



COMMERCE COMMISSION

**Determination of the Cost of Capital for Information Disclosure Year 2012
for Transpower New Zealand Limited, Suppliers of Gas Pipeline Services,
and Suppliers of Specified Airport Services (June year-end)
Under Part 4 of the Commerce Act 1986,
Pursuant to Decisions 709, 711, 712 and 713**

Decision Number 727

The Commerce Commission:

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A determination of Weighted Average Cost of Capital (WACC) estimates applicable to information disclosure regulation for Transpower, suppliers of gas pipeline services and suppliers of specified airport services (with a June year-end) and in respect of disclosure year 2012 under Part 4 of the Commerce Act 1986 and pursuant to the respective input methodologies determination for each service.

Introduction

1. The Commission has previously specified WACC estimates to apply for the information disclosure year 2011.¹ This determination specifies WACC estimates to apply for information disclosure year 2012 for:
 - a. Transpower New Zealand Limited (Transpower);
 - b. suppliers of gas pipeline services (GPBs) with a financial year ending in June; and
 - c. for suppliers of specified airport services with a financial year ending in June (namely Auckland International Airport Limited (AIAL) and Christchurch International Airport Limited (CIAL)).

WACC for Transpower

2. Pursuant to clause 2.4.1 of the Commerce Act (Transpower Input Methodologies) Determination 2010 (the Transpower IM Determination), the Commission has determined:
 - a mid-point estimate of vanilla WACC of 6.98% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011); and with a range, pursuant to clause 2.4.7, from 6.27% to 7.70% where the endpoints are the 25th and 75th percentile estimates; and
 - a mid-point estimate of post-tax WACC of 6.19% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011); and with a range, pursuant to clause 2.4.7, from 5.47% to 6.90% where the endpoints are the 25th and 75th percentile estimates.

WACC for Gas Pipeline Services

3. Pursuant to clause 2.4.1 of the Commerce Act (Gas Distribution Services Input Methodologies) Determination 2010 (the GDS Determination), and clause 2.4.1 of the Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010 (the GTS Determination), the Commission has determined, for suppliers with a June balance date:
 - a mid-point estimate of vanilla WACC² of 7.69% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 2.4.7, from 6.88% to 8.50% where the endpoints are the 25th and 75th percentile estimates; and
 - a mid-point estimate of post-tax WACC³ of 6.89% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a

¹ Commerce Commission, *Determination of the Cost of Capital for Services Regulated under Part 4 of the Commerce Act 1986, Pursuant to Decisions 709, 710, 711, 712 and 713*, Decision 718, 3 March 2011.

² The vanilla WACC is the weighted average of the pre-corporate tax cost of debt and the cost of equity.

³ The post-tax WACC is the weighted average of the post-corporate tax cost of debt and the cost of equity.

range, pursuant to clause 2.4.7, from 6.08% to 7.70% where the endpoints are the 25th and 75th percentile estimates.

WACC for Specified Airport Services

4. Pursuant to clause 5.1 of the Commerce Act (Specified Airport Services Input Methodologies) Determination 2010, the Commission has determined, for companies with a financial year ending in June (AIAL and CIAL):
 - a mid-point estimate of vanilla WACC of 7.86% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 5.7, from 6.88% to 8.84% where the endpoints are the 25th and 75th percentile estimates; and
 - a mid-point estimate of post-tax WACC of 7.56% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 5.7, from 6.58% to 8.54% where the endpoints are the 25th and 75th percentile estimates.



COMMERCE COMMISSION

Explanatory note to Decision 727

**Re: Determination of the Cost of Capital for Information Disclosure Year
2012 for Transpower New Zealand Limited, Suppliers of Gas Pipeline
Services, and Suppliers of Specified Airport Services (June year-end)
Under Part 4 of the Commerce Act 1986,
Pursuant to Decisions 709, 711, 712 and 713**

8 July 2011

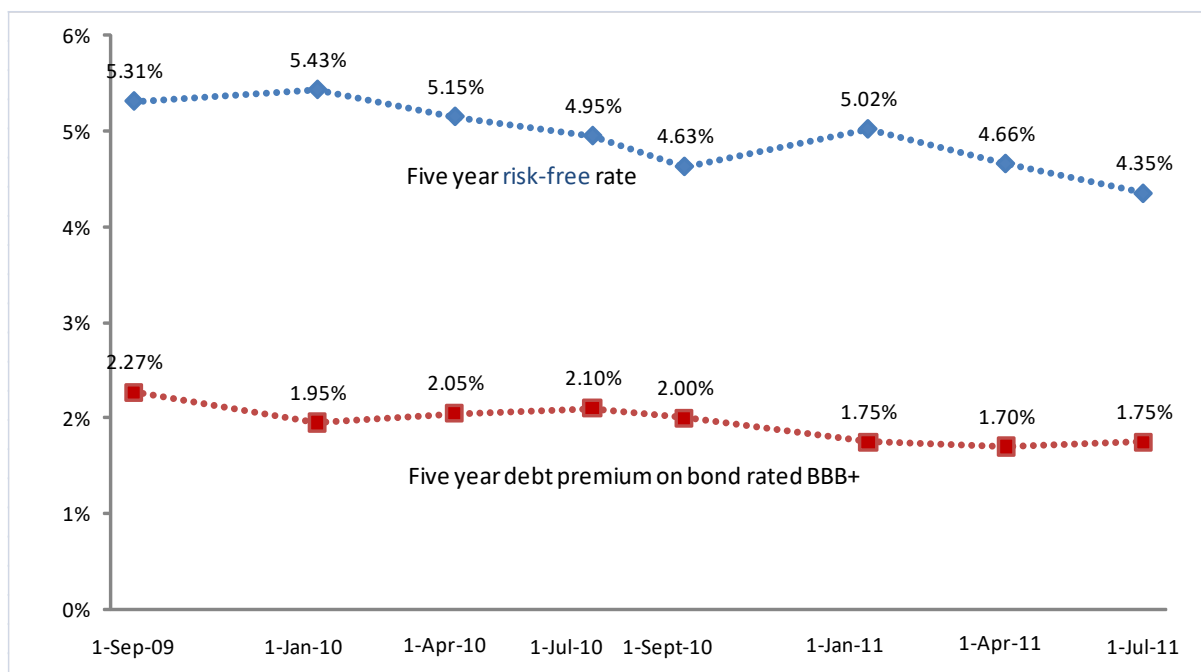
Introduction

1. This paper provides additional information and commentary on the Commission's Decision 727 which set the Weighted Average Cost of Capital (WACC) that will apply for information disclosure year 2012 in respect of:
 - a. Transpower New Zealand Limited (Transpower);
 - b. suppliers of gas pipeline services (GPBs) with a financial year ending in June; and
 - c. suppliers of specified airport services with a financial year ending in June (namely Auckland International Airport Limited (AIAL) and Christchurch International Airport Limited (CIAL)).
2. The WACC estimates were set pursuant to the input methodologies determination for each service.
3. The various WACC estimates specified under input methodologies reflect differences in:
 - a. the date of estimation for these WACCs (which results in different estimates of the risk-free rate and debt premium at each estimation date);
 - b. differences in the periods to which they will apply;
 - c. differences in the context in which the WACCs will be used (75th percentile estimates of the WACC are used when considering default and customised price paths);
 - d. differences in the assessed riskiness 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
 - e. differences in the level of leverage for airports (17%) and for EDBs, GPBs, and Transpower (44%).
4. The WACC estimates are summarised in the table below.

Estimate and application	Mid point	25 th percentile estimate	75 th percentile estimate
Transpower			
<i>Information disclosure</i> for disclosure year 2012 for Transpower. (WACC estimated as at 1 July 2011).			
Vanilla WACC	6.98%	6.27%	7.70%
Post-tax WACC	6.19%	5.47%	6.90%

Gas Pipeline Services			
<i>Information disclosure</i> for disclosure year 2012 for Gas Pipeline Businesses with a financial year ending in June. (WACC estimated as at 1 July 2011).			
Vanilla WACC	7.69%	6.88%	8.50%
Post-tax WACC	6.89%	6.08%	7.70%
Specified Airport Services			
<i>Information Disclosure</i> for disclosure year 2012 for airports with a financial year ending in June (<i>i.e.</i> AIAL and CIAL). (WACC estimated as at 1 July 2011).			
Vanilla WACC	7.86%	6.88%	8.84%
Post-tax WACC	7.56%	6.58%	8.54%

5. The table above includes estimates of both vanilla WACCs and post-tax WACCs. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity, while the post-tax WACC is a weighted average of the post-corporate tax cost of debt and the cost of equity.
6. The input methodologies for the regulated services reflect that the risk-free rate (estimated based on an interpolation of bid yields on New Zealand government stock to a term to maturity of five years) and the debt premium on bonds (estimated on publicly traded corporate bonds according to the methodology specified in the input methodology determinations) change over time. These changes in the risk-free rate and debt premium on bonds over time are illustrated in the graph below (the graph shows the debt premium on bonds rated BBB+).



7. The parameter values, estimates, and information sources used for each estimate of the WACC are set out below, with a commentary on key aspects, especially on the estimation of the risk-free rate and the debt premium. For example, this commentary explains how the Commission estimated the debt premium at each estimation date, identifying the issuers and bonds that were analysed, and the credit rating and remaining term to maturity, along with the estimated debt premium. The commentary also explains:

- which debt premiums estimates were given greater weight than other estimates, and
- that some estimates of the debt premium were given little or no weight as the debt premium estimate was out of line with the debt premium estimated for other issuers (recognising differences such as credit ratings and term to maturity). These differences appear to reflect company specific factors which affect the debt premium for bonds from individual issuers (for example, Telecom).

WACC for Transpower

5. Pursuant to clause 2.4.1 of the Commerce Act (Transpower Input Methodologies) Determination 2010 (the Transpower IM Determination), the Commission has determined:

- a mid-point estimate of vanilla WACC of 6.98% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011); and with a range, pursuant to clause 2.4.7, from 6.27% to 7.70% where the endpoints are the 25th and 75th percentile estimates; and
- a mid-point estimate of post-tax WACC of 6.19% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011); and with a range, pursuant to clause 2.4.7, from 5.47% to 6.90% where the endpoints are the 25th and 75th percentile estimates.

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

Risk-free rate	4.35%	Debt premium	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)	6.45%	Cost of equity	7.40%
Vanilla WACC (midpoint)	$6.45\% \times 0.44 + 7.40\% \times (1-0.44) = 6.98\%$		
Post-tax WACC (midpoint)	$6.45\% \times 0.44 \times (1-0.28) + 7.40\% \times (1-0.44) = 6.19\%$		

9. The risk-free rate reflects the linearly-interpolated, annualised, bid yield to maturity on New Zealand government bonds with a five year term to maturity. The estimate uses data reported by Bloomberg for the month of June 2011 in respect of the April 2015 maturity bonds and the December 2017 maturity bonds. The daily data reported by Bloomberg is annualised (to reflect the 6 monthly payment of interest), averaged to give a monthly average, and linearly interpolated to produce the estimate of a 4.35% interest rate on a NZ government bond with a five year term to maturity as at 1 July 2011.
10. The average corporate tax rate is the corporate tax rate of 28% for disclosure year 2012 and the following four disclosure years.
11. The average investor tax rate is the investor tax rate of 28% for disclosure year 2012 and the following four disclosure years.
12. 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.
13. The methodology for determining the debt premium is set out in clause 2.4.4 of the Transpower IM Determination. 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:
- is issued by an EDB or GPB, (that is neither majority owned by the Crown or a local authority);
 - is publicly traded;
 - has a credit rating of BBB+; and
 - has a five year remaining term to maturity.
14. In estimating the debt premium, clause 2.4.4(4) provides that the Commission will have regard to:

- a. bonds issued by an EDB or GPB (that is not government-owned) with a rating of BBB+;
 - b. bonds issued by another entity (that is not government-owned) with a rating of BBB+;
 - c. bonds issued by an EDB or GPB (that is not government-owned) with a rating other than BBB+;
 - d. bonds issued by another entity (that is not government-owned) with a rating other than BBB+; and
 - e. bonds issued by government-owned entities.
15. 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).
16. The table below shows the debt premium determined by the Commission as at 1 July 2011 and a summary of the debt premium information on investment grade rated bonds the Commission considered in determining the debt premium. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is on the Commission's website.

Determined debt premium on an EDB/GPB -issued bond rated BBB+ with a remaining term of 5 years as at 1 July 2011						
		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>Vector premium provides floor. Regard to results of 4(c) & 4(d). Not inconsistent with 4(e).</i>	
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	Vector ¹	EDB/GPB	BBB+	3.3	1.61	Minimum per subclause 5(b).
4(b)						No data on an applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	5.0	1.88	BBB+ would be less than this.
4(d)	Contact ³	Other	BBB	5.0	1.98	BBB+ would be less than this.
	AIAL ⁴	Other	A-	5.0	1.64	BBB+ would be more than this.
	Telecom ⁵	Other	A	-	-	Anomalous, see paragraph 21.
	Telstra ⁶	Other	A	5.0	1.58	BBB+ would be more than this.
4(e)	Genesis ⁷	Other	BBB+	5.0	1.58	
	MRP ⁸	Other	BBB+	5.0	1.65	
	Transpower ⁹	Other	AA-	8.4	1.20	

Notes on bonds analysed:

- 1 Vector 7.8% bond maturing 15/10/2014.
- 2 Powerco 6.53% bond maturing 29/06/2015; 6.74% bond maturing 28/09/2017.
- 3 Contact Energy 8% bond maturing 15/05/2014; 7.855% bond maturing 13/04/2017.
- 4 AIAL 7.25% bond maturing 7/11/2015; 8% bond maturing 15/11/2016.
- 5 Telecom 7.04% bond maturing 22/03/2016.
- 6 Telstra 7.15% bond maturing 24/11/2014; 8% bond maturing 15/11/2016.
- 7 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.
- 8 Mighty River Power 7.25% bond maturing 15/05/2013; 7.55% bond maturing 12/10/2016.
- 9 Transpower 7.19% bond maturing 12/11/2019.

17. Consistent with clause 2.4.4(4)-(5)(a) greatest regard has been given to the estimated debt premium on Vector's October 2014 bond. This bond is issued by an EDB/GPB, is publicly traded, has a rating of BBB+, and a term to maturity of 3.3 years. As at 1 July 2011, the debt premium on the Vector bond was estimated at 1.61%. Consistent with clause 2.4.4(5)(b) this estimated debt premium is treated as the minimum debt premium for a bond rated BBB+ with a term of five years.
18. The interpolated 5 year debt premium on Powerco's bonds is 1.88%. Powerco's bonds are rated BBB, implying the 5 year debt premium on bonds rated BBB+ would be less than 1.88%.
19. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including AIAL (1.64%, 5 years, rated A-), Contact Energy (1.98%, 5 years, rated BBB) and Telstra (1.58%, 5 years, rated A). Consistent with clause (5)(a) these were given less weight as the issuers are not EDBs or GPBs, and the debt issues had different credit ratings than the BBB+ rating specified in clause (3)(d).

20. The estimated debt premium on the Genesis and Mighty River Power bonds (rated BBB+, and for a five year term to maturity) were 1.58% and 1.65% respectively.
21. Starting with the estimated debt premium on the Vector bond, but having regard to the debt premium on a range of other bonds, the Commission has determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of five years to be 1.75% as at 1 July 2011.
22. No weight has been placed on the estimated debt premium for Telecom (1.89%, 5 years, rated A) is considered anomalous as it is greater than the interpolated debt premium on the lower rated AIAL bonds, and is almost identical to the interpolated debt premium on the Powerco bonds (rated BBB) despite Telecom's significantly higher credit rating.

WACC for Gas Pipeline Services

23. Pursuant to clause 2.4.1 of the Commerce Act (Gas Distribution Services Input Methodologies) Determination 2010 (the GDS Determination), and clause 2.4.1 of the Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010 (the GTS Determination), the Commission has determined, for suppliers with a June balance date:
 - a mid-point estimate of vanilla WACC⁴ of 7.69% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 2.4.7, from 6.88% to 8.50% where the endpoints are the 25th and 75th percentile estimates; and
 - a mid-point estimate of post-tax WACC⁵ of 6.89% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 2.4.7, from 6.08% to 7.70% where the endpoints are the 25th and 75th percentile estimates.
24. These estimates of vanilla and post-tax WACC reflect the parameters specified in the GDS and GTS Determinations and the risk-free rate and debt premium estimated in accordance with the GDS and GTS Determinations. The parameters and estimates are summarised in the table below.

Risk-free rate	4.35%	Debt premium	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)	6.45%	Cost of equity	8.66%
Vanilla WACC (midpoint)	$6.45\% \times 0.44 + 8.66\% \times (1-0.44) = 7.69\%$		
Post-tax WACC (midpoint)	$6.45\% \times 0.44 \times (1-0.28) + 8.66\% \times (1-0.44) = 6.89\%$		

⁴ The vanilla WACC is the weighted average of the pre-corporate tax cost of debt and the cost of equity.

⁵ The post-tax WACC is the weighted average of the post-corporate tax cost of debt and the cost of equity.

25. The risk-free rate reflects the linearly-interpolated, annualised, bid yield to maturity on New Zealand government bonds with a five year term to maturity. The estimate uses data reported by Bloomberg for the month of June 2011 in respect of the April 2015 maturity bonds and the December 2017 maturity bonds. The daily data reported by Bloomberg is annualised (to reflect the 6 monthly payment of interest), averaged to give a monthly average, and linearly interpolated to produce the estimate of a 4.35% annualised bid yield on a NZ government bond with a five year term to maturity as at 1 July 2011.
26. The average corporate tax rate is the corporate tax rate of 28% for disclosure year 2012 and the following four disclosure years.
27. The average investor tax rate is the investor tax rate of 28% for disclosure year 2012 and the following four disclosure years.
28. The standard error of the WACC is determined in accordance with the formula in the GDS and GTS Determinations. It is shown to three decimal places only in the table above. The cost of equity is determined in accordance with the formula in the GDS and GTS Determinations, and is shown to two decimal places of a percent in the table above.
29. The methodology for determining the debt premium is set out in clause 2.4.4 of the GDS and GTS Determinations. 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:
 - a. is issued by an EDB or a GPB that is neither majority owned by the Crown nor a local authority;
 - b. is publicly traded;
 - c. has a credit rating of BBB+⁶; and
 - d. has a five year remaining term to maturity.
30. In estimating the debt premium, clause 2.4.4(4) provides that the Commission will have regard to the estimates of the debt premium on:
 - a. bonds issued by an EDB or GPB (that is not government-owned) with a rating of BBB+;
 - b. bonds issued by another entity (that is not government-owned) with a rating of BBB+;
 - c. bonds issued by an EDB or GPB (that is not government-owned) with a rating other than BBB+;
 - d. bonds issued by another entity (that is not government-owned) with a rating other than BBB+; and
 - e. bonds issued by government-owned entities.

⁶ All ratings in this document refer to Standard and Poor's long-term credit ratings of debt issues.

31. 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).
32. The table below shows the debt premium determined by the Commission as at 1 July 2011 and a summary of the debt premium information on investment grade rated bonds the Commission considered in determining the debt premium. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is on the Commission's website.

Determined debt premium on an EDB/GPB -issued bond rated BBB+ with a remaining term of 5 years as at 1 July 2011						
		Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
<i>Determined Debt Premium EDB / GPB BBB+ 5.0 1.75 Vector premium provides floor. Regard to results of 4(c) & 4(d). Not inconsistent with 4(e).</i>						
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	Vector ¹	EDB/GPB	BBB+	3.3	1.61	Minimum per subclause 5(b).
4(b)						No data on an applicable bond.
4(c)	Powerco ²	EDB/GPB	BBB	5.0	1.88	BBB+ would be less than this.
4(d)	Contact ³	Other	BBB	5.0	1.98	BBB+ would be less than this.
	AIAL ⁴	Other	A-	5.0	1.64	BBB+ would be more than this.
	Telecom ⁵	Other	A	-	-	Anomalous, see paragraph 37.
	Telstra ⁶	Other	A	5.0	1.58	BBB+ would be more than this.
4(e)	Genesis ⁷	Other	BBB+	5.0	1.58	
	MRP ⁸	Other	BBB+	5.0	1.65	
	Transpower ⁹	Other	AA-	8.4	1.20	

Notes on bonds analysed:

- 1 Vector 7.8% bond maturing 15/10/2014.
- 2 Powerco 6.53% bond maturing 29/06/2015; 6.74% bond maturing 28/09/2017.
- 3 Contact Energy 8% bond maturing 15/05/2014; 7.855% bond maturing 13/04/2017.
- 4 AIAL 7.25% bond maturing 7/11/2015; 8% bond maturing 15/11/2016.
- 5 Telecom 7.04% bond maturing 22/03/2016.
- 6 Telstra 7.15% bond maturing 24/11/2014; 8% bond maturing 15/11/2016.
- 7 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.
- 8 Mighty River Power 7.25% bond maturing 15/05/2013; 7.55% bond maturing 12/10/2016.
- 9 Transpower 7.19% bond maturing 12/11/2019.

33. Consistent with clause 2.4.4(4)-(5)(a) greatest regard has been given to the estimated debt premium on Vector's October 2014 bond. This bond is issued by an EDB/GPB, is publicly traded, has a rating of BBB+, and a term to maturity of 3.3 years. As at 1 July 2011, the debt premium on the Vector bond was estimated at 1.61%. Consistent with clause 2.4.4(5)(b) this estimated debt premium is treated as the minimum debt premium for a bond rated BBB+ with a term of five years.

34. The interpolated 5 year debt premium on Powerco's bonds is 1.88%. Powerco's bonds are rated BBB, implying the 5 year debt premium on bonds rated BBB+ would be less than 1.88%.
35. The Commission has also had regard to the estimated debt premium on bonds from a range of other issuers including AIAL (1.64%, 5 years, rated A-), Contact Energy (1.98%, 5 years, rated BBB) and Telstra (1.58%, 5 years, rated A). Consistent with clause (5)(a) these were given less weight as the issuers are not EDBs or GPBs, and the debt issues had different credit ratings than the BBB+ rating specified in clause (3)(d).
36. The estimated debt premium on the Genesis and Mighty River Power bonds (rated BBB+, and for a five year term to maturity) were 1.58% and 1.65% respectively.
37. Starting with the estimated debt premium on the Vector bond, but having regard to the debt premium on a range of other bonds, the Commission has determined the debt premium on a publicly traded, EDB/GPB-issued bond, rated BBB+ with a remaining term of five years to be 1.75% as at 1 July 2011.
38. No weight has been placed on the estimated debt premium for Telecom (1.89%, 5 years, rated A) is considered anomalous as it is greater than the interpolated debt premium on the lower rated AIAL bonds, and is almost identical to the interpolated debt premium on the Powerco bonds (rated BBB) despite Telecom's significantly higher credit rating.

WACC for Airport Services

39. Pursuant to clause 5.1 of the Airports IM Determination, the Commission has determined, for companies with a financial year ending in June (namely Auckland International Airport Limited (AIAL) and Christchurch International Airport Limited (CIAL)):
 - a mid-point estimate of vanilla WACC of 7.86% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 5.7, from 6.88% to 8.84% where the endpoints are the 25th and 75th percentile estimates; and
 - a mid-point estimate of post-tax WACC of 7.56% for the five year period commencing on the first day of disclosure year 2012 (i.e. 1 July 2011) and with a range, pursuant to clause 5.7, from 6.58% to 8.54% where the endpoints are the 25th and 75th percentile estimates.
40. These estimates of vanilla and post-tax WACC reflect the parameters specified in the Airports IM Determination and the risk-free rate and debt premium estimated in accordance with the Airports IM Determination. The parameters and estimates are summarised in the table below.

Risk-free rate	4.35%	Debt premium	1.64%
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)	6.34%	Cost of equity	8.17%
Vanilla WACC (midpoint)	$6.34\% \times 0.17 + 8.17\% \times (1-0.17) = 7.86\%$		
Post-tax WACC (midpoint)	$6.34\% \times 0.17 \times (1-0.28) + 8.17\% \times (1-0.17) = 7.56\%$		

41. The risk-free rate reflects the linearly-interpolated, annualised, bid yield to maturity on New Zealand government bonds with a five year term to maturity. The estimate uses data reported by Bloomberg for the month of June 2011 in respect of the April 2015 maturity bonds and the December 2017 maturity bonds. The daily data reported by Bloomberg is annualised (to reflect the 6 monthly payment of interest), averaged to give a monthly average, and linearly interpolated to produce the estimate of a 4.35% annualised bid yield on a NZ government bond with a five year term to maturity as at 1 July 2011.
42. The average corporate tax rate is the corporate tax rate of 28% for disclosure year 2012 and the following four disclosure years.
43. The average investor tax rate is the investor tax rate of 28% for disclosure year 2012 and the following four disclosure years.
44. The standard error of the WACC is determined in accordance with the formula in the Airports IM Determination. It is shown to three decimal places only in the table above. The cost of equity is determined in accordance with the formula in the Airports IM Determination, and is shown to two decimal places of a percent in the table above.
45. The methodology for determining the debt premium is set out in clause 5.4 of the Airports IM Determination. 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:
 - a. is issued by an airport, (that is neither majority owned by the Crown nor a local authority);
 - b. is publicly traded;
 - c. has a credit rating of A-; and
 - d. has a five year remaining term to maturity.
46. In estimating the debt premium, clause 5.4(4) provides that the Commission will have regard to:
 - a. bonds issued by an airport (that is not government-owned) with a rating of A-;
 - b. bonds issued by another entity (that is not government-owned) with a rating of A-;

- c. bonds issued by an airport (that is not government-owned) with a rating other than A-;
 - d. bonds issued by another entity (that is not government-owned) with a rating other than A-; and
 - e. bonds issued by government-owned entities.
47. 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).
48. The table below shows the debt premium determined by the Commission as at 1 July 2011 and a summary of the debt premium information on investment grade rated bonds the Commission considered in determining the debt premium. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is on the Commission's website.

Determined debt premium on an Airport-issued bond rated A- with a remaining term of 5 years as at 1 July 2011						
		Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
<i>Determined Debt Premium</i>		<i>Airport</i>	<i>A-</i>	<i>5.0</i>	<i>1.64</i>	AIAL is an exact match. Not inconsistent with 4(d)-4(e).
Subclause	Issuer	Industry	Rating	Remaining Term to Maturity	Debt premium	Comment
4(a)	AIAL ¹	Airport	A-	5.0	1.64	Exact match.
4(b)						No data on an applicable bond.
4(c)						No data on an applicable bond.
4(d)	Vector ²	Other	BBB+	3.3	1.61	A 5 year premium on an A- bond would be similar to this.
	Contact ³	Other	BBB	5.0	1.98	A- would be less than this.
	Powerco ⁴	Other	BBB	5.0	1.88	A- would be less than this.
	Telecom ⁵	Other	A	-	-	Anomalous, see paragraph 50.
	Telstra ⁶	Other	A	5.0	1.58	A- would be more than this.
4(e)	Genesis ⁷	Other	BBB+	5.0	1.58	
	MRP ⁸	Other	BBB+	5.0	1.65	
	Transpower ⁹	Other	AA-	8.4	1.20	

Notes on bonds analysed:

- 1 AIAL 7.25% bond maturing 7/11/2015; 8% bond maturing 15/11/2016.
- 2 Vector 7.8% bond maturing 15/10/2014.
- 3 Contact Energy 8% bond maturing 15/05/2014; 7.855% bond maturing 13/04/2017.
- 4 Powerco 6.53% maturing 29/06/2015; 6.74% bond maturing 28/09/2017.
- 5 Telecom 7.04% bond maturing 22/03/2016.
- 6 Telstra 7.15% bond maturing 24/11/2014; 8% bond maturing 15/11/2016.
- 7 Genesis 7.65% bond maturing 15/03/2016; 7.185% bond maturing 15/09/2016.
- 8 Mighty River Power 7.25% bond maturing 15/05/2013; 7.55% bond maturing 12/10/2016.
- 9 Transpower 7.19% bond maturing 12/11/2019.

49. Consistent with clause 5.4(4)-(5)(a) greatest regard has been given to the estimated debt premium on Auckland Airport's bonds. These bonds are issued by an airport, are publicly traded, are rated A-, and have a debt premium of 1.64% when interpolated to give a remaining term to maturity of five years. This exactly matches the requirements of the bond defined in clause 5.4(3)(d), and the Commission has determined the debt premium on a bonds rated A- to be 1.64% as at 1 July 2011.
50. The Commission has taken account of the 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 not inconsistent with the debt premium on the AIAL bonds when consideration is taken of different credit ratings, and terms to maturity.
51. No weight has been placed on the estimated debt premium for Telecom (1.89%, rated A, 5 years remaining) which is out of line with the debt premiums on other bonds, having regard to the respective credit ratings and terms to maturity.