



Rebecca Petchey
Analyst, System Capacity
Independent Market Operator
Level 3, 197 St Georges Terrace
PERTH WA 6000

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Dear Rebecca

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 2015 Maximum Reserve Capacity Price (MRCP) for the 2017/18 capacity year. The IMO requested for the DRP to be estimated over the 20 business days ending on and including 30 September 2014 (the First Period) and 14 November 2013 (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 guidelines². You have also instructed us to depart from the ERA's "bond yield" methodology, and only consider corporate bonds with a Standard and Poor's credit rating of BBB instead of BBB-, BBB and 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 15 August 2014.

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 DRP of 156.5 and 167.7 basis points 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.³⁴

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 two samples of 17 bonds.^{6 7}

Table 1 – Summary of DRP estimates using the ERA’s “bond yield” methodology, restricted to bonds with a BBB credit rating (basis points)

Averaging period	Average term to maturity	Average DRP	Weighted average DRP
20 business days to 30 September 2014	4.74	158.6	156.5
20 business days to 14 November 2014	4.91	163.7	167.7

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

The 11 basis point increase in the DRP is likely due to two factors. First, including more bonds with relatively higher term to maturity, observed by the increase in the average term to maturity, is likely to increase the estimated DRP consistent with corporate finance theory. Second, there may have been an overall shift in the yields for BBB rated bonds in the financial markets.

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

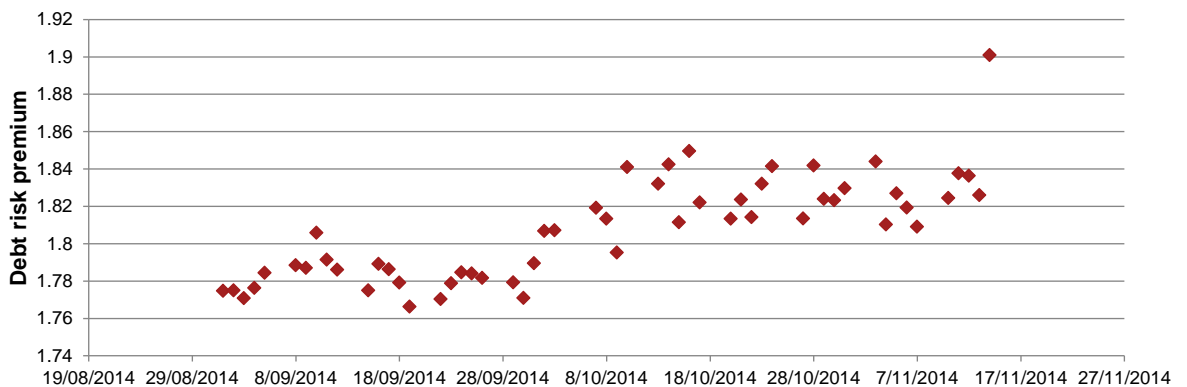
⁶ In the First Period, although the initial sample of bonds was 28 bonds, the actual bond sample size was 17. 9 bonds could not be used because Bloomberg did not report yields for them, and consequently a DRP could not be estimated. 1 bond was excluded because, as an inflation indexed bond, it is not actively traded in financial markets making the reported yield unrepresentative. 1 bond was excluded because a risk free rate could not be estimated that matched the term to maturity of that bond, and as a result a DRP could not be estimated.

⁷ In the Second Period, from an initial sample of 27 bonds only 17 were used. 8 bonds could not be used because Bloomberg did not report yields for them, and consequently a DRP could not be estimated. 1 bond was excluded because, as an inflation indexed bond, it is not actively traded in financial markets making the reported yield unrepresentative. 1 bond was excluded because a risk free rate could not be estimated that matched the term to maturity of that bond, and as a result a DRP could not be estimated.



Observing DRPs estimated using Bloomberg's BBB five year fair value curve, as shown in Figure 1 below, we found that the increase in the DRP from September to November corroborates with an overall increase for BBB rated bonds. An increase in the DRP using Bloomberg's BBB fair value curve implies that there has been an overall increase for BBB rated corporate bonds.⁸

Figure 1 – Daily observations on the DRP estimated using Bloomberg's BBB 5 year fair value yield.



Source: Bloomberg, RBA, PwC's analysis

We note that the average terms to maturity are approximately 4.74 and 4.91 years, which are 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 DRPs compared with those of greater maturity. Given that IMO's seeks a 10 year DRP, our weighted average DRP of 156.5 and 167.7 basis points are likely to be an under-estimate.

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
T: +61 (7) 3257 8851
F: +61 (7) 3031 9400

⁸ Bloomberg, a financial data service provider, publishes benchmark yields for corporate bonds at specific credit ratings. The Australian five year BBB yield represents the yield to maturity for a corporate bond if a benchmark Australian business with a BBB credit rating were to issue corporate bonds.



Appendix A – ERA’s “bond yield” DRP methodology

The ERA’s DRP 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 ⁹
- 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 DRP 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 1.

The results from applying the ERA’s DRP methodology, restricted to only bonds with an S&P credit rating of BBB, are shown in Table 2 and Table 3 below.

⁹ 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 – DRP estimates applying the ERA’s “bond yield” methodology for 20 business days to 30 September 2014 (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)
APT Pipelines	BBB	300	22/07/2020	5.90	9%	183	16
Brisbane Airport Corp	BBB	200	9/07/2019	4.87	5%	134	6
Brisbane Airport Corp	BBB	350	21/10/2020	6.15	11%	142	15
Crown Group Finance	BBB	300	18/07/2017	2.90	4%	136	6
Glencore Australia	BBB	500	19/09/2019	5.06	13%	159	20
Global Switch Property	BBB	100	23/12/2020	6.31	3%	185	6
Goodman Australia	BBB	200	20/03/2018	3.56	4%	165	6
Holcim Finance	BBB	250	18/07/2017	2.90	4%	141	5
Holcim Finance	BBB	200	4/04/2019	4.60	5%	163	7
Incitec Pivot	BBB	200	21/02/2019	4.49	4%	196	9
New Terminal Financing Co	BBB	100	20/09/2016	2.07	1%	186	2
Perth Airport	BBB	150	23/07/2020	5.90	4%	142	6
Perth Airport	BBB	400	25/03/2021	6.58	13%	147	19
QPH Finance	BBB	300	29/07/2020	5.91	9%	152	13
QPH Finance	BBB	200	7/07/2021	6.86	7%	161	11
Sydney Airport Finance Co	BBB	100	6/07/2018	3.86	2%	146	3
United Energy Distribution	BBB	265	11/04/2017	2.61	3%	158	5
Simple average				4.74		158.6	
Weighted average							156.5

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



Table 3 – DRP estimates applying the ERA’s “bond yield” methodology for 20 business days to 14 November 2014 (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	BBB	600	5/11/2021	7.07	18%	198	36
APT Pipelines	BBB	300	22/07/2020	5.78	7%	185	14
Brisbane Airport Corp	BBB	350	21/10/2020	6.01	9%	149	13
Brisbane Airport Corp	BBB	200	9/07/2019	4.73	4%	141	6
Crown Group Finance	BBB	300	18/07/2017	2.76	4%	143	5
Goodman Australia	BBB	200	20/03/2018	3.43	3%	170	5
Glencore Australia	BBB	500	19/09/2019	4.93	10%	165	17
Global Switch Property	BBB	100	23/12/2020	6.20	3%	184	5
Holcim Finance	BBB	200	4/04/2019	4.48	4%	164	6
Holcim Finance	BBB	250	18/07/2017	2.76	3%	147	4
Incitec Pivot	BBB	200	21/02/2019	4.36	4%	200	7
QPH Finance	BBB	200	7/07/2021	6.73	6%	165	9
QPH Finance	BBB	300	29/07/2020	5.80	7%	156	11
Sydney Airport Finance Co	BBB	100	6/07/2018	3.72	2%	152	2
United Energy Distribution	BBB	265	11/04/2017	2.50	3%	166	5
Perth Airport	BBB	400	25/03/2021	6.45	11%	152	17
Perth Airport	BBB	150	23/07/2020	5.78	4%	146	5
Simple average				4.91		163.7	
Weighted average							167.7

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