

Cost of capital determination for customised price-quality path proposals made by electricity distribution businesses

[2015] NZCC 23

The Commission: S Begg
Dr S Gale
Dr M Berry

Date of determination: 30 September 2015

Associated documents

Publication date	Reference	Title
30 September 2014	ISSN 1178-2560	Cost of capital determination for customised price-quality proposals made by electricity businesses [2014] NZCC 25
30 September 2013	ISBN 978-1-869453-26-8	Cost of capital determination for customised price-quality proposals made by electricity businesses [2013] NZCC 16
30 September 2012	ISBN 978-1-869452-15-5	Cost of capital determination for customised price-quality proposals made by electricity businesses [2012] NZCC 25
30 September 2011	ISBN 978-1-869451-64-6	Determination of the Cost of Capital for Suppliers of Electricity Services for a Customised Price-Quality Path Proposal Under Part 4 of the Commerce Act 1986 Decision Number 732

Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates that will apply to any customised price-quality path (CPP) proposals made by electricity distribution businesses (EDBs) from the date of the determination.
2. Vanilla WACC estimates for CPP proposals made by EDBs are summarised in Table 1 below. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity.

Table 1: Summary of vanilla WACC estimates for CPP proposals made by EDBs (%)¹

	Mid-point	67 th percentile
Vanilla WACC (3 years)	5.47	5.94
Vanilla WACC (4 years)	5.49	5.96
Vanilla WACC (5 years)	5.57	6.04

3. 67th percentile estimates of vanilla WACC are used for CPPs. The WACCs are estimated as at 1 September 2015.

¹ The associated mid-point post-tax WACCs for five, four and three years are 4.99%, 4.93% and 4.90% respectively. The associated 67th percentile post-tax WACCs for five, four and three years are 5.46%, 5.39% and 5.37% respectively.

Introduction

4. This determination sets vanilla WACC estimates that will apply to any CPP proposals made by EDBs from the date of the determination.
5. Vanilla WACCs for CPP proposals made by EDBs are set under clauses 5.3.22 to 5.3.29 of the Electricity Distribution Services Input Methodologies Determination 2012 (EDS IM Determination).² Consistent with our 2014 review of the WACC percentile for electricity lines and gas pipeline businesses, 67th percentile estimates of vanilla WACC are used for CPP proposals made by electricity distribution businesses.³
6. The parameter values, estimates and information sources used for each WACC estimate are set out in this determination. Additional commentary on the estimation of the risk-free rate and the debt premium is also provided.
7. 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.

² Commerce Commission “Electricity Distribution Services Input Methodologies Determination 2012” (15 November 2012).

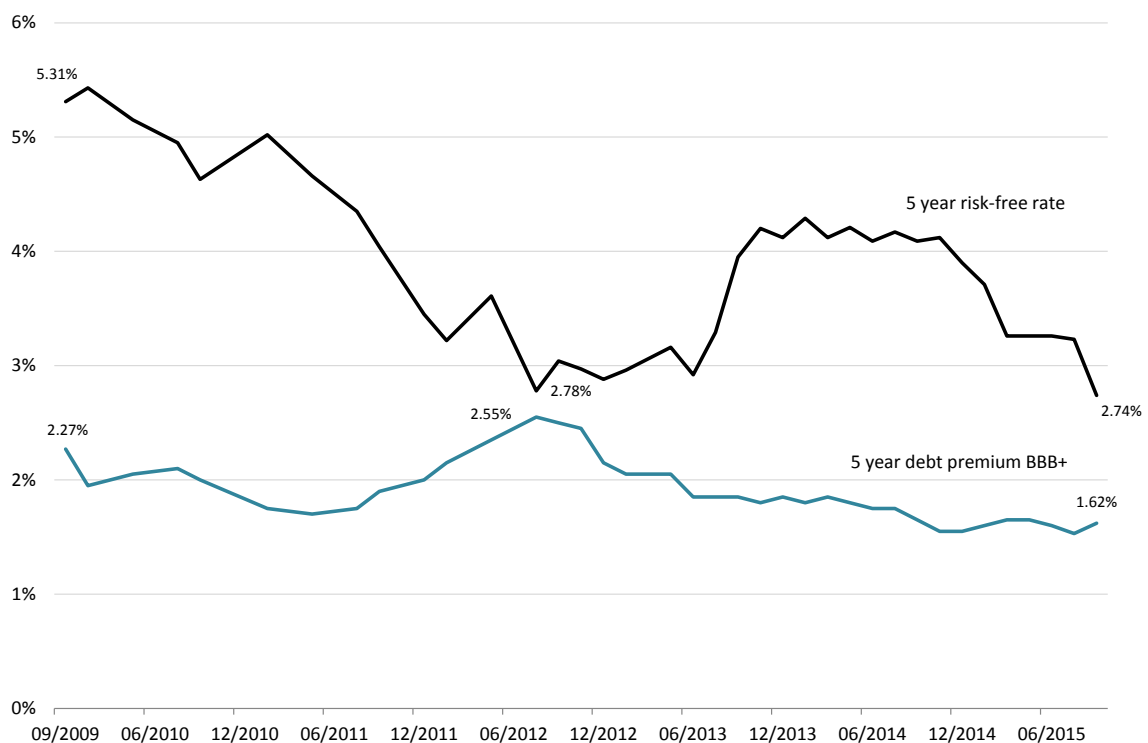
³ Commerce Commission “Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper” (30 October 2014); and *Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for price-quality regulation)* 2014 [2014] NZCC 27.

Background

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

8. The cost of capital input methodologies for regulated services reflect that both the risk-free rate and the debt premium on bonds change over time.⁴
9. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows, as at 1 September 2015, changes over time in the:
 - 9.1 five year risk-free rate; and
 - 9.2 debt premium on bonds rated BBB+ with a term of five years.

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

10. Differences in the WACCs estimated under the various cost of capital input methodologies reflect differences in the:
 - 10.1 date of estimation for the WACCs, which results in different estimates of the risk-free rate and debt premium;

⁴ 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. The debt premium is estimated on publicly traded corporate bonds according to the methodology specified in the EDS IM Determinations.

- 10.2 periods in which the WACCs will apply;
- 10.3 context in which the WACCs will be used (67th percentile WACC estimates are used when considering default and customised price-quality paths, while a mid-point and range is determined for information disclosure);
- 10.4 assessed risk 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
- 10.5 value of leverage for airports (17%) and for EDBs, GPBs, and Transpower (44%).

WACC for CPP proposals made by electricity distribution businesses

- 11. Under clause 5.3.28 of the EDS IM Determination, we have determined the following 67th percentile vanilla WACC estimates (as at 1 September 2015):
 - 11.1 6.04% for a five year period;
 - 11.2 5.96% for a four year period; and
 - 11.3 5.94% for a three year period.

Parameters used to estimate the WACC

- 12. The above 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

- 13. The parameters used to estimate the vanilla WACCs are summarised in Table 2 below.

Table 2: Parameters used to calculate vanilla WACC for EDB CPP proposals

Parameter	3 year estimate	4 year estimate	5 year estimate
Risk-free rate	2.62%	2.68%	2.74%
Debt premium	1.39%	1.48%	1.62%
Leverage	44%	44%	44%
Equity beta	0.61	0.61	0.61
Tax adjusted market risk premium	7.0%	7.0%	7.0%
Average corporate tax rate	28%	28%	28%
Average investor tax rate	28%	28%	28%
Debt issuance costs	0.58%	0.44%	0.35%
Cost of debt	4.59%	4.60%	4.71%
Cost of equity	6.16%	6.20%	6.24%
Standard error of debt premium	0.0015	0.0015	0.0015
Standard error of WACC	0.011	0.011	0.011
Mid-point vanilla WACC	5.47%	5.49%	5.57%

Note: The cost of debt is calculated as the risk-free rate + debt premium + debt issuance costs. The cost of equity is calculated as the risk-free rate \times (1 - investor tax rate) + the equity beta \times the tax adjustment market risk premium. The mid-point vanilla WACC is calculated as the cost of equity \times (1 - leverage) + the cost of debt \times leverage.

Risk-free rate

- 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 2015 in respect of the December 2017, March 2019 and April 2020 maturity bonds. The December 2017, March 2019 and April 2020 bonds have simple average annualised bid yields to maturity of 2.60%, 2.64%, and 2.72% respectively.

15. The daily data reported by Bloomberg is annualised (to reflect the six monthly payment of interest), averaged to give a monthly average, and linearly interpolated to produce the following estimates of interest rates on NZ Government bonds (as at 1 September 2015):
- 15.1 2.74% with a five year term to maturity;
 - 15.2 2.68% with a four year term to maturity; and
 - 15.3 2.62% with a three year term to maturity.

Tax rates

16. 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

17. 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 Table 2 above.

Debt premium

18. The methodology for determining the debt premium is set out in clause 5.3.25 of the EDS IM Determination.
19. 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:
- 19.1 is issued by an EDB or a GPB that is neither majority owned by the Crown nor a local authority;
 - 19.2 is publicly traded;
 - 19.3 has a qualifying rating of grade BBB+; and
 - 19.4 has a remaining term to maturity of five years (or four or three years, as applicable under clause 5.3.25(6) of the EDS IM Determination).

20. In estimating the debt premium, clause 5.3.25(4) of the EDS IM Determination provides that the Commission will have regard to:
 - 20.1 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+;
 - 20.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
 - 20.3 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+;
 - 20.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+; and
 - 20.5 bonds issued by government-owned entities.
21. 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).
22. The tables below show the debt premiums for terms of five, four and three years respectively, determined as at 1 September 2015. These tables include a summary of information on the investment grade rated bonds we considered in determining the debt premiums.
23. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.⁵

⁵ See www.comcom.govt.nz/cost-of-capital

Five year debt premium

24. Table 3 below shows the five year debt premium on an EDB/GPB-issued bond rated BBB+, as at 1 September 2015.

Table 3: Debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 5 years, as at 1 September 2015⁶

	Industry	Rating	Remaining term to maturity	Debt premium	Comment
Determined debt premium	EDB/GPB	BBB+	5.0	1.62	Regard to results 4(b), 4(c) and 4(d) Generally consistent with 4(e)

Subclause	Issuer	Note ref.	Industry	Rating	Remaining term to maturity	Debt premium	Comment
4(a)	-	-	-	-	-	-	No data on applicable bonds
4(b)	WIAL	1	Other	BBB+	5.0	1.62	Credit rating and term are an exact match
4(c)	-	-	-	-	-	-	No data on applicable bonds
4(d)	Spark	2	Other	A-	5.0	1.15	BBB+ debt premium would be higher
	AIAL	3	Other	A-	5.0	1.11	BBB+ debt premium would be higher
	Contact	4	Other	BBB	4.7	1.72	BBB+ debt premium would be lower 5 year debt premium would be slightly higher
	Fonterra	5	Other	A	5.0	1.10	BBB+ debt premium would be significantly higher
4(e)	Meridian	6	Other	BBB+	1.5	0.98	
	Genesis Energy	7	Other	BBB+	5.0	1.61	
	MRP	8	Other	BBB+	5.0	1.60	
	CIAL	9	Other	BBB+	5.0	1.49	
	Transpower	10	Other	AA-	5.0	0.99	

Notes on bonds analysed:

- 1 WIAL 5.27% bond maturing 11/06/2020; 6.25% bond maturing 15/05/2021.
- 2 Spark 5.25% bond maturing 25/10/2019; 4.5% bond maturing 25/03/2022.
- 3 AIAL 4.73% bond maturing 13/12/2019; 5.52% bond maturing 28/05/2021.
- 4 Contact Energy 5.277% bond maturing 27/05/2020.
- 5 Fonterra 5.52% bond maturing 25/02/2020; 4.33% bond maturing 20/10/2021.
- 6 Meridian 7.55% bond maturing 16/03/2017.
- 7 Genesis Energy 8.3% bond maturing 23/06/2020; 5.81% bond maturing 8/03/2023.
- 8 MRP 8.21% bond maturing 11/02/2020; 5.793% bond maturing 6/03/2023.
- 9 CIAL 5.15% bond maturing 6/12/2019; 6.25% bond maturing 4/10/2021.
- 10 Transpower 6.95% bond maturing 10/06/2020; 4.3% bond maturing 30/06/2022.

⁶ The five-year debt premiums on the WIAL, Spark, AIAL, Contact, Fonterra, Genesis Energy, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity. The Meridian bond is calculated by interpolated bid to bid spread between the corporate bonds and a New Zealand Government Treasury Bill, maturing 3 August 2016.

New Zealand Government Treasury Bills have been used as there are no Government bonds available with maturity date between 16 April 2015 to 14 December 2017 to interpolate the corporate bonds.

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 Wellington International Airport Limited's (WIAL's) bonds. These bonds are publicly traded, and are issued by an entity other than an EDB/GPB with a rating of BBB+.
26. As at 1 September 2015, the interpolated five year debt premium on the WIAL bonds is estimated at 1.62%. Given that the credit rating and remaining term to maturity match the requirements in clause 5.3.25(3)(d), we consider 1.62% to be the appropriate starting point when estimating the debt premium (noting that WIAL is not an EDB/GPB).
27. We have also had regard to the estimated debt premium on bonds from a range of other issuers including Spark (1.15%, 5 years, rated A-), Auckland International Airport Limited (AIAL) (1.11%, 5 years, rated A-), Contact Energy (1.72%, 4.7 years, rated BBB) and Fonterra (1.10%, 5 years, rated A). Consistent with clause 5.3.25(5)(a) these debt premiums 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 2.4.4(3)(d).⁷ Taking into account the likely impact of differences in credit rating and term to maturity, we consider that these debt premiums are generally consistent with an estimate of 1.62% for a BBB+ rated bond with a five year term to maturity.
28. The estimated debt premium on the Meridian bond (0.98%, 1.5 years, rated BBB+) the Genesis Energy bonds (1.61%, 5 years, rated BBB+), the Mighty River Power (MRP) bonds (1.60%, 5 years, rated BBB+), the Christchurch International Airport Limited (CIAL) bonds (1.49%, 5 years, rated BBB+), and Transpower bonds (0.99%, 5 years, rated AA-) were also considered, but given less weight as the issuers are either majority owned by the Crown or a local authority.
29. Starting with the estimated debt premium on the WIAL bonds, but having regard to the debt premium on a range of other bonds, we have determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of five years to be 1.62% as at 1 September 2015.

⁷ Telstra is not included in category 4(d) of Table 3 because it is not a New Zealand resident limited liability company (as required by the definition of "qualifying issuer" in the EDS IM Determination).

Four year debt premium

30. Table 4 below shows the four year debt premium on an EDB/GPB-issued bond rated BBB+, as at 1 September 2015.

Table 4: Debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 4 years, as at 1 September 2015⁸

	Industry	Rating	Remaining term to maturity	Debt premium	Comment		
Determined debt premium	EDB/GPB	BBB+	4.0	1.48	Regard to results 4(b), 4(c) and 4(d) Generally consistent with 4(e)		
Subclause	Issuer	Note ref.	Industry	Rating	Remaining term to maturity	Debt premium	Comment
4(a)	-	-	-	-	-	-	No data on applicable bonds
4(b)	WIAL	1	Other	BBB+	4.8	1.62	4 year debt premium would be lower
4(c)	-	-	-	-	-	-	No data on applicable bonds
4(d)	Spark	2	Other	A-	4.0	1.05	BBB+ debt premium would be higher
	AIAL	3	Other	A-	4.0	0.97	BBB+ debt premium would be higher
	Contact	4	Other	BBB	4.0	1.49	BBB+ debt premium would be generally lower
	Fonterra	5	Other	A	4.0	1.00	BBB+ debt premium would be significantly higher
4(e)	Meridian	6	Other	BBB+	1.5	0.98	
	Genesis Energy	7	Other	BBB+	4.0	1.45	
	MRP	8	Other	BBB+	4.0	1.46	
	CIAL	9	Other	BBB+	4.3	1.39	
	Transpower	10	Other	AA-	4.0	0.86	

Notes on bonds analysed:

- 1 WIAL 5.27% bond maturing 11/06/2020.
- 2 Spark 7.04% bond maturing 22/03/2016; 5.25% bond maturing 25/10/2019.
- 3 AIAL 5.47% bond maturing 17/10/2017; 4.73% bond maturing 13/12/2019
- 4 Contact Energy 4.8% bond maturing 24/05/2018; 5.8% bond maturing 15/05/2019.
- 5 Fonterra 4.6% bond maturing 24/10/2017; 5.52% bond maturing 25/02/2020.
- 6 Meridian 7.55% bond maturing 16/03/2017.
- 7 Genesis Energy 7.185% bond maturing 15/09/2016; 5.205% bond maturing 1/11/2019.
- 8 MRP 7.55% bond maturing 12/10/2016; 5.029% bond maturing 6/3/2019.
- 9 CIAL 5.15% bond maturing 6/12/2019.
- 10 Transpower 5.14% bond maturing 30/11/2018, 4.65% bond maturing 06/09/2019.

⁸ The four-year debt premiums on the Spark, AIAL, Contact, Fonterra, Genesis, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity. The AIAL, Fonterra, Meridian, Genesis Energy and MRP bonds are calculated by interpolated bid to bid spread between the corporate bonds and a New Zealand Government Treasury Bill, maturing 3 August 2016. The Spark bond is calculated by interpolated bid to bid spread between the corporate bonds and New Zealand Government Treasury Bills, maturing 2 March 2016 and 3 August 2016.

31. 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 WIAL's June 2020 bond. This bond is issued by an entity other than an EDB/GPB, is publicly traded and has a rating of BBB+. The June 2020 bond has a term to maturity of 4.8 years, which is more than four years specified in clause 5.3.25(3)(d).
32. As at 1 September 2015, the debt premium on the WIAL bond was estimated at 1.62%. Consistent with clause 5.3.25(5)(b), this estimated debt premium is treated as the maximum debt premium for a bond rated BBB+ with a term of four years.
33. We have also had regard to the estimated debt premium on bonds from a range of other issuers including Spark (1.05%, 4 years, rated A-), AIAL (0.97%, 4 years, rated A-), Contact Energy (1.49%, 4 years, rated BBB) and Fonterra (1.00%, 4 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).
34. The estimated debt premium on the Meridian bond (1.5%, 2.5 years, BBB+), the Genesis Energy bonds (1.45%, 4 years, rated BBB+), the MRP bonds (1.46%, 4 years, rated BBB+), the CIAL bond (1.39%, 4.3 years, rated BBB+), and Transpower bonds (0.86%, 4 years, rated AA-) were also considered, but given less weight as the issuers are either majority owned by the Crown or a local authority.
35. Starting with the estimated debt premium on the WIAL bond, but having regard to the debt premium on a range of other bonds, we have determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of four years to be 1.48% as at 1 September 2015.

Three year debt premium

36. Table 5 below shows the three year debt premium on an EDB/GPB-issued bond rated BBB+, as at 1 September 2015.

Table 5: Debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 3 years, as at 1 September 2015⁹

	Industry	Rating	Remaining term to maturity	Debt premium	Comment
Determined debt premium	EDB/GPB	BBB+	3.0	1.39	Regard to results 4(b), 4(c) and 4(d) Generally consistent with 4(e)

Subclause	Issuer	Note ref.	Industry	Rating	Remaining term to maturity	Debt premium	Comment
4(a)	-	-	-	-	-	-	No data on applicable bonds
4(b)	WIAL	1	Other	BBB+	4.8	1.62	3 year debt premium would be significantly lower
4(c)	-	-	-	-	-	-	No data on applicable bonds
4(d)	Spark	2	Other	A-	3.0	0.98	BBB+ debt premium would be higher
	AIAL	3	Other	A-	3.0	0.86	BBB+ debt premium would be higher
	Contact	4	Other	BBB	3.0	1.40	BBB+ debt premium would be generally lower
	Fonterra	5	Other	A	3.0	0.87	BBB+ debt premium would be significantly higher
4(e)	Meridian	6	Other	BBB+	1.5	0.98	
	Genesis Energy	7	Other	BBB+	3.0	1.30	
	MRP	8	Other	BBB+	3.0	1.30	
	CIAL	9	Other	BBB+	4.3	1.39	
	Transpower	10	Other	AA-	3.0	0.76	

Notes on bonds analysed:

- 1 WIAL 5.27% bond maturing 11/06/2020.
- 2 Spark 7.04% bond maturing 22/03/2016; 5.25% bond maturing 25/10/2019.
- 3 AIAL 5.47% bond maturing 17/10/2017; 4.73% bond maturing 13/12/2019
- 4 Contact Energy 7.86% bond maturing 13/04/2017; 4.8% bond maturing 24/05/2018.
- 5 Fonterra 4.6% bond maturing 24/10/2017; 5.52% bond maturing 25/02/2020.
- 6 Meridian 7.55% bond maturing 16/03/2017.
- 7 Genesis Energy 7.185% bond maturing 15/09/2016; 5.205% bond maturing 1/11/2019.
- 8 MRP 7.55% bond maturing 12/10/2016; 5.029% bond maturing 6/3/2019.
- 9 CIAL 5.15% bond maturing 6/12/2019.
- 10 Transpower 6.595% bond maturing 15/02/2017; 5.14% bond maturing 30/11/2018.

⁹ The three-year debt premiums on the Spark, AIAL, Contact, Fonterra, Genesis Energy, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity. The AIAL, Fonterra, Meridian, Genesis Energy, MRP and Transpower bonds are calculated by interpolated bid to bid spread between the corporate bonds and a New Zealand Government Treasury Bill, maturing 3 August 2016. The Spark bond is calculated by interpolated bid to bid spread between the corporate bonds and New Zealand Government Treasury Bills, maturing 2 March 2016 and 3 August 2016.

37. 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 WIAL's June 2020 bond. This bond is issued by an entity other than an EDB/GPB, is publicly traded and has a rating of BBB+. The June 2020 bond has a term to maturity of 4.8 years, which is significantly more than three years specified in clause 5.3.25(3)(d).
38. As at 1 September 2015, the debt premium on the WIAL bond was estimated at 1.62%. Consistent with clause 5.3.25(5)(b), this estimated debt premium is treated as the maximum debt premium for a bond rated BBB+ with a term of three years.
39. We have also had regard to the estimated debt premium on bonds from a range of other issuers including Spark (0.98%, 3 years, rated A-), AIAL (0.87%, 3 years, rated A-), Contact Energy (1.40%, 3 years, rated BBB) and Fonterra (0.87%, 3 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).
40. The estimated debt premium on the Meridian bond (0.98%, 1.5 years, rated BBB+), Genesis Energy bonds (1.30%, 3 years, rated BBB+), the MRP bonds (1.30%, 3 years, rated BBB+), the CIAL bond (1.39%, 4.3 years, rated BBB+), and Transpower bonds (0.76%, 3 years, rated AA-) were also considered, but given less weight as these issuers are either majority owned by the Crown or a local authority.
41. Starting with the estimated debt premium on the WIAL bond, but having regard to the debt premium on a range of other bonds, we have determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of three years to be 1.39% as at 1 September 2015.