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Cost of capital determination for information disclosure year 2016 for electricity distribution services and specified airport services (March year-end)

[2015] NZCC 13

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Associated documents

Publication date	Reference	Title
30 April 2014	ISBN 978-1-869453-66-4	Cost of capital determination for information disclosure year 2015 for specified airport services (March year-end) and electricity distribution services [2014] NZCC 10
29 April 2013	ISBN 978-1-869453-17-3	Cost of capital determination for information disclosure year 2014 for specified airport services (March year-end) and electricity distribution services [2013] NZCC 10
27 April 2012	ISBN 978-1-869452-00-1	Cost of capital determination for information disclosure year 2013 for specified airport services (March year-end) and electricity distribution services [2012] NZCC 10
27 April 2011	ISBN 978-1-869451-49-3	Determination of the Cost of Capital for Information Disclosure Year 2012 for Airport Services (March year-end) and Electricity Distribution Services Under Part 4 of the Commerce Act 1986, Pursuant to Decisions 709 and 710

Commerce Commission
Wellington, New Zealand

Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates that will apply for the 2016 information disclosure year for:

   1.1 electricity distribution businesses (EDBs); and

   1.2 providers of specified airport services with a financial year ending in March (Wellington International Airport Limited (WIAL)).

2. Vanilla and post-tax WACC estimates for EDBs, for the five year period commencing on the first day of disclosure year 2016 (ie 1 April 2015), are summarised in Table 1 below.[1] Consistent with our 2014 review of the WACC percentile, 67th percentile estimates of vanilla and post-tax WACC are now included for EDB information disclosure.[2]

Table 1: Summary of vanilla and post-tax WACC estimates for EDBs (%)

	Mid-point	25th percentile	67th percentile	75th percentile
Vanilla WACC	6.02	5.30	6.49	6.74
Post-tax WACC	5.37	4.66	5.84	6.09

3. Vanilla and post-tax WACC estimates for WIAL are summarised in Table 2 below.

Table 2: Summary of vanilla and post-tax WACC estimates for WIAL (%)

	Mid-point	25th percentile	75th percentile
Vanilla WACC	6.93	5.95	7.91
Post-tax WACC	6.71	5.73	7.69

4. The WACCs in Table 1 and Table 2 above are estimated as at 1 April 2015.

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

[2] *Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for information disclosure regulation) 2014* [2014] NZCC 38.

Introduction

5. This determination specifies WACC estimates that will apply to EDBs and providers of specified airport services with a financial year ending in March (WIAL) for information disclosure year 2016 (that is, the 12 months to 31 March 2016).

6. The WACC estimates are set pursuant to:

   6.1 clauses 2.4.1 to 2.4.7 of the Electricity Distribution Services Input Methodologies Determination 2012 (the EDS IM Determination);[3] and

   6.2 clauses 5.1 to 5.7 of the Specified Airports Services Input Methodologies Determination 2010 (the Airports IM Determination).[4]

7. We have estimated both vanilla and post-tax WACCs. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the post-tax cost of equity. The post-tax WACC is the weighted average of the post-corporate tax cost of debt and the post-tax cost of equity.

8. Consistent with our 2014 review of the WACC percentile for electricity lines and gas pipeline businesses, 67th percentile estimates of vanilla and post-tax WACC are included for the first time for the 2016 EDB information disclosure year.[5]

9. 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.

10. 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.

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3 *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, as subsequently amended.

4 *Commerce Act (Specified Airports Services Input Methodologies) Determination 2010* [2010] NZCC 709, as subsequently amended.

5 Commerce Commission "Amendments to the WACC percentile range for information disclosure regulation for electricity lines services and gas pipeline services – Reasons paper" (12 December 2014); and *Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for information disclosure regulation) 2014* [2014] NZCC 38.

Background

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

11. 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.[6]

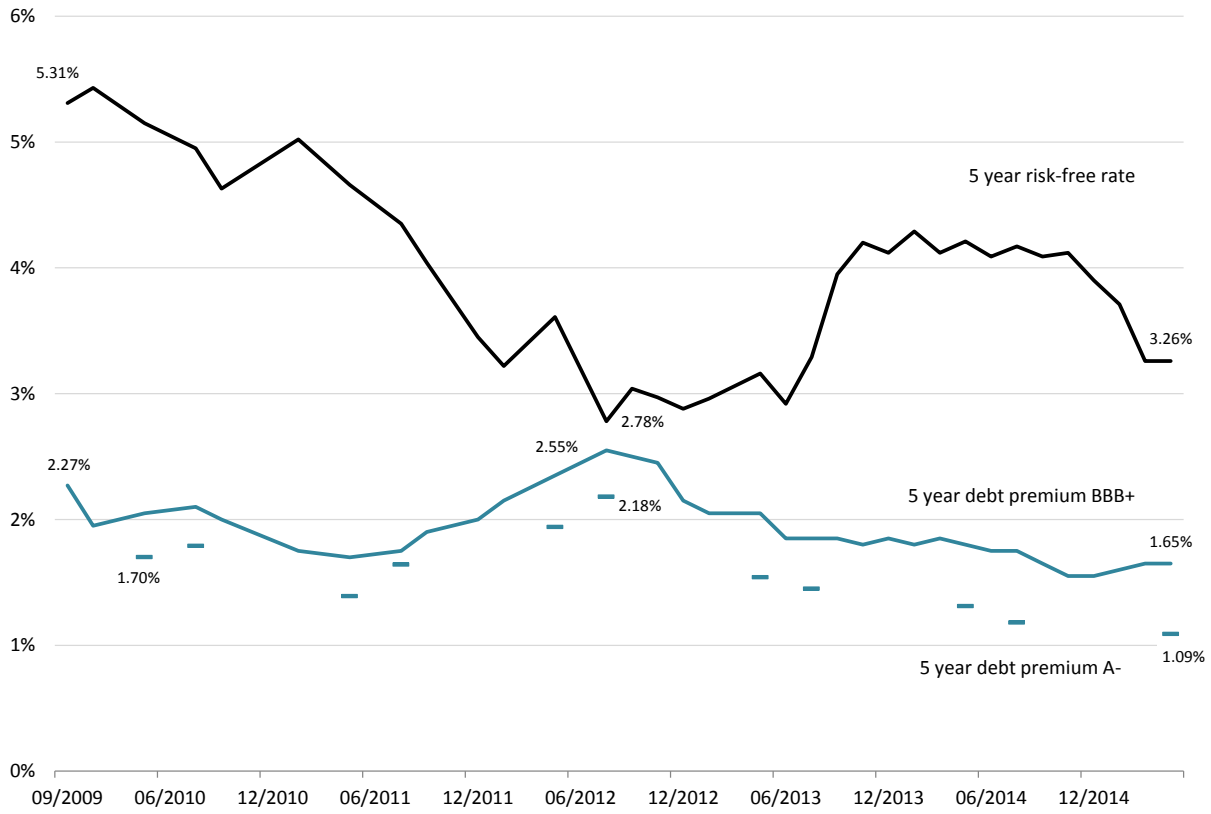
12. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows, as at 1 April 2015, changes over time in the:

    12.1 five year risk-free rate;

    12.2 debt premium on bonds rated BBB+ with a term of five years;

    12.3 debt premium on bonds rated A- with a term of five years.

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



[6] 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. The debt premium is estimated on publicly traded corporate bonds according to the methodology specified in the input methodologies determinations.

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

13. Differences in the WACCs estimated under the various cost of capital input methodologies reflect differences in the:

    13.1 date of estimation for the WACCs, which results in different estimates of the risk-free rate and debt premium;

    13.2 periods in which the WACCs will apply;

    13.3 context in which the WACCs will be used (67th percentile WACC estimates are used for the purposes of price-quality paths, while a mid-point and range is determined for information disclosure);

    13.4 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

    13.5 value of leverage for airports (17%) and for EDBs, GPBs, and Transpower (44%).

WACC for EDB information disclosure year 2016

14. Under clause 2.4.1 of the EDS IM Determination, we have determined (as at 1 April 2015) the following vanilla and post-tax WACCs for EDB information year 2016.

    14.1 A mid-point estimate of vanilla WACC of 6.02% for the five year period commencing on the first day of disclosure year 2016 (ie 1 April 2015). Under clause 2.4.7, we have also determined a vanilla WACC range from 5.30% to 6.74%, where the endpoints are the 25th and 75th percentile estimates respectively. Under clause 2.4.7, we have also determined a 67th percentile estimate of vanilla WACC of 6.49%.

    14.2 A mid-point estimate of post-tax WACC of 5.37% for the five year period commencing on the first day of disclosure year 2016 (ie 1 April 2015). Under clause 2.4.7, we have also determined a post-tax WACC range from 4.66% to 6.09%, where the endpoints are the 25th and 75th percentile estimates respectively. Under clause 2.4.7, we have also determined a 67th percentile estimate of post-tax WACC of 5.84%.

Parameters used to estimate the WACC for EDBs

15. The above estimates of vanilla and post-tax 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

16. The parameters used to estimate the vanilla and post-tax WACCs for EDB information disclosure year 2016 are summarised in Table 3 below.

Table 3: Parameters used to calculate vanilla and post-tax WACC for EDBs

Parameter	5 year estimate
Risk-free rate	3.26%
Debt premium	1.65%
Leverage	44%
Equity beta	0.61
Tax adjusted market risk premium	7.0%
Average corporate tax rate	28%
Average investor tax rate	28%
Debt issuance costs	0.35%
Cost of debt	5.26%
Cost of equity	6.62%
Standard error of debt premium	0.0015
Standard error of WACC	0.011
Mid-point vanilla WACC	6.02%
Mid-point post-tax WACC	5.37%

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 × (1- investor tax rate) + the equity beta × the tax adjustment market risk premium. The mid-point vanilla WACC is calculated as the cost of equity × (1 - leverage) + the cost of debt × leverage.

Risk-free rate

17. 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 years. The estimates use data reported by Bloomberg for the month of March 2015 in respect of the March 2019 and April 2020 maturity bonds. The March 2019 and April 2020 bonds have simple average annualised bid yields to maturity of 3.22% and 3.26% respectively.

18. 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 estimate of a 3.26% interest rate on New Zealand government bond with a five year term maturity as at 1 April 2015.

Tax rates

19. 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

20. The standard error of the WACC is determined in accordance with the formula in the EDS IM Determination, and is shown to three decimal places only in Table 3 above.

Debt premium

21. The methodology for determining the debt premium is set out in clause 2.4.4 of the EDS IM Determination.

22. Clause 2.4.4(3)(d) requires the Commission to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ$ denominated bond that:

    22.1 is issued by an EDB or a GPB that is neither majority owned by the Crown nor a local authority;

    22.2 is publicly traded;

    22.3 has a qualifying rating of grade BBB+; and

    22.4 has a remaining term to maturity of five years.

23. In estimating the debt premium, clause 2.4.4(4) of the EDS IM Determination provides that the Commission will have regard to:

    23.1 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+;

    23.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;

    23.3 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+;

    23.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+; and

    23.5 bonds issued by entities that are majority owned by the Crown or a local authority.

24. Clause 2.4.4(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 2.4.4(4)(a) to (e).

25. Table 4 below show the debt premium we have determined as at 1 April 2015. This table includes a summary of information on the investment grade rated bonds we considered in determining the debt premium.

26. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.[7]

[7] See www.comcom.govt.nz/cost-of-capital

Table 4: Debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term to maturity of five years, as at 1 April 2015[8]

			Industry	Rating	Remaining term to Maturity	Debt premium	Comment
Determined debt premium			EDB/GPB	BBB+	5.0	1.65	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+	5.2	1.72	5 year debt premium would be slightly lower
4(c)	Powerco	2	EDB/GPB	BBB	0.2	0.91	5 year debt premium would be significantly higher BBB+ debt premium would be lower
4(d)	Spark	3	Other	A-	5.0	1.26	BBB+ debt premium would be higher
	AIAL	4	Other	A-	5.0	1.09	BBB+ debt premium would be higher
	Contact	5	Other	BBB	5.0	1.58	BBB+ debt premium would be lower
	Fonterra	6	Other	A	5.0	1.10	BBB+ debt premium would be significantly higher
4(e)	Meridian	7	Other	BBB+	2.0	1.03	
	Genesis Energy	8	Other	BBB+	5.0	1.52	
	MRP	9	Other	BBB+	5.0	1.57	
	CIAL	10	Other	BBB+	5.0	1.50	
	Transpower	11	Other	AA-	5.0	1.00	

Notes on bonds analysed:

1 WIAL 5.27% bond maturing 11/06/2020.
2 Powerco 6.53% bond maturing 29/06/2015.
3 Spark 5.25% bond maturing 25/10/2019; 4.5% bond maturing 25/03/2022.
4 AIAL 4.73% bond maturing 13/12/2019; 5.52% bond maturing 28/05/2021.
5 Contact Energy 5.8% bond maturing 15/05/2019; 5.277% bond maturing 27/05/2020.
6 Fonterra 4.6% bond maturing 24/10/2017; 5.52% bond maturing 25/02/2020.
7 Meridian 7.55% bond maturing 16/03/2017.
8 Genesis Energy 5.205% bond maturing 1/11/2019; 8.3% bond maturing 23/06/2020.
9 MRP 5.029% bond maturing 6/03/2019; 8.21% bond maturing 11/02/2020.
10 CIAL 5.15% bond maturing 6/12/2019; 6.25% bond maturing 4/10/2021.
11 Transpower 7.19% bond maturing 12/11/2019; 6.95% bond maturing 10/06/2020.

27. Consistent with clauses 2.4.4(4) and 2.4.4(5)(a) of the EDS IM Determination, 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 5.2 years, which is slightly more than the five years specified in clause 2.4.4(3)(d).

28. As at 1 April 2015, the debt premium on the WIAL bond was estimated at 1.72% with a remaining term to maturity of 5.2 years. This implies the debt premium on a bond with a term of exactly five years would be slightly lower (approximately 1.65%).

[8] The five-year debt premiums on the Spark, AIAL, Contact Energy, Fonterra, Genesis Energy, MRP, CIAL and Transpower bonds are calculated by linear interpolation with respect to maturity.

29. The debt premium on Powerco's June 2015 maturity bond is 0.91%. This bond has a term to maturity of 0.2 years, which is much less than the five years specified in clause 2.4.4(3)(d), and implies that an estimate for a five year term would be significantly above 0.91%.[9] On the other hand, Powerco's bonds are rated BBB which is less than the BBB+ specified in clause 2.4.4(3)(d). These considerations do not alter our view that a debt premium of approximately 1.65% is appropriate for BBB+ rated bonds with a five year term to maturity.

30. We also had regard to the estimated debt premium on bonds from a range of other issuers including Contact Energy (1.58%, 5 years, rated BBB), Spark (1.26%, 5 years, rated A-), Auckland international Airport Limited (AIAL) (1.09%, 5 years, rated A-) and Fonterra (1.10%, 5 years, rated A). Consistent with clause 2.4.4(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).[10]

31. The estimated debt premium on the Genesis Energy bonds (1.52%, 5 years, rated BBB+), the Mighty River Power (MRP) bonds (1.57%, 5 years, rated BBB+), the Meridian bond (1.03%, 2 years, rated BBB+), the Christchurch International Airport Limited (CIAL) bonds (1.50%, 5 years, rated BBB+), and Transpower bonds (1.00%, 5 years, rated AA-) were given least weight. Taking into account the likely impact of government ownership, the premiums on these bonds generally support the view that the estimate of the debt premium we use should be above 1.55%.

32. Placing primary weight on the estimated debt premium on the WIAL bond (which has a term slightly longer than our benchmark term), 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 1.65% as at 1 April 2015.

[9] For example, Powerco also has bonds maturing on 28 September 2017 (2.5 years to maturity) and 20 December 2018 (3.7 years to maturity), with observed debt premiums of 1.39% and 1.58% respectively. However, these bonds are secured against the network assets of the company so are not included in Table 4 above.

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

WACC for WIAL information disclosure year 2016

33. Under clause 5.1 of the Airports IM Determination, we have determined the following vanilla and post-tax WACCs for WIAL's 2016 information disclosure year.

    33.1 A mid-point estimate of vanilla WACC of 6.93% for the five year period commencing on the first day of disclosure year 2016 (ie 1 April 2015). Under clause 5.7, we have also determined a vanilla WACC range from 5.95% to 7.91%, where the endpoints are the 25th and 75th percentile estimates respectively.

    33.2 A mid-point estimate of post-tax WACC of 6.71% for the five year period commencing on the first day of disclosure year 2016 (ie 1 April 2015). Under clause 5.7, we have also determined a post-tax WACC range from 5.73% to 7.69%, where the endpoints are the 25th and 75th percentile estimates respectively.

Parameters used to estimate the WACC for WIAL

34. The above estimates of vanilla and post-tax WACC reflect the parameters specified in the Airports IM Determination. The risk-free rate and debt premium are also estimated in accordance with the Airports IM Determination.

Summary of parameters

35. The parameters used to estimate the vanilla and post-tax WACCs for WIAL information disclosure year 2016 are summarised in Table 5 below.

Table 5: Parameters used to calculate vanilla and post-tax WACC for WIAL

Parameter	5 year estimate
Risk-free rate	3.26%
Debt premium	1.09%
Leverage	17%
Equity beta	0.72
Tax adjusted market risk premium	7.0%
Average corporate tax rate	28%
Average investor tax rate	28%
Debt issuance costs	0.35%
Cost of debt	4.70%
Cost of equity	7.39%
Standard error of debt premium	0.0015
Standard error of WACC	0.015
Mid-point vanilla WACC	6.93%
Mid-point post-tax WACC	6.71%

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 × (1- investor tax rate) + the equity beta × the tax adjustment market risk premium. The mid-point vanilla WACC is calculated as the cost of equity × (1 - leverage) + the cost of debt × leverage.

Risk-free rate

36. 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 years. The estimates use data reported by Bloomberg for the month of March 2015 in respect of the March 2019 and April 2020 maturity bonds. The March 2019 and April 2020 bonds have simple average annualised bid yields to maturity of 3.22% and 3.26% respectively.

37. 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 estimate of a 3.26% interest rate on New Zealand government bond with a five year term maturity as at 1 April 2015.

Tax rates

38. 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

39. The standard error of the WACC is determined in accordance with the formula in the Airports IM Determination, and is shown to three decimal places only in Table 5 above.

Debt premium

40. The methodology for determining the debt premium is set out in clause 5.4 of the Airports IM Determination.

41. Clause 5.4(3)(d) requires the Commission to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ$ denominated bond that:

    41.1 is issued by an airport that is neither majority owned by the Crown nor a local authority;

    41.2 is publicly traded;

    41.3 has a qualifying rating of grade A-; and

    41.4 has a remaining term to maturity of five years.

42. In estimating the debt premium, clause 5.4(4) of the Airports IM Determination provides that the Commission will have regard to:

    42.1 bonds issued by an airport (that is neither majority owned by the Crown nor a local authority) with a rating of A-;

    42.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of A-;

    42.3 bonds issued by an airport (that is neither majority owned by the Crown nor a local authority) with a rating other than A-;

    42.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than A-; and

    42.5 bonds issued by entities that are majority owned by the Crown or a local authority.

43. Clause 5.4(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 5.4(4)(a) to (e).

44. Table 6 below shows the debt premium we have determined as at 1 April 2015. This table includes a summary of information on the investment grade rated bonds we considered in determining the debt premium.

45. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.[11]

Table 6: Five year debt premium on an Airport-issued bond rated A- with a remaining term to maturity of five years, as at 1 April 2015[12]

	Industry	Rating	Remaining term to Maturity	Debt premium	Comment
Determined debt premium	Airport	A-	5.0	1.09	AIAL is an exact match. Regard to results of 4(b), 4(c), 4(d) and 4(e).

Subclause	Issuer	Note ref.	Industry	Rating	Remaining term to Maturity	Debt premium	Comment
4(a)	AIAL	1	Airport	A-	5.0	1.09	Linearly interpolated debt premium for AIAL is an exact match
4(b)	Spark	2	Other	A-	5.0	1.26	See paragraph 48
4(c)	WIAL	3	Airport	BBB+	5.2	1.72	5 year debt premium and an A- debt premium would be lower
4(d)	Powerco	4	Other	BBB	0.2	0.91	5 year debt premium would be significantly higher A- debt premium would be lower
	Contact	5	Other	BBB	5.0	1.58	A- debt premium would be lower
	Fonterra	6	Other	A	5.0	1.10	A- debt premium would be higher
4(e)	Meridian	7	Other	BBB+	2.0	1.03	
	Genesis Energy	8	Other	BBB+	5.0	1.52	
	MRP	9	Other	BBB+	5.0	1.57	
	CIAL	10	Airport	BBB+	5.0	1.50	
	Transpower	11	Other	AA-	5.0	1.00	

Notes on bonds analysed:

1 AIAL 4.73% bond maturing 13/12/2019; 5.52% bond maturing 28/05/2021.
2 Spark 5.25% bond maturing 25/10/2019; 4.5% bond maturing 25/03/2022.
3 WIAL 5.27% bond maturing 11/06/2020.
4 Powerco 6.53% bond maturing 29/06/2015.
5 Contact Energy 5.8% bond maturing 15/05/2019; 5.277% bond maturing 27/05/2020.
6 Fonterra 4.6% bond maturing 24/10/2017; 5.52% bond maturing 25/02/2020.
7 Meridian 7.55% bond maturing 16/03/2017.
8 Genesis Energy 5.205% bond maturing 1/11/2019; 8.3% bond maturing 23/06/2020.
9 MRP 5.029% bond maturing 6/03/2019; 8.21% bond maturing 11/02/2020.
10 CIAL 5.15% bond maturing 6/12/2019; 6.25% bond maturing 4/10/2021.
11 Transpower 7.19% bond maturing 12/11/2019; 6.95% bond maturing 10/06/2020.

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

12 The five-year debt premiums on the AIAL, Spark, Contact Energy, Fonterra, Genesis Energy, MRP, CIAL and Transpower bonds are calculated by linear interpolation with respect to maturity.

46. Consistent with clauses 5.4(4) and 5.4(5)(a) of the Airports IM Determination, greatest regard has been given to the estimated debt premium on AIAL's bonds. These bonds are issued by an airport, are publicly traded, are rated A- and have a debt premium of 1.09% when linearly-interpolated to give a remaining term to maturity of five years.

47. We have also had regard to the estimated debt premiums on bonds from a range of other issuers, but none of these match the requirements in clause 5.4(3)(d) as well as the AIAL bonds. The estimated debt premiums from these other bonds are, in general, not inconsistent with the debt premium on the AIAL bonds when consideration is given to different credit ratings and terms to maturity.

48. The yield on the Spark bonds (rated A- with a 5 year term to maturity) is higher than the yield on the AIAL bonds. However, the AIAL result exactly matches the requirements in clause 5.4(3)(d) and the Spark bond does not. Therefore, we have determined the debt premium on airport-issued bonds rated A- with a remaining term to maturity of five years to be 1.09% as at 1 April 2015.