



Neetika Kapani  
Senior Analyst, System Capacity  
Independent Market Operator  
Level 3, 197 St Georges Terrace  
PERTH WA 6000

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Dear Neetika

### **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)<sup>1</sup> 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 2014 Maximum Reserve Capacity Price (MRCP). The IMO requested the estimate of the DRP be over the 20 business days ending on and including 30 September 2013 (the First period) and 29 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 methodology that is set out in the ERA's final decision for WA Gas Networks Pty Ltd (ATCO) and the ERA's revised final decision for ATCO, and more recently in the ERA's 2012 revised decision on the proposed access arrangement revisions for the Dampier to Bunbury Natural Gas Pipeline (DBNGP). You also have instructed us to depart from the ERA's methodology in only analysing corporate bonds with a Standard and Poor's credit rating of BBB, instead of corporate bonds with a credit rating of either BBB or BBB+.

We have not commented upon the effect of other modest improvements to the ERA method (such as expanding the data source to include bonds other than those available from Bloomberg) nor more generally upon the relative merits of the ERA's method. A more detailed explanation of the ERA 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 2013.

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<sup>1</sup> 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.



**Results**

*Sample of bonds*

In the ATCO case, and in the DBNGP 2012 revised decision identified above, the ERA chose a sample of bonds with BBB and BBB+ credit ratings because it allowed for a greater sample of bonds. Although the ERA adopted a credit rating of BBB+, it wanted to ensure there were sufficient corporate bonds to estimate a DRP.

In contrast, the IMO is targeting a BBB credit rating, and accordingly is seeking to only analyse corporate bonds with a BBB credit rating. Applying the ERA’s approach to selecting the relevant bond sample, we arrive at a population of 15 BBB rated corporate bonds.

*Estimates and commentary*

As shown in Table 1 below, we have derived a debt risk premium of 222 and 203 basis points for the First and Second period respectively, after applying the ERA methodology to estimate a DRP and restricting the sample of bonds to only those with a Standard and Poor’s credit rating of BBB.<sup>2</sup> The primary reason why the debt risk premium dropped in the Second period compared with the First is that the risk free rate has been rising without an equal or greater increase in the cost of debt in the intervening period

**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)**

<b>Averaging period</b>	<b>Average term to maturity</b>	<b>Average debt risk premium</b>	<b>Weighted average debt risk premium</b>
<b>20 business days to 30 September 2013</b>	4.66	216	222
<b>20 business days to 29 November 2013</b>	4.82	200	203

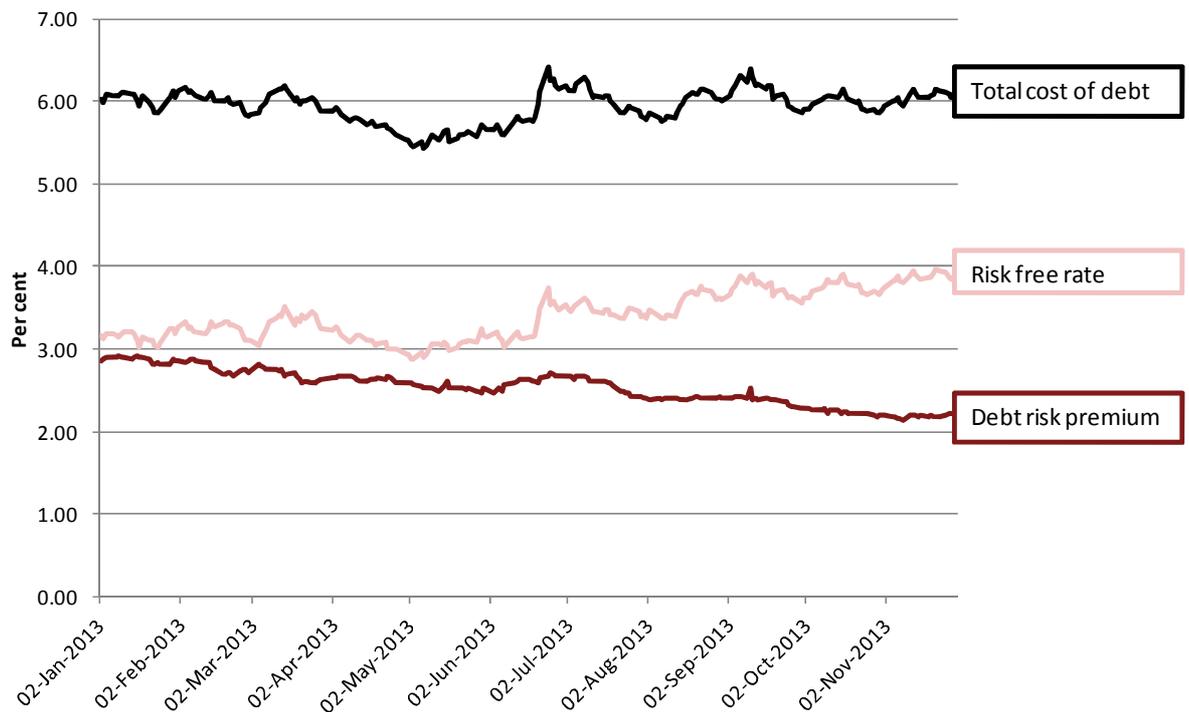
Source: PwC’s analysis of the ERA’s bond yield methodology, Bloomberg

<sup>2</sup> The bond sample size is 15 for both the First Period and Second Period, although the initial list of bonds were 26 and 25 bonds respectively. The other 11 and 10 bonds could not be used because Bloomberg did not report yields for them (and consequently debt risk premium could not be estimated).



Observing the Bloomberg seven year BBB fair value yield, as shown in Figure 1 below, we found that the steady decline in the estimated implied debt risk premiums throughout 2013 corroborates with the drop in the debt risk premium from the First to Second period. While Bloomberg's seven year BBB yield<sup>3</sup> has remained relatively steady at approximately six per cent, the gradual increase in the risk free rate lead to a gradual decrease in the debt risk premium.

**Figure 1 – Daily observations on the 7 year Bloomberg cost of debt, risk free rate, and estimated debt risk premium**



Source: PwC's analysis, Bloomberg

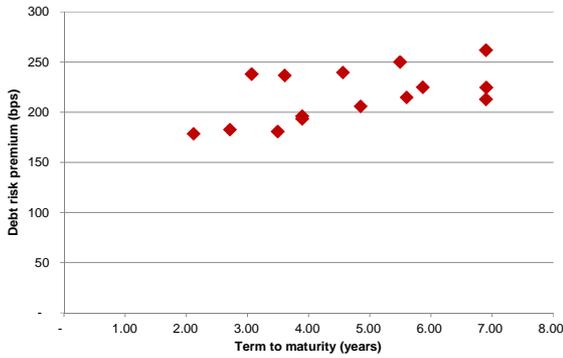
We note that the average term to maturity are approximately 4.66 and 4.82 years for the First and Second period respectively, which are lower than IMO's target 10 year benchmark term to maturity. In general, and assuming all else remains constant, bonds with lower terms to maturity are expected to have lower debt risk premiums compared with those of greater maturity. Given that IMO seeks a 10 year debt risk premium, our weighted average debt risk premium of 222 and 203 basis points are likely to be an under-estimate.

<sup>3</sup> Bloomberg, a financial data service provider, publishes benchmark yields for corporate bonds at specific credit ratings. The Australian seven 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.

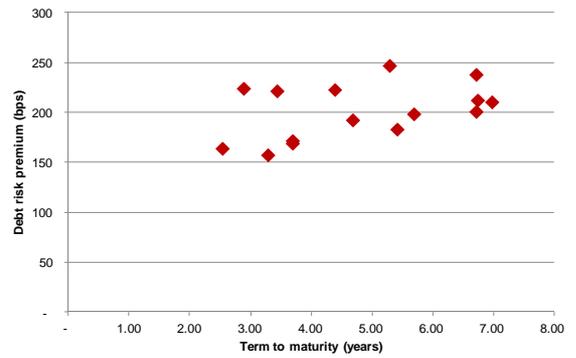


**Figure 2 – Distribution of BBB bonds**

**The First period**



**The Second period**



Source: PwC’s analysis, Bloomberg

Source: PwC’s analysis, Bloomberg

The above figure illustrates a plot of the 15 BBB rated corporate bonds in the First and Second period based on term to maturity and debt risk premium. From Figure 2, we observe that there is an upward trend in debt risk premium as the term to maturity increases, which further supports the likelihood that our debt risk premium estimate is conservative.

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  
[craig.fenton@au.pwc.com](mailto: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<sup>4</sup>
- 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, and
- Bonds that are redeemed at maturity or have call or put options attached.

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 1.

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 and Table 3.

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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 30 September 2013 (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)
Investra	BBB	\$45	14/10/2015	2.12	1%	179	1
Goodman	BBB	\$175	19/05/2016	2.72	3%	183	6
New Terminal Financing	BBB	\$100	20/09/2016	3.07	2%	238	5
SPI Australia Assets	BBB	\$400	21/02/2017	3.50	9%	181	16
United Energy Distribution	BBB	\$265	11/04/2017	3.61	6%	237	15
Holcim Australia	BBB	\$250	18/07/2017	3.90	6%	193	12
Crown Group	BBB	\$300	18/07/2017	3.90	8%	196	15
Goodman	BBB	\$200	20/03/2018	4.56	6%	240	14
Sydney Airport	BBB	\$100	6/07/2018	4.85	3%	206	7
Incitec Pivot	BBB	\$200	21/02/2019	5.50	7%	250	18
Holcim Australia	BBB	\$200	4/04/2019	5.60	7%	215	16
Brisbane Airport	BBB	\$200	9/07/2019	5.87	8%	225	17
APA Group	BBB	\$300	22/07/2020	6.90	13%	262	35
Perth Airport	BBB	\$150	23/07/2020	6.90	7%	213	14
Port of Brisbane Corp	BBB	\$300	29/07/2020	6.91	14%	225	30
<b>Simple average</b>				<b>4.66</b>		<b>216</b>	
<b>Weighted average</b>							<b>222</b>

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 29 November 2013 (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)
Goodman	BBB	\$175	19/05/2016	2.55	3%	163	4
New Terminal Financing	BBB	\$100	20/09/2016	2.90	2%	223	4
SPI Australia Assets	BBB	\$400	21/02/2017	3.30	8%	157	12
United Energy Distribution	BBB	\$265	11/04/2017	3.45	5%	221	12
Holcim Australia	BBB	\$250	18/07/2017	3.71	5%	169	9
Crown Group	BBB	\$300	18/07/2017	3.71	6%	171	11
Goodman	BBB	\$200	20/03/2018	4.40	5%	222	11
Sydney Airport	BBB	\$100	6/07/2018	4.70	3%	192	5
Incitec Pivot	BBB	\$200	21/02/2019	5.30	6%	246	15
Holcim Australia	BBB	\$200	4/04/2019	5.43	6%	182	12
Brisbane Airport	BBB	\$200	9/07/2019	5.70	7%	198	13
APA Group	BBB	\$300	22/07/2020	6.73	12%	237	28
Perth Airport	BBB	\$150	23/07/2020	6.73	6%	200	12
Port of Brisbane Corp	BBB	\$300	29/07/2020	6.75	12%	211	25
Brisbane Airport	BBB	\$350	21/10/2020	6.99	14%	210	30
<b>Simple average</b>				<b>4.82</b>		<b>200</b>	
<b>Weighted average</b>							<b>203</b>

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