

**Cost of capital determination for information disclosure
year 2015 for Transpower, gas pipeline businesses and
suppliers of specified airport services (with a June year-end)
[2014] NZCC 19**

The Commission:	Transpower Division	Energy Division	Airport Services Division
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**Date of
determination:** 31 July 2014

Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates to apply for information disclosure year 2015 (that is, the 12 months to 30 June 2015) for:
 - 1.1 Transpower New Zealand Limited (Transpower);
 - 1.2 gas pipeline businesses (GPBs) with a financial year ending in June (Vector and GasNet); and
 - 1.3 suppliers of specified airport services with a financial year ending in June (Auckland International Airport Limited (AIAL) and Christchurch International Airport Limited (CIAL)).
2. Vanilla and post-tax WACCs have been estimated for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014).¹ Mid-point, 25th percentile and 75th percentile WACC estimates have been determined in each case.
3. The WACC estimates are summarised in Table 1 below. The WACCs are estimated as at 1 July 2014.

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

	Mid-point	25 th percentile	75 th percentile
Transpower			
<i>WACC for Transpower information disclosure year 2015</i>			
Vanilla WACC	6.83%	6.11%	7.55%
Post-tax WACC	6.06%	5.34%	6.78%
GPBs with a financial year ending in June			
<i>WACC for GPB information disclosure year 2015 (Vector and GasNet)</i>			
Vanilla WACC	7.54%	6.73%	8.35%
Post-tax WACC	6.76%	5.95%	7.57%

¹ 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.

	Mid-point	25 th percentile	75 th percentile
Specified airport services with a financial year ending in June (AIAL and CIAL)			
<i>WACC for AIAL and CIAL information disclosure year 2015</i>			
Vanilla WACC	7.64%	6.66%	8.63%
Post-tax WACC	7.37%	6.39%	8.36%

Introduction

4. This determination specifies WACC estimates to apply for information disclosure year 2015 (that is, the 12 months to 30 June 2015) for:
 - 4.1 Transpower;
 - 4.2 GPBs subject to regulation under Part 4 of the Commerce Act 1986 (the Act) with a financial year ending in June (Vector and GasNet); and
 - 4.3 suppliers of specified airport services (as defined in section 56A of the Act) with a financial year ending in June (AIAL and CIAL).
5. The WACC estimates are set pursuant to:
 - 5.1 clauses 2.4.1 to 2.4.7 of the Commerce Act (Transpower Input Methodologies) Determination 2012 (the Transpower IM Determination);
 - 5.2 clauses 2.4.1 to 2.4.7 of the Commerce Act (Gas Distribution Services Input Methodologies) Determination 2012 (the GDS IM Determination) and clauses 2.4.1 to 2.4.7 of the Commerce Act (Gas Transmission Services Input Methodologies) Determination 2012 (the GTS IM Determination); and
 - 5.3 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 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 rate and the debt premium on bonds change over time.²

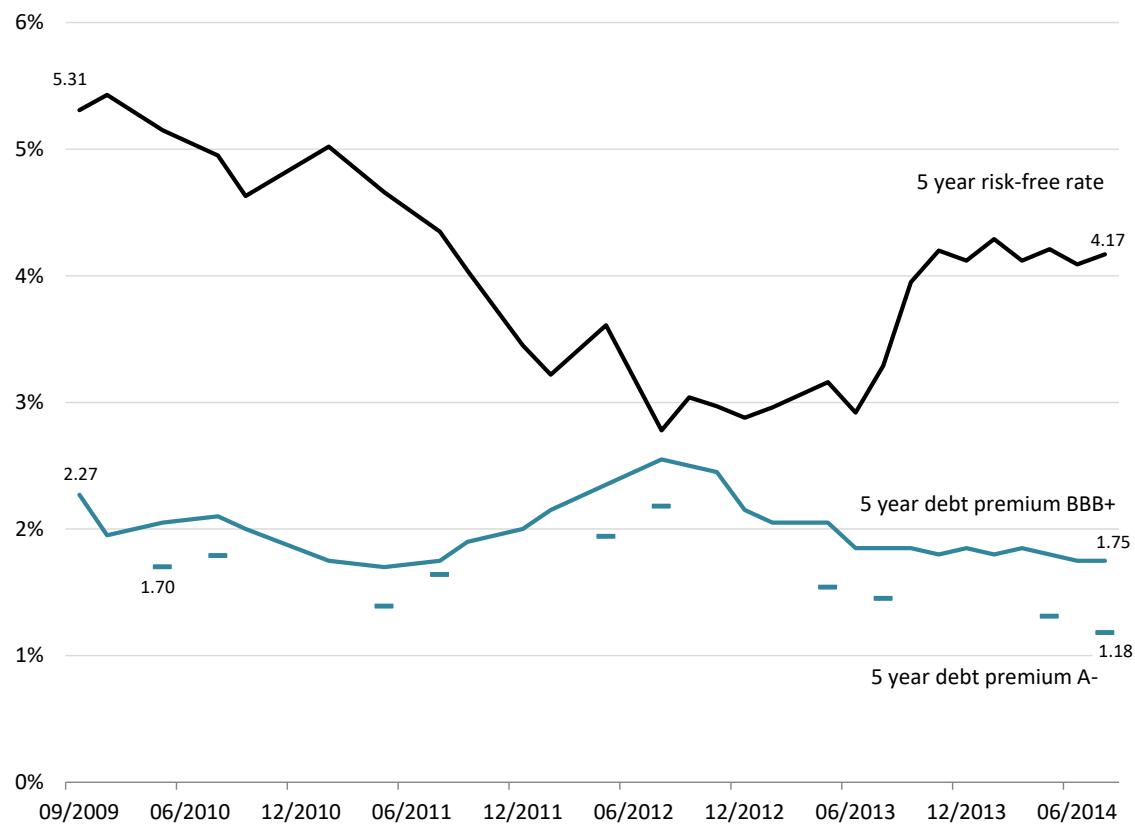
² The risk-free rate is estimated based on an interpolation of bid yields on New Zealand government stock to a term to maturity of five years. The debt premium is estimated on publicly traded corporate bonds according to the methodology specified in the input methodology determinations.

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.

Figure 1: Changes in the five year risk-free rate and debt premium 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:

- 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 mid-point and range is determined for information disclosure);

- 11.4 the assessed risk of the various regulated services (electricity distribution businesses (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 Transpower information disclosure year 2015

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

12.1 A mid-point estimate of vanilla WACC of 6.83% for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014). Under clause 2.4.7, we have also determined a vanilla WACC range from 6.11% to 7.55%, where the endpoints are the 25th and 75th percentile estimates respectively.

12.2 A mid-point estimate of post-tax WACC of 6.06% for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014). Under clause 2.4.7, we have also determined a post-tax WACC range from 5.34% to 6.78%, where the endpoints are the 25th and 75th percentile estimates respectively.

Parameters used to estimate the WACC for Transpower

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

Summary of parameters

14. The parameters used to estimate the vanilla and post-tax WACCs for Transpower information disclosure year 2015 are summarised in Table 2 below.

Table 2: Parameters used to calculate WACC for Transpower information disclosure year 2015

Risk-free rate (5 years)	4.17%	Debt premium (5 years)	1.75%
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)	6.27%	Cost of equity	7.27%
Vanilla WACC (mid-point)	$6.27\% \times 0.44 + 7.27\% \times (1-0.44) = 6.83\%$		
Post-tax WACC (mid-point)	$6.27\% \times 0.44 \times (1-0.28) + 7.27\% \times (1-0.44) = 6.06\%$		

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 June 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 4.17% interest rate on a NZ government bond with a five year term to maturity as at 1 July 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 Transpower IM Determination, 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 2.4.4 of the Transpower 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 Transpower IM Determination 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 not 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 that are investment grade credit rated and issued by an entity that is majority owned by the Crown or a local authority.

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 3 below shows the debt premium we have determined as at 1 July 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.³

³ See www.comcom.govt.nz/cost-of-capital

Table 3: Five year debt premium on an EDB/GPB-issued bond rated BBB+⁴

Determined debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 5 years as at 1 July 2014						
	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>1.75</i>	<i>Regard to results 4(b), 4(c) and 4(d)</i> <i>Generally consistent with 4(e)</i>	
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	-	-	-	-	-	No data on applicable bonds
4(b)	WIAL ¹	Other	BBB+	6.0	1.83	5 year debt premium would be lower
4(c)	Powerco ²	EDB/GPB	BBB	4.5	1.86	BBB+ debt premium would be lower and a 5 year debt premium would be higher
4(d)	Contact ³ Telecom ⁴ AIAL ⁵ Telstra ⁶ Fonterra ⁷	Other Other Other Other Other	BBB A- A- A A+	5.0 5.0 5.0 3.0 5.0	1.78 1.54 1.18 1.34 1.15	BBB+ debt premium would be lower BBB+ debt premium would be higher BBB+ debt premium would be higher 5 year debt premium and BBB+ debt premium would be higher BBB+ debt premium would be higher
4(e)	Genesis Energy ⁸ MRP ⁹ Meridian ¹⁰ CIAL ¹¹ Transpower ¹²	Other Other Other Other Other	BBB+ BBB+ BBB+ BBB+ AA-	5.0 5.0 2.7 5.4 5.0	1.86 1.77 1.43 1.60 1.15	

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 11/02/2020

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 Transpower 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+. WIAL's June 2020 bond has a term to maturity of 6.0 years, which is more than the five years specified in clause 2.4.4(3)(d).

⁴ The five-year debt premiums on the Contact, Telecom, AIAL, Fonterra, Genesis, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity.

26. As at 1 July 2014, the debt premium on the WIAL bond was estimated at 1.83%. 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 1.86%. This bond has a term to maturity of 4.5 years, which is less than the five years specified in clause 2.4.4(3)(d) of the Transpower 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 (1.78%, 5 years, rated BBB), Telecom (1.54%, 5 years, rated A-), AIAL (1.18%, 5 years, rated A-), Telstra (1.34%, 3.0 years, rated A) and Fonterra (1.15%, 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).
29. The estimated debt premium on the Genesis Energy bonds (1.86%, 5 years, rated BBB+), the Mighty River Power (MRP) bonds (1.77%, 5 years, rated BBB+), the Meridian bond (1.43%, 2.7 years, rated BBB+), the CIAL bond (1.60%, 5.4 years, rated BBB+), and Transpower bonds (1.15%, 5 years, rated AA-) were also considered.
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 1.75% as at 1 July 2014.

WACC for GPB information disclosure year 2015

31. Under clause 2.4.1 of the GDS and GTS IM Determinations, we have determined the following vanilla and post-tax WACCs for information disclosure year 2015.

31.1 A mid-point estimate of vanilla WACC of 7.54% for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014). Under clause 2.4.7, we have also determined a vanilla WACC range from 6.73% to 8.35%, where the endpoints are the 25th and 75th percentile estimates respectively.

31.2 A mid-point estimate of post-tax WACC of 6.76% for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014). Under clause 2.4.7, we have also determined a post-tax WACC range from 5.95% to 7.57%, where the endpoints are the 25th and 75th percentile estimates respectively.

Parameters used to estimate the WACC for GPBs

32. These estimates of vanilla and post-tax WACC reflect the parameters specified in the GDS and GTS IM Determinations. The risk-free rate and debt premium are also estimated in accordance with the GDS and GTS IM Determinations.

Summary of parameters

33. The parameters used to estimate the vanilla and post-tax WACCs for GPB information disclosure year 2015 are summarised in Table 2 below.

Table 4: Parameters used to calculate WACC for GPB information disclosure year 2015

Risk-free rate (5 years)	4.17%	Debt premium (5 years)	1.75%
Equity beta	0.79	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	0.012
Cost of debt (pre-corporate tax)	6.27%	Cost of equity	8.53%
Vanilla WACC (mid-point)	$6.27\% \times 0.44 + 8.53\% \times (1-0.44) = 7.54\%$		
Post-tax WACC (mid-point)	$6.27\% \times 0.44 \times (1-0.28) + 8.53\% \times (1-0.44) = 6.76\%$		

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 June 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 4.17% interest rate on a NZ government bond with a five year term to maturity as at 1 July 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 GDS and GTS IM Determinations, and is shown to three decimal places only in the table above.

Debt premium

38. The methodology for determining the debt premium is set out in clause 2.4.4 of the GDS and GTS IM Determinations.
39. 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:
 - 39.1 is issued by a GPB or an EDB 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 BBB+; and
 - 39.4 has a remaining term to maturity of five years.
40. In estimating the debt premium, clause 2.4.4(4) of the GDS and GTS IM Determinations provides that the Commission will have regard to:
 - 40.1 bonds issued by a GPB or an EDB (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
 - 40.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
 - 40.3 bonds issued by a GPB or an EDB (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+;
 - 40.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+; and

40.5 bonds that are investment grade credit rated and issued by an entity that is majority owned by the Crown or a local authority.

41. 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).

42. Table 3 below shows the debt premium we have determined as at 1 July 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.⁵

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

Table 5: Five year debt premium on an EDB/GPB-issued bond rated BBB+⁶

Determined debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 5 years as at 1 July 2014						
	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>1.75</i>	<i>Regard to results 4(b), 4(c) and 4(d)</i> <i>Generally consistent with 4(e)</i>	
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	-	-	-	-	-	No data on applicable bonds
4(b)	WIAL ¹	Other	BBB+	6.0	1.83	5 year debt premium would be lower
4(c)	Powerco ²	EDB/GPB	BBB	4.5	1.86	BBB+ debt premium would be lower and a 5 year debt premium would be higher
4(d)	Contact ³ Telecom ⁴ AIAL ⁵ Telstra ⁶	Other	BBB	5.0	1.78	BBB+ debt premium would be lower
		Other	A-	5.0	1.54	BBB+ debt premium would be higher
		Other	A-	5.0	1.18	BBB+ debt premium would be higher
		Other	A	3.0	1.34	5 year debt premium and BBB+ debt premium would be higher
	Fonterra ⁷	Other	A+	5.0	1.15	BBB+ debt premium would be higher
4(e)	Genesis Energy ⁸ MRP ⁹ Meridian ¹⁰ CIAL ¹¹ Transpower ¹²	Other	BBB+	5.0	1.86	
		Other	BBB+	5.0	1.77	
		Other	BBB+	2.7	1.43	
		Other	BBB+	5.4	1.60	
		Other	AA-	5.0	1.15	

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 11/02/2020

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.

44. Consistent with clauses 2.4.4(4) and 2.4.4(5)(a) of the GDS and GTS 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+. WIAL's June 2020 bond has a term to maturity of 6.0 years, which is more than the five years specified in clause 2.4.4(3)(d).

⁶ The five-year debt premiums on the Contact, Telecom, AIAL, Fonterra, Genesis, MRP and Transpower bonds are calculated by linear interpolation with respect to maturity.

45. As at 1 July 2014, the debt premium on the WIAL bond was estimated at 1.83%. This is indicative of the upper bound of the debt premium for a bond rated BBB+ with a term of five years.
46. The debt premium on Powerco's bond is estimated at 1.86%. This bond has a term to maturity of 4.5 years, which is less than the five years specified in clause 2.4.4(3)(d) of the GDS and GTS IM Determinations. Powerco's bond is also rated BBB, which is less than the BBB+ specified in clause 2.4.4(3)(d).
47. We have also had regard to the estimated debt premium on bonds from a range of other issuers including Contact Energy (1.78%, 5 years, rated BBB), Telecom (1.54%, 5 years, rated A-), AIAL (1.18%, 5 years, rated A-), Telstra (1.34%, 3.0 years, rated A) and Fonterra (1.15%, 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).
48. The estimated debt premium on the Genesis Energy bonds (1.86%, 5 years, rated BBB+), the MRP bonds (1.77%, 5 years, rated BBB+), the Meridian bond (1.43%, 2.7 years, rated BBB+), the CIAL bond (1.60%, 5.4 years, rated BBB+), and Transpower bonds (1.15%, 5 years, rated AA-) were also considered.
49. 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 1.75% as at 1 July 2014.

WACC for AIAL and CIAL information disclosure year 2015

50. Under clause 5.1 of the Airports IM Determination, we have determined the following vanilla and post-tax WACCs for information disclosure year 2015.

50.1 A mid-point estimate of vanilla WACC of 7.64% for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014). Under clause 5.7, we have also determined a vanilla WACC range from 6.66% to 8.63%, where the endpoints are the 25th and 75th percentile estimates respectively.

50.2 A mid-point estimate of post-tax WACC of 7.37% for the five year period commencing on the first day of disclosure year 2015 (ie 1 July 2014). Under clause 5.7, we have also determined a post-tax WACC range from 6.39% to 8.36%, where the endpoints are the 25th and 75th percentile estimates respectively.

Parameters used to estimate the WACC for AIAL and CIAL

51. 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

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

Table 6: Parameters used to calculate WACC for AIAL and CIAL information disclosure year 2015

Risk-free rate (5 years)	4.17%	Debt premium (5 years)	1.18%
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)	5.70%	Cost of equity	8.04%
Vanilla WACC (mid-point)	$5.70\% \times 0.17 + 8.04\% \times (1-0.17) = 7.64\%$		
Post-tax WACC (mid-point)	$5.70\% \times 0.17 \times (1-0.28) + 8.04\% \times (1-0.17) = 7.37\%$		

Risk-free rate

53. 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 June 2014 in respect of the 15 March 2019 and 15 April 2020 maturity bonds.
54. 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 4.17% interest rate on a NZ government bond with a five year term to maturity as at 1 July 2014.

Tax rates

55. 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

56. 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 the table above.

Debt premium

57. The methodology for determining the debt premium is set out in clause 5.4 of the Airports IM Determination.
58. 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:
 - 58.1 is issued by an airport that is neither majority owned by the Crown nor a local authority;
 - 58.2 is publicly traded;
 - 58.3 has a qualifying rating of grade A-; and
 - 58.4 has a remaining term to maturity of five years.
59. In estimating the debt premium, clause 5.4(4) of the Airports IM Determination provides that the Commission will have regard to:
 - 59.1 bonds issued by an airport (that is neither majority owned by the Crown nor a local authority) with a rating of A-;
 - 59.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of A-;
 - 59.3 bonds issued by an airport (that is neither majority owned by the Crown nor a local authority) with a rating other than A-;

- 59.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than A-; and
- 59.5 bonds that are investment grade credit rated and issued by an entity that is majority owned by the Crown or a local authority.

60. 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).

61. Table 4 below shows the debt premium we determined as at 1 July 2014. This table includes a summary of information on the investment grade rated bonds we considered in determining the debt premium.

62. 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 7: Five year debt premium on an Airport-issued bond rated A-⁸

Determined debt premium on an Airport-issued bond rated A- with a remaining term of 5 years as at 1 July 2014						
		Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
<i>Determined Debt Premium</i>		Airport	A-	5.0	1.18	<i>AIAL is an exact match.</i> <i>Regard to results of 4(b), 4(c), 4(d) and 4(e).</i>
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	AIAL ¹	Airport	A-	5.0	1.18	Linearly interpolated debt premium for AIAL is an exact match
4(b)	Telecom ²	Other	A-	5.0	1.54	
4(c)	WIAL ³	Airport	BBB+	6.0	1.83	5 year debt premium and an A- debt premium would be lower
4(d)	Powerco ⁴	Other	BBB	4.5	1.86	5 year debt premium would be higher and an A- debt premium would be lower
	Contact ⁵	Other	BBB	5.0	1.78	A- debt premium would be lower
	Telstra ⁶	Other	A	3.0	1.34	5 year debt premium and an A- debt premium would be higher
	Fonterra ⁷	Other	A+	5.0	1.15	A- debt premium would be higher
4(e)	Genesis ⁸	Other	BBB+	5.0	1.86	
	MRP ⁹	Other	BBB+	5.0	1.77	
	Transpower ¹⁰	Other	AA-	5.0	1.15	
	Meridian ¹¹	Other	BBB+	2.7	1.43	
	CIAL ¹²	Other	BBB+	5.4	1.60	

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 27/05/2020.⁶ 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 11/02/2020¹⁰ 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.

63. 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 1.18% when linearly interpolated to give a remaining term to maturity of five years.

⁸ 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.

64. 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.
65. 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 1.18% as at 1 July 2014.