rate of 28% for all years.

Standard error of the WACC

18. The standard error of the WACC is determined in accordance with the formula in the EDS IM Determinations, and is shown to three decimal places only in the table above.

Debt premium

19. The methodology for determining the debt premium is set out in clause 5.3.25 of the EDS IM Determination.
20. 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:
 - 20.1 is issued by an EDB or a GPB that is neither majority owned by the Crown nor a local authority;
 - 20.2 is publicly traded;
 - 20.3 has a qualifying rating of grade BBB+; and
 - 20.4 has a remaining term to maturity of five years (or four or three years).
21. In estimating the debt premium, clause 5.3.25(4) of the EDS IM Determinations provides that the Commission will have regard to:

- 21.1 bonds issued by an EDB or a GPB (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
 - 21.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
 - 21.3 bonds issued by an EDB or a GPB (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+;
 - 21.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+; and
 - 21.5 bonds issued by government-owned entities.
22. 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).
23. The tables below show the debt premium determined by the Commission as at 1 September 2012. These tables include a summary of information on the investment grade rated bonds the Commission considered in determining the debt premium.
24. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.⁴

⁴ See www.comcom.govt.nz/cost-of-capital

Table 3: Five-year debt premium on an EDB/GPB-issued bond rated BBB+⁵

<u>Determined debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 5 years as at 1 September 2012</u>						
	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment	
<i>Determined Debt Premium</i>	<i>EDB / GPB</i>	<i>BBB+</i>	<i>5.0</i>	<i>2.50</i>	<i>Vector premium provides floor. Regard to results of 4(c) and 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+	2.1	2.20	Minimum per subclause 5(b).
4(b)						No data on applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	5.0	2.65	BBB+ debt premium would be less than this.
4(d)	Contact ³	Other	BBB	4.6	2.55	5 year debt premium would be higher and a BBB+ debt premium would be less than this.
	AIAL ⁴	Other	A-	5.0	1.98	BBB+ debt premium would be higher than this.
	Telecom ⁵	Other	A-	3.6	2.10	5 year debt premium and BBB+ debt premium would be higher than this.
	Telstra ⁶	Other	A	4.9	2.08	5 year debt premium and BBB+ debt premium would be higher than this.
	Fonterra ⁷	Other	A+	3.5	1.61	5 year debt premium and BBB+ debt premium would be higher than this.
4(e)	Genesis ⁸	Other	BBB+	5.0	1.92	
	MRP ⁹	Other	BBB+	7.4	2.38	
	Transpower ¹⁰	Other	AA-	7.2	1.72	
	Meridian ¹¹	Other	BBB+	4.5	2.18	

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 7.855% bond maturing 13/04/2017.
- 4 AIAL 8% bond maturing 15/11/2016; 5.47% bond maturing 17/10/2017.
- 5 Telecom 7.04% bond maturing 22/03/2016.
- 6 Telstra 7.515% bond maturing 11/07/2017.
- 7 Fonterra 6.83% bond maturing 04/03/2016.
- 8 Genesis 7.185% bond maturing 15/09/2016; 8.3% bond maturing 23/06/2020.
- 9 Mighty River Power 8.21% bond maturing 11/02/2020.
- 10 Transpower 7.19% maturing 12/11/2019.
- 11 Meridian 7.55% bond maturing 16/03/2017.

25. Consistent with clauses 5.3.25(4) and 5.3.25(5)(a) of the EDS IM Determinations, 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 and has a rating of BBB+. However, the October 2014 Vector bond has a remaining term to maturity of 2.1 years, which is significantly less than five years specified in clause 5.3.25(3)(d).
26. As at 1 September 2012, the debt premium on the Vector bond was estimated at 2.20%. 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.

⁵ The five-year debt premiums on the Powerco, Auckland International Airport Limited (AIAL) and Genesis bonds are calculated by linear interpolation with respect to maturity.

27. The interpolated five year debt premium on Powerco's bonds is 2.65%. Powerco's bonds are rated BBB, implying that the five year debt premium on bonds rated BBB+ would be less than 2.65%.
28. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including Auckland International Airport Limited (AIAL) (1.98%, 5 years, rated A-), Contact Energy (2.55%, 4.6 years, rated BBB), Telecom (2.10%, 3.6 years, rated A-), Telstra (2.08%, 4.9 years, rated A) and Fonterra (1.61%, 3.5 years, rated A+). Consistent with clause 5.3.25(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 5.3.25(3)(d).
29. The estimated debt premium on the Genesis bonds (rated BBB+ with a 5 year term to maturity), the Mighty River Power bond (rated BBB+ with a 7.4 year term to maturity), the Transpower bond (rated AA- with a 7.2 year term to maturity) and the Meridian bond (rated BBB+ with a 4.5 year term to maturity) were 1.92%, 2.38%, 1.72% and 2.18% respectively.
30. 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 2.50% as at 1 September 2012.

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 September 2012						
	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>2.35</i>	<i>Vector premium provides floor. Regard to results of 4(c) and 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+	2.1	2.20	Minimum per subclause 5(b).
4(b)						No data on applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	4.0	2.49	BBB+ debt premium would be less than this.
4(d)	Contact ³	Other	BBB	4.0	2.43	BBB+ debt premium would be less than this.
	AIAL ⁴	Other	A-	4.0	1.88	BBB+ debt premium would be higher than this.
	Telecom ⁵	Other	A-	3.6	2.10	4 year debt premium and BBB+ debt premium would be higher than this.
	Telstra ⁶	Other	A	4.9	2.08	4 year debt premium would be less than and a BBB+ debt premium would be higher than this.
	Fonterra ⁷	Other	A+	3.5	1.61	4 year debt premium and BBB+ debt premium would be higher than this.
4(e)	Genesis ⁸	Other	BBB+	4.0	1.94	
	MRP ⁹	Other	BBB+	7.4	2.38	
	Transpower ¹⁰	Other	AA-	7.2	1.72	
	Meridian ¹¹	Other	BBB+	4.0	2.07	

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 07/11/2015; 8% bond maturing 15/11/2016.

5 Telecom 7.04% bond maturing 22/03/2016.

6 Telstra 7.515% bond maturing 11/07/2017.

7 Fonterra 6.83% bond maturing 04/03/2016.

8 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.

9 Mighty River Power 8.21% bond maturing 11/02/2020.

10 Transpower 7.19% maturing 12/11/2019.

11 Meridian 7.15% bond maturing 16/03/2015; 7.55% bond maturing 16/03/2017.

31. 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 2.1 years. As at 1 September 2012, the debt premium on the Vector bond was estimated at 2.20%. 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.

32. The interpolated four year debt premium on Powerco's bonds is 2.49%. Powerco's bonds are rated BBB, implying the four year debt premium on bonds rated BBB+ would be less than 2.49%.
33. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including AIAL (1.88%, 4 years, rated A-), Contact Energy (2.43%, 4 years, rated BBB), Telecom (2.10%, 3.6 years, rated A-), Telstra (2.08%, 4.9 years, rated A) and Fonterra (1.61%, 3.5 years, rated A+). 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).
34. The estimated debt premium on the Genesis bonds (1.94%, 4 years, rated BBB+), the Mighty River Power bond (2.38%, 7.4 years, rated BBB+), the Transpower bond (1.72%, 7.2 years, rated AA-) and the Meridian bond (2.07%, 4 years, rated BBB+) were also considered.
35. 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 2.35% as at 1 September 2012.

Three-year debt premium

<u>Determined debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 3 years as at 1 September 2012</u>						
	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment	
<i>Determined Debt Premium</i>	<i>EDB/GPB</i>	<i>BBB+</i>	<i>3.0</i>	<i>2.20</i>	<i>Vector premium provides floor. Regard to results of 4(c) and 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+	2.1	2.20	Minimum per subclause 5(b).
4(b)						No data on applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	3.0	2.34	BBB+ debt premium would be less than this.
4(d)	Contact ³ AIAL ⁴	Other	BBB	3.0	2.22	BBB+ debt premium would be less than this.
		Other	A-	3.2	1.78	3 year debt premium would be less than and a BBB+ debt premium would be higher than this.
	Telecom ⁵	Other	A-	3.6	2.10	3 year debt premium would be less than and a BBB+ debt premium would be higher than this.
	Telstra ⁶	Other	A	4.9	2.08	3 year debt premium would be less than and a BBB+ debt premium would be higher than this.
	Fonterra ⁷	Other	A+	3.0	1.55	BBB+ debt premium would be higher than this.
4(e)	Genesis ⁸ MRP ⁹	Other	BBB+	3.0	1.77	
	Transpower ¹⁰	Other	AA-	7.2	1.72	
	Meridian ¹¹	Other	BBB+	3.0	1.87	

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 07/11/2015.

5 Telecom 7.04% bond maturing 22/03/2016.

6 Telstra 7.51% bond maturing 11/07/2017.

7 Fonterra 7.75% bond maturing 10/03/2015; 6.83% bond maturing 4/03/2016.

8 Genesis 7.25% bond maturing 15/03/2014; 7.65% bond maturing 15/03/2016.

9 Mighty River Power 8.21% bond maturing 11/02/2020.

10 Transpower 7.19% maturing 12/11/2019.

11 Meridian 7.15% bond maturing 16/03/2015; 7.55% bond maturing 16/03/2017.

36. 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 2.1 years. As at 1 September 2012, the debt premium on the Vector bond was estimated at 2.20%. 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.
37. The interpolated three year debt premium on Powerco's bonds is 2.34%. Powerco's bonds are rated BBB, implying the three year debt premium on bonds rated BBB+ would be less than 2.34%.

38. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including AIAL (1.78%, 3.2 years, rated A-), Contact Energy (2.22%, 3 years, rated BBB), Telecom (2.10%, 3.6 years, rated A-), Telstra (2.08%, 4.9 years, rated A) and Fonterra (1.61%, 3.5 years, rated A+). 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).
39. The estimated debt premium on the Genesis bonds (1.77%, 3 years, rated BBB+), the Mighty River Power bond (2.38%, 7.4 years, rated BBB+), +), the Transpower bond (1.72%, 7.2 years, rated AA-) and the Meridian bond (1.87%, 3 years, rated BBB+) were also considered.
40. 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 three years to be 2.20% as at 1 September 2012.