

Cost of capital determination for electricity distribution businesses' default price-quality paths and Transpower's individual price-quality path [2014] NZCC 28

The Commission: Transpower Division Energy Division

S Begg	S Begg
P Duignan	P Duignan
Dr S Gale	Dr S Gale
E Welson	Dr M Berry

Date of determination: 31 October 2014

Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates that will apply to:
 - 1.1 the default price-quality path (DPP) for electricity distribution businesses (EDBs) for the period commencing from 1 April 2015; and
 - 1.2 Transpower's individual price-quality path (IPP) for the period commencing from 1 April 2015.
2. We have estimated vanilla WACCs for the above price-quality paths.¹
3. The vanilla WACC estimates are summarised in Table 1 below. The WACCs are estimated as at 1 September 2014.

Table 1: Summary of vanilla WACC estimates for EDB DPP and Transpower IPP (%)

	Mid-point	67 th percentile
Vanilla WACC (5 years)	6.72	7.19

4. Following our recent review of the WACC percentile for electricity lines and gas pipeline businesses, 67th percentile estimates of vanilla WACC are used for EDBs subject to a DPP and for Transpower's IPP.

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

Introduction

5. This determination specifies WACC estimates to apply to:
 - 5.1 the DPP for EDBs for the period commencing from 1 April 2015; and
 - 5.2 Transpower's IPP for the period commencing from 1 April 2015.
6. The WACC estimates are set under:²
 - 6.1 clauses 4.4.1 to 4.4.8 of the Electricity Distribution Services Input Methodologies Determination 2012 (EDS IM Determination);³ and
 - 6.2 clauses 3.5.1 to 3.5.8 of the Transpower Input Methodologies Determination 2012 (Transpower IM Determination).⁴
7. We have estimated vanilla WACCs for both EDBs and Transpower. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity. Consistent with our recently completed review of the WACC percentile for electricity lines and gas pipeline businesses, 67th percentile estimates of vanilla WACC are used for EDBs subject to a DPP and for Transpower's IPP.⁵
8. The parameter values, estimates and information sources used for each WACC estimate are set out in this determination.
9. Additional commentary on the estimation of the risk-free rate and the debt premium is also provided. For example, this determination identifies the issuers and bonds that were analysed (including the credit rating and remaining term to maturity) when estimating the debt premium. The commentary also explains which debt premium estimates were given greater weight than other estimates.

² Consistent with the IM amendment determined on 26 September 2014, the Commission is required to determine these estimates no later than 5 months prior to the start of the regulatory period beginning on 1 April 2015 (see *Electricity Lines Services Input Methodologies Determination Amendment 2014* [2014] NZCC 24).

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

⁴ *Transpower Input Methodologies Determination 2012* [2012] NZCC 17, as subsequently amended.

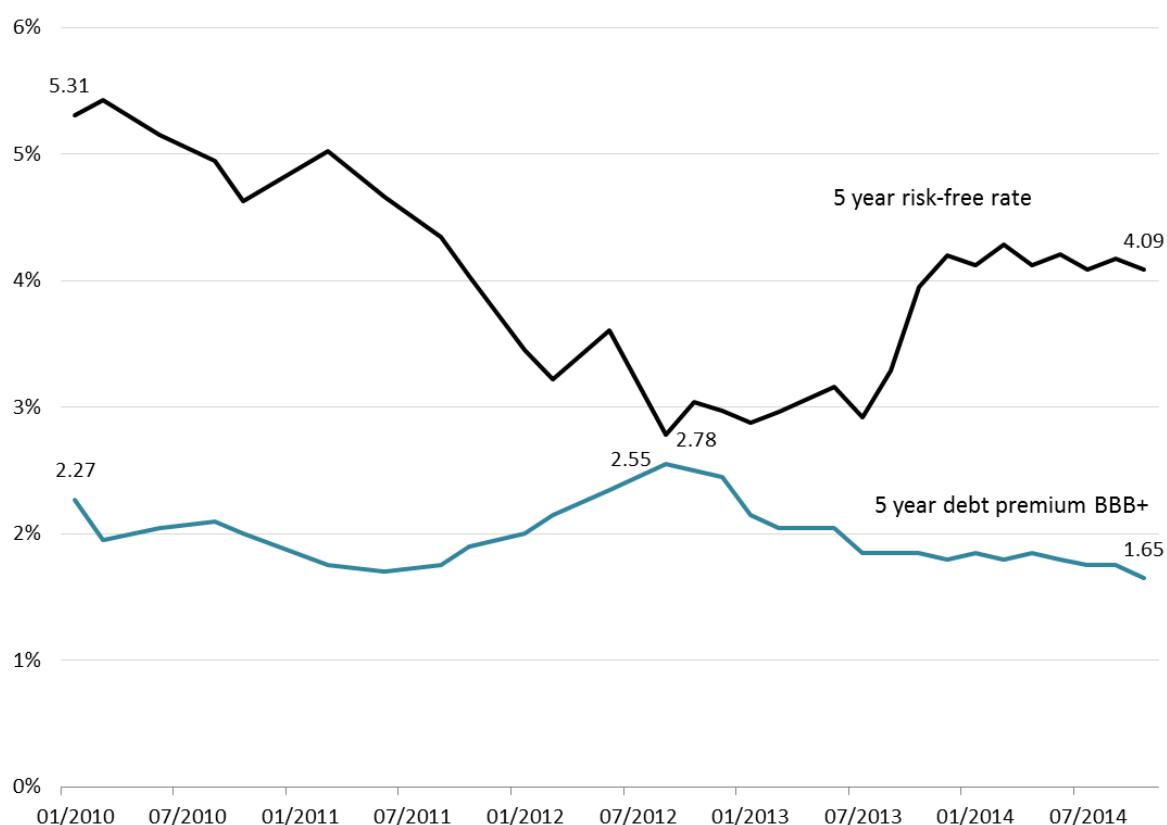
⁵ Commerce Commission "Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services – Reasons paper" (30 October 2014); and *Electricity Lines Services and Gas Pipeline Services Input Methodologies Determination Amendment (WACC percentile for price-quality regulation) 2014* [2014] NZCC 27.

Background

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

10. 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
11. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows, as at 1 September 2014, changes over time in the:
 - 11.1 five year risk-free rate; and
 - 11.2 debt premium on bonds rated BBB+ with a term of five years.

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



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, four years and three years. The debt premium is estimated on publicly traded corporate bonds according to the methodology specified in the EDS IM Determination and Transpower IM Determination.

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

12. Differences in the WACCs estimated under the various cost of capital input methodologies reflect differences in the:
 - 12.1 date of estimation for the WACCs, which results in different estimates of the risk-free rate and debt premium;
 - 12.2 periods in which the WACCs will apply;
 - 12.3 context in which the WACCs will be used (67th percentile WACC estimates are used for the purposes of default and individual price-quality paths, while a mid-point and range is determined for information disclosure);
 - 12.4 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
 - 12.5 value of leverage for airports (17%) and for EDBs, GPBs, and Transpower (44%).

WACC for electricity distribution businesses' default price-quality paths and Transpower's individual price-quality path

13. Under clause 4.4.7 of the EDS IM Determination and clause 3.5.7 of the Transpower IM Determination, we have determined a 67th percentile vanilla WACC estimate (as at 1 September 2014) of 7.19% for the five year regulatory period beginning on 1 April 2015.

Parameters used to estimate the WACC

14. The above vanilla WACC estimate reflects the parameters specified in the EDS IM Determination and the Transpower IM Determination. The risk-free rate and debt premium are also estimated in accordance with the EDS IM Determination and the Transpower IM Determination.

Summary of parameters

15. The parameters used to estimate the vanilla WACC estimate are summarised in Table 2 below.

Table 2: Parameters used to calculate vanilla WACC for EDB DPP and Transpower IPP (for the period commencing from 1 April 2015)

Parameter	Estimate
Risk-free rate	4.09%
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	6.09%
Cost of equity	7.21%
Standard error of debt premium	0.0015
Standard error of WACC	0.011
Mid-point vanilla WACC	6.72%

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

Risk-free rate

16. 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 August 2014 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 4.04% and 4.15% respectively.

17. 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 a 4.09% interest rate on a NZ Government bond with a five year term to maturity as at 1 September 2014.

Tax rates

18. 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

19. The standard error of the WACC is determined in accordance with the formula in clause 4.4.6 of the EDS IM Determination for EDBs and clause 3.5.6 of the Transpower IM Determination for Transpower, and is shown to three decimal places only in Table 2 above.

Debt premium

20. The methodology for determining the debt premium is set out in clause 4.4.4 of the EDS IM Determination for EDBs and clause 3.5.4 of the Transpower IM Determination for Transpower.
21. Clause 4.4.4(3)(d) of the EDS IM Determination and clause 3.5.4(3)(d) of the Transpower IM Determination require the Commission to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ\$ denominated bond that:
 - 21.1 is issued by an EDB or a GPB that is neither majority owned by the Crown nor a local authority;
 - 21.2 is publicly traded;
 - 21.3 has a qualifying rating of grade BBB+; and
 - 21.4 has a remaining term to maturity of five years.

- 22. In estimating the debt premium, clause 4.4.4(4) of the EDS IM Determination and clause 3.5.4(4) of the Transpower IM Determination provide that the Commission will have regard to:
 - 22.1 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+;
 - 22.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of BBB+;
 - 22.3 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+;
 - 22.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than BBB+; and
 - 22.5 bonds issued by entities that are majority owned by the Crown or a local authority.
- 23. Clause 4.4.4(5)(a) of the EDS IM Determination and clause 3.5.4(5)(a) of the Transpower IM Determination provide that progressively lesser regard will ordinarily be given to the debt premium estimates in the order that the bonds are identified in clauses 4.4.4(4)(a) to (e) of the EDS IM Determination and clauses 3.5.4(4)(a) to (e) of the Transpower IM Determination.
- 24. Table 3 below shows the five year debt premium on an EDB/GPB-issued bond rated BBB+, as at 1 September 2014. This table include a summary of information on the investment grade rated bonds we considered in determining the debt premium.
- 25. 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 3: Debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term of 5 years, as at 1 September 2014⁸

		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+	5.8	1.74	5 year debt premium would be lower
4(c)	Powerco	2	EDB/GPB	BBB	4.3	1.78	5 year debt premium would be higher BBB+ debt premium would be lower
4(d)	Spark	3	Other	A-	5.0	1.41	BBB+ debt premium would be higher
	AIAL	4	Other	A-	5.0	1.12	BBB+ debt premium would be higher
	Telstra	5	Other	A	2.9	1.16	BBB+ and 5 year debt premium would be higher
	Contact	6	Other	BBB	5.0	1.68	BBB+ debt premium would be lower
	Fonterra	7	Other	A+	5.0	1.06	BBB+ debt premium would be higher
4(e)	Meridian	8	Other	BBB+	2.5	1.32	
	Genesis Energy	9	Other	BBB+	5.0	1.72	
	MRP	10	Other	BBB+	5.0	1.69	
	CIAL	11	Other	BBB+	5.3	1.49	
	Transpower	12	Other	AA-	5.0	1.06	

Notes on bonds analysed:

- 1** WIAL 5.27% bond maturing 11/06/2020.
- 2** Powerco 6.31% bond maturing 20/12/2018.
- 3** Spark 7.04% bond maturing 22/03/2016; 5.25% bond maturing 25/10/2019.
- 4** AIAL 5.47% bond maturing 17/10/2017; 4.73% bond maturing 13/12/2019.
- 5** Telstra 7.515% bond maturing 11/07/2017.
- 6** Contact Energy 4.8% bond maturing 24/05/2018; 5.8% bond maturing 15/5/2019.
- 7** Fonterra 6.83% bond maturing 4/03/2016; 5.52% bond maturing 25/02/2020.
- 8** Meridian 7.55% bond maturing 16/03/2017.
- 9** Genesis Energy 7.185% bond maturing 15/09/2016; 5.205% bond maturing 1/11/2019.
- 10** MRP 5.029% bond maturing 6/03/2019; 8.21% bond maturing 11/02/2020.
- 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.

26. Consistent with clauses 4.4.4(4) and 4.4.4(5)(a) of the EDS IM Determination and clauses 3.5.4(4) and 3.5.4(5)(a) of the Transpower IM Determination, greatest regard has been given to the estimated debt premium on Wellington International Airport Limited's (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

⁸ The five-year debt premiums on the Spark, Auckland International Airport Limited, Contact Energy, Fonterra, Genesis Energy, Mighty River Power and Transpower bonds are calculated by linear interpolation with respect to maturity.

has a term to maturity of 5.8 years, which is more than the five years specified in clause 4.4.4(3)(d) of the EDS IM Determination and clause 3.5.4(3)(d) of the Transpower IM Determination.

27. As at 1 September 2014, the debt premium on the WIAL bond was estimated at 1.74%. Consistent with clause 4.4.4(5)(b) of the EDS IM Determination and clause 3.5.4(5)(b) of the Transpower IM Determination, this estimated debt premium is treated as the maximum debt premium for a bond rated BBB+ with a term of five years.
28. The debt premium on Powerco's December 2018 bond is 1.78%. This bond has a term to maturity of 4.3 years, which is less than the five years specified in clause 4.4.4(3)(d) of the EDS IM Determination and clause 3.5.4(3)(d) of the Transpower IM Determination. Powerco's bond is also rated BBB, which is less than the BBB+ specified in clause 4.4.4(3)(d) of the EDS IM Determination and clause 3.5.4(3)(d) of the Transpower IM Determination.
29. We have also had regard to the estimated debt premium on bonds from a range of other issuers including Spark (1.41%, 5 years, rated A-), Auckland International Airport Limited (AIAL) (1.12%, 5 years, rated A-), Telstra (1.16%, 2.9 years, rated A), Contact Energy (1.68%, 5 years, rated BBB) and Fonterra (1.06%, 5 years, rated A+). Consistent with clause 4.4.4(5)(a) of the EDS IM Determination and clause 3.5.4(5)(a) of the Transpower IM Determination, 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 4.4.4(3)(d) of the EDS IM Determination and clause 3.5.4(3)(d) of the Transpower IM Determination.
30. The estimated debt premium on the Genesis Energy bonds (1.72%, 5 years, rated BBB+), the Mighty River Power (MRP) bonds (1.69%, 5 years, rated BBB+), the Meridian bond (1.32%, 2.5 years, rated BBB+), the Christchurch International Airport Limited (CIAL) bond (1.49%, 5.3 years, rated BBB+), and Transpower bonds (1.06%, 5 years, rated AA-) were also considered, but given less weight as the issuers are either majority owned by the Crown or a local authority.
31. 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 1.65% as at 1 September 2014.