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Cost of capital determination for gas distribution and gas transmission businesses' default price-quality paths

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The Commission: Sue Begg
Dr Mark Berry
Dr Stephen Gale
Dr Jill Walker

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Associated documents

Publication date	Reference	Title
28 February 2017	ISSN 1178-2560	Gas Distribution Services Input Methodologies Determination 2012 (Consolidated February 2017)
28 February 2017	ISSN 1178-2560	Gas Transmission Services Input Methodologies Determination 2012 (Consolidated February 2017)
22 December 2011	ISBN no. 978-1-869451-86-8	Determination of the cost of capital for gas distribution and gas transmission services under Part 4 of the Commerce Act 1986 Decision number 745

Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates that will apply to the default price-quality path (DPP) for gas distribution and gas transmission businesses (GPBs) for the period commencing 1 October 2017.

2. The vanilla WACC estimates are summarized in Table 1 below. The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the cost of equity.

Table 1: Vanilla WACC estimates for GPB DPP (%)

	Mid-point	67th percentile
Vanilla WACC (5 years)	5.97	6.43

3. The 67th percentile estimate of vanilla WACC is used to determine the allowable revenue for GPBs subject to a DPP. The WACCs are estimated as at 1 March 2017.

Introduction

4. This determination specifies WACC estimates to apply to the DPP for GPBs for the period commencing 1 October 2017.

5. The WACC estimates are set under clauses 4.4.1 to 4.4.10 of the Gas Distribution Services and Gas Transmission Services Input Methodologies Determinations 2012.[1]

6. 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.

7. 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.

[1] Commerce Commission "Gas Distribution Services Input Methodologies Determination 2012" (28 February 2017) and Commerce Commission "Gas Transmission Services Input Methodologies Determination 2012" (28 February 2017).

Background

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

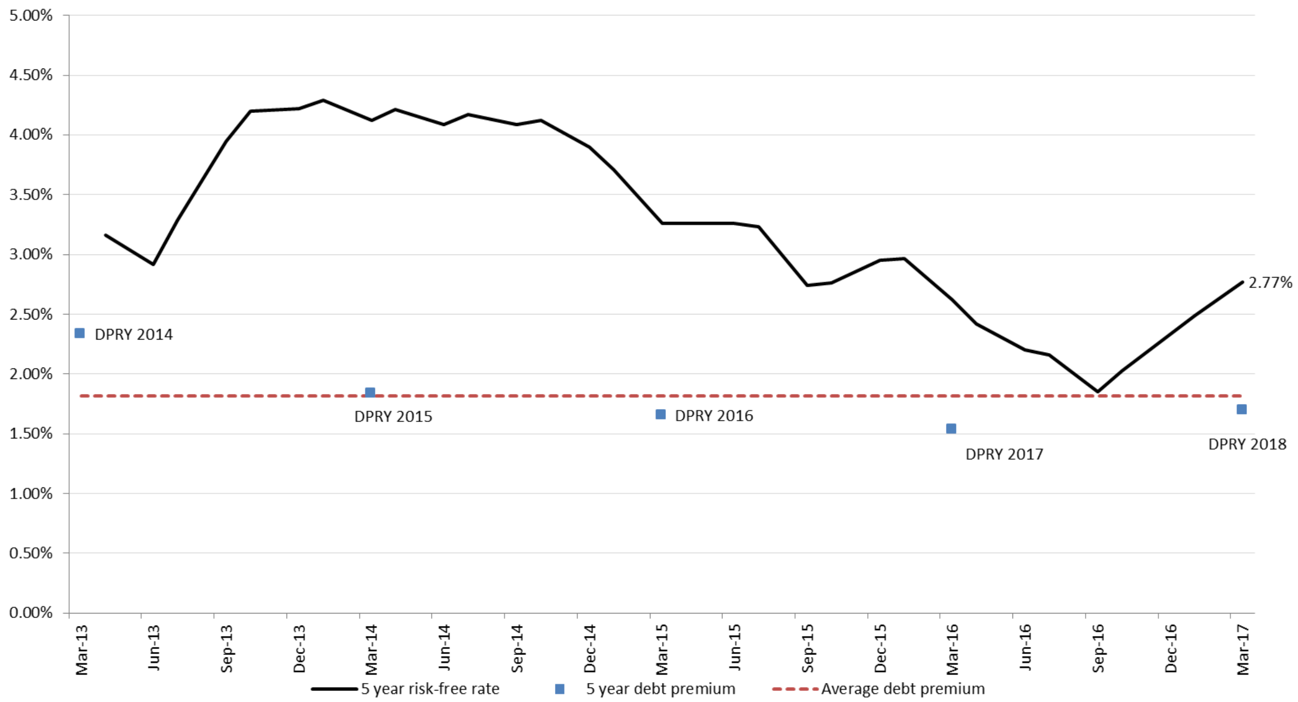
8. The cost of capital input methodologies for regulated services reflect that both the risk-free rate and the debt premium on bonds change over time.[2]

9. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows changes over time in the:

    9.1 five year risk-free rate; and

    9.2 debt premium on bonds rated BBB+ with a term of five years.

Figure 1: Changes in the risk-free rate and debt premium on bonds over time[3]



[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 GDS and GTS IM Determinations.

[3] DPRY means 'debt premium reference year' and has the meaning specified in clause 1.1.4(2) of the GDS and GTS IM Determinations. The 'Average debt premium' line is a simple average of the five most recent estimates of the (prevailing) debt premium whereas previously, under the previous GDS and GTS IM Determinations, the prevailing debt premium was used.

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

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

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

    10.2 context in which the WACCs will be used (67th percentile estimates of the WACC are used for default and customised price-quality paths, while a range is determined for information disclosure);[4]

    10.3 assessed risk of the various regulated services (electricity distribution businesses (EDBs) and Transpower have an asset beta of 0.35, gas pipeline businesses (GPBs) have an asset beta of 0.40 and airports have an asset beta of 0.60); and

    10.4 value of leverage for airports (19%) and for EDBs, GPBs, and Transpower (42%).

WACC for gas distribution and gas transmission businesses' default price-quality paths

11. Under clause 4.4.7 of the GDS and GTS IM Determinations, we have determined (as at 1 March 2017) a 67th percentile vanilla WACC estimate of 6.43% for the five year regulatory period.

[4] For GPBs the range of WACC estimates determined for information disclosure are the 25th, 50th, 67th, and 75th percentile estimates.

Parameters used to estimate the WACC

12. The vanilla WACC estimate reflects 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

13. The parameters used to estimate the vanilla WACCs are summarised in Table 2 below.

Table 2: Parameters used to calculate vanilla WACC for GPB DPP[5]

Parameter	Estimate
Risk-free rate	2.77%
Average debt premium	1.82%
Leverage	42%
Equity beta	0.69
Tax adjusted market risk premium	7.0%
Average corporate tax rate	28%
Average investor tax rate	28%
Debt issuance costs	0.20%
Cost of debt	4.79%
Cost of equity	6.82%
Standard error of WACC	0.0105
Mid-point vanilla WACC	5.97%
Mid-point post-tax WACC[6]	5.41%

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

6 The 67th percentile estimate of the post-tax WACC is 5.87%.

Risk-free rate

14. 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 months of December 2016, January 2017 and February 2017 in respect of the May 2021 and April 2023 maturity bonds. The May 2021 and April 2023 bonds have simple average annualised bid yields to maturity of 2.65% and 2.93% respectively.

15. The daily data reported by Bloomberg is annualised (to reflect the six monthly payment of interest), averaged over a month, and linearly interpolated to produce the estimate of a 2.77% interest rate on a NZ government bond with a five year term to maturity as at 1 March 2017.

Tax rates

16. 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

17. The standard error of the WACC is provided in the GDS and GTS IM Determinations, and is shown to three decimal places only in Table 2 above.

Average debt premium

18. The average debt premium is the average of the estimated debt premium for the most recent 5 years. The methodology for determining the 'average debt premium' is set out in clause 4.4.4 of the GDS and GTS IM Determinations. The methodology for estimating 'debt premium' is set out in clause 2.4.4 of the GDS and GTS IM Determinations.[7]

19. Clause 2.4.4(6)(d) of the GDS and GTS IM Determinations requires the Commission to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ$ denominated bond that:

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

    19.2 is publicly traded;

    19.3 has a qualifying rating of grade BBB+; and

    19.4 has a remaining term to maturity of five years as applicable under clause 2.4.4(5) of the GDS and GTS IM Determinations.

20. In estimating the debt premium, clause 2.4.4(7) of the GDS and GTS IM Determinations provides that the Commission will have regard to:

[7] The current version of Part 4 in the GPBs IM Determination draws on Part 2 of the GPBs IM Determination.

20.1 bonds issued by a GPB or an EDB (that is neither 100% owned by the Crown nor a local authority) with a rating of BBB+;

20.2 bonds issued by another entity (that is neither 100% owned by the Crown nor a local authority) with a rating of BBB+;

20.3 bonds issued by a GPB or an EDB (that is neither 100% owned by the Crown nor a local authority) with a rating other than BBB+;

20.4 bonds issued by another entity (that is neither 100% owned by the Crown nor a local authority) with a rating other than BBB+; and

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

21. Clause 2.4.4(8)(a) of the GDS and GTS IM Determinations 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(7)(a) to (e).

22. The table below shows the five year debt premium on a GPB-issued bond rated BBB+, as at 1 March 2017. This table includes a summary of information on the investment grade rated bonds we considered in determining the debt premium. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.[8]

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

Five year debt premium

23. Table 3 below shows the five year debt premium on a GPB-issued bond rated BBB+, as at 1 March 2017.

Table 3: Five-year debt premium on a GPB-issued bond rated BBB+[9]

			Industry	Rating	Remaining term to maturity	Debt premium	Comment
Determined debt premium			EDB/GPB	BBB+	5.0	1.70	Regard to results 4(b) with same term to maturity Generally consistent with 4(d)
Category	**Issuer**	**Note ref.**	**Industry**	**Rating**	**Remaining term to maturity**	**Debt premium**	**Comment**
(a)	-	-	-	-	-	-	No data on applicable bonds
(b)	Genesis Energy Ltd	1	Other	BBB+	5.0	1.63	Credit rating and term are an exact match
	Mercury Nz Ltd	2	Other	BBB+	5.0	1.75	Credit rating and term are an exact match
	Meridian Energy Limite	3	Other	BBB+	6.0	1.67	5 year debt premium would be lower
	Wellington Intl Airpor	4	Other	BBB+	5.0	1.72	Credit rating and term are an exact match
(c)	-	-	-	-	-	-	No data on applicable bonds
(d)	Auckland Intl Airport	5	Other	A-	5.0	1.36	BBB+ debt premium would be higher
	Chorus Ltd	6	Other	BBB	4.2	1.79	BBB+ debt premium would be lower
	Contact Energy Ltd	7	Other	BBB	4.7	1.75	BBB+ debt premium would be lower
	Fonterra Cooperative G	8	Other	A-	5.0	1.81	BBB+ debt premium would be higher
	Spark Finance Ltd	9	Other	A-	5.0	1.51	BBB+ debt premium would be higher
(e)	Christchurch Intl Airp	10	Other	BBB+	4.6	1.71	
	Transpower New Zealand	11	Other	AA-	5.0	1.21	
Nelson-Siegel-Svensson estimate					5.0	1.65	

Notes on bonds analysed:

1 8.3% bond maturing on 23/06/2020; 4.14% bond maturing on 18/03/2022
2 8.21% bond maturing on 11/02/2020; 5.793% bond maturing on 6/03/2023
3 4.53% bond maturing on 14/03/2023
4 6.25% bond maturing on 15/05/2021; 4.25% bond maturing on 12/05/2023
5 5.52% bond maturing on 28/05/2021; 4.28% bond maturing on 9/11/2022
6 4.12% bond maturing on 6/05/2021
7 4.4% bond maturing on 15/11/2021
8 5.9% bond maturing on 25/02/2022; 4.42% bond maturing on 7/03/2023
9 5.25% bond maturing on 25/10/2019; 4.5% bond maturing on 25/03/2022
10 6.25% bond maturing on 4/10/2021
11 6.95% bond maturing on 10/06/2020; 4.3% bond maturing on 30/06/2022

[9] The five-year debt premiums on the Genesis Energy, Mercury Nz, Wellington International Airport Limited (WIAL), Auckland International Airport Limited (AIAL), Fonterra, Contact Energy and Transpower bonds are calculated by linear interpolation with respect to maturity.

24. Consistent with clause 2.4.4(7)-(8)(a) of the GDS and GTS IM Determinations, greatest regard has been given to the estimated debt premiums on the bonds of Genesis Energy, Mercury NZ and Wellington International Airport. These bonds are publicly traded, are issued by an entity other than an EDB/GPB with a rating of BBB+.

25. As at 1 March 2017, the debt premiums on the Genesis Energy, Mercury NZ and Wellington International Airport bonds are estimated as 1.63%, 1.75% and 1.72% respectively. As the credit ratings and remaining terms to maturity match the requirements in clause 2.4.4(6)(d), we consider 1.70% (the simple average of 1.63%, 1.75% and 1.72%) to be an appropriate starting point for estimating the debt premium.

26. We have also had regard to the estimated debt premium on bonds from a range of other issuers which had a remaining term to maturity of five years. These included Auckland International Airport (1.36%, 5 years, rated A-), Fonterra Cooperative Group (1.81%, 5 years, rated A-) and Spark Finance (1.51%, 5 years, rated A-).

27. Consistent with clause 2.4.4(8)(a) these debt premiums were given less weight as the issuers are not EDBs or GPBs, and also their debt issues had different credit ratings than the BBB+ rating specified in clause 2.4.4(6)(d). Taking into account the likely impact of differences in credit rating and term to maturity, we consider that these debt premiums are generally consistent with an estimate of 1.70% for a BBB+ rated bond with a five year term to maturity.

28. Starting with the estimated debt premiums on Genesis Energy, Mercury NZ and Wellington International Airport bonds, but having regard to the debt premiums on a range of other bonds, we have determined the debt premium on a publically traded, GPB-issued bond, rated BBB+ with a remaining term of five years to be 1.70% as at 1 March 2017.