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Cost of capital determination for information disclosure year 2017 for electricity distribution services and specified airport services (March year-end)

[2016] NZCC 9

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Associated documents

Publication date	Reference	Title
30 April 2015	ISSN 1178-2560	Cost of capital determination for information disclosure year 2016 for specified airport services (March year-end) and electricity distribution services [2015] NZCC 13
30 April 2014	ISBN 978-1-869453-66-4	Cost of capital determination for information disclosure year 2015 for specified airport services (March year-end) and electricity distribution services [2014] NZCC 10
29 April 2013	ISBN 978-1-869453-17-3	Cost of capital determination for information disclosure year 2014 for specified airport services (March year-end) and electricity distribution services [2013] NZCC 10
27 April 2012	ISBN 978-1-869452-00-1	Cost of capital determination for information disclosure year 2013 for specified airport services (March year-end) and electricity distribution services [2012] NZCC 10
27 April 2011	ISBN 978-1-869451-49-3	Determination of the Cost of Capital for Information Disclosure Year 2012 for Airport Services (March year-end) and Electricity Distribution Services Under Part 4 of the Commerce Act 1986, Pursuant to Decisions 709 and 710

Commerce Commission
Wellington, New Zealand

Executive summary

1. This determination specifies weighted average cost of capital (WACC) estimates that will apply for the 2017 information disclosure year (that is, the 12 months to 31 March 2017) for:

   1.1 electricity distribution businesses (EDBs); and

   1.2 providers of specified airport services with a financial year ending in March (Wellington International Airport Limited (WIAL)).

2. Vanilla and post-tax WACC estimates for EDBs, for the five year period commencing on the first day of disclosure year 2017 (ie 1 April 2016), are summarised in Table 1 below.[1]

Table 1: Summary of vanilla and post-tax WACC estimates for EDBs (%)

	Mid-point	25th percentile	67th percentile	75th percentile
Vanilla WACC	5.31	4.59	5.78	6.03
Post-tax WACC	4.77	4.05	5.23	5.48

3. Vanilla and post-tax WACC estimates for WIAL are summarised in Table 2 below.

Table 2: Summary of vanilla and post-tax WACC estimates for WIAL (%)

	Mid-point	25th percentile	75th percentile
Vanilla WACC	6.33	5.35	7.32
Post-tax WACC	6.14	5.16	7.12

4. The WACCs in Table 1 and Table 2 above are estimated as at 1 April 2016.

[1] 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.

Introduction

5. This determination specifies WACC estimates that will apply to EDBs and providers of specified airport services with a financial year ending in March (WIAL) for information disclosure year 2017 (that is, the 12 months to 31 March 2017).

6. The WACC estimates are set pursuant to:

   6.1 clauses 2.4.1 to 2.4.7 of the Electricity Distribution Services Input Methodologies Determination 2012 (the EDS IM Determination);[2] and

   6.2 clauses 5.1 to 5.7 of the Specified Airports Services Input Methodologies Determination 2010 (the Airports IM Determination).[3]

7. We have estimated both vanilla and post-tax WACCs.

8. The parameter values, estimates and information sources used for each WACC estimate are set out in this determination. Additional commentary on the estimation of the risk-free rate and the debt premium is also provided.

9. A spreadsheet showing the calculations for the WACC estimates, debt premium and risk free rate has been published on our website.[4]

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

3 *Commerce Act (Specified Airports Services Input Methodologies) Determination 2010* [2010] NZCC 709, as subsequently amended.

4 See www.comcom.govt.nz/cost-of-capital. This spreadsheet includes calculations for the WACC estimates and risk-free rate.

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.[5]

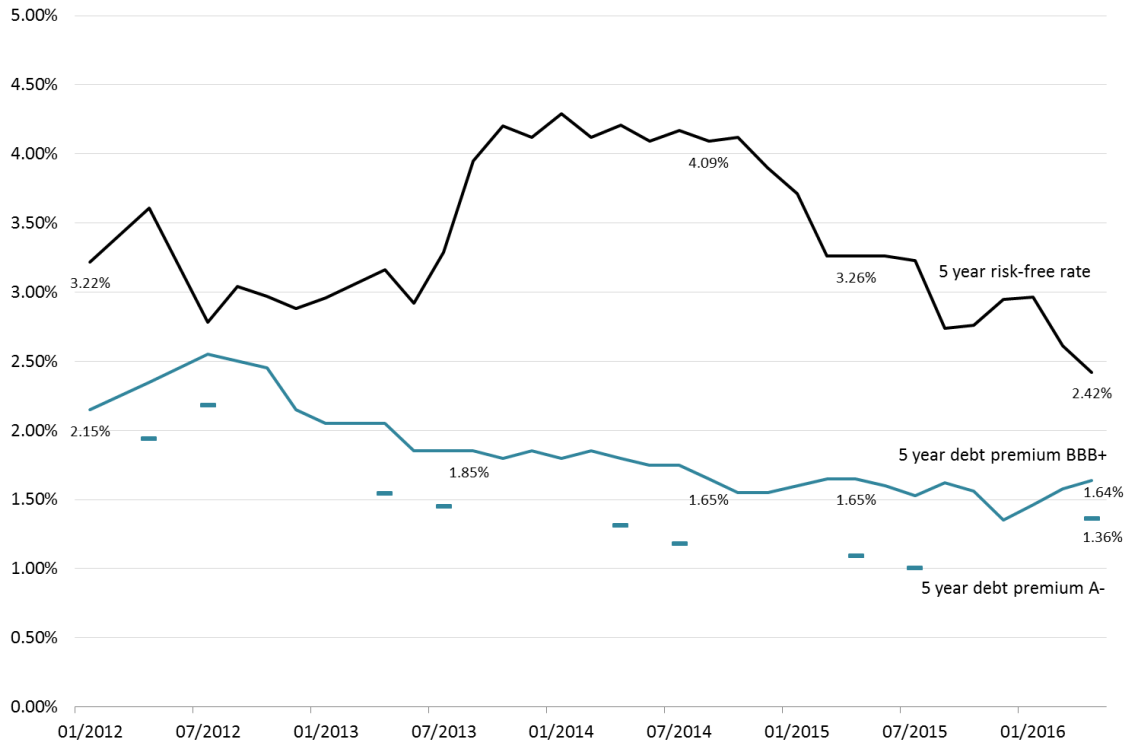
11. Changes in the risk-free rate and debt premium on bonds are illustrated below. Figure 1 shows, as at 1 April 2016, changes over time in the:

    11.1 five year risk-free rate;

    11.2 debt premium on bonds rated BBB+ with a term of five years;

    11.3 debt premium on bonds rated A- with a term of five years.

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



[5] 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 input methodologies determinations.

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;[6]

    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%).

[6] 67th percentile WACC estimates are used for the purposes of price-quality paths, while a mid-point and range is determined for information disclosure.

WACC for EDB information disclosure year 2017

13. Under clause 2.4.1 of the EDS IM Determination, we have determined (as at 1 April 2016) the following vanilla and post-tax WACCs for EDB information year 2017 outlined in Table 3.

Table 3: Determined vanilla and post-tax WACC estimates for EDBs 2017 ID (%)

	Mid-point	25th percentile	67th percentile	75th percentile
Vanilla WACC	5.31	4.59	5.78	6.03
Post-tax WACC	4.77	4.05	5.23	5.48

Parameters used to estimate the WACC for EDBs

14. The above estimates of vanilla and post-tax WACC reflect the parameters specified in the EDS IM Determination. The risk-free rate and debt premium are also estimated in accordance with the EDS IM Determination.

Summary of parameters

15. The parameters used to estimate the vanilla and post-tax WACCs for EDB information disclosure year 2017 are summarised in Table 4 below.

Table 4: Parameters used to calculate vanilla and post-tax WACC for EDBs

Parameter	5 year estimate
Risk-free rate	2.42%
Debt premium	1.64%
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	4.41%
Cost of equity	6.02%
Standard error of debt premium	0.0015
Standard error of WACC	0.011
Mid-point vanilla WACC	5.31%
Mid-point post-tax WACC	4.77%

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.

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 March 2016 in respect of the April 2020 and May 2021 maturity bonds. The April 2020 and May 2021 bonds have simple average annualised bid yields to maturity of 2.33% and 2.44% 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 the estimate of a 2.42% interest rate on New Zealand government bonds with a five year term maturity as at 1 April 2016.

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 the EDS IM Determination, and is shown to three decimal places only in Table 4 above.

Debt premium

20. The methodology for determining the debt premium is set out in clause 2.4.4 of the EDS IM Determination.

21. The Commerce Commission is required to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ$ denominated bond that:[7]

    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.

[7] Clause 2.4.4(3)(d) of the EDS IM Determination.

22. In estimating the debt premium, the Commission will have regard to:[8]

    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 2.4.4(5)(a) provides that in estimating the debt premium, less reliance is generally placed on the bonds outlined above in the order that they are identified in clauses 2.4.4(4)(a) to (e).

24. Table 5 below shows the debt premium we have determined as at 1 April 2016. This table includes 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 is published on our website.[9]

[8] Clause 2.4.4(4) of the EDS IM Determination.

[9] See www.comcom.govt.nz/cost-of-capital. The spreadsheet includes calculations for the WACC estimates and risk-free rate.

Table 5: Debt premium on an EDB/GPB-issued bond rated BBB+ with a remaining term to maturity of five years, as at 1 April 2016[10]

			Industry	Rating	Remaining term to maturity	Debt premium	Comment
Determined debt premium			EDB/GPB	BBB+	5.0	1.64	Regard to results 4(b) 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+	5.0	1.64	Credit rating and term are an exact match
4(c)	-		-	-	-	-	No data on applicable bonds
4(d)	Spark	2	Other	A-	5.0	1.42	BBB+ debt premium would be higher
	AIAL	3	Other	A-	5.0	1.33	BBB+ debt premium would be higher
	Contact	4	Other	BBB	5.0	1.89	BBB+ debt premium would be lower
	Fonterra	5	Other	A-	5.0	1.61	BBB+ debt premium would be higher
4(e)	Meridian	6	Other	BBB+	5.0	1.93	
	Genesis Energy	7	Other	BBB+	5.0	1.61	
	MRP	8	Other	BBB+	5.0	1.74	
	CIAL	9	Other	BBB+	5.0	1.60	
	Transpower	10	Other	AA-	5.0	1.15	

Notes on bonds analysed:

1 WIAL 5.27% bond maturing 11/06/2020; 6.25% bond maturing 15/05/2021.
2 Spark 5.25% bond maturing 25/10/2019; 4.5% bond maturing 25/03/2022.
3 AIAL 4.73% bond maturing 13/12/2019; 5.52% bond maturing 28/05/2021.
4 Contact Energy 5.28% bond maturing 27/05/2020; 4.40% bond maturing 15/11/2021.
5 Fonterra 5.52% bond maturing 25/02/2020; 4.33% bond maturing 20/10/2021.
6 Meridian 7.55% bond maturing 16/03/2017; 4.53% bond maturing 14/03/2023.
7 Genesis Energy 8.3% bond maturing 23/06/2020; 4.14% bond maturing 18/03/2022.
8 MRP 8.21% bond maturing 11/02/2020; 5.79% bond maturing 6/03/2023.
9 CIAL 5.15% bond maturing 6/12/2019; 6.25% bond maturing 4/10/2021.
10 Transpower 6.95% bond maturing 10/06/2020; 4.3% bond maturing 30/06/2022.

26. As at 1 April 2016, the debt premium on the WIAL bonds was estimated at 1.64% with a remaining term to maturity of 5 years. These bonds are issued by an entity other than an EDB/GPB but are publicly traded and have a rating of BBB+. As the credit rating and remaining term to maturity is an exact match,[11] we consider 1.64% to be an appropriate starting point for estimating the debt premium.[12]

27. We also had regard to the estimated debt premium on bonds from a range of other issuers. Those bonds outlined under 4(d) in Table 5 above are issuers that are not majority government owned with a rating other than BBB+. Although consistent

[10] The five-year debt premiums on the WIAL, Spark, AIAL, Contact Energy, Fonterra, Genesis Energy, MRP, CIAL and Transpower bonds are calculated by linear interpolation with respect to maturity.
[11] In line with the requirements of clause 5.3.25(3)(d) of the EDS IM Determination.
[12] Consistent with clauses 2.4.4(4) and 2.4.4(5)(a) of the EDS IM Determination.

with the starting point of 1.64%, these debt premiums were given less weight as the issuers are not EDBs or GPBs.[13] The debt issues also have different credit ratings than the BBB+ rating.[14]

28. The bonds listed under 4(e) of Table 5 above are majority government owned issuer bonds that were given less weight in the estimate of the debt premium. Consistent with clause 2.4.4(5)(a), these debt premiums were given the least weight as the issuers are majority government owned. Even so, we consider that the premium on these bonds generally supports the view that the estimate of the debt premium should be around 1.64.

29. Placing primary weight on the estimated debt premium on the WIAL bond, but considering 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 1.64% as at 1 April 2016.

[13] Consistent with clause 2.4.4(5)(a) of EDS IM Determination.

[14] Specified in clause 2.4.4(3)(d) of EDS IM Determination. Telstra is not included in category 4(d) of Table 5 because it is not a New Zealand resident limited liability company (as required by the definition of "qualifying issuer" in the EDS IM Determination).

WACC for WIAL information disclosure year 2017

30. Under clause 5.1 of the Airports IM Determination, we have determined the following vanilla and post-tax WACCs for WIAL's 2017 information disclosure year.

Table 6: Determined vanilla and post-tax WACC estimates for WIAL 2017 ID (%)[15]

	Mid-point	25th percentile	75th percentile
Vanilla WACC	6.33	5.35	7.32
Post-tax WACC	6.14	5.16	7.12

Parameters used to estimate the WACC for WIAL

31. The above estimates of vanilla and post-tax WACC reflect the parameters specified in the Airports IM Determination. The risk-free rate and debt premium are also estimated in accordance with the Airports IM Determination.

Summary of parameters

32. The parameters used to estimate the vanilla and post-tax WACCs for WIAL information disclosure year 2017 are summarised in Table 7 below.

[15] Under clause 5.7 of the EDS IM Determination.

Table 7: Parameters used to calculate vanilla and post-tax WACC for WIAL

Parameter	5 year estimate
Risk-free rate	2.42%
Debt premium	1.36%
Leverage	17%
Equity beta	0.72
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	4.13%
Cost of equity	6.79%
Standard error of debt premium	0.0015
Standard error of WACC	0.015
Mid-point vanilla WACC	6.33%
Mid-point post-tax WACC	6.14%

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.

Risk-free rate

33. 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 March 2016 in respect of the April 2020 and May 2021 maturity bonds. These bonds have simple average annualised bid yields to maturity of 2.33% and 2.44% respectively.

34. 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 the estimate of a 2.42% interest rate on New Zealand government bond with a five year term maturity as at 1 April 2016.

Tax rates

35. 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

36. The standard error of the WACC is determined in accordance with the formula in the Airports IM Determination, and is shown to three decimal places only in Table 7 above.

Debt premium

37. The methodology for determining the debt premium is set out in clause 5.4 of the Airports IM Determination.

38. The Commission is required to estimate the debt premium that would reasonably be expected to apply to a vanilla NZ$ denominated bond that:[16]

    38.1 is issued by an airport that is neither majority owned by the Crown nor a local authority;

    38.2 is publicly traded;

    38.3 has a qualifying rating of grade A-; and

    38.4 has a remaining term to maturity of five years.

39. In estimating the debt premium, the Commission will consider:[17]

    39.1 bonds issued by an airport (that is neither majority owned by the Crown nor a local authority) with a rating of A-;

    39.2 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating of A-;

    39.3 bonds issued by an airport (that is neither majority owned by the Crown nor a local authority) with a rating other than A-;

    39.4 bonds issued by another entity (that is neither majority owned by the Crown nor a local authority) with a rating other than A-; and

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

[16] Clause 5.4(3)(d) of Airports IM Determination.

[17] Clause 5.4(4) of the Airports IM Determination.

40. 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).

41. Table 8 below shows the debt premium we have determined as at 1 April 2016. This table includes a summary of information on the investment grade rated bonds we considered in determining the debt premium.

42. A spreadsheet showing the calculations for the debt premium (and the risk-free rate) is published on our website.[18]

Table 8: Five year debt premium on an Airport-issued bond rated A- with a remaining term to maturity of five years, as at 1 April 2016[19]

	Industry	Rating	Remaining term to Maturity	Debt premium	Comment
Determined debt premium	Airport	A-	5.0	1.36	AIAL is an exact match. Regard to results of 4(b), 4(c), 4(d) and 4(e).

Subclause	Issuer	Note ref.	Industry	Rating	Remaining term to Maturity	Debt premium	Comment
4(a)	AIAL	1	Airport	A-	5.0	1.33	Linearly interpolated debt premium for AIAL is an exact match
4(b)	Spark	2	Other	A-	5.0	1.42	See paragraph 47
4(c)	WIAL	3	Airport	BBB+	5.0	1.64	A- debt premium would be lower
4(d)	Contact	4	Other	BBB	5.0	1.89	A- debt premium would be significantly lower
	Fonterra	5	Other	A-	5.0	1.61	
4(e)	Meridian	6	Other	BBB+	5.0	1.93	
	Genesis Energy	7	Other	BBB+	5.0	1.61	
	MRP	8	Other	BBB+	5.0	1.74	
	CIAL	9	Airport	BBB+	5.0	1.60	
	Transpower	10	Other	AA-	5.0	1.15	

Notes on bonds analysed:

1 AIAL 4.73% bond maturing 13/12/2019; 5.52% bond maturing 28/05/2021.
2 Spark 5.25% bond maturing 25/10/2019; 4.5% bond maturing 25/03/2022.
3 WIAL 5.27% bond maturing 11/06/2020; 6.25% bond maturing 15/05/2021.
4 Contact Energy 5.28% bond maturing 27/05/2020; 4.40% bond maturing 15/11/2021.
5 Fonterra 5.52% bond maturing 25/02/2020; 4.33% bond maturing 20/10/2021.
6 Meridian 7.55% bond maturing 16/03/2017; 4.53% bond maturing 14/03/2023.
7 Genesis Energy 8.3% bond maturing 23/06/2020; 4.14% bond maturing 18/03/2022.
8 MRP 8.21% bond maturing 11/02/2020; 5.79% bond maturing 6/03/2023.
9 CIAL 5.15% bond maturing 6/12/2019; 6.25% bond maturing 4/10/2021.
10 Transpower 6.95% bond maturing 10/06/2020; 4.3% bond maturing 30/06/2022.

18 See www.comcom.govt.nz/cost-of-capital

19 The five-year debt premiums on the AIAL, Spark, Contact Energy, Fonterra, Genesis Energy, MRP, CIAL and Transpower bonds are calculated by linear interpolation with respect to maturity.

43. We have placed higher reliance on the estimated debt premium on the AIAL bonds due to the AIAL bonds being an exact match.[20] These bonds are issued by an airport, are publicly traded, are rated A- and have a debt premium of 1.33% when linearly-interpolated to give a remaining term to maturity of five years.

44. We have also considered the estimated 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, generally, not inconsistent with the debt premium on the AIAL bonds when consideration is given to different credit ratings and terms to maturity.

45. The yield on the Spark bonds (1.42%, rated A-, 5 year term to maturity) is higher than the yield on the AIAL bonds. Both the Spark and Fonterra bonds (which matches the AIAL bonds' rating and term to maturity) support a debt premium greater than 1.33%, we have therefore considered these (to a lesser extent than the AIAL bonds) in the determining of the debt premium. [21] Accordingly, we have determined the debt premium on airport-issued bonds rated A- with a remaining term to maturity of five years to be 1.36% as at 1 April 2016.

[20] Consistent with clauses 5.4(4) and 5.4(5)(a) of the Airports IM Determination.

[21] Consistent with the ordering of the bonds in clause 5.4(4) of the Airports IM Determination.