Aurora Energy

Cost of Capital

2012-2017 Electricity Distribution Revenues

Contents

1 Weighted average cost of capital

1.1 Introduction

Clause 6.4.3(a)(2) of the Rules identifies "return on capital" as one of the building blocks for determining the annual revenue requirement of a DNSP. The return on capital building block is the product of the regulatory asset base value (which is addressed in chapter 18 of Aurora's Regulatory Proposal) and the weighted average cost of capital, or WACC.

This attachment sets out Aurora's proposal regarding the WACC. It also sets out Aurora's proposed value of imputation credits ("gamma") which is used to estimate the cost of corporate income tax in accordance with clause 6.5.3 of the Rules.

The Rules require that the return on capital be calculated in accordance with clause 6.5.2 and any applicable Statement of Regulatory Intent ("SORI") on the WACC parameter values.

Aurora's proposal addresses the relevant provisions of the Rules and the SORI which was issued in May 2009 ("the applicable SORI").

In setting out its proposals, Aurora notes that the provision of an adequate return on capital is of critical importance to Aurora's owners and its customers. In particular, regulatory decision-making that results in the provision of an inadequate post-tax return will damage incentives for investment, and will ultimately deny customers the economic benefits that flow from distribution network investment.

Against this backdrop, the remainder of this attachment is structured as follows:

- Section 1.2 provides an overview of the regulatory requirements governing the determination of the WACC.
- Section 1.3 provides an overview of Aurora's proposed WACC.
- Sections 1.4 to 1.11 provide detailed information to substantiate, in accordance with the applicable regulatory requirements, the WACC parameter values that Aurora proposes to adopt.

1.2 Regulatory requirements

1.2.1 Definition of return on capital

Clause 6.5.2(b) of the Rules defines the rate of return for a DNSP as the cost of capital measured by the return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by the distribution business of the provider and must be calculated as a nominal post-tax Weighed Average Cost of Capital (WACC) in accordance with the following formula:

$$WACC = k_e \, E/V + k_d \, D/V$$

where:

- k_e is the return on equity (determined using the Capital Asset Pricing Model) and is calculated as:

$$r_f + \beta_e \times MRP$$

where:

r_f is the nominal risk free rate for the regulatory control period;

β_e is the equity beta; and

MRP is the market risk premium.

- k_d is the return on debt and is calculated as r_f + DRP

where:

DRP is the debt risk premium for the regulatory control period;

- E/V is the value of equity as a proportion of the value of equity and debt, which is 1 - D/V; and
- D/V is the value of debt as a proportion of the value of equity and debt.

1.2.2 Requirements of the National Electricity Law

The National Electricity Law ("NEL") outlines the objectives of economic regulation under the Act and the matters that are relevant to the AER in the performance of its economic regulatory functions and powers, including those relating to the establishment of an appropriate return on capital.

Section 7 of the NEL establishes the national electricity objective which is to promote efficient investment, operation and use of electricity services, for the long-term interests of consumers of electricity. The factors relevant to the national electricity system include its reliability, safety and security. The interests of consumers are defined to include factors including the price, quality, safety, reliability and security of supply.

Section 16 of the NEL states that the AER must perform its functions or exercise its powers in a manner that will or is likely to contribute to the achievement of the national electricity objective. In addition, the AER must take into account the revenue and pricing principles when making a determination relating to direct control network services and when making an access determination relating to the rates or charges for an electricity network service.

Section 7A of the NEL sets out the revenue and pricing principles which support the objectives of the NEL by establishing the basis of the return (in the form of revenue and factors to consider in determining a regulated price) available to a regulated network service provider. Of particular relevance to the determination of an appropriate rate of return are:

- the need to provide the regulated network service provider with a reasonable opportunity to recover at least its efficient costs incurred in providing direct control network services and in complying with a regulatory obligation, requirement or regulatory payment;
- the need to provide effective incentives in order to promote economic efficiency (investment, provision and use of the system and provision of the services);
- the requirement for the regulator to have regard to the regulatory asset base, any previous regulatory determination or decisions, as well as the requirements of the NEL and the National Electricity Rules (the Rules); and
- the requirement to set prices or charges to allow for a return commensurate with the entity's regulatory and commercial risks (that are directly related to the provision of the service). In doing so, regulators should have regard to the economic costs and risks of the potential for both under and over investment, and under and over utilisation of the services.

1.2.3 Requirements of the SORI and the Rules

Clause 6.5.4 of the Rules provides for certain matters relating to the WACC to be reviewed periodically by the AER. Following such a review, the AER must issue a SORI setting out the values, methods and credit rating levels for DNSPs. In accordance with these requirements, the AER completed its first review of the WACC to apply to electricity transmission and distribution businesses ("the WACC Review") and issued a SORI on 1 May 2009, which applies to the current review. The various matters set out in the SORI and in Clause 6.5.2 of the Rules are summarised in the table below.

Table 1: WACC Parameters set out in clause 6.5.2 of the Rules and the SORI

WACC Parameter	Value or methodology	Specified in
Nominal Risk Free Rate	The annualised yield on Commonwealth Government bonds (CGS) maturing in 10 years from any day in the measurement period (see below). If necessary the 10 year yield is to be determined by linear interpolation of the yields on the two CGS closest to the 10 year term and which straddle the 10 year expiry date.	Clauses 6.5.2(c) and (d) of the Rules; SORI clauses 3.2(a) and 3.3
Measurement period for the nominal risk free rate and Debt Risk Premium	Either: (i) a period ('the agreed period'), being one which is as close as practically possible to the commencement of the regulatory control period, proposed by the relevant Distribution Network Service Provider, and agreed by the AER (such agreement is not to be unreasonably withheld), or (ii) a period specified by the AER, and notified to the provider within a reasonable time prior to the commencement of that period, if the period proposed by the provider is not agreed by the AER under paragraph (i), and is also to be calculated in accordance with clauses	SORI, clause 3.2

WACC Parameter	Value or methodology	Specified in
	6.5.2(c)(1), 6.5.2(c)(2)(iii) and 6.5.2(c)(2)(iv) of the NER.	
Debt Risk Premium	The margin between the annualised nominal risk free rate and the observed annualised Australian benchmark corporate bond rate for corporate bonds which have a maturity equal to that used to derive the nominal risk free rate and a credit rating from a recognised credit rating agency (see below).	Clause 6.5.2(e) of the Rules
Credit Rating for the purpose of determining the Debt Risk Premium	BBB+	SORI clause 3.7
Gearing	60% debt to total assets	SORI clause 3.6
Beta (β)	0.8	SORI clause 3.4
MRP	6.5%	SORI clause 3.5
Gamma	0.65	SORI clause 3.8

Aurora's building block proposal is required to set out its calculation of the proposed rate of return including any including any proposed departure from the values, methods or credit rating levels set out in the applicable SORI.

1.2.4 The AER's decision-making framework

In relation to the values and methodologies for the rate of return that are specified in the applicable SORI, the Rules require the AER to make a distribution determination that is consistent with the SORI unless there is "persuasive evidence" justifying a departure, in a particular case, from a value, method or credit rating level set in the statement (clause 6.12.3(g)). In deciding whether a departure is justified for a distribution determination, clause 6.12.3(h) requires the AER to consider:

> *"(1) the criteria on which the value, method or credit rating level was set in the statement of regulatory intent (the underlying criteria); and*
>
> *(2) whether, in the light of the underlying criteria, a material change in circumstances since the date of the statement, or any other relevant factor, now makes a value, method or credit rating level set in the statement inappropriate."*

In deciding whether a departure is justified, the AER should also consider its broader objectives, and in particular, its obligations under the National Electricity Objective and the Revenue and Pricing Principles. Relevantly, these provisions refer to the objective of promoting efficient investment in electricity services for the long term interests of electricity consumers. These provisions also set out important principles, including that:

- A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs of providing network services. The Australian Competition Tribunal recently made some observations in relation to why the NEL principles require that a regulated NSP should be in a position to recover "at least" its

efficient costs, in the context of the transitional rules as they applied to the cost of capital withholding agreement.[1] It stated as follows:

> *"It might be asked why the NEL principles require that the regulated NSP be provided with the opportunity to recover at least its efficient costs. Why 'at least'? The issue of opportunity is critical to the answer. The regulatory framework does not guarantee recovery of costs, efficient or otherwise. Many events and circumstances, all characterised by various uncertainties, intervene between the ex ante regulatory setting of prices and the ex post assessment of whether costs were recovered. But if, as it were, the dice are loaded against the NSP at the outset (eg, by making insufficient provision for its operating costs or its cost of capital), then the NSP will not have the incentives to achieve the efficiency objectives, the achievement of which is the purpose of the regulatory regime.*
>
> *Thus, given that the regulatory setting of prices is determined prior to ascertaining the actual operating environment that will prevail during the regulatory control period, the regulatory framework may be said to err on the side of allowing at least the recovery of efficient costs."*

- Prices for the provision of network services should allow for a return commensurate with the regulatory and commercial risks involved in providing the services.
- Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider.

As noted elsewhere in its Regulatory Proposal, Aurora forecasts a $705 million capital expenditure program over the next regulatory control period. This is likely to represent approximately 50% of its existing regulated asset base at the outset of the regulatory control period. There are substantial risks associated with delivering an investment of this size.

Within this context, it is important for the AER to ensure that the WACC that is allowed for Aurora provides a reasonable opportunity for it to deliver a level of prospective returns which are commensurate with the risks that Aurora faces. Failure to provide an appropriate return for such risks would provide disincentives for investment. Such an outcome would be detrimental to the long term interests of consumers and hence, in conflict with the National Electricity Objective.

Aurora's proposed WACC parameters as set out in Section 1.3 below have been derived in accordance with the Rules requirements and the broader principles set out in the National Electricity Law.

1.3 Overview of Aurora's proposed WACC

As shown in the table below, Aurora intends to accept the SORI requirements in relation to:

- the methodology (including the agreement of the measurement period) for calculating the nominal risk free rate;
- the equity beta value of 0.8;

[1] Energy Australia and Others [2009] ACompT 8, paragraphs 77-78. The decision also notes that, while the transitional rules provide the context for proposing an averaging period, any proposal must also be in accordance with the NEL, and more specifically with the national electricity objective and the revenue and pricing principles set out in s7 and s7A, respectively.

- the value of debt as a proportion of the value of equity and debt (D/V) of 0.60; and
- the credit rating level of BBB+.

However, Aurora considers that there is persuasive evidence to justify a departure from the SORI requirements in relation to the value of gamma. Accordingly, Aurora has proposed values for these parameters that depart from those required in the SORI

Table 2: Overview of Aurora Energy's proposal

Parameter	Summary of value / methodology under the Rules and the SORI	Aurora Energy proposal
Nominal risk free rate	Annualised yield on 10 year Commonwealth Government bonds based on an agreed averaging period.	Annualised yield on 10 year Commonwealth Government bonds based on an agreed averaging period. To facilitate the calculation of an indicative WACC for this regulatory proposal, Aurora has adopted a 20 day averaging period commencing on 28 February 2011 and ending on 25 March 20101
Equity beta	0.80	0.80
Market risk premium	6.5%	6.5%
Value of debt as a proportion of the value of debt and equity (gearing)	0.60	0.60
Debt risk premium	To be based on a credit rating level of BBB+. The methodology and data sources used to determine the debt risk premium are not subject to specification in the SORI.	To be based on a credit rating level of BBB+ and to be calculated by reference to the approach applied by the AER in the 2011-2015 Victorian electricity distributors' final distribution determination, and an averaging period which is consistent with that used to measure the nominal risk free rate.
Value of imputation credits	0.65	0.25 (0.45 used for regulatory submission due to timing of Tribunal decision)

Aurora has proposed a nominal vanilla WACC of 10.33 per cent for the purpose of this Regulatory Proposal. This is based on the parameter values set out in Table 3 below. The table below also provides a cross-reference to the sections of this chapter that provide information

to substantiate the parameter value proposed by Aurora (noting a change of gamma to 0.25 is sought from the May Tribunal decision[2]).

Table 3: Calculation of Aurora Energy's post-tax (vanilla) WACC

Parameter	Proposed Value	Section Reference
Nominal risk free rate	5.53%	Section 1.4
Equity beta	0.8	Section 1.9
Market risk premium	6.5%	Section 1.8
Gearing (D/V)	60%	Section 1.7
Debt margin (excluding debt raising costs)	4.54%	Sections 1.5 and 1.6
Utilisation of imputation credits (γ)	0.45	Section 1.10 (note Aurora seeking 0.25 from May Tribunal decision)
CAPM Cost of equity (Ke)	10.73%	
(Pre-tax) Cost of debt (Kd)	10.07%	
Nominal Vanilla WACC	10.33%	
Post-tax Nominal WACC	**7.83%**	

The basis for the proposed parameter values and the evidence to justify the departures from the SORI (in relation to the value of gamma) are outlined in the following sections.

1.4 Risk free rate

The SORI requires that:

- the nominal risk free rate be calculated on a moving average basis from the annualised yield on Commonwealth Government bonds with a maturity of 10 years (based on the indicative mid rates published by the Reserve Bank of Australia).
- the period of time in which it is to be calculated should be as close as practically possible to the commencement of the regulatory control period, and should initially be proposed by the DNSP and agreed by the AER.

It is noted that in the recent ruling of the Australian Competition Tribunal in the matter of Application by Energy Australia and Others [2009], the Tribunal has, for the first time ruled on the issue of appropriate measurement (or averaging) period. The Tribunal found that the AER was in error in unreasonably withholding agreement to averaging periods proposed by the businesses[3]. In reaching this conclusion the Tribunal was influenced by the particular cost of capital estimation process set out in the Rules, which applied pre-determined parameter values to generate a cost of capital estimate to be applied to every year in a future regulatory

[2] ACT decision 12 may 2011: Application by Energex Limited (No.2) [2010] ACompT7

[3] Clause 6.5.2 of the Rules specifically provides that agreement may not be unreasonably withheld.

control period. The Tribunal considered that this rate is unlikely to be representative of the return required by investors in every year of the relevant regulatory control period due to movements in market-based parameter values.[4]. On this basis, the Tribunal rejected the logic of seeking to closely align the start of the regulatory period and the averaging period in circumstances where a single cost of capital value is applied to calculate the return on capital for each of the five years of a regulatory period (which is consistent regulatory practice in Australia).[5] The Tribunal instead held that the only clear ground for rejecting the businesses' proposed averaging periods under the Rules is that the period proposed would generate an estimate that was inappropriately low or high.[6]

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The risk free rate proposed in Aurora's Regulatory Proposal is therefore indicative only and is based on the 20 business day averaging period commencing on 28 February 2011 and ending on 25 March 2011. This rate is proposed to facilitate the calculation of the proposed rate of return at the time of submitting this proposal. As there is no 10 year Commonwealth Government bond maturing in March 2021, Aurora has estimated the appropriate rate by interpolating on a straight line basis between the April 2020 and the May 2021 Commonwealth Government bond yields.

The risk free rate for this regulatory proposal, estimated in the manner described above, is 5.53 per cent.

1.5 Credit rating

The SORI requires that the benchmark credit rating for a DNSP be set at BBB+ for the purpose of determining an appropriate rate of return.

Aurora proposes to accept the credit rating level of BBB+ as set out in the SORI. Aurora's estimate of the debt risk premium ("DRP") to be adopted in calculating the WACC is therefore based on this credit rating.

1.6 Debt risk premium

Debt risk premium

Aurora proposes to estimate the debt risk premium by commencing with the debt risk premium that is obtained from the longest term to maturity (but not greater than 10 years) for

[4] Application by EnergyAustralia and Others [2009] ACompT 8 [84-90]
[5] Application by EnergyAustralia and Others [2009] ACompT 8 [88]
[6] Application by EnergyAustralia and Others [2009] ACompT 8 [89]

which the Bloomberg BBB band fair value curve is produced (which is currently 7 years), and then to extrapolate this debt risk premium to one that is consistent with a 10 year term to maturity. It is proposed to undertake this extrapolation by adding on the difference between the debt risk premium at the 10 year and 7 year terms to maturity obtained from the Bloomberg AAA fair value during the last 20 days that that curve was published out to a 10 year term (25 May 2010 to 22 June 2010). Aurora has applied this method to the 20 business days from 28 February 2011 to 25 March 2011 inclusive, which has delivered a debt risk premium of 454 basis points. Aurora has also tested this estimate against the debt risk premia for the available bonds on issue (including bonds of close credit ratings and floating as well as fixed rate instruments) and concluded that this estimate is reasonable on the basis of the current evidence.

Aurora's final debt risk premium will be determined during an averaging period as specified in section 1.4.It is noted that the limited trade in Australian corporate bonds, the small number of number of bonds on issue and the limited quantity of new bond issues (especially around the 10 year mark) continue to create a challenge for estimating the debt risk premium. However, these conditions in the Australian corporate bond market are expected to continue to improve. Importantly, as the quality of the market evidence improves, this will automatically be factored into the debt risk premium that is derived from applying Aurora's proposed method.

In addition, changes in the Australian corporate bond market may require a refinement of the methodology that Aurora has proposed. A return to 'global financial crisis' conditions may warrant a rethink of whether the Bloomberg fair value curve remains the appropriate basis for deriving a debt risk premium. Alternatively, if conditions in the Australian corporate bond market continue to improve, then a simplification of the method may be possible (for example, if the Bloomberg BBB band fair value curve is once again produced out to 10 years). Accordingly, Aurora's Proposal includes a discussion of the potential conditions that it considers should warrant a review of its proposed method. If any of these conditions are triggered prior to Aurora's final debt risk premium being determined, Aurora requests the opportunity to make a proposal as to how that condition should affect the estimation of its debt risk premium.

The discussion of the reasons behind Aurora's debt risk premium proposal, along with the objectives of the legislative criteria and other elements of the framework are discussed in turn.

Legislative criteria

The NEL prescribes several requirements relevant to the estimation of the debt risk premium. The relevant terms to the debt risk premium are the following:[7]

> *'A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in—*
>
> *(a) providing direct control network services; and*

[7] *National Electricity Law*, sections 7A(2) and (5).

(b) complying with a regulatory obligation or requirement or making a regulatory payment.

…

A price or charge for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network service to which that price or charge relates.'

The National Electricity Rules (NER) in addition goes further on the debt risk premium. The NER states that: [8]

> *'The debt risk premium for a regulatory control period is the premium determined for that regulatory control period by the AER as the margin between the annualised nominal risk free rate and the observed annualised Australian benchmark corporate bond rate for corporate bonds which have a maturity equal to that used to derive the nominal risk free rate and a credit rating from a recognised credit rating agency.'*

Finally, the AER's Statement of Regulatory Intent (SORI) provides that the relevant credit rating is BBB+.[9]

Combining the requirements of the NEL, NER and the SORI, they require that the debt risk premium should:

- be based on an annualised interest rate;
- be based upon Australian corporate bonds;
- be the margin between the nominal risk free rate and the corporate bond rate;
- be determined using Australian corporate bonds that are observable, and is reflective of an Australian benchmark corporate bond rate for corporate bonds;
- reflect bonds with BBB+ credit rating;
- have the same term to maturity as the nominal risk free rate, of which implies a term to maturity of 10 years;
- be consistent with providing Aurora a reasonable opportunity to recover at least its efficient costs; and
- provide a return commensurate with the commercial and regulatory risk that is borne.

Aurora's methodology

Aurora's debt risk premium methodology follows a three step process:

Step 1: Establish a reliable and robust fair value curve as the starting point for deriving the debt risk premium;

Step 2: Select a methodology to extrapolate the debt risk premium to a term of 10 years; and

[8] *National Electricity Rules*, clause 6.5.2(e).

[9] *Statement of Regulatory Intent on the Revised WACC parameters – distribution*, AER, 2009, clause 3.7.

Step 3: Compare the estimated debt risk premium with the yields from the current bond market.

Establish a reliable and robust fair value curve

Aurora proposes that the derivation of its debt risk premium should commence with an estimate of a debt risk premium that is provided by a 'fair value' curve. A fair value curve is an econometrically estimated relationship that predicts the debt risk premium at specific credit ratings and terms to maturity. In an environment where corporate bond data is sparse, especially at the longer term, using a fair value curve to estimate a debt risk premium at specific credit ratings and terms to maturity is a well accepted methodology.

Aurora proposes that the most reliable and robust provider of Australian corporate bond fair value curves is Bloomberg. Bloomberg is an independent and respected financial market data provider and was widely used by regulators to determine the debt risk premium prior to the global financial crisis. In addition, since the Commonwealth Bank has discontinued its CBA Spectrum service – the other curve that regulators had used for this purpose – out of concern for the reliability, the Bloomberg fair value curve it is now the only of the publicly availably Australian corporate bond fair value curves available.

It is acknowledged that the regulated networks raised concerns about the performance of the Bloomberg fair value curves during the worst of the global financial crisis (being the months immediately following the collapse of Lehman Brothers in September 2008). However, Aurora notes that Pricewaterhouse Coopers (PwC) undertook an extensive analysis of the performance of the Bloomberg curves during this period for the Victorian electricity distributors,[10] and in so doing identified a number of objective shortcomings the quality of the market data at the time and the effect of the algorithms that Bloomberg performed, as well as accompanying tests directed at whether these conditions were continuing. PwC applied the test during the first 15 trading days of October, and concluded that[11]:

> *'We have found that each of these tests is passed, and hence recommend the use of the Bloomberg fair value curve for this period.'*

It is noted that more recently the AER has also agreed that Bloomberg is a reliable and robust provider of Australian corporate bond yield fair value curves. In particular, the AER noted in its 2010 Victorian Distribution Network Service Provider (DNSP) final decision that[12]:

> *'Notwithstanding, the AER accepts as reasonable in the circumstances, CEG's latest analysis which suggests that Bloomberg's BBB fair value curve reflects a range of BBB rated bonds currently trading in the market (i.e. with a maturity below 7 years).*
>
> *In summary, the AER considers that Bloomberg's BBB fair value estimates provide a reasonable reflection of corporate bond yields with a BBB rating and maturities up to 7 years.'*

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10 *Victorian Distribution Businesses, Methodology to Estimate the Debt Risk Premium*, PwC, November 2009

11 Ibid, p.4

12 *Victorian electricity distribution network service providers, Distribution determination 2011-2015*, AER, October 2010, p.503

Accordingly Aurora considers that the most appropriate starting point for deriving its debt risk premium is the Bloomberg BBB band fair value curve.

Select a methodology to extrapolate the debt risk premium to a term of 10 years

As the Bloomberg BBB band fair value curve is only published out to a term to maturity of 7 years, a method is required to adjust this 7 year debt risk premium into a premium that is consistent with a 10 year term to maturity as required by the regulatory framework discussed above. Aurora considers that the most reasonable approach to extrapolate the debt risk premium to 10 years that is currently available is to add the difference in the debt risk premium between a 10 year and 7 year term that was implied by the Bloomberg AAA fair value curve from the most recent dates that this curve was produced to 10 years (hereafter referred to as the 'Bloomberg AAA curve extrapolation').

Historically, the approach to estimate a benchmark BBB+ Australian corporate bond yield was to observe Bloomberg's 10 year BBB fair value yield. However, since 9 October 2007 Bloomberg ceased to publish a 10 year BBB fair value yield. The longest term to maturity for the Bloomberg BBB fair value curve is now 7 years, therefore various methodologies have been considered by the AER and various experts to extrapolate a 7 year debt risk premium to one that is consistent with a term to maturity of 10 years.

While Aurora notes that there is no consensus on how the 7 year debt risk premium should be adjusted to create a 10 year premium, it notes that the Bloomberg AAA curve extrapolation has the support of the AER and is preferred by a number of experts.

The AER considered and tested different approaches to extrapolating Bloomberg's 7 year fair value yield to 10 years in its June 2010 draft decision for the Victorian electricity distributors[13]. In the decision, the AER considered a number of possible data sources to extrapolate Bloomberg's 7 year fair value yield such as Bloomberg's AA and AAA fair value curves, Semi-government fair value curves and interest rate swap curves. The AER tested each extrapolated yield by comparing them to Bloomberg's 10 year BBB fair value yield over the period 10 November 2005 to 9 October 2007, which was chosen because it represents the most recent period when Bloomberg reported a BBB 10 year fair value yield. AER's testing showed that extrapolating Bloomberg's BBB 7 year fair value yield by using Bloomberg's AAA fair value curve was the most accurate methodology to estimate a 10 year Bloomberg BBB fair value yield.

Synergies, however, presented an alternative view. In Synergies' December 2010 report, it analysed the best method to extrapolate the Bloomberg BBB 7 year fair value yield, and found that in light of the discontinuance of the 10 year AAA fair value curve the linear extrapolation method is the best. Synergies said that the AER's assumption that the Bloomberg AAA fair value spread remains constant using outdated Bloomberg AAA data is not supported by empirical evidence. Synergies therefore proposed that the most appropriate method to extrapolate the Bloomberg 7 year fair value curve is by linear extrapolation.

[13] *Victorian electricity distribution network service providers, Distribution determination 2011-2015*, AER, June 2010

In contrast, Competition Economics Group (CEG) in its October 2010 report agreed with the AER's methodology when it examined extrapolation methodologies for Bloomberg's BBB 7 year fair value yield[14]. CEG examined extrapolating Bloomberg's BBB 7 year fair value yield using the Commonwealth Government Securities (CGS) curve, Bloomberg's AAA fair value curve and by linear extrapolation, and found that the AAA fair value curve was the best based on more recent data[15]. Although CEG acknowledged that the AAA fair value curve has stopped being published[16], it said that the AAA fair value curve had a number of advantages including that 'it was based on estimated yields of corporate issues' and that 'it was the approach most recently utilised by the AER in its Draft Decision on the Victorian DNSPs pricing proposal.'[17].

Accordingly, while noting that some debate remains, Aurora considers that the Bloomberg AAA curve extrapolation is the best method that is currently available for this purpose.

Compare the estimated debt risk premium with the yields from the current bond market

The last part of Aurora's proposed methodology is to test further the reasonableness of its estimated debt risk premium by comparing it to a population of relevant fixed and floating rate bonds in the Australian corporate bond market. Currently, there are few long term fixed interest Australian corporate bonds that Bloomberg can draw upon when deriving its fair value curves, and so the most prudent and reasonable action to take, consistent with the recent Australian Competition Tribunal decision on ActewAGL, is to consider Aurora's proposed debt risk premium estimate in light of the full spectrum of available bonds, including both fixed and floating rate bonds as well as credit ratings close to a BBB+ credit rating.

Specifically, in the recent Australian Competition Tribunal decision in the ActewAGL matter, the Tribunal, amongst other things, stipulated a process to assess whether a proposed debt risk premium estimate is reasonable. The process was[18]:

> *'…The AER could, as it has done here, compare relevant observed yields against the published fair value curves and an average of these curves. This will require the AER to undertake the following process:*
>
> *(a) assemble a representative population of observed yields of sufficient number and term to maturity. It is difficult for the Tribunal to provide any hard and fast rule for determining whether a population is "representative". A representative population would contain many bonds after the point at which the curves diverge. It should contain bonds with a term to maturity close to 10 years. The AER should include floating rate bonds and/or bonds with observations available from one or two sources in the population unless there is good reason to exclude them. The inclusion of these bonds may raise questions which the AER will need to address in the future, such as the weighting that should be given to them;*

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14 *Use of the APT bond yield in establishing the NER cost of debt, A report for Victorian Distribution Businesses*, CEG, October 2010

15 Ibid, pp.49 - 56

16 Bloomberg stopped producing an AAA fair value curve longer than 5 years since 22 June 2010.

17 Ibid p.56

18 Application by ActewAGL Distribution [2010 ACompT 4, 17 September 2010, para 77 (3)

(b) only exclude bonds where there are sufficient qualitative reasons to consider that they are not correctly classed as being part of the relevant population;

(c) once a representative set of bonds has been chosen and refined in this way, select the fair value curve that most closely corresponds to the relevant set;

(d) use any other available information, such as observed yields on other rated bonds, to check that the selected fair value curve remains likely to provide the best estimate.

If a representative set of bonds sufficient to determine a fair value curve cannot be ascertained, or if later checks throw doubt on the chosen fair value curve, then this method of distinguishing between the curves cannot be used.

If the AER cannot find a basis upon which to distinguish between the published curves, it is appropriate to average the yields provided by each curve, so long as the published curves are widely used and market respected.'

Aurora's method draws upon the process that the Tribunal has set out although, as there is only one market-respected fair value curve being considered, the purpose of the test is to ascertain whether that estimate is in line with the available market evidence, including evidence that is not used to create the Bloomberg BBB band fair value curve.

Appropriate use of the APT Bond

Aurora notes that in the recent Victorian DNSP final decision, the AER decided to apply a mechanical weighting to a recent 10 year bond issue by the Australian Pipeline Trust (APT) when deriving the debt risk premium[19]. Specifically, the AER used a weighted average of the debt risk premium that was derived from the Bloomberg BBB band fair value curve and the debt risk premium of the APT bond. This led to the AER applying a high weighting to the APT bond than if included in the portfolio as part of the Bloomberg yield curve. The AER justified the high weighting it therefore applied on the APT bond as follows:[20]:

'The AER considers that the APT bond provides a good proxy of the benchmark corporate bond and the use of the APT bond as a data source for estimating the DRP] *is consistent with the requirements under the NER and SORI. In addition, the fact that the nature of the underlying risk and markets in which the APA Group operates resemble those of the Victorian DNSPs is a relevant consideration, in light of what the rate of return calculation is designed to achieve under the NER and the revenue and pricing principles.*

However the AER acknowledges the arguments presented by the DNSPs regarding the reliability of Bloomberg, and the uncertainty surrounding the APT bond as a single observation. For this reason, the AER has maintained its proposed approach of using the yields derived from Bloomberg and from the APT bond. The AER has given more weight to the former for the purposes of this final decision. In forming this decision, the AER recognises that Bloomberg is demonstrated to accurately represent yields on

19 *Victorian distribution determinations – Final decision*, AER, p.509

20 Ibid, pp. 495 - 496

shorter rated BBB bonds, while yields on the APT bond reflect an observed yield on a 10 year BBB bond which may be reflective of the efficient cost of debt regulated network service providers. However, this is only one observation whilst the Bloomberg fair value curve is reflective of a range of BBB rated bonds.

Consequently, the AER considers that a 75% and 25% weighting to Bloomberg and APT respectively reflects a reasonable and practical approach in setting the DRP given uncertainties around relying too heavily on the single observation in the APT bond with respect to the benchmark corporate bond rate. '

In Aurora's opinion, while it may be appropriate for the AER to have regard to the APT bond when assessing the reasonableness of the debt risk premium predicted by the Bloomberg BBB band fair value curve, applying a disproportionately higher weight to the APT bond compared to other individual bonds is inappropriate. To be clear, the APT bond is available to be included in the Bloomberg BBB band fair value curve, which would be expected to occur in the future. Beyond that, there is no valid reason for singling out this one data point to the exclusion of the other data points. More specifically, Aurora considers that this disproportionate weighting is inappropriate because:

- As a matter of principle, the yield of a single bond is uncertain and can be potentially affected by factors that are unique to an issuer, and it is by considering a diversity of evidence that the contribution of such unique factors is minimised;
- That, as a matter of fact, there are good reasons to consider that the yield on the APT bond is affected by factors that were unique to that issue;
- The theory that the AER has relied upon to suggest that a 10 year corporate bond may have a lower debt risk premium than a 7 year corporate bond (the 'Merton model') has been applied incorrectly; and
- To the extent that differential weight is to be applied to bonds depending on their comparability to a regulated network, other bonds – most notably, the Dalrymple Bay Coal Terminal corporate bond is equally or more relevant than the APT bond.

These matters are expanded upon below.

Uncertainties with yields on individual bonds

The yield on any individual corporate bond is subject to measurement error, and may also be influenced by factors that are unique to an issue or issuer. Thus, it cannot be inferred that the yield of a specific bond provides a better representation of a credit rating or maturity than another because differences in bond yields may merely reflect this measurement error or such unique factors. The appropriate (and statistically robust) course of action in light of uncertainty and the presence of unique factors are to consider a larger set of evidence where measurement errors and the effect of unique factors should be ameliorated or eliminated.

Aurora notes that Synergies put forward this logic in a December 2010 report[21]:

> *'The AER's most recently applied methodology estimates the DRP by weighting the APT bond yield by 25% and the Bloomberg yield by 75%. Effectively the AER is placing a weight of 75% upon a portfolio of eleven bonds that are considered to be liquid and indicative of market yields and a 25% weight upon a bond that is illiquid and not considered to be a reliable price.*
>
> *There is a basic statistical issue in placing reliance upon a sample size of one. Previously the AER has relied upon independent, credible and accessible data providers and has statistically tested their predicted values. Now the AER will average the Bloomberg yield with the yield on a single bond. There does not appear to be any credible reason to placing a 25% weighting on one untested bond yield and averaging this with a portfolio of eleven bonds that have been assessed by a respected data provider.'*

CEG is of a similar view, saying that[22]:

> *'First, any estimate of the benchmark cost of debt must rely on Australian bond market data. The fact that the available data to do this is imperfect no more invalidates the Bloomberg fair value curves than it does any other method of estimating a benchmark return. The AER's proposed alternative method of arriving at a benchmark yield involves giving at least 50 percent weighting to the estimated yields of a single corporate bond. There is no reason to believe that this approach makes better use of the sparse Australian bond market data than Bloomberg's methodology. On the contrary, there is no reason to believe that it does a worse job than the Bloomberg methodology.'*

Specific issues with the APT bond

In addition, there is evidence to suggest that there are a number of factors that are unique to the APT bond that are likely to have had a material effect on its yield.

Synergies in their recent December 2010 report highlighted the issues on the yield of the APT bond[23]:

> *'The APT bond was issued in Australia to thirteen institutional investors on 15th July 2010. The APA Group has advised that this debt has been purchased and held by these investors as part of a long-term 'buy and hold' strategy, presumably as the characteristics of the business meet their specific needs. To the extent that any trades have occurred, they would be on an over-the-counter basis. APA has informed Synergies that to their knowledge, there has been no subsequent trading in the bond.*
>
> *…*
>
> *Bloomberg does not currently use the APT bond in its estimation of the [fair value] yield curve (it has not been possible to confirm whether it has been included in the sample at*

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21 *Estimating a WACC for the NT Gas Transmission Pipeline,* Synergies Economic Consulting, December 2010, pp.42-43

22 *Use of the APT bond yield in establishing the NER cost of debt*, CEG, October 2010, p.11, para 11.

23 *Estimating a WACC for the NT Gas Transmission Pipeline*, Synergies Economic Consulting, December 2010, pp.35 - 39

any point since it was issued, noting that if it had been, the AER's approach would result in double counting). The most likely reason for this is that the price of the APT bond is an indicative price and due to the lack of liquidity in the bond, the price is not considered to be a reliable price.'

CEG also highlighted the peculiarities in the yield of the APT bond. In CEG's report to the AER, it showed that the yield implied by the APT bond appears to be relatively low compared to other bonds with a BBB credit rating[24]. CEG demonstrated this by comparing a hypothetical APT fair value curve drawn from the Bloomberg 1 year fair value curve to the APT bond yield and a population of BBB- to A rated bonds and commented that[25]:

'In my view there is no reasonable shape to a fair value DRP curve that would both pass through the APT bond and fit the available data. Any DRP fair value curve with a positive slope (ie where DRP increases with maturity) will fail to fit the data if it is required to pass through the APT bond yield at 10 years.'

Theoretical shape of a debt risk premium curve

The AER also made an error in justifying the relatively low observed yield for the APT bond by relying on Merton's 1974 theory of bond pricing. [26] The AER interpreted Merton's bond pricing theory to say that[27]:

'This suggests that the credit spread for shorter maturity bonds is potentially wider than the credit spreads of bonds with longer maturity. As a result, it may be the case that yields on bonds with longer maturities will not necessarily be higher than those with shorter maturities, hence further underlining the importance of considering the actual behaviour of longer dated bonds when setting the DRP .'

That is, the AER is suggested that although the debt risk premium derived from the Bloomberg 7 year BBB band fair value yield at the time of the final decision was higher than the APT bond debt risk premium, that did not imply the APT bond was not reflective of a BBB rated corporate bond. It asserted that Merton's theory says that the debt risk premium bond does not have to increase with term, therefore given that the APT bond is a longer term than the Bloomberg 7 year BBB fair value yield, it may be the case that the yield should be lower.

However, Synergies has subsequently presented evidence that demonstrates the error in the AER's arguments, observing as follows[28]:

'While part of the AER's conclusions [on the applicability of Merton's theory] are true for the whole curve (30 year BBB yield curves are hump shaped], for the relevant section of the curve (up to ten years), the AER is incorrect in assuming that the yield could be expected to be jump shaped. The expectation is that a ten year bond should

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[24] *Use of the APT bond yield in establishing the NER cost of debt*, CEG, October 2010,

[25] ibid, p.19

[26] Robert C. Merton (1974), '*On the pricing of corporate debt: The risk structure of interest rates,' Journal of Finance*, Vol.29, pp.449-470

[27] *Victorian distribution determinations – Final decision*, AER, p. 507

[28] *Estimating a WACC for the NT Gas Transmission Pipeline,* Synergies Economic Consulting, December 2010, p.33

have a yield greater than a seven year bond and empirical evidence provided by the AER supports this claim. The expectation from the study is that the APT bond should have a yield greater than the yield for the seven year Bloomberg BBB yield.'

Other relevant bonds

Lastly, Aurora considers that is additional weight is to be assigned to bonds on issue depending on the comparability of the industry in question with a regulated network business, then the Dalrymple Bay Coal Terminal bond would be an equally or more comparable bond.

Dalrymple Bay Coal Terminal is a port terminal that is regulated by the Queensland Competition Council under a revenue cap. That is, it is similar in that both Aurora and Dalrymple Bay Coal Terminal are regulated in a similar manner. In addition, it is rated by Standard & Poors of having a BBB+ credit rating, consistent with the requirements under the SORI and is conservatively geared. Aurora believes the characteristics of Dalrymple Bay Coal Terminal better reflects a regulated DNSP than APT.

CEG has also observed that the activities that are financed by the Dalrymple Bay Coal Terminal bond are comparable to those of a regulated network, observing as follows[29]:

'With these considerations in mind I consider that the DBCT bond in the consultation paper's figure 1 is an equally good alternative to the Bloomberg fair value curve as a proxy for the BBB+ benchmark yield. There are four dot points on page 3 of the consultation paper that describe why the AER views the APT bond as a potentially preferable proxy for the benchmark cost of debt relative to the Bloomberg fair value curve. The first two dot points describe perceived problems with the Bloomberg estimate. The last two describe the relative advantages of the APT bond as:

- *The yield calculation is transparent;*
- *It reflects a 10-year maturity;*
- *Its BBB rating provides an acceptable proxy to the BBB+ benchmark;*
- *The APA Groups investments and markets provide a close match to those of electricity service providers.*

All of these perceived relative advantages apply equally to the DBCT bond (which is 10.7 years maturity at the end of the SP Ausnet averaging period compared to the 9.8 years for the APT bond). In addition to its BBB+ rating, the DBCT bond has the added advantage of being issued over the entirety of the three averaging periods – so there is no need to hypothecate a yield to it before it was issued as is proposed under the AER methodology. The DBCT bond is a floating rate note while the APT bond is a fixed rate bond. However, in my opinion this is not a material difference because a floating yield can easily and accurately be converted into a fixed rate yield (and vice versa).'

[29] Ibid, p.27, para 86 - 88

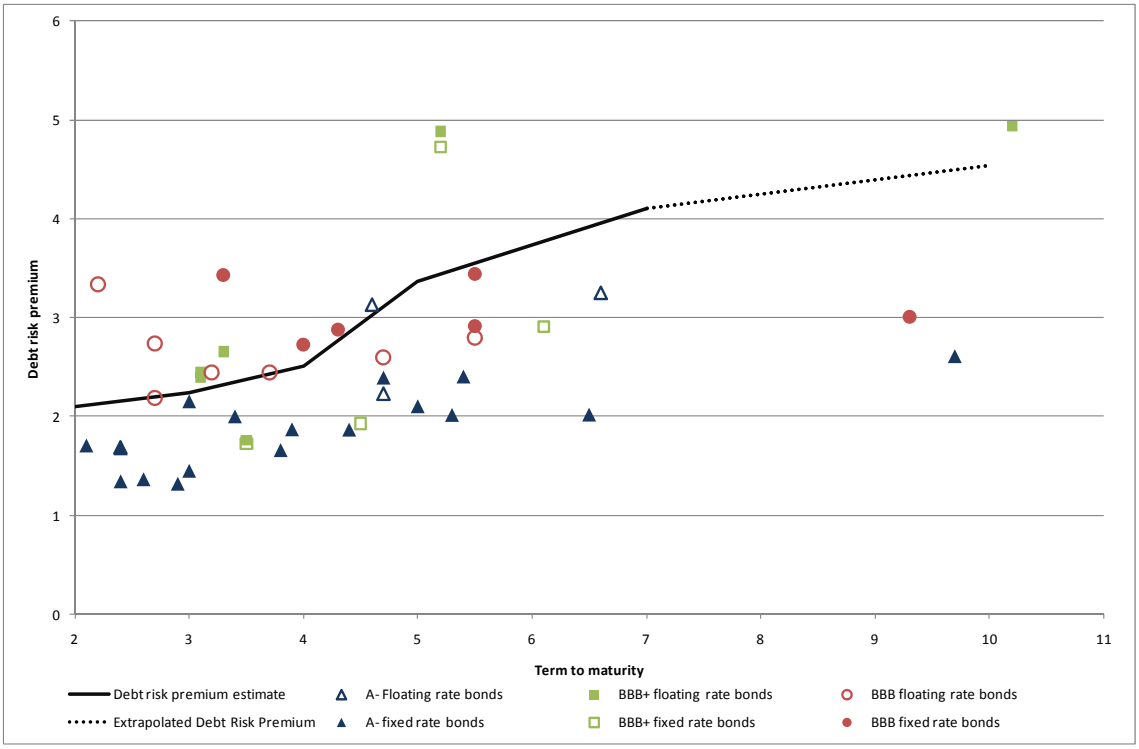
Aurora's debt risk premium proposal

Aurora has applied the three step methodology stipulated above, and obtained an estimate of the debt risk premium of 454 basis points[30]. This was estimated based on observations for the 20 business days 28 February 2011 to 25 March 2011 inclusive for the Bloomberg 7 year BBB fair value debt risk premium, and 20 business days from 25 May 2010 to 22 June 2010 for the Bloomberg AAA fair value curve. The observations for the Commonwealth Government Securities were, consistent with the estimation of the risk free rate, obtained from the Reserve Bank of Australia. All observations have been expressed in effective annual rates, and interpolated to be consistent with the exact term required.

Figure X.2 shows how its proposed debt risk premium compares a representative sample of Australian corporate bonds. This comprises a population of fixed bonds and floating rate bonds (converted to fixed rate bonds) and, due to the small population of BBB+ bonds, includes bonds with credit ratings spanning A- to BBB credit ratings. Aurora has relied on data from UBS for the floating rate bonds, and UBS and Bloomberg for the fixed rate bonds. In situations where yields were available from UBS and Bloomberg, an average of the two yields was used. The population of Australian bonds includes all Australian issued fixed and floating rate bonds with a term to maturity of 2 years or greater for which a yield is produced by Bloomberg or UBS, excluding bonds issued by banks and products of a highly structured nature.

Figure X.2 – Debt risk premium estimate compared to A- to BBB fixed and floating rate bonds.

[30] The debt risk premium was estimated as the difference between annualised fair value yields reported by Bloomberg, and the annualised yields on Commonwealth Government Securities reported by the RBA. The 7 year debt risk premium was extrapolated using the data from the last 20 business days over which a 10 year AAA fair value curve was reported by Bloomberg.



Source: Bloomberg and UBS

Aurora considers that the figure supports the conclusion that Aurora's debt risk premium proposal estimated by extrapolating the Bloomberg BBB band fair value curve from 7 years using the Bloomberg AAA fair value curve is appropriately representative of the population of bonds.

Potential changes prior to the final decision

Aurora's proposed methodology is based on the current set of circumstances and, as such, the most appropriate method in the current circumstances. Aurora has provided an indicative debt risk premium in its proposal, its final debt risk premium will be determined during an averaging period as advised in section 1.4.

. It is noted that the limited trade in Australian corporate bonds, the small number of number of bonds on issue and the limited quantity of new bond issues (especially around the 10 year mark) continue to create a challenge for estimating the debt risk premium. However, these conditions in the Australian corporate bond market are expected to continue to improve. Importantly, as the quality of the market evidence improves, this will automatically be factored into the debt risk premium that is derived from applying Aurora's proposed method.

In addition, changes in the Australian corporate bond market may require a refinement of the methodology that Aurora has proposed. If circumstances change materially, then Aurora will need to reconsider the most appropriate methodology to estimate a debt risk premium consistent with the NEL, NER and SORI.

Whilst it is difficult at best to anticipate the full spectrum of possible changes to the environment in estimating a debt risk premium, Aurora has identified a set of likely contingencies and the expected effects it will have on Aurora's proposed debt risk premium methodology. The following are the identified situations and proposed resolutions:

- Bloomberg resumes reporting a 10 year BBB fair value curve – this would permit the 10 year BBB fair value yield to be used to derive the debt risk premium directly;
- Bloomberg resumes reporting a BBB fair value curve greater than 7 years but less than 10 years – Extrapolate the BBB fair value curve at the longest term possible, then compare the estimate debt risk premium with the full body of evidence available focusing on long term corporate bonds;
- Bloomberg resumes reporting longer term fair value curves of credit ratings at or lower than AAA credit rating – then, if extrapolation continues to be required, then the A, AA or AAA fair value curve curves could be used to perform this extrapolation, although the reasonableness of the slope of the relevant curve should also be tested;
- Another market respected provider of fair value curves re-emerges (for example, CBA Spectrum resumes the publication of fair value curves) – then both the Bloomberg and other fair value curves would need to be considered and assessed against the full body of evidence available focusing on long term corporate bonds. If one cannot distinguish between Bloomberg and the alternative fair value curve, then an average of the curves should be used;
- The conditions that characterised the worst of the global financial crisis return and/or Bloomberg is found not to reliable fair value curves – the consideration would be required of how best to interpret the totality of the available Australian market evidence to derive the best estimates the 10 year BBB+ debt risk premium.

If any of these conditions are triggered prior to Aurora's final debt risk premium being determined, Aurora requests the opportunity to make a proposal as to how that condition should affect the estimation of its debt risk premium.

1.7 Gearing level

The SORI requires that the value of debt as a proportion of the value of debt and equity (D/V or "gearing") be set at 0.60.

Aurora proposes to adopt a value of 0.60 for the gearing level, consistent with the SORI.

1.8 Market risk premium

The SORI requires that the value of the market risk premium be set at 6.5%.

Aurora proposes to adopt a value of 6.5% for the MRP, consistent with the SORI.

1.9 Equity beta

The equity beta has been assigned a value of 0.8 in the SORI.

Aurora accepts that the appropriate value for the equity beta is difficult to estimate from a statistical standpoint and that the AER's decision in the WACC review to reduce the value of the equity beta from the previously adopted value of 1.0 remains highly contentious. This is evidenced by the range of views expressed in regulatory proposals and submissions to the AER's recent electricity determinations in Queensland, South Australia and Victoria. Nevertheless, we propose to adopt a value of 0.8 for the equity beta, consistent with the requirements of the SORI.

1.10 Value of imputation credits

Under the AER's post-tax building block approach to determining the annual revenue requirement, the value of imputation credits does not affect the post-tax WACC, but affects the estimated cost of corporate income tax. The calculation of the estimated cost of corporate income tax is set in clause 6.5.3 of the Rules and in Chapter 21 of Aurora's regulatory proposal.

The value that Aurora Energy has proposed to adopt for the value of imputation credits reflects its consideration of the evidence considered by the AER in the WACC Review as well as the recent decision by the Australian Competition Tribunal on this matter.[31] For this reason, Aurora has outlined its understanding of the relevant issues in some detail below.

1.10.1 The values in the SORI

In the AER's May 2009 WACC review final decision, the value of imputation credits (denoted by γ or "gamma") was determined as the product of two underlying parameters:

- the rate at which imputation credits are distributed to investors ("distribution rate", also represented by F); and
- the rate at which distributed credits are redeemed by investors ("utilisation rate", also represented by θ or theta).

The AER's May 2009 WACC review final decision adopted a value of 100 per cent for the distribution rate and 0.65 for the utilisation rate. Based on this, the SORI requires that a value of 0.65 be adopted in relation to the assumed value of imputation credits.

Basis for adopting a value of 1.0 for the distribution rate

The AER's WACC review observed that there are two key issues to be addressed in considering the appropriate value for the distribution rate. These were:

> *"1) the proportion of imputation credits generated each year that are distributed in that same year (the 'annual payout ratio'), and*

[31] Application by Energex Limited (No. 2) [2010] ACompT 7.

2) the value of imputation credits that are not immediately distributed but rather retained within the firm for a period of time (the 'value of retained credits').”[32]

The AER stated that it considered that:

> *“…a reasonable estimate of the annual payout ratio is the market average ratio of 0.71 provided by Hathaway and Officer. … In effect, this means that 71 per cent of all imputation credits created in a given year are assumed to be distributed to shareholders in that same year.”*[33]

The AER further reasoned that given that the annual payout ratio was 71 per cent, it followed that “*retained imputation credits are estimated to represent 29 per cent of all credits created each year (i.e. following Hathaway and Officer).”*

The AER then went on to consider the question of what would be an appropriate value to attribute to retained imputation credits and concluded that its value would depend upon two factors: (1) the appropriate rate at which to discount retained imputation credits, which should reflect the degree of risk faced by an investor that credits generated are never distributed; and (2) the period over which imputation credits are likely to be retained.

It ultimately concluded that it was reasonable to assume that retained imputations would be paid out by firms between one and five years after they were created[34], on the basis that *“…the average firm in the Australian market will rationally seek to distribute its retained credits as quickly as possible through whatever means are available, so as to meet shareholder demands*.”

These considerations ultimately led the AER to conclude that after taking into account the likely pattern of distribution of imputation credits in both the year of creation and within the next five years, *“…the payout ratio increases from 0.71 to 0.95 depending upon the assumptions taken in accounting for time value considerations*.” (page 419). This result effectively implies that it is reasonable to assume that the loss of time value between generation and distribution of credits is negligible, which the AER acknowledged:

> *“On the basis of all these considerations the AER concludes that the issue of time value loss associated with the value of retained credit is not material such that the adoption of an estimate for the payout ratio of 1.0 is unreasonable.” (page 420)*

Basis for adopting a value of 0.65 for the utilisation rate

In its WACC final decision the AER adopted a value for theta of 0.65, being the midpoint between an upper and lower bound estimate established as follows:

- the lower bound estimate of 0.57 was based on the AER's best estimate of theta inferred from market prices. Reliance was placed a study by Beggs and Skeels (2006)[35] which employed a dividend drop-off method of analysis; and

[32] AER May 2009 WACC Review Final Decision, page 415.
[33] AER May 2009, WACC Review Final Decision page 415.
[34] AER May 2009, WACC Review Final Decision, page 418
[35] Beggs, D.J. and C.L. Skeels, 2006, Market Arbitrate of Cash Dividends and Franking Credits, The Economic Record, Vol. 82 (258), 239-252.

- the upper bound estimate of 0.74 was based on the AER's estimate of theta from a study by Handley and Maheswaran (2004)[36], which examined data from tax statistics.

In considering the relevance of the findings from both of these studies, the AER noted it was appropriate to focus on post-2000 data only, given the significance it attached to the July 2000 tax changes which allowed a full tax rebate of unused credits. Notwithstanding this, the AER's upper bound estimate of 0.74 was in fact an average of the results from two sub-samples (i.e. a mean of 0.67 for the period 1990 to 2000 and a mean of 0.81 for the period 2001 to 2004).

In arriving at its conclusions, the AER considered a range of evidence from submissions including a study by Strategic Finance Group (SFG)[37] which had been submitted by the energy network businesses. SFG's study attempted to replicate the analysis in Beggs and Skeels (2006) by using an expanded and more recent data set, which included an additional 28 months of data in the post-2000 sub-sample, which was the period of focus endorsed by the AER. However, due to concerns that it had regarding the reliability of the results of the SFG study, the AER decided to place little weight on its results.

1.10.2 The Australian Competition Tribunal's review of the AER's decision on the value of gamma

The Tribunal decision on the value of gamma was issued in response to an application by Energex, Ergon and ETSA Utilities ("the applicants") for a review of the AER's final decisions on their respective distribution revenues for the 2011-2015 regulatory period. In their regulatory proposals, Energex and Ergon had proposed a value for gamma of 0.2, whilst ETSA proposed a value of 0.5, all of which were rejected by the AER.

On 13 October 2010, the Tribunal found that the AER had erred in its treatment of both the distribution ratio and the utilisation rate, which underpin the calculation of gamma. However, it is not yet in a position to correct those errors as at the date of this submission.

In relation to the distribution ratio, the AER acknowledged it made an error of fact in interpreting in its WACC Review that the distribution ratio of 71% as derived by Hathaway and Officer (2004)[38] was in fact a long-term distribution ratio. On this basis, the AER conceded there was evidence to justify departure from the value of gamma adopted in its SORI, insofar as it relates to the distribution ratio. The AER did not however concede that the appropriate substitute value for the distribution ratio is necessarily 70%, as proposed by the applicants in that case. However, in its decision of 24 December 2010, the Tribunal determined that the most appropriate distribution ratio for gamma is 0.70.[39]

In relation to the utilisation rate (also referred to as "theta"), the Tribunal considered that the AER made a material error of fact in deriving its estimate of the utilisation rate of 0.65, and exercised its discretion incorrectly, specifically regarding the following matters:

[36] Handley, J.C and K Maheswaran, 2008, A Measure of the Efficacy of the Australian Imputation Tax System, The Economic Record, Vol. 84 (264),

[37] SFG Consulting, *The value of imputation credits as implied by the methodology of Beggs and Skeels (2006)*, Report prepared for ENA, APIA and Grid Australia, 1 February 2009.

[38] Hathaway N. and Officer B., *The value of imputation credits – update 2004*, (November 2004)

[39] Application by Energex Limited (Distribution Ratio (Gamma)) (No 3) [2010] ACompT 9, para 4.

- the AER's methodology to derive its estimate of theta. The Tribunal considered that the findings of Handley and Maheswaran (2008) on the value of theta should have been used as a check on the reasonableness of the findings of Beggs & Skeels (2006) given that the study was based on analysis of tax statistics. That is, the results of Handley and Maheswaran (2008) should be regarded as an upper bound estimate and should not have been averaged to derive a point estimate of theta;
- a failure to recognise Handley and Maheswaran (2008)[40] involved an assumption about the utilisation rate, rather than an empirical estimate of it;
- reliance upon Handley and Maheswaran (2008), without it being subjected to a similar degree of scrutiny to that applied to the SFG study (2009)[41];
- the use of a simple average of figures for two sub-periods in Handley and Maheswaran (2008), when that study itself provided an estimate for the combined period. In doing so, the AER took into account data from the pre-2000 period, which preceded the introduction of the 45 day rule for imputation credits[42], when it had itself stated that only post-2000 data would be relevant;
- failure to view Beggs and Skeels (2006) with equal caution as the SFG 2010 study[43], given the inherent statistical problems associated with dividend drop-off analysis which were present in both studies;
- the rejection of a Synergies 2009 tax study on the basis of erroneous advice about it; and
- a failure to consider general market practice regarding the value of theta.

While the Tribunal had not concluded whether the applicants' position of a theta of 0.23 was necessarily the best estimate, it nevertheless considered the AER erred in its conclusion that 'there was no persuasive evidence justifying a departure from the value of theta (i.e. the utilisation rate)'. As a result, the Tribunal:

- requested a report from the AER that addresses both the errors found regarding the distribution ratio and the utilisation rate and the Tribunal's further comments;
- with respect to the utilisation rate, required the AER's report 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'.

[40] Handley J.C. and Maheswaran K., *A measure of the efficacy of the Australian imputation tax system*, (2008)
[41] Strategic Finance Group (SFG Consulting), *The value of imputation credits as implied by the methodology of Beggs and Skeels (2006)*, (2009)
[42] The 45 day rule required that a shareholder must hold a shareholding from which a franked dividend is derived for 45 days before being able to gain the benefit of a tax off-set.
[43] SFG Consulting analysis, (February 2010)

In the AER's most recent decisions – which were the draft decisions for the access arrangements for the South Australian and Queensland gas distribution businesses[44] – the AER has applied the Tribunal's value of the distribution ratio of 0.70 and the AER's preferred value for theta of 0.65, producing a (rounded) value for gamma of 0.45. Aurora Energy has adopted that value for the purposes of its regulatory proposal. However, Aurora expects the outcome from the Tribunal's review of theta determined on 12 May 2011 (Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9) to be adopted for Aurora and this outcome will be used in calculations in response to the draft determination.

The Tribunal views about the appropriate value for theta[45] determined that the best available estimate of the value of imputation credits once in the hands of investors is 0.35. Combined with the Tribunal's earlier decision that it is appropriate to assume that 70 per cent of credits are distributed, this implies an assumed value for imputation tax credits of 0.25 (or 25 per cent of their face value). The effect of this assumption, as the Tribunal commented, is that distributors would be compensated for 75 per cent of the company tax liable of a benchmark efficient distribution business.

The Tribunal's conclusion reflects its acceptance that the March 2011 report that SFG produced at the request of the Tribunal provides the best estimate of the utilisation rate for imputation credits, including that it provided a superior estimate to the material that the AER relied upon for the 2009 WACC Parameters Review. The specific comment the Tribunal made in this regard is as follows:

> *"38. The Tribunal finds itself in a position where it has one estimate of theta before it (the SFG's March 2011 report value of 0.35) in which it has confidence, given the dividend drop-off methodology. No other dividend drop-off study estimate has any claims to be given weight vis-à-vis the SFG report value."*

Given the Tribunal's views on this matter and the extensive material that was prepared for, and considered by, the Tribunal, Aurora considers it appropriate for the same gamma value of 0.25 to be applied in its application.

1.10.3 Aurora's proposed value

Aurora submits that the findings underpinning the Tribunal's decision (as outlined in Section 1.10.2) constitute persuasive evidence for Aurora to depart from the prescribed value of gamma in the SORI. Due to the timing of the Tribunal decision and preparation of the regulatory submission, the submission has utilised a value of 0.45 for the value of gamma. However, Aurora expects the Tribunal's value 0.25 to be adopted for gamma and Aurora will apply that value in its response to the draft determination

[44] AER, 2011, Draft Decision: Envestra Ltd, Access Arrangement Proposal for the SA Gas Network, February; AER, 2011, Draft Decision: Envestra Ltd, Access Arrangement Proposal for the Qld Gas Network, February; AER, 2011, Draft Decision: APT Allgas, Access Arrangement Proposal for the Qld Gas Network, February.
[45] Application by Energex Limited (No.2) [2010] ACompT7

1.11 Inflation

1.11.1 Forecast inflation

Aurora proposes to adopt an inflation forecast of 2.575% per annum for this regulatory proposal.[46] The forecast inflation is the geometric average of the forecast annual inflation for each of the ten years from 2011 to 2020, as shown below.

Table 4: Forecast inflation (per cent per annum, June year end)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Inflation forecast	2.50	2.75	3.00	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Geometric average	**2.575%**									

For the 2011 and 2012 years, the expected inflation estimates are consistent with the data on median inflation expectations for market economists as reported in the Reserve Bank of Australia's ("RBA") February 2011Statement of Monetary Policy.[47]

For the 2013 year and beyond, the expected inflation estimates are the midpoints of the RBA's long term inflation target range of 2 per cent to 3 per cent (i.e. 2.50 per cent).

Aurora understands that this approach is consistent with the AER's preferred approach for estimating the forecast inflation rate.

[46] Aurora Energy understands that this estimate will be updated during the AER's determination process as data becomes available.
[47] Reserve Bank of Australia, Statement on Monetary Policy, November 2010, Table 14, page 56.