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Ross Stottelaar
Analyst, System Capacity
Independent Market Operator
Level 17, Governor Stirling Tower
197 St Georges Terrace
Perth WA 6000

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Dear Ross

Estimated debt risk premium using the ERA's "bond yield" methodology

The Independent Market Operator (IMO) engaged PricewaterhouseCoopers (PwC) to advise the debt risk premium (DRP)[1] that would be derived by applying the Economic Regulation Authority of Western Australia's (ERA) "bond yield" methodology. The estimate of the DRP will be used in conjunction with various other parameters to estimate a Weighted Average Cost of Capital (WACC), a necessary input into determining the 2016 Maximum Reserve Capacity Price (MRCP). The IMO requested for the DRP to be estimated over the 20 business days ending on and including 29 September 2015 (the First Period) and 13 November 2015 (the Second Period). This letter provides the estimates of the DRP for both the First Period and the Second Period.

As instructed by you, we have applied the ERA's "bond yield" methodology that was set out in the ERA's 2013 Gas Rate of Return guidelines[2]. Consistent with our previous reports we have departed from the ERA's "bond yield" methodology, and only considered corporate bonds with a Standard and Poor's credit rating of BBB. A more detailed explanation of the ERA's "bond yield" methodology and the results obtained by applying its methodology can be found in Appendix A.

This advice is provided pursuant to the scope and terms set out in our engagement letter dated 28 August 2015.

[1] For the avoidance of doubt the estimated DRP reflects only the risk margin attributable to debt financing, and not other debt related costs such as financing, arrangement and underwriting fees.
[2] ERA, *Rate of Return Guidelines - Meeting the requirements of the National Gas Rules*, 16 December 2013

Results

As shown in Table 1 below, we have derived a debt risk premium of 199.3 and 236.3 basis points from for the First and Second period respectively. These estimates were derived from applying the ERA's "bond yield" methodology to estimating a DRP, though restricting the sample of bonds to only those with a Standard and Poor's credit rating of BBB.

The ERA's 'bond yield' methodology for regulated gas businesses, from its 2013 Gas Rate of Return guidelines, uses a sample of bonds with a credit rating of between BBB- and BBB+. As part of the ERA's investigation into a WACC for regulated gas businesses, it found that Australian gas businesses had a credit rating that lied within the BBB credit rating band.[3][4]

The IMO, in contrast to WA's regulated gas businesses and in accordance with its MRCP market procedures, can only consider corporate bonds with a BBB credit rating.[5] After applying the ERA's 'bond yield' methodology to select a sample of relevant BBB rated corporate bonds, we arrived at a sample of 18 bonds for the First and Second period. [6]

Table 1 – Summary of debt risk premium estimates using the ERA's "bond yield" methodology, restricted to bonds with a BBB credit rating (basis points)

	Average term to maturity	Average debt risk premium	Weighted average debt risk premium
20 business days to 29 September 2015	4.89	186.7	199.3
20 business days to 13 November 2015	4.76	212.1	236.3

Source: PwC's analysis of the ERA's bond yield methodology, Bloomberg

The 37 basis point increase in the debt risk premium is primarily due to an increase in the debt risk premium of a bond issued by Glencore. Although the lower average term to maturity in the Second Period has led to a reduction in debt risk premiums for other bonds, this was more than offset by a 441 basis point increase to the Glencore bond in the sample of bonds.[7]

We note that the average term to maturity are approximately 4.89 and 4.76 years, which is lower than IMO's target 10 year benchmark term to maturity. In general, and assuming all else remains constant, bonds with lower terms to maturity are expected to have lower debt risk premiums compared with those of greater maturity. Given that the IMO is seeking a 10 year debt risk premium, our weighted

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3 ERA, *Rate of Return Guidelines - Meeting the requirements of the National Gas Rules*, 16 December 2013

4 BBB credit rating band refers to a credit rating of BBB-, BBB and BBB+

5 IMO, *Market Procedure: Maximum Reserve Capacity Price*, version 6

6 Although the initial sample of bonds was 30 bonds, the actual bond sample size was 18. 10 bonds could not be used because Bloomberg did not report yields for them, and consequently a debt risk premium could not be estimated. 2 bonds were excluded because, as inflation indexed bonds, they are not actively traded in financial markets making the reported yield unrepresentative.

7 If the Glencore bond was to be excluded from the bond sample, the re-calculated debt risk premium would be equal to 195.1. We note that the Glencore bond still met all of the relevant criteria for inclusion in the bond sample at the time of writing.

average debt risk premium of 199.3 and 236.3 basis points is likely to be an under-estimate, all other factors held constant.

If you wish to discuss further the derivation of these estimates, please do not hesitate to call me on the number provided below.

Yours sincerely,

Craig Fenton, Partner
craig.fenton@au.pwc.com
T: +61 (7) 3257 8851
F: +61 (7) 3031 9400

Appendix A – ERA's "bond yield" debt risk premium methodology

The ERA's debt risk premium methodology involves a two step process.

First, the ERA establishes a benchmark sample of Australian corporate bonds. Using the Bloomberg search function, it involves selecting bonds that meet the following criteria:

- The appropriate Standard and Poor's credit rating [8]
- Term to maturity of 2 years and greater
- Bonds issued in Australia by Australian entities and denominated in Australian dollars
- Fixed and floating coupon bonds
- Bonds that are redeemed at maturity or have call or put options attached, and
- There are at least 10 yield observations over the required averaging period.

The IMO's requirements to estimate a MRCP specify that a 20 business day averaging period should be used. In addition, the application of this method also limits the sample to those bonds that have yields reported by Bloomberg.

The ERA's second step involves estimating a weighted average debt risk premium for the sample of bonds described above. Two weighting variables are used and combined:

- The size of issuance, which provides greater weight to bonds that are part of a larger issue, reflecting the ERA's expectation that larger issues will be more liquid, and therefore the ERA expects the yield estimate to be more reliable.
- The term of issuance, which provides greater weight to bonds with longer terms to maturity.

Each bond's combined weight is then calculated as the bond's size of issuance weight multiplied by its term of issuance weight (which is called the 'individual contribution'), which are then divided by the sum of the individual contributions to derive weights that sum to one.

The results from applying the ERA's debt risk premium methodology, restricted to only bonds with an S&P credit rating of BBB, are shown in Table 2.

[8] The ERA's final decision for ATCO used a sample of BBB-, BBB and BBB+ bonds, however the revised final decision restricted the sample to only BBB and BBB+ bonds pursuant to the Australian Competition Tribunal decision. However, we have been instructed to strictly use bonds with an S&P rating of BBB.

Table 2 – Debt risk premium estimates applying the ERA's "bond yield" methodology for 20 business days to 29 September 2015 (2 year cut-off and BBB bonds)

Bond name	S&P Credit rating	Issue size ($m)	Maturity date	Term to maturity	Weighting	DRP (bps)	Contributed DRP (bps)
AGL ENERGY LTD	BBB	600	5/11/2021	6.20	14%	204	29
APT PIPELINES	BBB	300	22/07/2020	4.90	6%	176	10
ASCIANO FINANCE LTD	BBB	350	19/05/2025	9.72	13%	239	31
BRISBANE AIRPORT	BBB	350	21/10/2020	5.15	7%	163	11
BRISBANE AIRPORT	BBB	200	9/07/2019	3.87	3%	149	4
CROWN GROUP	BBB	450	18/11/2019	4.22	7%	217	16
GLENCORE AUST	BBB	500	19/09/2019	4.07	8%	289	22
GLOBAL SWITCH PROP	BBB	100	23/12/2020	5.32	2%	182	4
GAIF BOND ISSUER P/L	BBB	200	20/03/2018	2.57	2%	166	3
HOLCIM FINANCE	BBB	250	19/03/2020	4.57	4%	165	7
HOLCIM FINANCE	BBB	200	4/04/2019	3.60	3%	159	4
INCITEC PIVOT LTD	BBB	200	21/02/2019	3.50	3%	211	6
PERTH AIRPORT	BBB	400	25/03/2021	5.59	9%	179	15
PERTH AIRPORT	BBB	150	23/07/2020	4.90	3%	167	5
QPH FINANCE	BBB	200	7/07/2021	5.87	4%	173	8
QPH FINANCE	BBB	300	29/07/2020	4.92	6%	164	9
SUN GROUP FINANCE	BBB	250	8/12/2021	6.29	6%	211	13
SYDNEY AIRPORT	BBB	100	6/07/2018	2.86	1%	144	2
Simple average				**4.89**		**186.7**	
Weighted average							**199.3**

Source: PwC's analysis of the ERA's debt yield methodology, Bloomberg

Table 3 – Debt risk premium estimates applying the ERA's "bond yield" methodology for 20 business days to 13 November 2015 (2 year cut-off and BBB bonds)

Bond name	S&P Credit rating	Issue size ($m)	Maturity date	Term to maturity	Weighting	DRP (bps)	Contributed DRP (bps)
AGL ENERGY LTD	BBB	600	5/11/2021	6.07	14%	203	29
APT PIPELINES	BBB	300	22/07/2020	4.78	6%	172	10
ASCIANO FINANCE LTD	BBB	350	19/05/2025	9.60	13%	254	33
BRISBANE AIRPORT	BBB	350	21/10/2020	5.02	7%	164	11
BRISBANE AIRPORT	BBB	200	9/07/2019	3.73	3%	146	4
CROWN GROUP	BBB	450	18/11/2019	4.10	7%	224	16
GLENCORE AUST	BBB	500	19/09/2019	3.93	8%	730	56
GLOBAL SWITCH PROP	BBB	100	23/12/2020	5.20	2%	190	4
GAIF BOND ISSUER P/L	BBB	200	20/03/2018	2.43	2%	161	3
HOLCIM FINANCE	BBB	250	19/03/2020	4.43	4%	160	7
HOLCIM FINANCE	BBB	200	4/04/2019	3.48	3%	156	4
INCITEC PIVOT LTD	BBB	200	21/02/2019	3.36	3%	207	5
PERTH AIRPORT	BBB	400	25/03/2021	5.45	9%	193	17
PERTH AIRPORT	BBB	150	23/07/2020	4.79	3%	172	5
QPH FINANCE	BBB	200	7/07/2021	5.73	4%	169	8
QPH FINANCE	BBB	300	29/07/2020	4.80	6%	161	9
SUN GROUP FINANCE	BBB	250	8/12/2021	6.16	6%	219	13
SYDNEY AIRPORT	BBB	100	6/07/2018	2.73	1%	137	1
Simple average				**4.76**		**212.1**	
Weighted average							**236.3**

Source: PwC's analysis of the ERA's debt yield methodology, Bloomberg