

## **Cost of capital determination for disclosure year 2021**

**For Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end)**

**[2020] NZCC 15**

**The Commission:** S Begg  
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## Associated documents

Publication date	Reference	Title
20 December 2016	ISSN 1178-2560	Airport Services Input Methodologies Determination 2010 (Consolidated December 2016)
20 December 2016	ISBN 978-1-869455-48-4	Input methodologies review decisions (Topic paper 4: Cost of capital issues)
28 February 2017	ISSN 1178-2560	Transpower Input Methodologies Determination 2010 (Consolidated February 2017)
31 July 2017	ISSN 1178-2560	Cost of capital determination for disclosure year 2018 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2017] NZCC 19
3 April 2018	ISSN 1178-2560	Gas Distribution Services Input Methodologies Determination 2012 (Consolidated April 2018)
30 April 2018	ISSN 1178-2560	Guidelines for WACC determinations under the cost of capital input methodologies – Regulation under Part 4 of the Commerce Act 1986
30 April 2018	ISSN 1178-2560	Cost of capital determination for disclosure year 2019 - Electricity distribution businesses and Wellington International Airport [2018] NZCC 7
31 July 2018	ISSN 1178-2560	Cost of capital determination for disclosure year 2019 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2018] NZCC 11
30 April 2019	ISSN 1178-2560	Cost of capital determination for disclosure year 2020 - Electricity distribution businesses and Wellington International Airport [2019] NZCC 7
31 July 2019	ISSN 1178-2560	Cost of capital determination for disclosure year 2020 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2019] NZCC 8

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31 October 2019	ISSN 1178-2560	Cost of capital determination for disclosure year 2020 - First Gas and Powerco gas pipeline businesses [2019] NZCC 14
13 May 2020	ISSN 1178-2560	Cost of capital determination for disclosure year 2021 for information disclosure regulation - Electricity distribution businesses and Wellington International Airport [2020] NZCC 11

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Commerce Commission  
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## WACC estimates for Transpower, GPBs (GasNet and Vector) and airports (AIAL and CIAL)<sup>1</sup>

1. This determination specifies weighted average cost of capital (WACC) estimates that will apply for ID regulation for disclosure year 2021 for Transpower, gas pipeline businesses (GPBs) (GasNet and Vector)<sup>2</sup>, and airports (AIAL and CIAL).
2. The timing of our WACC determinations for ID regulation differs depending on the disclosure year of the regulated companies as we are required to make our WACC estimates within 1 month of the start of the disclosure years.<sup>3</sup> The relevant disclosure year for Transpower, GPBs, and airports is 2021.<sup>4</sup> We determine an ID WACC for Wellington Airport in April and for the other GPBs in October due to their different disclosure years.
3. Vanilla and post-tax WACC estimates for Transpower, GPBs and airports are summarised in Table 1, Table 2 and Table 3 below, respectively.

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

	Vanilla WACC	Post-tax WACC
Mid-point	3.55%	3.29%
25 <sup>th</sup> percentile	2.87%	2.61%
67 <sup>th</sup> percentile	3.99%	3.73%
75 <sup>th</sup> percentile	4.23%	3.97%

<sup>1</sup> Unless appears otherwise from the context all references to GPBs in this determination mean GasNet Limited and Vector Limited, and all references to airports mean Auckland International Airport Limited and Christchurch International Airport Limited.

<sup>2</sup> As GasNet and Vector are both suppliers of gas distribution services this determination refers to the relevant clauses of the Gas Distribution Services Input Methodologies Determination 2012 (Consolidated April 2018) available at [https://comcom.govt.nz/\\_\\_data/assets/pdf\\_file/0029/59717/Gas-distribution-services-input-methodologies-determination-2012-consolidated-April-2018-3-April-2018.pdf](https://comcom.govt.nz/__data/assets/pdf_file/0029/59717/Gas-distribution-services-input-methodologies-determination-2012-consolidated-April-2018-3-April-2018.pdf)

<sup>3</sup> A disclosure year is the 12 month period ending on the date specified in an ID determination as the last date in the period to which the annual disclosure by the company relates.

<sup>4</sup> The relevant disclosure years for Transpower, GPBs, and airports therefore run from 1 July 2020 to 30 June 2021-.

**Table 2: Summary of vanilla and post-tax WACC estimates for GPBs (GasNet and Vector)**

	Vanilla WACC	Post-tax WACC
Mid-point	3.90%	3.65%
25 <sup>th</sup> percentile	3.20%	2.94%
67 <sup>th</sup> percentile	4.37%	4.11%
75 <sup>th</sup> percentile	4.61%	4.35%

**Table 3: Summary of vanilla and post-tax WACC estimates for airports (AIAL and CIAL)<sup>5</sup>**

	Vanilla WACC	Post-tax WACC
Mid-point	4.81%	4.71%
Standard error	0.0146	0.0146

4. This determination should be read in conjunction with our guidelines for WACC determinations under the cost of capital input methodologies.<sup>6</sup> The guidelines explain our methodology for calculating WACC estimates, including:
  - 4.1. the formulas used (including for different WACC percentiles);
  - 4.2. the values for WACC parameters which are fixed under the input methodologies; and
  - 4.3. our methodology for determining the risk-free rate and average debt premium.

<sup>5</sup> For airports, we are not required to determine a WACC range or 67<sup>th</sup> percentile estimate.

<sup>6</sup> Commerce Commission “Guidelines for WACC determinations under the cost of capital input methodologies – Regulation under Part 4 of the Commerce Act 1986” (30 April 2018) available at [https://comcom.govt.nz/\\_\\_data/assets/pdf\\_file/0021/91191/Guidelines-for-WACC-determinations-under-the-cost-of-capital-input-methodologies-30-April-2018.PDF](https://comcom.govt.nz/__data/assets/pdf_file/0021/91191/Guidelines-for-WACC-determinations-under-the-cost-of-capital-input-methodologies-30-April-2018.PDF)

## Further details regarding the WACC estimates

### WACC parameter values for Transpower, GPBs and Airports

5. The parameter values used to generate the mid-point WACC estimates for Transpower, GPBs and airports are summarised in Table 4 below.

**Table 4: Values used to calculate WACC estimates for Transpower, GPBs and Airports**

Parameter	Transpower	GPBs (GasNet and Vector)	Airports (AIAL and CIAL)
Risk-free rate	0.43%	0.43%	0.43%
Average debt premium	1.60%	1.58%	1.30%
Leverage	42%	42%	19%
Asset beta	0.35	0.40	0.60
Tax adjusted market risk premium	7.0%	7.0%	7.0%
Average corporate tax rate	28%	28%	28%
Average investor tax rate	28%	28%	28%
Debt issuance costs	0.20%	0.20%	0.20%
Equity beta	0.60	0.69	0.74
Cost of debt	2.23%	2.20%	1.92%
Cost of equity	4.51%	5.14%	5.49%
Standard error of WACC	0.0101	0.0105	0.0146
<b>Mid-point vanilla WACC</b>	<b>3.55%</b>	<b>3.90%</b>	<b>4.81%</b>
<b>Mid-point post-tax WACC</b>	<b>3.29%</b>	<b>3.65%</b>	<b>4.71%</b>

\*The numbers are rounded to two decimal points.

### Risk-free rate for Transpower, GPBs and airports

6. 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. Our estimate of the risk-free rate is based on data reported by Bloomberg for the three month period ending June 2020.
7. 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 0.43% interest rate on New Zealand government bonds with a five year term to maturity, as estimated at 1 July 2020.

### Average debt premium for Transpower

8. The average debt premium for Transpower of 1.60%<sup>7</sup> is the average of the debt premium values for the current debt premium reference year (DPRY) and the four previous DPRYs, as shown in Table 5 below.<sup>8</sup> DPRY 2020 is the current reference year for Transpower.<sup>9</sup>

**Table 5: Average debt premium for Transpower (%)**

	DPRY 2016	DPRY 2017	DPRY 2018	DPRY 2019	DPRY 2020	Average
Debt premium	1.59	1.59	1.63	1.60	1.60	1.60

9. The debt premium values for the 2016 and 2017 DPRYs are set out in clause 2.4.4(4) of the Transpower IM Determination.<sup>10</sup> The debt premium of 1.63% for Transpower’s DPRY 2018 was determined in April 2018.<sup>11</sup> The debt premium of 1.60% for Transpower’s DPRY 2019 was determined in April 2019.<sup>12</sup> We determined a debt premium of 1.60% for DPRY 2020 for the PQR WACC determination in September 2019 applying to Electricity distribution businesses’ 2020-2025 default price-quality paths and Transpower New Zealand Limited’s 2020-2025 individual price-quality.<sup>13</sup> Therefore, we did not need to estimate another debt premium for DPRY 2020 as part of the April determination.

### WACC range and 67th percentile estimate for Transpower

10. In addition to the mid-point estimate, we are also required to determine a WACC range and 67<sup>th</sup> percentile estimate for each Transpower disclosure year.
11. The WACC range means the values falling between the 25<sup>th</sup> percentile and 75<sup>th</sup> percentile, inclusive of the mid-point estimate. The methodology for estimating different

<sup>7</sup> Rounded down from 1.602%.

<sup>8</sup> A debt premium reference year is a 12 month period. The debt premium reference year for Transpower is 1 September to 31 August.

<sup>9</sup> The ‘current debt premium reference year’ refers to the debt premium reference year that contains the start of the relevant disclosure year. Transpower’s debt premium reference year 2020 starts on 1 September 2019 and ends on 31 August 2020.

<sup>10</sup> Transpower Input Methodologies Determination 2010 (Consolidated June 2019) available at [https://comcom.govt.nz/\\_\\_data/assets/pdf\\_file/0020/91181/Transpower-input-methodologies-determination-2010-consolidated-29-January-2020.pdf](https://comcom.govt.nz/__data/assets/pdf_file/0020/91181/Transpower-input-methodologies-determination-2010-consolidated-29-January-2020.pdf)

<sup>11</sup> Cost of capital determination for disclosure year 2019 for information disclosure regulation - Electricity distribution businesses and Wellington International Airport [2018] NZCC 7 (30 April 2018).

<sup>12</sup> Cost of capital determination for disclosure year 2020 for information disclosure regulation - Electricity distribution businesses and Wellington International Airport [2019] NZCC 7 (30 April 2019).

<sup>13</sup> Cost of capital determination for electricity distribution businesses’ 2020-2025 default price-quality paths and Transpower New Zealand Limited’s 2020-2025 individual price-quality path available at: [https://comcom.govt.nz/\\_\\_data/assets/pdf\\_file/0022/177034/2019-NZCC-12-Cost-of-capital-determination-EDBs-and-Transpower-25-September-2019.PDF](https://comcom.govt.nz/__data/assets/pdf_file/0022/177034/2019-NZCC-12-Cost-of-capital-determination-EDBs-and-Transpower-25-September-2019.PDF)

WACC percentile estimates is set out in clause 2.4.5 of the Transpower IM Determination.<sup>14</sup>

### Average debt premium for GPBs (GasNet and Vector)

12. The average debt premium for GPBs of 1.58%<sup>15</sup> is the average of the debt premium values for the current debt premium reference year (DPRY) and the four previous DPRYs, as shown in Table 6 below.<sup>16</sup> DPRY 2021 is the current reference year for GPBs.<sup>17</sup>

**Table 6: Average debt premium for GPBs (%)**

	DPRY 2017	DPRY 2018	DPRY 2019	DPRY 2020	DPRY 2021	Average
Debt premium	1.54	1.65	1.60	1.65	1.45	1.58

13. The debt premium values for the 2017 DPRY is set out in clause 2.4.4(4) of the Gas Distribution Services IM Determination.<sup>18</sup> The debt premium of 1.65% for GPB's DPRY 2018 was determined in July 2017.<sup>19</sup> The debt premium of 1.60% for GPB's DPRY 2019 was determined in July 2018.<sup>20</sup> The debt premium of 1.65% for GPB's DPRY 2020 was determined in July 2019.<sup>21</sup>

14. We have estimated a debt premium of 1.45% for GPB DPRY 2021, based on the data in Table 7 below.

14.1. We have had greatest regard to the category (b) bonds, which support a debt premium of approximately 1.45%. The Genesis (1.57%) and Meridian bond (1.32%) debt premium estimates all match the target credit rating (BBB+) and remaining term to maturity (5 years). Although the Mercury (1.41%) is also in category (b) bonds and rated

<sup>14</sup> The same methodology applies to both vanilla and post-tax WACC estimates. The mid-point estimate of WACC is treated as the 50<sup>th</sup> percentile.

<sup>15</sup> Rounded up from 1.578%.

<sup>16</sup> A debt premium reference year is a 12 month period. The debt premium reference year for GPBs is 1 March to 28 February.

<sup>17</sup> The 'current debt premium reference year' refers to the debt premium reference year that contains the start of the relevant disclosure year. GPBs' debt premium reference year 2021 starts on 1 March 2020 and ends on 28 February 2021.

<sup>18</sup> Gas Distribution Services Input Methodologies Determination 2012 (Consolidated April 2018) available at [https://comcom.govt.nz/\\_\\_data/assets/pdf\\_file/0029/59717/Gas-distribution-services-input-methodologies-determination-2012-consolidated-April-2018-3-April-2018.pdf](https://comcom.govt.nz/__data/assets/pdf_file/0029/59717/Gas-distribution-services-input-methodologies-determination-2012-consolidated-April-2018-3-April-2018.pdf)

<sup>19</sup> Cost of capital determination for disclosure year 2018 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2017] NZCC 19 (31 July 2017)

<sup>20</sup> Cost of capital determination for disclosure year 2019 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2018] NZCC 11 (31 July 2018)

<sup>21</sup> Cost of capital determination for disclosure year 2020 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2019] NZCC 8 (31 July 2019)

BBB+, the remaining term to maturity is 3.5 years so we would expect GPBs to have higher debt premium, which supports an estimate of 1.45%.

14.2. The estimated debt premiums for other issuers in bond categories (c) to (e) are not inconsistent with a debt premium around 1.45%, when consideration is given to the different credit ratings and terms to maturity.

14.3. The Nelson-Siegel-Svensson (NSS) estimate of the debt premium of 1.46% also lends support to our estimate of 1.45%.

### **WACC range and 67th percentile estimate for GPBs**

15. In addition to the mid-point estimate, we are also required to determine a WACC range and 67<sup>th</sup> percentile estimate for each GPB disclosure year.

16. The WACC range means the values falling between the 25<sup>th</sup> percentile and 75<sup>th</sup> percentile, inclusive of the mid-point estimate. The methodology for estimating different WACC percentile estimates is set out in clause 2.4.5 of the Gas Distribution Services IM Determination.<sup>22</sup>

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<sup>22</sup> The same methodology applies to both vanilla and post-tax WACC estimates. The mid-point estimate of WACC is treated as the 50<sup>th</sup> percentile.

**Table 7: Debt premium estimate for GPB DPRY 2021**

			Industry	Rating	Remaining term to maturity	Debt premium	
<b>Determined debt premium</b>			GPB	BBB+	5.0	1.45	
Category	Issuer	Note ref.	Industry	Rating	Remaining term to maturity	Debt premium	Comment
b	GENESIS ENERGY LTD	1	Other	BBB+	5.0	1.57	Credit rating and term are an exact match
b	MERCURY NZ LTD	2	Other	BBB+	3.5	1.41	5 year debt premium would be higher
b	MERIDIAN ENERGY LIMITE	3	Other	BBB+	5.0	1.32	Credit rating and term are an exact match
c	VECTOR LTD	4	EDB/GPB	BBB	5.0	1.69	BBB+ debt premium would be lower
d	AUCKLAND INTL AIRPORT	5	Airport	A-	5.1	1.07	5 year debt premium would be lower
d	CHORUS LTD	6	Other	BBB	5.0	1.37	BBB+ debt premium would be lower
d	CONTACT ENERGY LTD	7	Other	BBB	5.0	1.48	BBB+ debt premium would be lower
d	FONTERRA COOPERATIVE G	8	Other	A-	5.0	1.51	BBB+ debt premium would be higher
d	SPARK FINANCE LTD	9	Other	A-	5.0	1.11	BBB+ debt premium would be higher
d	WELLINGTON INTL AIRPOR	10	Airport	BBB	5.0	1.44	BBB+ debt premium would be lower
e	CHRISTCHURCH INTL AIRP	11	Airport	BBB+	5.0	1.20	Credit rating and term are an exact match
e	TRANSPOWER NEW ZEALAND	12	Other	AA-	5.0	0.87	BBB+ debt premium would be higher
Nelson-Siegel Svensson estimate					5.0	1.46	

**Notes on bonds analysed**

- 1 GENEPO 5.81 03/08/23; GENEPO 5 04/03/25
- 2 MCYNZ 5.793 03/06/23
- 3 MERINZ 4.88 03/20/24; MERINZ 4.53 03/14/23; MERINZ 4.21 06/27/25
- 4 VCTNZ 4.996 03/14/24; VCTNZ 3.45 05/27/25
- 5 AIANZ 3.51 10/10/24
- 6 CNUNZ 4.12 05/06/21; CNUNZ 4.35 12/06/28
- 7 CENNZ 3.55 08/15/24
- 8 FCGNZ 4.42 03/07/23; FCGNZ 5.08 06/19/25
- 9 SPKNZ 3.37 03/07/24; SPKNZ 4.51 03/10/23; SPKNZ 3.94 09/07/26
- 10 WIANZ 5.27 06/11/20; WIANZ 5 06/16/25
- 11 CHRINT 4.13 05/24/24; CHRINT 6 1/4 10/04/21; CHRINT 5.53 04/05/27
- 12 TPNZ 2.73 03/14/24; TPNZ 5.448 03/15/23; TPNZ 3.823 03/06/25

**Average debt premium for Airports (AIAL and CIAL)**

17. The average debt premium for Airports of 1.30%<sup>23</sup> is the average of the debt premium values for the current DPRY and the four previous DPRYs, as shown in Table 8 below.<sup>24</sup> DPRY 2021 is the current reference year for Airports (AIAL and CIAL).<sup>25</sup>
18. The debt premium value for the 2017 DPRY is set out in clause 5.4(4) of the Airport Services IM Determination.<sup>26</sup> The debt premium of 1.35% for Airports' DPRY 2018 was determined in July 2017.<sup>27</sup> The debt premium of 1.15% for Airports' DPRY 2019 was

<sup>23</sup> Rounded down from 1.296%.

<sup>24</sup> A debt premium reference year is a 12 month period. The debt premium reference year for airports is 1 July to 30 June.

<sup>25</sup> The 'current debt premium reference year' refers to the debt premium reference year that contains the start of the relevant disclosure year. The Airports' debt premium reference year 2021 starts on 1 July 2020 and ends on 30 June 2021.

<sup>26</sup> Airport Services Input Methodologies Determination 2010 (Consolidated December 2016) available at [https://comcom.govt.nz/\\_\\_data/assets/pdf\\_file/0019/60553/Airport-Services-Input-Methodologies-Determination-2010-consolidated-as-of-20-December-2016.pdf](https://comcom.govt.nz/__data/assets/pdf_file/0019/60553/Airport-Services-Input-Methodologies-Determination-2010-consolidated-as-of-20-December-2016.pdf)

<sup>27</sup> Cost of capital determination for disclosure year 2018 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2017] NZCC 19 (31 July 2017).

determined in July 2018.<sup>28</sup> The debt premium of 1.30% for Airports' DPRO 2020 was determined in July 2019.<sup>29</sup>

**Table 8: Average debt premium for Airports (%)**

	<b>DPRO</b>	<b>DPRO</b>	<b>DPRO</b>	<b>DPRO</b>	<b>DPRO</b>	<b>Average</b>
	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	
Debt premium	1.38	1.35	1.15	1.30	1.30	1.30

19. We have estimated a debt premium of 1.30%, for Airport DPRO 2021 based on the data in Table 9 below.
20. We have had greatest regard to the category (a) Auckland International Airport bond, which supports a debt premium of 1.30%. The only category (a) bond has a term to maturity just under our target of 5 years (4.8 years term to maturity) so we would expect a slightly higher debt premium if it were 5 years.
21. The category (b) bonds both match the target credit rating (A-) and remaining term to maturity (5 years) and, along with the Nelson-Siegel-Svensson (NSS) estimate of 1.30%, support a higher debt premium than the Auckland Airport bond alone suggests.
22. The estimated debt premiums for other issuers in bond categories (c) to (e) are generally consistent with a higher debt premium, when consideration is given to different credit ratings and terms to maturity. These bonds are less relevant, none of them have both the same credit rating and term to maturity, but they do support a slight uplift to the category (a) bond estimate.

<sup>28</sup> Cost of capital determination for disclosure year 2019 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2018] NZCC 11 (31 July 2018).

<sup>29</sup> Cost of capital determination for disclosure year 2020 for Transpower, gas pipeline businesses and suppliers of specified airport services (with a June year-end) [2019] NZCC 8 (31 July 2019).

**Table 9: Debt premium estimate for Airports (AIAL and CIAL) DPRY 2021<sup>30</sup>**

			Industry	Rating	Remaining term to maturity	Debt premium	
<b>Determined debt premium</b>			Airport	A-	5.0	1.30	
Category	Issuer	Note ref.	Industry	Rating	Remaining term to maturity	Debt premium	Comment
a	AUCKLAND INTL AIRPORT	1	Airport	A-	4.8	1.24	5 year debt premium would be higher
b	FONTERRA COOPERATIVE G	2	Other	A-	5.0	1.59	Credit rating and term are an exact match
b	SPARK FINANCE LTD	3	Other	A-	5.0	1.13	Credit rating and term are an exact match
c	WELLINGTON INTL AIRPOR	4	Airport	BBB	5.5	2.01	A- debt premium would be lower; 5 year debt premium would be lower
d	CHORUS LTD	5	Other	BBB	5.0	1.43	A- debt premium would be lower
d	CONTACT ENERGY LTD	6	Other	BBB	4.6	1.48	A- debt premium would be lower; 5 year debt premium would be higher
d	GENESIS ENERGY LTD	7	Other	BBB+	5.0	1.56	A- debt premium would be lower
d	MERCURY NZ LTD	8	Other	BBB+	3.2	1.42	A- debt premium would be lower; 5 year debt premium would be higher
d	MERIDIAN ENERGY LIMITE	9	Other	BBB+	5.0	1.39	A- debt premium would be lower
d	VECTOR LTD	10	EDB/GPB	BBB	5.0	1.78	A- debt premium would be lower
e	CHRISTCHURCH INTL AIRP	11	Airport	BBB+	5.0	1.57	A- debt premium would be lower
e	TRANSPOWER NEW ZEALAND	12	Other	AA-	5.0	0.88	A- debt premium would be higher
Nelson-Siegel Svensson estimate					5.0	1.30	

**Notes on bonds analysed**

- 1 AIANZ 3.51 10/10/24
- 2 FCGNZ 5.08 06/19/25; FCGNZ 4.42 03/07/23; FCGNZ 4.15 11/14/25
- 3 SPKNZ 3.37 03/07/24; SPKNZ 3.94 09/07/26
- 4 WIANZ 5 06/16/25
- 5 CNUNZ 4.12 05/06/21; CNUNZ 4.35 12/06/28
- 6 CENNZ 3.55 08/15/24
- 7 GENEPO 5 04/03/25
- 8 MCYNZ 5.793 03/06/23
- 9 MERINZ 4.21 06/27/25
- 10 VCTNZ 3.45 05/27/25
- 11 CHRINT 4.13 05/24/24; CHRINT 5.53 04/05/27
- 12 TPNZ 3.823 03/06/25; TPNZ 2.73 03/14/24; TPNZ 1.735 09/04/25

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

23. 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. Figure 1 shows, as at 1 July 2020, changes over time in the:

- 23.1 five year risk-free rate;
- 23.2 debt premium on bonds rated BBB+ with a term of five years;
- 23.3 debt premium on bonds rated A- with a term of five years.

<sup>30</sup> Note that the debt premiums are different to those in Table 7, which is caused by applying a different calculation period for GPBs and for airports.

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

