

Cost of capital determination for information disclosure

First Gas and Powerco gas pipeline businesses disclosure year 2018

[2017] NZCC 24

The Commission: **Energy Division**

S Begg

Dr M Berry

Dr S Gale

Dr J Walker

Date of determination: 12 October 2017

Associated documents

Publication date	Reference	Title
24 May 2017	ISSN 1178-2560	Revised cost of capital determination for gas distribution and gas transmission businesses' default price-quality paths
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)

Commerce Commission
Wellington, New Zealand

Introduction

1. This determination specifies weighted average cost of capital (WACC) estimates for information disclosure for disclosure year 2018 for:¹
 - 1.1 gas distribution businesses (Powerco and First Gas); and
 - 1.2 gas transmission businesses (First Gas).
2. The WACC estimates we are required to calculate for these businesses are set out in Table 1 below. Vanilla and post-tax WACCs have been estimated for the five year period commencing on the first day of disclosure year 2018 (1 October 2017).²

Table 1: Vanilla and post-tax WACC estimates (%)

	Mid-point	25 th percentile	67 th percentile	75 th percentile
Vanilla WACC	5.71	5.00	6.17	6.41
Post-tax WACC	5.18	4.47	5.64	5.89

3. This determination explains how these WACC estimates were calculated, including the parameter values, estimates, and information sources used. The WACC estimates have been determined under:
 - 3.1 clauses 2.4.1 to 2.4.9 of the Gas Distribution Services Input Methodologies Determination (GDS IM Determination) for the gas distribution businesses;³ and
 - 3.2 clauses 2.4.1 to 2.4.9 of the Gas Transmission Services Input Methodologies Determination 2012 (the GTS IM Determination) for the gas transmission business.⁴

¹ Disclosure year 2018 for these businesses begins on 1 October 2017 and ends on 30 September 2018. The disclosure year for First Gas was recently amended. For further details see: Commerce Commission “Fast track amendments to information disclosure determinations for First Gas gas pipeline services: Companion paper” (14 June 2017) and “[FAST TRACK] Gas Distribution Information Disclosure Amendments Determination (No.1) 2017”, available at <http://www.comcom.govt.nz/regulated-industries/electricity/information-disclosure-requirements-for-distributors/amendments-to-information-disclosure-requirements-2017/>.

² The vanilla WACC is a weighted average of the pre-corporate tax cost of debt and the post-tax cost of equity. The post-tax WACC is the weighted average of the post-corporate tax cost of debt and the post-tax cost of equity. The vanilla and post-tax WACC formulas are contained in clause 2.4.1 of the GDS and GTS IM Determinations.

³ *Gas Distribution Services Input Methodologies Determination 2012* [2012] NZCC 27, as subsequently amended and included in the latest consolidated determination (28 February 2017), available at <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/gas-pipelines-2/>. Clauses 2.4.1 to 2.4.9 set out the cost of capital IMs applicable to information disclosure.

Background

Approach to estimating the risk-free rate and debt premium

4. The cost of capital input methodologies for regulated services reflect the fact that both the risk-free rate and the debt premium on bonds change over time.⁵
5. The approach to estimating the risk-free rate and debt premium was amended as a result of our 2016 input methodologies review. In particular:⁶
 - 5.1 a three month period is now used when estimating the risk-free rate, instead of a one month period; and
 - 5.2 a historic average is now used when estimating the debt premium, instead of the previous ‘prevailing’ approach.
6. The historical averaging approach requires us to estimate a five-year debt premium each year and uses the average of five individual estimates (one for each year) to determine the ‘average debt premium’ used in the cost of debt formula in the IM determination. The debt premium reference years (DPRYs) are specific to each sector, as specified in Table 2 below.⁷

Table 2: Debt premium reference years

Sector	Debt premium reference year
Electricity distribution businesses (EDBs)	1 September to 31 August
Transpower	1 September to 31 August
Gas pipeline businesses (GDBs and GTBs)	1 March to 28 February
Airports	1 July to 30 June

⁴ *Gas Transmission Services Input Methodologies Determination 2012* [2012] NZCC 28, as subsequently amended and included in the latest consolidated determination (28 February 2017), available at <http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/gas-pipelines-2/>. Clauses 2.4.1 to 2.4.9 set out the cost of capital IMs applicable to information disclosure.

⁵ The risk-free rate is estimated by linear interpolation of bid yields on New Zealand government bonds 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 methodologies determinations.

⁶ Commerce Commission “Input methodologies review decisions – Topic paper 4: Cost of capital issues” (20 December 2016), page 4. These changes were implemented in the GDS and GTS IM determinations via clauses 2.4.3(c) and 2.4.4(1).

⁷ Commerce Commission “Input methodologies review decisions – Topic paper 4: Cost of capital issues” (20 December 2016), Attachment G. The DPRY for gas pipelines businesses is set out in clause 1.1.4 (2) of the GDS and GTS IM determinations.

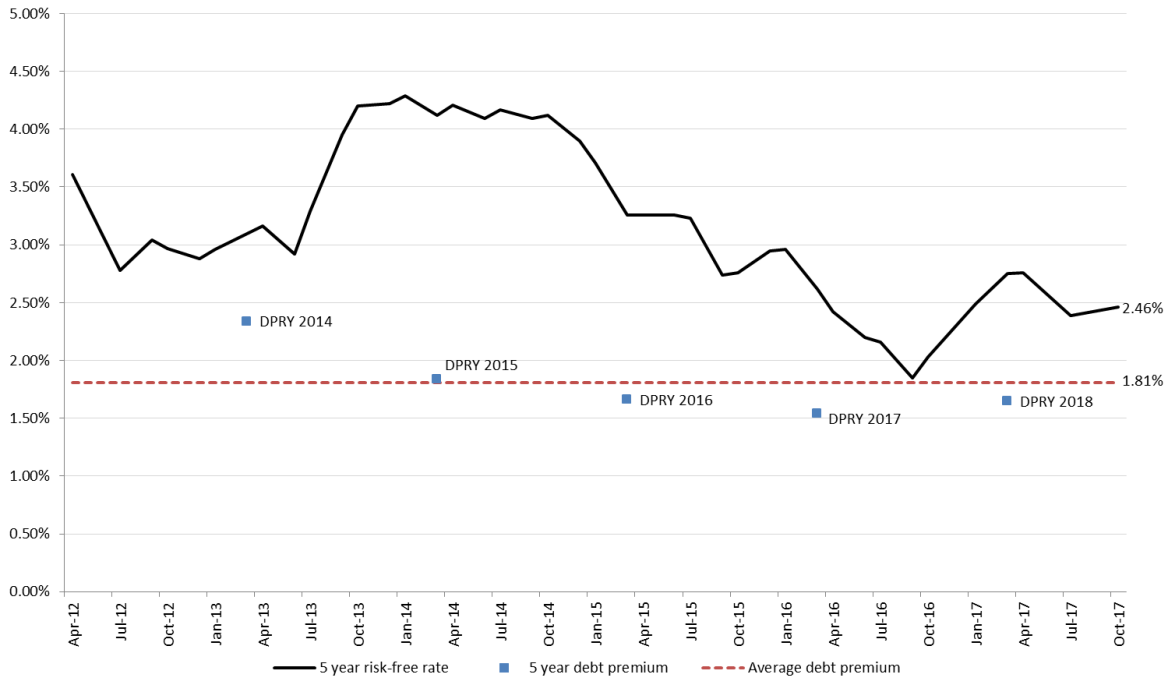
Changes in the risk-free rate and debt premium over time

7. Changes in the risk-free rate and debt premium on relevant bonds for gas pipeline businesses are illustrated below. Figure 1 shows the changes over time in the:

7.1 five year risk-free rate; and

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

Figure 1: Changes in the five year risk-free rate and debt premium over time⁸



⁸ 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.

WACC for First Gas and Powerco GPB disclosure year 2018

8. Mid-point vanilla and post-tax WACCs for gas distribution businesses (Powerco and First Gas) for disclosure year 2018 are shown in Table 3 below. This table includes the individual parameter values used to calculate the WACC estimates.

Table 3: WACC parameter values

Parameter	Estimate
Risk-free rate	2.46%
Average debt premium (BBB+)	1.81%
Leverage	42%
Asset beta	0.40
Equity beta	0.69
Tax-adjusted market risk premium	7.0%
Average corporate tax rate	28.0%
Average investor tax rate	28.0%
Debt issuance costs	0.20%
Cost of debt	4.47%
Cost of equity	6.60%
Standard error of WACC	0.0105
Mid-point vanilla WACC	5.71%
Mid-point post-tax WACC	5.18%

Note: The cost of debt is calculated as the risk-free rate + average 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. The mid-point post-tax WACC is calculated as the cost of debt \times (1 - corporate tax rate) \times leverage + cost of equity \times (1 - leverage).

9. Many of these parameter values are specified directly in the GDS and GTS IM determinations. Specifically, values for leverage, equity beta, tax-adjusted market risk premium and debt issuance costs are stated explicitly in the IMs.
10. The commentary below explains how we determined values for the remaining parameters – the risk-free rate, and the average debt premium. The approach to calculating the WACC range and 67th percentile estimates is also explained.

Risk-free rate

11. The risk-free rate reflects the annualised, bid yield to maturity on New Zealand Government bonds with a term to maturity of five years.⁹ The estimates use data reported by Bloomberg for the three month period ending September 2017 in respect of the 15 May 2021 and 15 April 2023 maturity bonds.
12. The daily data reported by Bloomberg is linearly interpolated, annualised (to reflect the six monthly payment of interest), and averaged to produce the estimate of a 2.46% interest rate on a New Zealand Government bond with a five year term to maturity as at 1 October 2017.

Average debt premium

13. The average debt premium is calculated as the average of the values for the five most recent DPRYs.¹⁰ The debt premium values for the 2014 to 2018 DPRYs are set out in table 4 below.¹¹

Table 4: Debt premium values for the five most recent reference years (%)

	DPRY 2014	DPRY 2015	DPRY 2016	DPRY 2017	DPRY 2018	Average
Debt premium	2.34	1.84	1.66	1.54	1.65	1.81

WACC range and 67th percentile estimate

14. In addition to the mid-point estimate, we are also required to determine a WACC range and 67th percentile estimate for each disclosure year.¹² The methodology for estimating different WACC percentile estimates is set out in clause 2.4.5 of the GDS and GTS IM Determinations.
15. The same methodology applies to both vanilla and post-tax WACC estimates. The WACC range means the values falling between the 25th percentile and 75th percentile, inclusive, of the mid-point estimate of WACC.¹³ The mid-point estimate of WACC is treated as the 50th percentile.¹⁴

⁹ The methodology for estimating the risk-free rate is set out in clause 2.4.3 of the GDS and GTS IM Determinations.

¹⁰ The methodology for determining the average debt premium is set out in clause 2.4.4 of the GDS and GTS IM Determinations.

¹¹ The values for 2014 to 2017 are set out in clause 2.4.4(4) of the GDS and GTS IM Determinations: 2014=2.34%, 2015=1.84%, 2016=1.66%, 2017=1.54%. The value for DPRY 2018 (1.65%) was determined in May 2017: *Revised cost of capital determination for gas distribution and gas transmission businesses' default price-quality paths* [2017] NZCC 13 (24 May 2017).

¹² Clauses 2.4.5(1) and 2.4.5(4) of the GDS and GTS IM determinations.

¹³ Clause 2.4.5(2) of the GDS and GTS IM determinations.

¹⁴ Clauses 2.4.5(3)(a) and 2.4.5(5)(a) of the GDS and GTS IM determinations.