



WACC in Maximum Reserve Capacity Price Workshop

Agenda

Location:	IMO Board Room Level 17, Governor Stirling Tower, 197 St Georges Terrace, Perth
Date:	Thursday 1 st November 2012
Time:	10.30am – 12.00pm

Item	Subject	Responsible	Time
1.	WELCOME & BACKGROUND	Chair	5 min
2.	REVIEW OF REGULATORY PRACTICE: WACC USED IN THE MAXIMUM RESERVE CAPACITY PRICE	IMO	60 min
3.	WORKSHOP WRAP UP AND PROCESS FROM HERE	Chair	5 min



Mr Allan Dawson
Chief Executive Officer
Independent Market Operator
Level 3, Governor Stirling Tower
197 St Georges Terrace
Perth WA 6000

19 October, 2012

Dear Mr. Dawson,

Re: Summary of regulatory decisions related to the WACC used in the Maximum Reserve Capacity Price

You have engaged PricewaterhouseCoopers (PwC) to provide a report addressing the scope below, which requires a summary of certain regulatory decisions in relation to the weighted average cost of capital (WACC). As the Independent Market Operator (IMO) in Western Australia, you have received a number of comments from stakeholders disagreeing with components of the previous methodology used by the IMO to estimate a WACC for the Maximum Reserve Capacity Price (MRCP).

Our Scope

The Scope of Works that we were engaged to provide is as follows:

1. *Currently the risk free rate used in the WACC is derived from the 10 year Commonwealth Government bond annualised yield. [2.9.7(g)]*

A number of stakeholders have suggested that the current methodology fails to reflect the “real world” costs of equity funding with Commonwealth Govt bonds at historic lows driven by a “flight to safety”.

Can PwC provide advice on whether alternative methods exist for determining the risk free rate that are consistent with Australia regulatory practice?

2. *The DRP used in the MRCP WACC is derived using yields on Australian corporate bonds which have a BBB equivalent credit rating [2.9.7(h)].*

A number of stakeholders have suggested that it is unlikely that a developer would raise debt finance through the bond market, instead suggesting that debt finance is more likely to be raised through a bank.

Can PwC provide advice on alternative methods for determining the debt risk premium, based on an entity sourcing debt through bank finance, that are consistent with Australian regulatory practice?

3. *The Market Procedure incorporates a franking credit value of 0.5 [2.9.8].*

The recent Australian Competition Tribunal decisions (6/01/2012 in respect of United Energy and 8/06/2012 for WA Gas networks) have resulted in a reduction in the gamma used from 0.5 to 0.25.

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Can PwC comment on the appropriateness of an amendment to the Market procedure to change the value of gamma from 0.5 to 0.25?

In applying this scope, you informed us that, in preparing the WACC for use in the Maximum Reserve Capacity Price, the IMO does not consider itself to be a leader in the field of WACC. As such you directed us to consider only methodologies that:

- have been used by one or more Australian regulators, particularly in WA if possible; and
- can be determined from publicly available data.

You subsequently directed us to consider only decisions from those Australian regulators whose decisions are able to be taken to merit review, which thereby excludes the state and territory regulators (such as IPART and the QCA) apart from the ERA.

Importantly, the scope set out above extends only to providing summaries of decisions from certain Australian regulators, and you have directed us to limit the material presented in this report to this scope. We observe that, in view of the scope and directions, all conclusions are findings about the decisions that Australian regulators have made and the reasons they have given. Nothing in this report should be interpreted as meaning that PwC agrees (nor necessarily disagrees) with the regulators' decisions as summarised. This report is also subject to PwC's usual disclaimer, as set out below.¹

In this letter, based on these directions, we have provided a summary of the IMO's past practice for each of the issues listed above for context, and a summary based on our review of Australian regulatory practice in jurisdictions whose decisions are reviewable. Further discussion of Australian regulatory practice (within the constraints set out above) in relation to each of the issues is provided in the Appendix.

Issue 1: How is the risk free rate being applied to estimate the cost of equity?

The IMO's previous practice

The previous methodology applied by the IMO estimated the WACC by reference to the annualised yield on Commonwealth Government bonds, where this rate reflects the average over a short, recent period. A number of stakeholders have suggested to the IMO that its previous WACC methodology failed to reflect the 'real world' costs of equity owing to the fact that the yields on Commonwealth bonds are currently at historical lows.

¹ Disclaimer: This Report has been prepared by PricewaterhouseCoopers Australia (PwC) at the request of the Independent Market Operator (IMO) in our capacity as advisors in accordance with the Terms of Reference and Terms and Conditions contained in the contract between the IMO and PwC.

This document is not intended to be utilised or relied upon by any persons other than the IMO, nor to be used for any purpose other than that articulated in the Scope. Accordingly, PwC accept no responsibility in any way whatsoever for the use of this report by any other persons or for any other purpose.

The information, statements, statistics and commentary (together the "Information") contained in this report have been prepared by PwC from publicly available material. PwC have not sought any independent confirmation of the reliability, accuracy or completeness of this information. It should not be construed that PwC has carried out any form of audit of the information which has been relied upon.

Accordingly, whilst the statements made in this report are given in good faith, PwC accept no responsibility for any errors in the publicly available information nor the effect of any such errors on our report.



Summary of current Australian regulatory practice where decisions are potentially subject to merit review

Despite a significant fall in the spot risk free rate over the last year, the AER and ERA have continued to apply the spot risk free rate (rather than an estimate of the long term risk free rate):

- The Australian Energy Regulator (AER) has made a number of regulatory pricing decisions in the past year, and has maintained a position of incorporating the observed risk free rate into its WACC calculations, which have resulted in historically low estimates of the cost of equity and hence regulated rates of return for energy distribution and transmission businesses.
- This approach has been justified by the AER on grounds that it maintains an objective and consistent position over time.
- The Economic Regulation Authority of Western Australia (ERA) has followed the approach of the AER.
- A formal appeal on this issue in the context of current market conditions has not been brought before the Australian Competition Tribunal (ACT), and has therefore not been tested in that forum.

We caution, however, that this position is contentious – refer to the Appendix for more detail.

Issue 2: What alternative methods are being applied to estimate the debt risk premium?

The IMO's previous practice

The debt risk premium (DRP) estimated by the IMO has previously been derived from the yields on Australian corporate bonds with a BBB equivalent credit rating. Several stakeholders have suggested to the IMO that it is unlikely that a developer would raise debt finance in the bond market, and would be more likely to obtain bank funding.

Under its previous approach the IMO assumed a BBB credit rating and estimated the debt risk premium for 10 year debt based on extrapolation of the 7 year Bloomberg BBB fair value curve. Extrapolation was undertaken by referencing the historical increment in the debt risk premium in the Bloomberg AAA rated fair value curve from 7 to 10 years. It has been suggested that bank debt is a more appropriate benchmark for the costs faced by a developer of a stand-alone generator.

Summary of current Australian regulatory practice where decisions are potentially subject to merit review

Among Australian regulators whose decisions are subject to merit review there is currently a significant degree of variety and flux in the methodologies used to estimate the debt risk premium.



ERA

The ERA applies what it terms the 'bond yield approach' to estimate a debt risk premium. In its 28 February 2011 Final Decision on WA Gas Networks Pty Ltd (ATCO), the ERA applied this approach to estimate a debt risk premium.² The ERA established a set of criteria by which it chose bonds based on:

- A credit rating of BBB-/BBB/BBB+ by Standard and Poor's;
- Time to maturity of 2 years or longer;
- Bonds issued in Australia by Australian entities and denominated in Australian dollars;
- Inclusion of both fixed bonds and floating bonds; and
- Inclusion of both Bullet and Callable/Puttable redemptions.

The ERA's method was appealed to the Australian Competition Tribunal (the Tribunal), which substantially upheld the ERA's method, with the only modification required being to alter its weighting method as it gave inordinate weight to certain observations.

AER

The AER's recent final decisions on Powerlink, Aurora Energy, and Roma to Brisbane Pipeline decisions, and its SPI Networks (Gas) Pty Ltd draft decision have broadly accepted the extrapolated Bloomberg curve methodologies that were proposed by these businesses.³ This methodology is to estimate the 7 year BBB+ debt risk premium based on the Bloomberg BBB 7 year fair value curve, and then to extrapolate this value to 10 based on:

- In the case of Powerlink and Aurora Energy - the average annual increment of the debt risk premium observed for paired bonds (i.e. bonds with different terms to maturity issued by the same firm), where the terms to maturity are approximately equal to 7 and 10 years;
- In the case of the Roma to Brisbane Pipeline – the increment in the Bloomberg AAA fair value curve using its last historical spread to the Commonwealth Government Securities (CGS) yield; and
- In the case of SPI Networks (Gas) Pty Ltd – the average annual increment of the debt risk premium observed for paired bonds (with some slight modifications to the paired bonds proposed by SPI Networks (Gas) Pty Ltd).⁴

However, in its recent decisions on the Roma to Brisbane pipeline and SPI Networks (Gas) Pty Ltd, the AER has noted the Tribunal's decision in the ATCO case, and has expressed its concern that the Bloomberg methodology is providing cost of debt estimates that are too high. As a result the AER is undertaking an internal review of the issue.

Summary with respect to estimation of the debt risk premium

² Economic Regulation Authority (Western Australia) (28 February, 2011), *Final Decision on WA Gas Networks Pty Ltd proposed revised access arrangement for the Mid-West and South-West Gas Distribution Systems*, pp. 75-92.

³ AER (2012), pp.154-155.

⁴ AER (September, 2012), p.37.



In summary, there is no single debt cost estimation methodology that is widely applied by Australian regulators whose decisions are subject to merit review.

Of the two contrasting estimation methodologies outlined above, the approach applied by the ERA would provide a lower cost of debt relative to the AER's method. A key contributor to the difference is the different term for which the debt risk premium is estimated. When last applied by the ERA, the cost of debt was estimated from bonds that had an average term to maturity of approximately 5 years (its sample included all bonds with a term of 2 years or greater), whereas the AER's method is directed to estimating the debt risk premium that is consistent with a 10 year term.

With respect to the issue of assessing the cost of bank debt, we note that as far as we are aware, no Australian regulator has applied a cost of debt estimate that is based on a measure of the cost of bank debt. Instead, Australian regulators have assumed that the cost of bonds is reflective of the cost of the firm's entire debt portfolio.

Issue 3: Is the value of gamma being amended from 0.5 to 0.25?

IMO's previous practice:

Previously the IMO was applying a gamma assumption of 0.5, which was consistent with the practice of the majority of regulators. However, a recent Australian Competition Tribunal (ACT) decision has reduced gamma from 0.5 to 0.25. The IMO is seeking advice on whether this change is being undertaken by Australian regulators whose decisions are subject to merit review.

Summary of current Australian regulatory practice where decisions are potentially subject to merit review

The AER has adopted a gamma value of 0.25 in all of its subsequent decisions. The ERA applied a gamma value of 0.25 in its recent decision on the Western Power Network.⁵

* * *

Yours sincerely,

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⁵ ERA (29 March, 2012), *Draft Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, p.170.



Appendix – Summaries of Australian regulatory practice where the regulator is subject to merit review

Issue 1: How is the risk free rate being applied to estimate the cost of equity?

Background

The IMO's stakeholders have correctly observed that yields on 10 year Commonwealth Government Securities (CGS), which have traditionally been taken as proxies for the risk free rate that is applied in the Capital Asset Pricing Model (CAPM), are currently at extremely low levels compared to the historical average. Over the period from 2000 up to the commencement of the global financial crisis in 2008, the yield 10 year CGS was approximately 5.5 per cent.⁶ However, soon after the collapse of the Lehman's Brothers Bank in September 2008, CGS yields dropped below 4 per cent, and after recovering for a time, have in the past 12 months dropped to new lows of approximately 3 per cent. During these two periods there has been a 'flight to quality' which has resulted in capital being attracted to Australian CGS due to our relatively strong Australian dollar and our political stability.

In regulatory matters, a number of businesses have argued that this almost unprecedented drop in the risk free rate has implications for the estimation of the cost of equity in Australia. The contention is that, if the current interest rates on 10 year CGS are mechanically applied to the CAPM formula this would predict that the cost of equity for the average Australian business should have fallen by approximately 300 basis points since the start of the global financial crisis.

Professor Robert Officer, a renowned expert on WACC issues, described the risk for error when the MRP and risk free rate are not set over the same time period:⁷

"If MRP is set at an 'average or normal level' which is representative of a long run mean or expected value over the long term and R_f is at a low level, such as exists at the moment, this will under-estimate the return to equity $E(R_e, t)$ and penalize the regulatory entity, and conversely when R_f is at a 'high level'. Therefore, setting the parameters on the basis of different time periods when one is set at the current time may lead to greater error than if they were both set on the basis of the current same or 'normal' time period even though this is not representative of the current period."

Professor Officer describes three outcomes for the cost of equity based on the way the MRP and risk free rate are estimated.⁸

"Noting the comments above, in estimating the parameters of the CAPM and having regard to the evidence of current MRP and R_f , there are three possible outcomes:

a) if the MRP and the R_f were both estimated in current market conditions, then the estimated cost of equity would reflect the likely cost of equity over the next regulatory period and is likely to be much higher than the long term average ...;

⁶ Two dates that are often used as approximate starts for the global financial crisis are 1 June 2007 (which was just before issues with US subprime mortgages first emerged) and 1 September 2008 (which was just prior to the collapse of the Lehman Brothers Bank). The average rates on 10 year CGS between 1 January 2000 and 1 June 2007 and 1 September 2008 were 5.67 per cent and 5.76 per cent, respectively.

⁷ R.R. Officer, (16 February, 2009), *Expert Report prepared in respect of certain matters arising from the AER's New South Wales Draft Distribution Determination 2009-10 to 2013-14*, Prepared for Energy Australia, para.25.

⁸ R.R. Officer, (16 February, 2009), *Expert Report prepared in respect of certain matters arising from the AER's New South Wales Draft Distribution Determination 2009-10 to 2013-14*, Prepared for Energy Australia, para.33.



b) if the MRP and the Rf are both estimated over the a long term, or reflect, a more “normal” period, then they will result in a cost of equity that is comparable to the long run cost of equity, which is believed to be below the current required return to equity ...;

c) if the MRP is based on a long term average and the Rf is set reflecting current conditions where Rf are at abnormally low levels then the resulting cost of equity will be set below average or normal market conditions and well below what is likely to be required in the current market for returns on equity ...”

Professor Officer also noted:⁹

“Regarding my conclusion in paragraph (c) above, I do not consider that such an estimate is likely to provide an unbiased value for the current cost of capital for a company. I do not think that current market conditions are requiring a below average cost of capital, in fact, quite the reverse when we look at the discount being required for rights and similar attempts at raising equity capital.”

There is considerable support in the theoretical and empirical finance literature for the proposition that the cost of equity does not move one-for-one with government interest rates. For example, Lettau and Ludvigson (2001) found that equity risk premiums tended to move in the opposite direction to the de-trended government bond rate.¹⁰ The AER’s consultant, Professor Kevin Davis (2011), recently also noted that ‘there is nothing in the [CAPM] model which implies that the parameters of the model will be the same in different time periods.’¹¹

Position of the AER

In its recent final decision on Aurora Energy the AER articulated its view that the current historically depressed risk free rate is a valid, market-determined parameter that should not be adjusted in the CAPM framework. The AER is of the view that at ‘times of uncertainty, investors are prepared to accept a lower yield on relatively safe assets,’ and that furthermore:¹²

An alternative explanation might be that CGS are currently ‘over priced’, in the sense that the price of CGS exceeds its fair value, and therefore the yield is ‘artificially low’. For the AER to make such a conclusion, the AER would, effectively, be saying that it has better information than the market or that it ‘knows better’ than the many traders in the market whose interactions set the price of CGS. The AER considers there is not a reasonable basis to draw such a conclusion on the evidence before it.

The AER considered that the CGS market ‘remains liquid and efficiently priced’, and therefore the methodology of applying market-determined CGS yields as the proxy for the risk free rate is objective and unbiased. Furthermore, the AER rejected the view expressed by Professor Officer that it is not appropriate to match a short term risk free rate with a long term market risk premium:¹³

As discussed above, the AER considers it is incorrect to characterise the method for calculating these WACC parameters as a long term historical MRP coupled with a short term risk free rate. The risk free rate is not ‘short term’. The risk free rate and MRP are both reflective of a forward looking return over the next 10 years. However, there are

⁹ R.R.Officer, (16 February, 2009), Expert Report prepared in respect of certain matters arising from the AER’s New South Wales Draft Distribution Determination 2009-10 to 2013-14, Prepared for EnergyAustralia, para.34.

¹⁰ Lettau, Martin, and Sydney Ludvigson (2001), ‘Consumption, Aggregate Wealth and Expected Stock Returns,’ *Journal of Finance*, Vol. 56 (3), pp. 815-849.

¹¹ Davis, Kevin, (January, 2011), *Cost of Equity Issues: A Report for the AER*, p.4.

¹² AER (2012), *Distribution determination – Aurora 2012-13 to 2016-17: Cost of capital*, p.133.

¹³ AER (2012), p. 136.

different considerations and evidence available for each parameter. The approach adopted by the AER is therefore internally consistent.

The AER also commented on the contrary view on this issue that IPART expressed and used in its SDP decision, noting that IPART's decisions are not completely comparable to the AER's:¹⁴

IPART's approach involves adopting a range for some WACC parameters. This approach results in a range for the overall rate of return. IPART then exercises its judgement in choosing an appropriate overall WACC from within this range. The AER notes that IPART often chooses a point estimate which differs from the midpoint of the derived range.

The AER then pointed that the AER's approach arises from the constraints that are imposed on it by the National Electricity Rules (NER) and Statement of Regulatory Intent (SRI) requirements, which necessitate a point estimate approach. In conclusion the AER considered that:

While the approaches of the AER and IPART differ, they are both internally consistent over time. Consistency is important to achieve unbiased outcomes. The AER considers that it is inappropriate for it to make an upward adjustment in the current framework. To do so on an ad hoc basis creates the potential for arbitrariness and introduces subjectivity, which results in the potential for biased regulatory outcomes.

These views were re-iterated by the AER in its contemporaneous Roma to Brisbane Pipeline decision.¹⁵ In its March 2012 draft decision on the Western Power Network, the ERA also applied a 'spot' risk free rate.¹⁶

Issue 2: What alternative methods are being applied to estimate the debt risk premium?

In this section we summarise the debt risk premium estimation methodologies that have been taken by Australian regulators whose decisions are reviewable.

Economic Regulation Authority of Western Australia

The Economic Regulation Authority of Western Australia (ERA) set out its new approach to measurement of the debt risk premium in a Discussion Paper published in December 2010. The Discussion Paper raised a concern that the Bloomberg 7 year BBB fair value curve was no longer representative of observed Australian bond yields. The ERA presented two charts, one for a period before (10 November 2005 to 9 October 2007), and a period after (19 August 2009 to 31 October 2010) the worst of the global financial crisis. The ERA concluded that the use of 'Bloomberg is problematic because it could add significant inaccuracy in and inconsistency across regulatory decisions.'¹⁷

On 28 February, 2011, in its Final Decision on WA Gas Networks Pty Ltd (ATCO), the ERA applied its 'bond yield approach' to estimate a debt risk premium.¹⁸ The ERA established a set of criteria by which it chose bonds based on:

- A credit rating of BBB-/BBB/BBB+ by Standard and Poor's;
- Time to maturity of 2 years or longer;

¹⁴ AER (2012), p. 137.

¹⁵ AER (April, 2012), *APT Petroleum Pipeline Pty Ltd – Access arrangement draft decision Roma to Brisbane Pipeline 2012-13 to 2016-17*, pp. 130-131.

¹⁶ ERA (29 March, 2012), *Draft Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, pp. 157-160.

¹⁷ Economic Regulation Authority (Western Australia) (1 December, 2010), pp. 4 and 7.

¹⁸ Economic Regulation Authority (Western Australia) (28 February, 2011), *Final decision on WA Gas Networks Pty Ltd proposed revised access arrangement for the Mid-West and South-West Gas Distribution Systems*, pp. 75-92.



- Bonds issued in Australia by Australian entities and denominated in Australian dollars;
- Inclusion of both fixed bonds and floating bonds; and
- Inclusion of both Bullet and Callable/Puttable redemptions.

The ERA's method was appealed to the Australian Competition Tribunal (the Tribunal), which substantially upheld the ERA's method, with the only modification required being to alter its weighting method as it gave inordinate weight to certain observations.

The ERA's approach was founded on a concern that in the Australian capital market at that time (December 2010), most bonds had a maturity term well below 10 years. As a result, it identified a trade-off between:¹⁹

- Consistency between the debt risk premium and other WACC parameters, such as the nominal risk free rate and expected inflation, in terms of a 10-year term; and
- How well the estimates of the debt risk premium are commensurate with prevailing conditions in the market for funds and the risks involved in providing reference services ('market relevance').

The ERA considered that greater weight should be placed on market relevance rather than on consistency with other WACC parameters. In other words, the considered it to be more important to have a large sample of bonds over a range of maturities than to only take account of a smaller number of bonds with a maturity close to 10 years, or to attempt to adjust the "raw" debt risk premium in order to target a 10 year figure (the average term in the ERA sample was 5.2 years).

Australian Energy Regulator (AER)

In recent years, the AER has changed its approach to estimating the cost of debt a number of times (some of which were in response to Tribunal decisions):

- Choosing between the extrapolated Bloomberg and CBASpectrum curves - Up to September 2010, Bloomberg and CBASpectrum provided competing fair value curves, and the AER applied a methodology to assess which curve lay closer to the observed bond yields. Unfortunately the number of observed bonds in the sample the AER employed was very small (5).
- Averaging the Bloomberg curve and the APA bond - CBASpectrum discontinued publication of its fair value curve from mid-August, 2010, which caused the AER to change its approach to debt premium estimation. The Australian Pipeline Trust (APA) had recently issued a 10 year BBB rated bond. The AER concluded that the debt risk premium should be calculated as a weighted average of the yield on the APA bond and the extrapolated Bloomberg curve, albeit with the weights being determined by judgement, and varying between decisions. This method was appealed against to the Tribunal, which in its Envestra decision, concluded the following:²⁰

Envestra provided to the AER strong evidence in support of the EBV, in particular by its response to the May 23 letter. The view of Dr Hird of CEG was that that material did not demonstrate any basis for the substitution of an alternative estimate for the EBV. As noted, the AER itself accepted the relevance of the

¹⁹ Economic Regulation Authority (Western Australia) (1 December, 2010), p. 8.

²⁰ Application by Envestra Limited (No 2) [2012] ACompT 3 (11 January 2012), para. 123.



EBV. Whilst the Tribunal accepts that the AER properly considered the reliability of the EBV, it has reached the view on the available material that there is no reason shown from the available material why the use of the EBV should not be adopted in this particular matter. There is no viable alternative methodology at present, other than making a decision on all the material. The observations of the Tribunal in ActewAGL at [74]-[78] suggest that, on the existing material, it is appropriate to vary the decision in the manner indicated.

In light of this and other Tribunal decisions, the AER discontinued its hybrid approach of using a weighted average of the APA bond and the Bloomberg curve.

- A simple average of debt risk premiums – The AER applied a new approach in Powerlink’s and Aurora Energy’s 2012-13 to 2016-17 draft revenue determinations.²¹ It estimated the debt risk premium for a BBB+ rated 10 year bond by calculating a simple average of the debt risk premiums for bonds with a term to maturity between 7 and 13 years and a given set of characteristics.²²
- Extrapolated Bloomberg curve – The AER’s recent final decisions on Powerlink, Aurora Energy and the Roma to Brisbane Pipeline accepted the extrapolated Bloomberg curve methodologies that were proposed by these businesses.²³ This methodology is to estimate the 7 year BBB+ debt risk premium based on the Bloomberg BBB 7 year fair value curve, and then to extrapolate this value to 10 based on:
 - In the case of Powerlink and Aurora Energy - the average annual increment of the debt risk premium observed for paired bonds (i.e. bonds with different terms to maturity issued by the same firm), where the terms to maturity are approximately equal to 7 and 10 years; and
 - In the case of the Roma to Brisbane Pipeline – the increment in the Bloomberg AAA fair value curve using its last historical spread to the CGS yield.

In its most recent decision, which relates to SPI Networks (Gas) Pty Ltd, the AER has again applied the extrapolated Bloomberg method, with the extrapolation using the average annual increment of the debt risk premium observed for paired bonds (with some slight modifications to the paired bonds proposed by SPI Networks (Gas) Pty Ltd.²⁴ However, AER took note of the Tribunal’s decision in the ATCO case as follows:²⁵

Consistent with the AER’s observations previously, the AER considers that the Bloomberg fair value curve continues to provide DRP estimates which are higher than other potential approaches (such as the ERA’s approach). The Bloomberg fair value curve also provides estimates which are high in comparison to recent bond issuances from firms with similar characteristics to the benchmark firm. For these reasons, the AER has commenced an internal review into alternatives to the Bloomberg fair value curve.

Issue 3: Is the value of gamma being amended from 0.5 to 0.25?

Regulatory practice:

²¹ AER (November, 2011), *Draft decision, Powerlink Transmission determination, 2012-13 to 2016-17*; and AER (November, 2011), *Draft Distribution Determination, Aurora Energy Pty Ltd 2012-13 to 2016-17*.

²² The Bloomberg BGN value is yield that is derived on the basis of the individual securities industry feeds to Bloomberg (i.e. a combination of the contributor opinions about the yield), while the BVAL value is Bloomberg’s opinion of the yield.

²³ AER (2012), pp.154-155.

²⁴ AER (September, 2012), p.37.

²⁵ AER (September, 2012), *Access arrangement draft decision – SPI Networks (Gas) Pty Ltd 2013-17, Part 1*, p. 37.



Gamma refers to the value of distributed imputation credits. It is an important parameter since it is used in determining the compensation that the benchmark firm requires for tax, in recognition that the firm's investors can benefit from imputation credits to offset personal tax, or receive cash if their tax rate is below the statutory corporate rate. It has been a contentious issue in the regulatory sphere, notwithstanding that until 2009 the vast majority of Australian regulators applied a gamma assumption of 0.5.

It is widely acknowledged that the best way to represent gamma, is as the product of the distribution ratio (F); and the 'utilisation rate' (theta or θ), i.e.:

$$\gamma = F \times \theta$$

Where,

- F, the distribution ratio, is defined as the value of imputation credits distributed by a firm as a proportion of the value of all the imputation credits generated by the firm in the period; and
- Theta, or θ , is defined as the value of imputation credits once they have been distributed to investors as a proportion of their face value.

In May 2009 the Australian Energy Regulator undertook a review of WACC parameters for the electricity transmission and distribution sectors, and determined a gamma value of 0.65. This value was derived by assuming a distribution ratio of 1.0, on the grounds that it is consistent with the assumptions underpinning the Officer WACC framework, and a utilisation rate (theta) of 0.65, which was based on an average of:²⁶

- A dividend drop-off study conducted by Beggs and Skeels, which indicated a theta value of 0.57;²⁷ and
- A study by Handley and Maheswaran, which used statistics from the Australian Taxation Office showing that during the period 2001 to 2004 the redemption rate of imputation credits was 0.81.²⁸

In May 2010 the AER made a decision that applied the gamma value of 0.65 to the calculation of revenues of Energex Limited, Ergon Energy Corporation Limited and ETSA Utilities.²⁹ These decisions were appealed to the Australian Competition Tribunal (the Tribunal), which decided to address the common gamma issue under a joint application. In October, 2010 the Tribunal found that an error of fact had been made by the AER with respect to the distribution ratio, as the AER had now accepted that the distribution ratio of 71 per cent derived from Hathaway and Officer (2004), was in fact the long term distribution ratio.

²⁶ AER (May, 2009), *Electricity transmission and distribution network service providers – Review of the weighted average cost of capital (WACC) parameters*.

²⁷ Beggs, D.J. and C.L. Skeels (2006), Market Arbitrage of Cash Dividends and Franking Credits, *The Economic Record*, Vol. 82 (258), pp. 239-252.

²⁸ Handley, J and K. Maheswaran, (March, 2008) 'A Measure of the Efficacy of the Australian Imputation Tax System, *Economic Record*, Vol. 84, Issue 264, pp. 82-94.

²⁹ AER (4 May, 2010), *ETSA Utilities – Distribution determination 2010-11 to 2014-15*; AER (4 May, 2010), *Energex – Distribution determination 2010-11 to 2014-15*; AER (May, 2010), *Ergon Energy – Distribution determination 2010-11 to 2014-15*.



With respect to theta, the Tribunal also found error in the AER's approach, since it had erroneously taken a simple average of point estimates. The Tribunal requested a report that:³⁰

- proposes an approach that correctly uses tax statistics studies and dividend drop-off studies;
- reviews dividend drop-off studies from as many sources as possible to see whether confident use can be made of any of them; and
- if possible, provides results from a newly-commissioned dividend drop-off study that is "state of the art".

To achieve this, the Tribunal required that the new dividend drop-off study should be undertaken by SFG employing a methodology that is agreed between the AER and SFG. This resulted in a number of new submissions and new evidence being provided by the parties:³¹

- SFG (21 March, 2011), *Dividend Drop-Off Estimate of Theta*;
- The Securities Industry Research Centre (SORCA) Limited (7 March 2011), *Report to the AER – Response to questions related to the estimation and theory of theta*.
- AER (April, 2011), *The value of imputation credits* (report to the AER);
- Submissions from the applicants in response to the AER's report, including supporting evidence;
- R.R. Officer (18 April, 2011), *Expert Report prepared in respect of certain matters arising from the AER's Merit review – Determination of Gamma* – prepared for ETSA Utilities, Energex and Ergon Energy.
- SFG (18, April, 2011), *Dividend Drop-Off Estimate of Theta – Additional Estimates based on comments in the AER Report*;
- Diamond, N. And R Brooks (19 April, 2011), *A review of SFG's Dividend Drop-off Study*; and
- SFG (21, April, 2011), *Dividend Drop-Off Estimate of Theta – Additional Estimates based on comments in the AER Report*, referred to by the Tribunal as 'SFG's further supplementary report').

SFG's March 2011 report proposed a theta estimate of 0.35, and in reviewing the new information before it the Tribunal was satisfied that the procedures used to select and filter the data were appropriate and unlikely to give rise to any significant bias. Having accepted a theta value of 0.35, and having previously accepted a distribution ratio of 0.70, the Tribunal determined that the value of gamma is 0.25.³² However, in making its decision the Tribunal noted that 'estimation of a parameter such as gamma is necessarily, and desirably, an ongoing intellectual and empirical endeavour.' In other words, while on the basis of the best available evidence the Tribunal had concluded that a

³⁰ Application by Energex Limited (No 2)[2010] ACompT7 (13 October 2010), para. 146.

³¹ Application by Energex Limited (Gamma) (No 5)[2011]A CompT(12 May 2011), para. 8.

³² Application by Energex Limited (Gamma) (No 5)[2011]A CompT(12 May 2011), para. 42.



gamma of 0.25 is appropriate, it was not precluding future analysis of this parameter, which could see it change.

Since the Tribunal's decision, the AER has applied a gamma of 0.25 in all of its decisions where it has had the ability, and the ERA has also followed this approach, concluding its consideration of this matter in its recent draft decision on Western Power as follows:³³

Based on an estimate of the payout ratio of imputation credits of 70 per cent, together with an estimate of theta of 0.35, the Authority concludes that a reasonable value of gamma, for the purpose of the Authority's draft decision on Western Power's proposed Access Arrangement, is 0.25 (or 25 per cent). The estimate of gamma of 0.25 is consistent with the Tribunal's recent decision on gamma in *Energex Limited*.

³³ ERA (29 March, 2012), p.170.