

## **Cost of capital determination for information disclosure year 2015 for specified airport services (March year-end) and electricity distribution services [2014] NZCC 10**

<b>The Commission:</b>	<b>Airport Services Division</b>	<b>Energy Division</b>
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determination:** 30 April 2014

## Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates to apply for the 2015 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. For EDBs we have determined the following vanilla and post-tax WACCs.<sup>1</sup>
  - 2.1 A mid-point estimate of vanilla WACC of 6.89% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). We have also determined a vanilla WACC range from 6.17% to 7.60%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.
  - 2.2 A mid-point estimate of post-tax WACC of 6.10% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). We have also determined a post-tax WACC range from 5.39% to 6.82%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.
3. For WIAL we have determined the following vanilla and post-tax WACCs.
  - 3.1 A mid-point estimate of vanilla WACC of 7.70% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). We have also determined a vanilla WACC range from 6.71% to 8.68%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.
  - 3.2 A mid-point estimate of post-tax WACC of 7.42% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). We have also determined a post-tax WACC range from 6.44% to 8.40%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.
4. The WACCs are estimated as at 1 April 2014.

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<sup>1</sup> The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity. The post-tax WACC is the weighted average of the post-corporate tax cost of debt and the cost of equity.

## Introduction

5. This determination specifies WACC estimates to apply for information disclosure year 2015 (that is, the 12 months to 31 March 2015) for EDBs and providers of specified airport services with a financial year ending in March (WIAL). The WACC estimates are set pursuant to:
  - 5.1 clauses 2.4.1 to 2.4.7 of the Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2012 (the EDS IM Determination); and
  - 5.2 clauses 5.1 to 5.7 of the Commerce Act (Specified Airport Services Input Methodologies) Determination 2010 (the Airports IM Determination).
6. 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 cost of equity. The post-tax WACC is a weighted average of the post-corporate tax cost of debt and the cost of equity.
7. The parameter values, estimates and information sources used to estimate 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

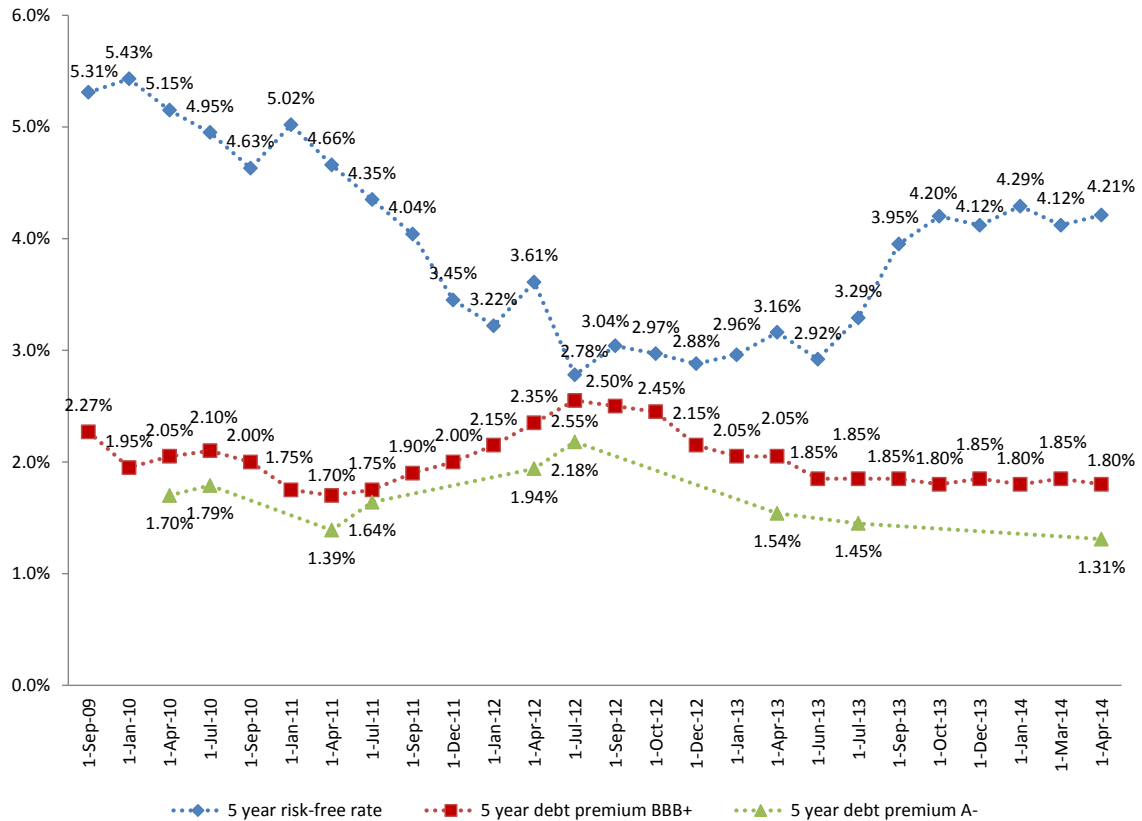
9. The cost of capital input methodologies for the regulated services reflect that both the risk-free rate<sup>2</sup> and the debt premium on bonds<sup>3</sup> change over time.
10. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows the changes over time in the:
  - 10.1 five year risk-free rate;
  - 10.2 debt premium on bonds rated BBB+ with a term of five years; and
  - 10.3 debt premium on bonds rated A- with a term of five years.

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<sup>2</sup> 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.

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

**Figure 1: Changes in the five year risk-free rate and BBB+ and A- debt premiums over time**



### Reasons for differences in WACC under input methodologies determinations

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

## WACC for EDB information disclosure year 2015

12. Under clause 2.4.1 of the EDS IM Determination, we have determined the following vanilla and post-tax WACCs for EDB information disclosure year 2015.

12.1 A mid-point estimate of vanilla WACC of 6.89% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). Under clause 2.4.7, we have also determined a vanilla WACC range from 6.17% to 7.60%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.

12.2 A mid-point estimate of post-tax WACC of 6.10% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). Under clause 2.4.7, we have also determined a post-tax WACC range from 5.39% to 6.82%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.

### Parameters used to estimate the WACC for EDBs

13. These 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*

14. The parameters used to estimate the vanilla and post-tax WACCs for EDB information disclosure year 2015 are summarised in Table 1 below.

**Table 1: Parameters used to calculate WACC for EDB information disclosure year 2015**

Risk-free rate (five years)	4.21%	Debt premium (five years)	1.80%
Equity beta	0.61	TAMRP	7.0%
Average corporate tax rate	28%	Average investor tax rate	28%
Debt issuance costs	0.35%	Leverage	44%
Standard error of debt premium	0.0015	Standard error of WACC	0.011
Cost of debt (pre-corporate tax)	6.36%	Cost of equity	7.30%
Vanilla WACC (mid-point)	$6.36\% \times 0.44 + 7.30\% \times (1-0.44) = 6.89\%$		
Post-tax WACC (mid-point)	$6.36\% \times 0.44 \times (1-0.28) + 7.30\% \times (1-0.44) = 6.10\%$		

#### *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 years. The

estimates use data reported by Bloomberg for the month of March 2014 in respect of the 15 March 2019 and 15 April 2020 maturity bonds.

16. 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 4.21% interest rate on a NZ government bond with a five year term to maturity as at 1 April 2014.

*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 Determination, and is shown to three decimal places only in Table 1 above.

*Debt premium*

19. The methodology for determining the debt premium is set out in clause 2.4.4 of the EDS IM Determination.
20. 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:
  - 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.
21. In estimating the debt premium, clause 2.4.4(4) of the EDS IM Determination provides that the Commission will have regard to:
  - 21.1 bonds issued by an EDB or a GPB (that is not government-owned) with a rating of BBB+;
  - 21.2 bonds issued by another entity (that is not government-owned) with a rating of BBB+;
  - 21.3 bonds issued by an EDB or a GPB (that is not government-owned) with a rating other than BBB+;
  - 21.4 bonds issued by another entity (that is not government-owned) with a rating other than BBB+; and
  - 21.5 bonds issued by government-owned entities.

22. 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).
23. Table 2 below shows the debt premium we have determined as at 1 April 2014. This table includes a summary of information on the investment grade rated bonds we 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.<sup>4</sup>

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<sup>4</sup> See [www.comcom.govt.nz/cost-of-capital](http://www.comcom.govt.nz/cost-of-capital)

**Table 2: Five year debt premium on an EDB/GPB-issued bond rated BBB+<sup>5</sup>**

Determined debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 5 years as at 1 April 2014						
	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment	
<i>Determined Debt Premium</i>						
	EDB/GPB	BBB+	5.0	1.80	Regard to results 4(b), 4(c) and 4(d) Generally consistent with 4(e)	
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	-	-	-	-	-	No data on applicable bonds
4(b)	WIAL <sup>1</sup>	Other	BBB+	6.2	1.86	5 year debt premium would be lower
4(c)	Powerco <sup>2</sup>	EDB/GPB	BBB	4.7	1.94	BBB+ debt premium would be lower and a 5 year debt premium would be higher
4(d)	Contact <sup>3</sup>	Other	BBB	5.0	1.90	BBB+ debt premium would be lower
	Telecom <sup>4</sup>	Other	A-	5.0	1.64	BBB+ debt premium would be higher
	AIAL <sup>5</sup>	Other	A-	5.0	1.31	BBB+ debt premium would be higher
	Telstra <sup>6</sup>	Other	A	3.3	1.45	5 year debt premium and BBB+ debt premium would be higher
	Fonterra <sup>7</sup>	Other	A+	5.0	1.18	BBB+ debt premium would be higher
4(e)	Genesis Energy <sup>8</sup>	Other	BBB+	5.0	1.98	
	MRP <sup>9</sup>	Other	BBB+	5.0	1.82	
	Meridian <sup>10</sup>	Other	BBB+	3.0	1.51	
	CIAL <sup>11</sup>	Other	BBB+	5.7	1.62	
	Transpower <sup>12</sup>	Other	AA-	5.0	1.28	

Notes on bonds analysed:

- 1 WIAL 5.27% bond maturing 11/06/2020.
- 2 Powerco 6.31% bond maturing 20/12/2018.
- 3 Contact Energy 4.8% bond maturing 24/05/2018; 5.277% bond maturing 27/05/2020.
- 4 Telecom 7.04% bond maturing 22/03/2016; 5.25% bond maturing 25/10/2019.
- 5 AIAL 5.47% bond maturing 17/10/2017; 4.73% bond maturing 13/12/2019.
- 6 Telstra 7.515% bond maturing 11/07/2017.
- 7 Fonterra 6.83% bond maturing 4/03/2016; 5.52% bond maturing 25/02/2020.
- 8 Genesis Energy 7.185% bond maturing 15/09/2016; 5.205% bond maturing 1/11/2019.
- 9 MRP 5.029% bond maturing 6/03/2019; 8.21% bond maturing 11/2/2020
- 10 Meridian 7.55% bond maturing 16/03/2017.
- 11 CIAL 5.15% bond maturing 6/12/2019.
- 12 Transpower 6.595% bond maturing 15/02/2017; 7.19% bond maturing 12/11/2019.

25. 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 6.2 years, which is more than the five years specified in clause 2.4.4(3)(d).

<sup>5</sup> The five-year debt premiums on the Contact, Telecom, AIAL, Fonterra, Genesis Energy, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity.



26. As at 1 April 2014, the debt premium on the WIAL bond was estimated at 1.86%. This is indicative of the upper bound of the debt premium for a bond rated BBB+ with a term of five years.
27. The debt premium on Powerco's bond is estimated at 1.94%. This bond has a term to maturity of 4.7 years, which is less than the five years specified in clause 2.4.4(3)(d) of the EDS IM Determination. Powerco's bond is also rated BBB, which is less than the BBB+ specified in clause 2.4.4(3)(d).
28. We have also had regard to the estimated debt premium on bonds from a range of other issuers including Contact Energy (1.90%, five years, rated BBB), Telecom (1.64%, five years, rated A-), Auckland International Airport Limited (AIAL) (1.31%, five years, rated A-), Telstra (1.45%, 3.3 years, rated A) and Fonterra (1.18%, five years, rated A+). Consistent with clause 2.4.4(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 2.4.4(3)(d). A five year debt premium for BBB+ rate debt (where the company is not majority owned by the Government) would likely be above the observed estimates of the debt premium for AIAL, Telecom, Telstra and Fonterra.
29. The estimated debt premium on the Genesis bonds (rated BBB+ with a five year term to maturity), the Mighty River Power bonds (rated BBB+ with a five year term to maturity), the Meridian bond (rated BBB+ with a 3 year term to maturity), the Christchurch International Airport (CIAL) bond (rated BBB+ with a 5.7 year term to maturity), and the Transpower bonds (rated AA- with a five year term to maturity) were 1.98%, 1.82%, 1.51%, 1.62% and 1.28% respectively.
30. 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 five years to be 1.80% as at 1 April 2014.

## WACC for WIAL information disclosure year 2015

31. Under clause 5.1 of the Airports IM Determination, we have determined the following vanilla and post-tax WACCs for WIAL's 2014 information disclosure year.
- 31.1 A mid-point estimate of vanilla WACC of 7.70% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). Under clause 5.7, we have also determined a vanilla WACC range from 6.71% to 8.68%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.
- 31.2 A mid-point estimate of post-tax WACC of 7.42% for the five year period commencing on the first day of disclosure year 2015 (ie 1 April 2014). Under clause 5.7, we have also determined a post-tax WACC range from 6.44% to 8.40%, where the endpoints are the 25<sup>th</sup> and 75<sup>th</sup> percentile estimates respectively.

### Parameters used to estimate the WACC for WIAL

32. These 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*

33. The parameters used to estimate the vanilla and post-tax WACCs for WIAL information disclosure year 2015 are summarised in Table 3 below.

**Table 3: Parameters used to calculate WACC for WIAL information disclosure year 2015**

Risk-free rate (five years)	4.21%	Debt premium (five years)	1.31%
Equity beta	0.72	TAMRP	7.0%
Average corporate tax rate	28%	Average investor tax rate	28%
Debt issuance costs	0.35%	Leverage	17%
Standard error of debt premium	0.0015	Standard error of WACC	0.015
Cost of debt (pre-corporate tax)	5.87%	Cost of equity	8.07%
Vanilla WACC (mid-point)	$5.87\% \times 0.17 + 8.07\% \times (1-0.17) = 7.70\%$		
Post-tax WACC (mid-point)	$5.87\% \times 0.17 \times (1-0.28) + 8.07\% \times (1-0.17) = 7.42\%$		

#### *Risk-free rate*

34. 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 2014 in respect of the 15 March 2019 and 15 April 2020 maturity bonds.

35. 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 4.21% interest rate on a NZ government bond with a five year term to maturity as at 1 April 2014.

*Tax rates*

36. 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*

37. 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 3 above.

*Debt premium*

38. The methodology for determining the debt premium is set out in clause 5.4 of the Airports IM Determination.
39. 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:
- 39.1 is issued by an airport that is neither majority owned by the Crown nor a local authority;
  - 39.2 is publicly traded;
  - 39.3 has a qualifying rating of grade A-; and
  - 39.4 has a remaining term to maturity of five years.
40. In estimating the debt premium, clause 5.4(4) of the Airports IM Determination provides that the Commission will have regard to:
- 40.1 bonds issued by an airport (that is not government-owned) with a rating of A-;
  - 40.2 bonds issued by another entity (that is not government-owned) with a rating of A-;
  - 40.3 bonds issued by an airport (that is not government-owned) with a rating other than A-;
  - 40.4 bonds issued by another entity (that is not government-owned) with a rating other than A-; and
  - 40.5 bonds issued by government-owned entities.

41. 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).
42. Table 4 below shows the debt premium we have determined as at 1 April 2014. This table includes a summary of information on the investment grade rated bonds we considered in determining the debt premium.
43. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.<sup>6</sup>

**Table 4: Five year debt premium on an Airport-issued bond rated A-<sup>7</sup>**

Determined debt premium on an Airport-issued bond rated A- with a remaining term of 5 years as at 1 April 2014						
	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment	
Determined Debt Premium	Airport	A-	5.0	1.31	AIAL is an exact match. Regard to results of 4(b), 4(c), 4(d) and 4(e).	
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	AIAL <sup>1</sup>	Airport	A-	5.0	1.31	Linearly interpolated debt premium for AIAL is an exact match
4(b)	Telecom <sup>2</sup>	Other	A-	5.0	1.64	
4(c)	WIAL <sup>3</sup>	Airport	BBB+	6.2	1.86	5 year debt premium and an A- debt premium would be lower
4(d)	Powerco <sup>4</sup>	Other	BBB	4.7	1.94	5 year debt premium would be higher and an A- debt premium would be lower
	Contact <sup>5</sup>	Other	BBB	5.0	1.90	A- debt premium would be lower
	Telstra <sup>6</sup>	Other	A	3.3	1.45	5 year debt premium and an A- debt premium would be higher
	Fonterra <sup>7</sup>	Other	A+	5.0	1.18	A- debt premium would be higher
4(e)	Genesis <sup>8</sup>	Other	BBB+	5.0	1.98	
	MRP <sup>9</sup>	Other	BBB+	5.0	1.82	
	Transpower <sup>10</sup>	Other	AA-	5.0	1.28	
	Meridian <sup>11</sup>	Other	BBB+	3.0	1.51	
	CIAL <sup>12</sup>	Other	BBB+	5.7	1.62	

Notes on bonds analysed:

- 1 AIAL 5.47% bond maturing 17/10/2017; 4.73% bond maturing 13/12/2019.
- 2 Telecom 7.04% bond maturing 22/03/2016; 5.25% bond maturing 25/10/2019.
- 3 WIAL 5.27% bond maturing 11/06/2020.
- 4 Powerco 6.31% bond maturing 20/12/2018.
- 5 Contact Energy 4.8% bond maturing 24/05/2018; 5.277% bond maturing 27/05/2020.
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- 9 MRP 5.029% bond maturing 6/03/2019; 8.21% bond maturing 11/2/2020
- 10 Transpower 6.595% bond maturing 15/02/2017; 7.19% bond maturing 12/11/2019.
- 11 Meridian 7.55% bond maturing 16/03/2017.
- 12 CIAL 5.15% bond maturing 6/12/2019.

<sup>6</sup> See [www.comcom.govt.nz/cost-of-capital](http://www.comcom.govt.nz/cost-of-capital)

<sup>7</sup> The five-year debt premiums on the AIAL, Telecom, Contact, Fonterra, Genesis, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity.

44. 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 1.31% when linearly interpolated to give a remaining term to maturity of five years.
45. 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.
46. The yield on the Telecom 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 Telecom 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 1.31% as at 1 April 2014.