

# Review of the WACC Parameters for Electricity Transmission and Distribution

Response to AER Issues Paper

24 September 2008

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## 1. Introduction

Grid Australia is pleased to have the opportunity to make this submission in response to the AER's August 2008 "Review of the Weighted Average Cost of Capital (WACC) Parameters for Electricity Transmission and Distribution" Issues Paper.

Grid Australia represents the owners of Australia's electricity transmission networks in the National Electricity Market (NEM), plus Western Australia. Its members are ElectraNet Pty Ltd (South Australia), Powerlink Queensland (Queensland), SP AusNet (Victoria), Transend Networks Pty Ltd (Tasmania), TransGrid (New South Wales) and Western Power (Western Australia).

Collectively, Grid Australia members own and operate over 47,000 km of high voltage transmission lines, have assets of more than \$12 billion and invest approximately \$2.2 billion in the networks each year.

The AER's Issues Paper focuses on technical matters and the statistical estimation of the individual WACC parameter values. In this regard, Grid Australia has contributed to the development of a joint submission with the Energy Networks Association and Australian Pipeline Industry Association ("joint industry associations' submission").

Grid Australia strongly supports the findings contained in the joint industry associations' submission. In particular, the analysis and expert advice demonstrates that there is no persuasive evidence which would justify a move from the currently adopted values codified in the National Electricity Rules (Rules) for electricity transmission, with the exception of the gamma. Specifically, there is persuasive evidence that, for a market risk premium of 6 per cent, the gamma should be reduced from a value of 0.5 to 0. Alternately, there is persuasive evidence to justify the adoption of a gamma value of 0.2, which would require the MRP to be increased to 7 per cent.

The purpose of this submission is to reiterate and expand on matters that are of particular importance to the electricity transmission businesses and the provision of electricity transmission services. The following matters are addressed:

- Section 2 outlines Grid Australia's views on the particular task of the AER in setting WACC parameters for transmission businesses including:
  - the need for a reasonable degree of certainty that the rate of return on investment will be adequate over the long-term and, therefore, the importance of applying the persuasive evidence test;
  - the use of capital market data in estimating or determining WACC parameters; and
  - the treatment of items outside the scope of the AER's WACC Review under the Rules.

- Section 3 outlines Grid Australia's views on determining WACC parameters in the context of ensuring the adequacy of the overall WACC including:
  - considering current and potential future capital market conditions; and
  - implications for the review arising from the Federal Government's climate change policies.
- Section 4 outlines Grid Australia's specific comments and conclusions on individual WACC parameters. In particular:
  - the concept of a benchmark efficient service provider and the nature of benchmark assumptions; and
  - a summary of evidence in relation to the value of a number of key parameters being considered as part of this review.

Grid Australia has not responded, in this submission, to each of the questions raised in the AER's Issues Paper. This has been done in the separate joint industry associations' submission, which responds to each of these questions in turn.

## 2. The Task of the AER

The task of the AER is not simply one of examining capital market data and using statistical methods to arrive at best estimates of the various WACC parameters. Rather, the AER is required to determine values of WACC parameters for the electricity transmission businesses within the context of determining an overall WACC value consistent with the overarching principles and objectives of the National Electricity Law (Law) and National Electricity Rules (Rules).

These principles and objectives are examined in detail in the joint industry associations' submission. The key conclusion from this analysis is that the AER, in reviewing individual WACC parameters, must exercise judgement within a broader context of how those parameter values are inter-related and affect the value of the overall rate of return. This includes having regard to the following factors:

- in determining the methods for, or values of, a WACC parameter, the methods or values established in the Rules for electricity transmission businesses;
- selecting each parameter value (or method) such that the rate of return that would be derived equals or exceeds the 'cost of capital' associated with the regulated activities, taking account of the relative risk of the regulated activities;
- adopting values (or methods) that, when applied during a regulatory review, generate a forward looking rate of return commensurate with prevailing market conditions for funds;
- ensuring that the rate of return at least equates to the true cost of capital; and

- the relative costs and risks of under and over investment and utilisation that may be caused by the AER's decision in relation to the values (or methods).

Therefore, the AER cannot determine values for each individual WACC parameter in isolation from the other parameters or without considering the effects on the overall rate of return.

Grid Australia highlights the following aspects arising from the legislative and Rules requirements, in particular:

- the nature of WACC parameters is that they cannot, typically, be determined with certainty and whenever this is the case, the Rules require the AER to have regard to the methods or values established in the Rules for electricity transmission and whether the evidence is sufficient to warrant a conclusion that the pre-existing value is not appropriate at the current time. Grid Australia considers that this requirement has particular relevance as the current parameter methodologies and values for transmission are codified in the Rules;
- where the AER has discretion, it is relevant to note that the consideration of the WACC parameters occurs within the broader context of the Rules and the National Electricity Law. In particular, reference should be made to the national electricity objective and Revenue and Pricing Rules as a guide to the exercise of discretion; and
- where the AER reaches a position on a matter which is 'out of scope' for the purposes of the WACC Review as defined in the Rules (such as the consideration of the inflation benchmark and debt and equity raising costs), any decision by the AER will not be finally determinative but rather a 'view' that may be considered 'afresh' at the time of each transmission revenue cap review.

## 2.1 Currently Adopted Values and Persuasive Evidence for Transmission

The Rules (clause 6A.6.2 (j)) require the AER to have regard to currently adopted values of WACC parameters determined for the electricity transmission businesses, where clear methods and values are established under clause 6A.6.2 of the Rules.

The Rules (clauses 6.5.4(e) and 6A.6.2(j)(4)) also require that, where the values of WACC parameters cannot be determined at particular values with certainty, there must be persuasive evidence before adopting a value or method for a parameter that differs from the value or method previously adopted.

Grid Australia considers that, in applying these two concepts (i.e. consistency and stability of regulated returns over the long-term and the robustness of evidence), the AER must commence its analysis of each relevant WACC parameter with a consideration of a pre-existing method or value as set out in clause 6A.6.2. This should be followed by consideration of the evidence in relation to that parameter generally and whether the evidence is sufficient to warrant a conclusion that the pre-existing value is incorrect in the context of prevailing market conditions.

The AEMC provided strong support for this interpretation of the Rules in its recent Draft Determination which rejects the EUAA Rule change request to change gamma and beta. The AEMC stated:

*“In conducting the parameter review, where the parameter values cannot be determined with certainty, the AER must have regard to the need for persuasive evidence before adopting a value for that parameter that differs from the value that has previously been adopted for it.” (p. 16 Draft Rule Determination - Parameter Values, equity beta and gamma)*

Grid Australia submits that the requirement for the AER to undertake its review of WACC parameters in this manner necessarily applies to:

- specifying a method for estimating the nominal risk free rate taking into account whether there is persuasive evidence to change from the method currently specified in the Rules that is based on observed annualised yields on Commonwealth Government bonds with a maturity of 10 years;
- specifying a value for the equity beta taking into account whether there is persuasive evidence to change from the value of 1.0 currently specified in the Rules (at an assumed financial gearing of 60 per cent debt to assets);
- specifying a value for the market risk premium taking into account whether there is persuasive evidence to change from the value of 6.0 per cent currently specified in the Rules;
- specifying a benchmark assumption for the financial structure of the transmission businesses taking into account whether there is persuasive evidence to change from the benchmark of 60 per cent debt to assets currently specified in the Rules;
- specifying a benchmark assumption on the credit rating of the transmission businesses taking into account whether there is persuasive evidence to change from the benchmark credit rating of BBB+ currently specified in the Rules; and
- specifying a benchmark assumption on gamma taking into account whether there is persuasive evidence to change from the value of 0.5 currently specified in the Rules.

Grid Australia submits that persuasive evidence to support a change from any of these values or methods is limited to evidence which recognises the relationship between gamma and the market risk premium. This supports either a decrease in gamma or an increase in the value of the market risk premium, as demonstrated in the joint industry associations' submission and its accompanying expert reports.

## **2.2 The use of capital market data**

The AER's Issues Paper appears to contemplate that the determination of values of WACC parameters is simply a matter of statistical estimation. The Issues Paper accordingly raises issues for consideration in the context of undertaking such statistical estimation, including:

- criteria to be applied in the selection of sample sets of comparable businesses;
- methods to be applied in weighting evidence from different subsets of comparable businesses; and
- time periods, frequencies of data observations and averaging techniques applied in deriving statistical estimates.

Grid Australia submits that while it is necessary and desirable to take into account capital market evidence in considering the value of WACC parameters, the implication of the reliance of the AER's Issues Paper on the statistical estimation of parameters is inconsistent with the task of the AER in undertaking the review. In particular this approach attributes an inappropriate role to statistical analysis in making determinations on WACC parameters. There are three reasons for this.

First, for each parameter in which the figure cannot be determined with certainty (and in practice this is all parameters) the task of the AER is not to derive best estimates of parameter values but rather to determine whether there is sufficiently persuasive evidence to change the methods for, or values of, WACC parameters from those currently specified (for the transmission businesses) in the Rules. This should also occur within the context of determining a WACC value that meets the objectives and requirements of the Law and Rules. Statistical analysis of historical capital market data to derive best estimates for a parameter is only one element in a range of evidence that may be considered by the AER in undertaking this task.

Secondly, statistical analysis of historical capital market data can only reasonably be used to inform judgements on the values of WACC parameters rather than be determinative. At best, such statistical analysis establishes historical facts for a period of capital market activity. WACC parameters, however, must be determined as expectations of future capital market conditions and take into account matters such as conditions and circumstances that occurred in the past that may not be repeated in the near future. In practice, capital market evidence cannot even be used to clearly establish historical fact for some parameters due to the inherent error and imprecision in statistical estimates, let alone provide a sound basis for future expectations.

The best example of the limitations of statistical techniques and evidence is with the equity beta estimates. The determination of beta values, addressed in detail in the joint industry associations' submission and associated expert reports, reveals that:

- there is no unique most appropriate statistical method, but rather a range of different statistical methods which can be applied to a range of data sets to indicate different beta estimates and confidence intervals around the estimates; and
- there is recent evidence of rising beta values indicating that beta values for the short to medium term future may be different to those estimated for the past five to ten years.

Thirdly, each parameter is a contributing part to a holistic allowance for the recovery of capital costs. In many respects recognising the linkages between parameters and the

assumptions that underlie particular statistical estimations and the design of the statistical estimation process are matters that are as important to consider as the values generated.

### **2.3 The Review Should Remain Within Scope**

A number of matters addressed in the AER's Issues Paper are not required to be addressed by Chapter 6A of the Rules. Specifically, these matters relate to the inflation forecast, debt and equity raising and other capital raising costs.

Where the AER comes to a position on a matter which is 'out of scope' it should expressly note that this position is not determinative but rather a 'view' that is for guidance but may be considered 'afresh' at the time of each transmission revenue cap review.

## **3. The Overall Adequacy of the Final WACC Value**

As noted above, and as considered in detail in the joint industry associations' submission, the task of the AER in determining the methods for, or values of, WACC parameters is required by the Law and the Rules to be undertaken to meet objectives and requirements to provide a rate of return to the regulated businesses that is at least equal to the true cost of capital.

The processes that the AER might go through to meet this requirement are addressed in the joint submission. Grid Australia emphasises the need for the AER, in considering parameter values in the context of the overall WACC, to seek to check and verify estimates of the cost of equity against precedents from international regulatory decisions, indicators of the financial performance of the regulated businesses and estimates of the cost of equity from other finance-theoretical models.

Based on this assessment it is clear that changes in the business environment since the WACC parameters were established in Chapter 6A provide evidence in support of an increase in the overall regulated WACC. The remainder of this section focuses on the following two change drivers:

- capital market conditions; and
- issues surrounding the Australian Government's approach to climate change.

### **3.1 Capital Market Conditions**

Grid Australia submits that it is important in the consideration of capital market evidence to give attention to whether the conditions in capital markets in the period for which the AER's determination will apply are expected to be materially the same or different to periods from which backward looking empirical studies relate.

#### *Volatility*

Of particular importance in this consideration is gathering evidence of a structural shift in capital markets since the global credit crisis. Evidence on beta values, debt margins and



equity returns appear to indicate that capital markets are emerging from an extended period of unusually low volatility to more “normal” conditions of higher volatility. The joint industry associations’ submission and accompanying expert reports indicate that a structural shift to higher levels of volatility is evidenced by a rising trend in beta estimates, increasing the evidence and expectations that the market risk premium may be above six per cent.

#### *Debt Markets*

Likewise, debt markets are in a state of severe disruption. Of particular concern is the quality and validity of the AER’s debt margin benchmarks (mandated under clause 6A.6.2 (e)) under current conditions as Australian corporate bond markets have been effectively closed since the start of 2008. Closed markets, of course, result in a lack of pricing information. Research has confirmed that no non-financial corporate businesses have issued corporate bonds in the Australian bond market of any maturity or rating in 2008. Two significant implications flow from this:

- the AER is using benchmarks (Bloomberg or CBASpectrum) which are potentially highly inaccurate due to a scarcity of data; and
- companies are raising debt from other sources (as a theoretical benchmark company would have to in the current circumstances). These sources are likely to be far more expensive than the bond market benchmarks currently used, for example, short term (3 year) bank facilities.

There have been very few non-financial sector issues by Australian corporations in 2008. For example:

- Wesfarmers (BBB+ Negative Outlook) issued a 5 year bond in the US which equated to around 495 basis points over the Australian Government bond rate; and
- the Goodman Group (BBB+) issued a 10 year bond in the Sterling bond market which equated to around 545 basis points over the Australian Government bond rate.

Given that the Bloomberg and CBASpectrum benchmarks have remained around 300 to 350 basis points over this period, it suggests that in the current credit conditions, the benchmark applied by the AER for the debt component of the WACC is potentially up to 200 basis points below what a benchmark firm could actual issue debt for. This is of particular concern to the electricity transmission sector which includes companies that are amongst the largest issuers of debt in Australia.

It is also important to note that it is not possible to hedge a change in the debt margin. Unlike interest rates, where there is a deep derivative market, there is no such market for debt margins. Therefore, each time a company issues new debt, it faces the debt margin prevailing at that point in time and not the debt margin set in its revenue determination.

While the issue of the appropriate debt setting benchmark or methodology is out of scope for this review (as opposed to the credit rating of the benchmark), this again clearly

highlights the importance of checking that the actual outcome from the chosen WACC parameters provides returns reflective of real world funding costs and that the regulator should err on the side of caution in such an uncertain financial environment.

### **3.2 Greenhouse Gas Issues – Garnaut Climate Change Review**

The AER must also recognise in this review the significant challenges to be met in transitioning Australia's energy supply system to a low carbon future and ensure the WACC Review does not conflict with the desired outcomes in this area of public policy.

For example, in the area of electricity transmission, the Garnaut Draft Report identifies two key policy challenges to be addressed in making this transition:

- recognising and capturing the “public good” nature of increased interconnector transfer capacity, in order to provide flexibility and better security of supply during the transition to a lower emissions mix of generators; and
- facilitating the connection of new remote generators that are geographically remote from the existing grid, in particular solar, wind and geothermal sources of power.

The Ministerial Council on Energy recently issued its Terms of Reference for the AEMC to review the design of energy markets (including the regulatory frameworks) in the context of proposals to introduce an emissions trading scheme and MRET targets.

In this context, Grid Australia again highlights the importance of ensuring the investment climate provides adequate investment incentives to install optimal levels of capacity to allow flexibility in the amount of interstate electricity trade. Transmission companies will be expected to invest significant capital in long-term assets. Given the significance of this investment and the likely deviation from normal long-term reliability based planning and decision making, certainty in, and the adequacy of, long-term returns on such investments are crucial to elicit the desired investment response from the electricity transmission businesses.

## **4. Comments on Individual WACC Parameters**

### **4.1 A benchmark efficient service provider**

Clause 6A.6.2(j)(3) of the Rules requires that the values to be determined by the AER for the equity beta, financial gearing and credit rating for the transmission businesses must be based on a “benchmark efficient Transmission Network Service Provider”. The Rules do not, however, provide guidance on how this benchmark should be determined.

The AER's Issues Paper (at pages 14 and 15) appears to contemplate the concept of the benchmark only applying in terms of selecting a set (or sets) of comparable businesses of similar characteristics for the purposes of obtaining capital market evidence on particular WACC parameters.

Grid Australia submits that the specification of the “benchmark efficient Transmission Network Service Provider” is a more general task than contemplated by the Issues Paper and involves establishing notional ownership and operating structures of the transmission businesses.

The WACC parameters for the transmission businesses currently established in the Rules have been established on the basis of a benchmark efficient Transmission Network Service Provider being:

- an Australian publicly listed corporation financed by debt and equity raised through Australian capital markets; and
- a stand-alone provider of transmission services without vertical or horizontal diversification into other activities.

Grid Australia submits that this specification of the benchmark efficient Transmission Network Service Provider remains appropriate for the AER’s current review.

The specification of the benchmark efficient Transmission Network Service Provider has substantial implications for determining the values of WACC parameters in that the WACC parameters must be determined for the benchmark business without regard to the particular characteristics of the individual businesses. This has previously been recognised by the Australian Energy Market Commission in determining assumptions on the credit rating that should be assumed for the purposes of determining the cost of debt. In its determination the Commission made it clear that the assumed credit rating should be for the benchmark business and not take into account the government ownership of most of the transmission businesses.

In this sense, the values of WACC parameters are themselves benchmark assumptions rather than reflecting characteristics of individual businesses. Moreover, these are not independent and relationships exist, for example, between gearing and credit rating, gearing and beta values, and the market risk premium and the value of imputation credits. Grid Australia submits that the AER should take particular care in ensuring consistency of the values of individual parameters with the benchmark efficient Transmission Network Service Provider and consistency in the methods and values for individual parameters.

## 4.2 The Equity Beta

Estimates of equity beta for Australian electricity infrastructure businesses, based on the best available data are subject to a very high degree of uncertainty. A key reason for the uncertainty is that there is only a very small sample of comparators and even these are imperfect comparators. Estimates can and do vary substantially from one measurement period to the next, underscoring the high level of imprecision in the estimates. To date, the extent of this problem and how to compensate for it has only been partially recognised.

Grid Australia supports the substantial amount of expert advice that was obtained in the course of preparing the joint industry associations’ submission and highlights the following:

- in light of the uncertain and sparse beta data, the Allen Consulting Group (ACG) concluded that there is “no convincing or persuasive evidence that the equity beta for a regulated electricity transmission or distribution business is different from 1.” Grid Australia concurs with ACG’s conclusion; and
- other experts have examined the limitations of the Sharpe-Lintner CAPM (the model mandated in the Rules), and demonstrated that it underestimates the true cost of equity. To make a sound estimate of the return on equity in accordance with the requirements of the Rules, the deficiencies of the Sharpe-Lintner CAPM must be recognised. This analysis lends further weight to the conclusion that in light of the uncertainty of the available data and the known limitations of the Sharpe-Lintner CAPM the best estimate of equity beta is 1.0.

In summary, there is no persuasive evidence to adopt an equity beta value other than 1.0 if the equity beta to be adopted is to comply with the requirements of the Rules and the National Electricity Law (Law). In fact 1.0 remains the best estimate for the equity beta for regulated Australian electricity infrastructure given the limitations of the data and estimation methodology, and the deficiencies of the Sharpe-Lintner CAPM.

#### 4.3 Gamma

The previously adopted gamma is 0.5. There is a wealth of persuasive evidence that this value is inappropriate and that a different, considerably lower, value should be adopted.

There are two values multiplied together to give the utilisation of imputation credits (the value of gamma):

- the rate at which imputation credits are distributed; and
- the value to investors of imputation credits at the time they are received.

Considering gamma in isolation, market evidence supports the adoption of a distribution rate of 0.71 while the most recent dividend drop-off studies suggest that the market value of imputation credits is between 0.2 and 0.35. Consequently, the most recent market evidence is that gamma is between 0.14 and 0.25 ( $0.71 \times 0.2$  to  $0.35$ ).

Therefore, Grid Australia proposes a point estimate of the assumed utilisation of imputation credits (the value of gamma) of 0.2.

However, the same data that delivers the gamma of 0.2 also shows that investors do not value cash dividends at their face value. The gamma of 0.2 can only deliver a coherent WACC on the condition that it is also recognised that the market value of cash dividends is less than the face value of those dividends. The CAPM, as previously used under the Rules, does value dividends at their face value. Therefore, the AER needs to make a further adjustment to the way that the Rules have previously established the WACC to ensure that it delivers a return that provides network businesses with a reasonable opportunity to recover at least the true and efficient cost of capital, as required under the Rules and the Law. There are several ways in which this may be done.

One approach would be to adopt the 0.2 value of gamma and make an adjustment to the market risk premium which would require the MRP to be rounded up to 7 per cent instead of the previous approach of rounding down to 6 per cent.

Alternatively, given that the benefit from imputation credits is of a magnitude that equally offsets the 'penalty' associated with the payment of dividends, the other way to resolve this modelling inconsistency is to set the gamma to zero and leave dividends at their face value.

Each of those methods of resolving the issue would be acceptable to Grid Australia. There may also be other ways to resolve the inconsistency and Grid Australia is ready and willing to discuss any such alternative with the AER.

#### **4.4 MRP**

A value of 6 per cent has been used historically as the MRP. This has been predicated on imputation credits having no value to investors (i.e. a zero gamma). Grid Australia supports the continued use of this value under this assumption.

However, as discussed in section 4.3, if imputation credits have a positive value (consistent with past regulatory practice) there is convincing and persuasive evidence to increase the expected MRP from 6 to 7 per cent.

#### **4.5 Gearing**

Businesses that are comparable to an Australian regulated electricity transmission and distribution business have an average gearing ratio (Book Debt/ Book Debt and Market Equity) of around 60 per cent over the last five years.

Consequently, there is no persuasive evidence that the currently adopted debt gearing ratio of 60 per cent is inappropriate.

Grid Australia submits that the most appropriate and practical measure of a business' gearing is the book value of debt divided by the sum of the book value of debt plus the market value of equity. However, this measure will likely overstate the true gearing ratio when there is a sharp rise in interest rates as the market value of debt will likely fall below the book value of debt.

When measuring the book value of debt, shareholder loans that are stapled to the underlying stock of a business should be treated as equity not debt.

An appropriate comparator group for Australian regulated electricity transmission and distribution businesses would contain APA Group, Envestra, GasNet, SP AusNet and Spark Infrastructure.

#### 4.6 Benchmark Credit Rating

The adopted benchmark credit rating for both electricity transmission and distribution is BBB+.

The benchmark credit rating should not be determined by mechanistic application of any one methodology. Both a quantitative and qualitative assessment of the circumstances affecting a business' ability to repay debt should be taken into account in this review process.

Appropriate comparators for reviewing the adopted benchmark credit rating would be transmission and distribution, gas and electricity companies, excluding those companies with characteristics not similar to a benchmark efficient network service provider.

At this stage there is no persuasive evidence to depart from the previously adopted benchmark credit rating of BBB+ (indeed the current information reinforces that BBB+ is appropriate), but that the best current market information shows that BBB+ is probably at the upper end of an appropriate credit rating range.

#### 5. Conclusion

The task of the AER is not simply one of examining capital market data and using statistical methods to arrive at best estimates of the various WACC parameters.

Rather, the AER is required to determine values of WACC parameters for the electricity transmission businesses within the context of determining an overall WACC value consistent with the overarching principles and objectives of the National Electricity Law (Law) and National Electricity Rules (Rules).

The Law and the Rules require the AER to provide a rate of return to the regulated businesses that is at least equal to the true cost of capital. Therefore, the AER cannot determine values for each individual WACC parameter in isolation from other parameters or without considering the effects on the overall rate of return.

There is clear evidence that fundamental changes in the business environment since the parameters in Chapter 6A were set, point to a reduction in the benchmark credit rating, increases in the relevant risk margin on debt, increases in the equity beta, and increases in the market risk premium, among other matters.

However, Grid Australia does not consider there is sufficiently persuasive evidence to alter the majority of WACC parameters from those set out in Chapter 6A of the National Electricity Rules.

The key exceptions to this are that there is persuasive evidence to reduce gamma if the market risk premium is to remain at 6 per cent or, if a positive value of gamma is to be retained, then there is persuasive evidence that the market risk premium should be set closer to 7 per cent.

Therefore, Grid Australia expects that the AER review would arrive at the following conclusions on the individual cost of capital parameters, based on the evidence presented in this submission and the joint industry associations' submission.

Parameter	Previously Adopted Values for Transmission	Proposed Values for Transmission
Equity Beta	1.0	1.0
Market Risk Premium	6%	7%
Debt / (Debt + Equity)	60%	60%
Credit Rating	BBB+	BBB+
Source of Nominal Risk Free Rate	10 year CGS	10 year CGS *
Gamma (netted off tax liability)	0.5	0.2

\* There is an issue as to which 10 year rate is appropriate and Grid Australia proposes to explore this with the AER during the course of the review.