Final decision

Regulatory investment test for transmission and regulatory investment test for transmission application guidelines

June 2010

AUSTRALIAN ENERGY REGULATOR

Contents

Shortened forms

ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
DNSP	distribution network service provider
Electricity Rules	National Electricity Rules
FCAS	frequency control ancillary services
MCE	Ministerial Council on Energy
MEU	Major Energy Users
NEM	National Electricity Market
NGF	National Generators Forum
NSP	network service provider
NTNDP	National Transmission Network Development Plan
RIT-D	regulatory investment test for distribution
RIT-T	regulatory investment test for transmission
TNSP	transmission network service provider
VCR	value of customer reliability

1 Introduction

The Australian Energy Regulator (AER) is responsible for the economic regulation of electricity transmission and distribution services in the national electricity market (NEM) as well as some gas transportation services. The AER also monitors the wholesale electricity and gas markets and is responsible for compliance with and enforcement of the National Electricity Rules (Electricity Rules) and National Gas Rules.

Under the Electricity Rules, the AER must publish the regulatory investment test for transmission (RIT-T). The RIT-T replaces the existing regulatory test (version three) for transmission investments and will be used by transmission network service providers (TNSPs) to assess the efficiency of proposed investment options.[1]

The purpose of the RIT-T is to identify the transmission investment option which maximises net economic benefits and, where applicable, meets the relevant jurisdictional or Electricity Rule based reliability standards. The RIT-T provides a single framework for all transmission investments and removes the distinction in the regulatory test (version three) between reliability driven projects and projects motivated by the delivery of market benefits.

In conjunction with the RIT-T, the AER must develop and publish RIT-T application guidelines to provide guidance on the operation and application of the RIT-T (the application guidelines). The application guidelines are also designed to provide guidance to businesses applying the RIT-T and enhance transparency and consistency in investment decision making.

In September 2009 the AER released an issues paper as the first stage in the development of the RIT-T and application guidelines. The issues paper sought submissions on those areas that the AER is required to clarify or specify in the RIT-T and application guidelines.

In March 2010 the AER released a draft RIT-T and draft application guidelines and invited submissions from interested parties. The AER received seven submissions in response to the draft RIT-T and application guidelines.

This final decision sets out the AER's RIT-T and application guidelines, provides the AER's reasons for the proposed RIT-T and satisfies the AER's obligations under clause 6A.20(b)(2) of the Electricity Rules.

2 Rule requirements

Under clause 5.6.5B of the Electricity Rules, the AER is required to develop and publish the RIT-T and application guidelines by 1 July 2010. The RIT-T and application guidelines must comply with the principles set out in the Electricity Rules.

[1] The existing regulatory test will continue to apply to projects which address a need on the distribution network. The AEMC has proposed a new project assessment process for distribution, the regulatory investment test for distribution (RIT-D). This proposal has been considered by the Ministerial Council on Energy and will be submitted to the AEMC as a rule change proposal. If introduced, the proposed RIT-D will replace the regulatory test for distribution network service providers.

The AER must follow the transmission consultation procedures set out in clause 6A.20 of the Electricity Rules when making, amending or replacing the RIT-T or application guidelines.

3 Nature and reasons for proposed RIT-T and RIT-T application guidelines

The requirements for the RIT-T and application guidelines are set out in clause 5.6.5B of the Electricity Rules. In its Rule determination[2], the Australian Energy Market Commission (AEMC) cited a number of benefits of the measures outlined in the RIT-T rule including:

- the amalgamation of the reliability and market benefits limbs of the regulatory test will or is likely to optimise the decision making process in relation to transmission planning by promoting dynamic and allocative efficiency. By including the assessment of market benefits, the RIT-T should promote more efficient investment over time

- greater prescription of market benefits and costs, and how they should be assessed, should improve the consistency and transparency across transmission investment assessment and should, over time, promote more efficient decision making

- requiring a project specification consultation report should improve the transparency and application of the RIT-T which will, or is likely to, promote more efficient outcomes over time

- a substantial increase in the amount of consultation undertaken should unearth a greater number of efficient investment options and therefore lead to more efficient outcomes overtime, and

- exemptions in certain cases from the project assessment draft report stage promotes the efficient use of resources where appropriate, thus reducing the regulatory burden faced by TNSPs and as a result promotes good regulatory practice.

The AER concurs that the RIT-T and the application guidelines have an important role to play in promoting more efficient transmission investment decision making in the NEM. The requirement to assess market benefits, the increase in the level of consultation, and the requirement to produce a project specification consultation report all should lead to greater consistency and transparency in TNSP decision making. The greater specification and worked examples in the RIT-T application guidelines should also lead to greater consistency in how the RIT-T is applied.

[2] AEMC 2009, *Regulatory Investment Test for Transmission*, Final Rule Determination, 25 June 2009, p. 6.

4 Issues raised in submissions and AER response

The AER released a draft RIT-T, draft application guidelines and an explanatory statement setting out the AER's reasons for key aspects of the draft RIT-T and application guideline. Interested parties were invited to provide written submissions.

The AER received submissions from the following parties in response to the draft RIT-T and application guidelines:

- Alinta Energy
- The Australia Energy Market Operator (AEMO)
- EnergyAustralia
- Ergon Energy
- Grid Australia
- The Major Energy Users (MEU)
- The National Generators' Forum (NGF)

These submissions are available on the AER's website. This chapter addresses the issues raised in submissions and the AER's consideration of the issues they raise.

4.1 Reasonable scenarios and sensitivities

Draft RIT-T and application guidelines

Under clause 5.6.5B of the Electricity Rules the RIT-T must be based on a cost-benefit analysis which includes an assessment of reasonable scenarios of future supply and demand. In addition, the RIT-T must specify that a sensitivity analysis is required of any modelling relating to the cost-benefit analysis.

The AER proposed removing the distinction in the regulatory test (version three) between reasonable scenarios and sensitivities. Clause 17 of the draft RIT-T stated that the number and choice of reasonable scenarios must be appropriate to the credible option under consideration and reflect reasonable alternate values of any variables that are likely to materially affect the calculation of the market benefits of the credible option.

The draft RIT-T defined reasonable scenarios as a set of variables or parameters that are not expected to change across each of the credible options or the base case. A reasonable scenario may include a number of variables which are treated as sensitivities under the regulatory test (version three), such as the discount rate and generator bidding behaviour.

Section 3.5 of the draft application guidelines included guidance and a worked example on the appropriate number of sensitivities and reasonable scenarios that are

required under the RIT-T. It noted that the RIT-T analysis should be conducted across all reasonable scenarios with a TNSP analysing the market benefits which arise under all combinations of sensitivities (as separate reasonable scenarios).

The AER also proposed that the RIT-T require TNSPs to undertake market development modelling on a 'least-cost' basis and if appropriate, on a 'market driven' basis.

Submissions

Scenarios and sensitivities

AEMO, Ergon Energy and Grid Australia raised concerns with the AER's proposed approach to defining reasonable scenarios in the RIT-T. AEMO noted that it has proposed that its National Transmission Network Development Plan (NTNDP) will model five different scenarios of how the world will eventuate over the forecast horizon. In contrast, a sensitivity test would consider how robust the options to address constraints are in each scenario. In applying the regulatory test AEMO conducts sensitivity testing on matters such as changes in input costs, discount rates and the value of customer reliability; however each of these variables would not be treated as separate scenarios.

Grid Australia noted that the proposed approach in the draft RIT-T differs from current practice, where a distinction is drawn between:

- reasonable scenarios and the ranking of options across those scenarios, and
- sensitivity testing to ensure that the rankings remain robust to changes in key input parameters.

Grid Australia was concerned that the requirement in the draft RIT-T to treat all sensitivity analysis as reasonable scenarios will reduce transparency, as it will significantly increase the matrix of results required and will also increase the complexity of the analysis required. It considered that its current approach of 'one at a time' sensitivity testing allows for targeted and proportionate investigation of those variables that have the greatest impact on relative rankings. It provided an example to highlight these issues.

Grid Australia recommended that the draft RIT-T be reworded so that sensitivity testing is made distinct from the consideration of reasonable scenarios. It also recommended that the application guidelines be amended to clarify that there is no requirement to conduct the RIT-T assessment over all possible combinations of sensitivities and reasonable scenarios.

Ergon Energy also questioned the benefit of requiring TNSPs to incorporate sensitivity analysis at the reasonable scenario level. It noted that undertaking sensitivity analysis for all reasonable scenarios under each credible option would change the range of costs and benefits of each of the credible options but not their relative ranking.

Market development modelling

Grid Australia also raised concerns regarding the requirement in the draft RIT-T that market development modelling must be undertaken on a 'least-cost' basis. It considered that this approach should not be prescribed in the RIT-T and that a TNSP should be able to select the approach which is most suitable to avoid unnecessary duplication of modelling approaches. It also noted that if the final RIT-T requires market modelling on a least-cost basis, it supported the AER's proposed approach of allowing TNSPs to treat the reserve margin developed by AEMO as an exogenous input into a least-cost market development model.

AER consideration

Reasonable scenarios and sensitivity analysis

The AER has reviewed the role of reasonable scenarios and sensitivity analysis under the draft RIT-T and versions two and three of the regulatory test. Under both versions of the regulatory test, reasonable scenarios are described as incorporating sensitivity testing.[3] The main change to the definition of reasonable scenarios from the regulatory test (version two) to the regulatory test (version three) was to tie market development modelling in more closely with the remaining aspects of reasonable scenarios to ensure they were mutually consistent.

Sensitivity testing was described in paragraph 15 of the regulatory test (version two) which stated that "the calculation of costs or market benefits must encompass sensitivity testing on key input variables." It was, however, unclear how this was intended to occur and how the results of sensitivity testing would feed into the determination of costs or market benefits. The requirement to undertake sensitivity testing also sat oddly with paragraph 4 of the regulatory test (version two) which made sensitivity testing a component of the definition of reasonable scenarios.

Under the regulatory test (version three), sensitivity testing was tied in more closely to the definition of reasonable scenarios. The regulatory test application guidelines[4] stated that sensitivity testing could lead to the development of additional reasonable scenarios for the assessment of an option. However, little guidance was provided on how this could or should be done.

Under the draft RIT-T, the new term 'state of the world' replaced the concept of reasonable scenarios under versions two and three of the regulatory test. The term 'reasonable scenarios' instead referred to a set of values or parameters that are independent of any of the credible options under consideration.

Nevertheless, the AER envisaged that the role of sensitivity testing under the draft RIT-T would be broadly similar to the regulatory test (version three) in that it would assist a TNSP to select the number and range of reasonable scenarios considered. As in the regulatory test (version three), sensitivity testing under the draft RIT-T would not directly influence the calculation of costs or market benefits.

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3 AER 2007, *Regulatory test (version three)*, paragraph 19; ACCC 2004, *Regulatory test (version two)* paragraph 4.

4 AER 2007, *Regulatory test application guidelines*, p.16.

The AER expected that a TNSP could conduct sensitivity testing on particular variables to identify which variables were likely to materially affect the calculation of net economic benefits. This could assist a TNSP to identify the appropriate number and range of reasonable scenarios that should be considered. If sensitivity testing indicates that additional reasonable scenarios are unlikely to affect the net economic benefits of credible options, under the draft RIT-T the TNSP was not required to consider the role of that variable any further. It is only where sensitivity testing uncovered changes to a variable that are likely to be material to the outcome of the analysis that additional reasonable scenarios would be required.

The AER has reviewed the guidance provided in the draft application guidelines on sensitivity analysis and reasonable scenarios. Upon review, the AER considers that the draft application guidelines did not provide sufficient guidance on the AER's expectations regarding the role of sensitivity analysis and reasonable scenarios in the RIT-T.

In particular, the draft application guidelines did not clearly state the potential role of sensitivity analysis in assisting a TNSP to select the appropriate number and range of reasonable scenarios. The draft application guidelines also did not state the AER's view that where a variable is unlikely to affect the calculation of market benefits, then there is no need for a TNSP to consider the role of this variable any further.

The AER has also reviewed the draft RIT-T and agrees with interested parties that—where a variable only affects the magnitude of market benefits for a particular option, but does not affect the relative rankings of the credible options under consideration—the RIT-T should not require a TNSP to consider the role of this variable in its reasonable scenario analysis.

The AER has amended the drafting of the RIT-T and included revised text in the final application guidelines. The application guidelines provide guidance on how a more streamlined and proportionate analysis can be undertaken to determine the number and choice of reasonable scenarios which form the basis for a TNSP's comparison of credible options under the RIT-T. This method may include sensitivity analysis on those parameters or values that the TNSP reasonably believes could change the ranking of credible options by net economic benefits (where the identified need is reliability corrective action), or the ranking or sign (positive or negative) of net economic benefits of any of the credible options in the case of investments motivated by other needs. Where the analysis reveals that a variable is likely to have either of these effects, the TNSP should consider additional reasonable scenarios that reflect suitable variations in that parameter or value. The application guidelines also indicate that this sensitivity analysis could be done on a 'one at a time' basis—as currently practised by some TNSPs—where the net economic benefits of a credible option are calculated and compared to what they were under a 'central reasonable scenario' in which the most probable values of all other variables are incorporated.

The AER considers that these amendments will go some way to addressing the issues raised by interested parties. Regarding the concerns raised by Ergon Energy and AEMO, the revised RIT-T and application guidelines indicate that a TNSP will only need to model changes to input variables such as changes in input costs and discount rates where it is likely that these variables will change the ranking of credible options by net economic benefits (where the identified need is reliability corrective action), or

the ranking or sign (positive or negative) of the net economic benefits of any of the credible options in the case of investments motivated by other needs.

The AER also considers that the amendments will address Grid Australia's concern that the approach in the draft RIT-T would significantly increase the required matrix of results and the complexity of analysis. While the approach detailed in the RIT-T and application guidelines may still necessitate a matrix style analysis, the number of combinations of sensitivities in the example provided by Grid Australia would not be necessary. This is because sensitivity analysis in this example revealed that most of the variables considered did not affect the ranking of the credible options.

The application guidelines also now clarify that a TNSP may adopt a 'one at a time' approach to undertaking sensitivity analysis and identifying those variables that are likely to materially affect the outcome of the analysis and should be reflected in the TNSP's selection of reasonable scenarios.

Market development modelling

The AER has considered Grid Australia's concerns regarding the requirement to undertake least cost market development modelling. As noted in the explanatory statement for the draft RIT-T, least cost market development modelling aims to minimise the total cost of meeting demand over time. It considers costs in the market and attempts to replicate outcomes that would be expected under price-taking conditions. In contrast market driven market development modelling requires forecasts of electricity spot prices and models new plant entry on the ability of new plant to recover their costs using these forecasts.

The AER considers that least cost market development modelling is more appropriate as it relies on relatively uncontroversial assumptions and is therefore more likely to be applied consistently and can more easily be replicated by third parties. Market driven market development modelling requires assumptions to be made about bidding behaviour of existing and future market participants and may be more difficult for third parties to scrutinise.

Given this, the final RIT-T retains the requirement that TNSPs undertake least cost market development modelling and also undertake market driven market development modelling if appropriate. However the AER considers that the application guidelines should explicitly state that the reserve margin level developed by AEMO can be treated as an exogenous input into a least-cost market development model.

AER decision

Reasonable scenarios and sensitivity analysis

The AER has amended paragraph 17 (new paragraph 16) of the RIT-T in response to the issues raised regarding the reasonable scenarios and sensitivity analysis. Paragraph 16 of the final RIT-T states:[5]

[5] Clause 16 of the RIT-T draws a distinction between the analysis that must be conducted where the *identified need* is for *reliability corrective action* and other *identified needs*. This is necessary because where an investment is motivated by something other than *reliability corrective action*, a 'do nothing' option (that is, the *base case*) will be an alternative to the *credible options* under

(16) The number and choice of *reasonable scenarios* must be appropriate to the *credible options* under consideration. The choice of *reasonable scenarios* must reflect any variables or parameters that:

(a) where the *identified need* is *reliability corrective action*, are likely to affect the ranking of the *credible options*; and

(b) for all other *identified needs*, are likely to affect the ranking of the *credible options*, or the sign of the net economic benefits of any of the *credible options*.

The AER has also revised the commentary in section 3.5 of the application guidelines. In particular the AER has revised the material on the appropriate number of reasonable scenarios and sensitivities that should be considered by a TNSP. The final application guidelines indicate that only those changes in variables which the TNSP reasonably believes could change the ranking of credible options by net economic benefits (where the identified need is reliability corrective action), or the ranking or sign (positive or negative) of net economic benefits of any of the credible options in the case of investments motivated by other needs, should be reflected in different reasonable scenarios.

The application guidelines also provide more extensive guidance on methods a TNSP may employ to determine the reasonable scenarios which form part of its analysis. This method may include sensitivity analysis on those parameters or values that the TNSP reasonably believes could significantly change the ranking of credible options by net economic benefits (where the identified need is reliability corrective action), or the ranking or sign (positive or negative) of net economic benefits of any of the credible options in the case of investments motivated by other needs. The application guidelines also indicate that this sensitivity analysis could be done on a 'one at a time' basis where the net economic benefits of a credible option are calculated and compared to what they were under a 'central reasonable scenario' in which the most probable values of all other variables are incorporated.

Market development modelling

The AER has not made any changes to the RIT-T in response to the issues raised regarding the requirement to undertake least cost market development modelling.

The AER has made minor amendments to the guidance on deriving relevant states of the world in the application guidelines (see section 3.5) to explicitly state that the reserve margin level developed by AEMO can be treated as an exogenous input into a least-cost market development model.

consideration. Given this, in addition to the ranking of the *credible options*, a TNSP must consider whether particular parameters or variables are likely to effect whether the *credible options* will have a positive or negative net economic benefit.

4.2 Base case

Draft RIT-T and application guidelines

The draft RIT-T required that the market benefit of a credible option be obtained by comparing the state of the world with the credible option in place to the state of the world in the base case over a range of reasonable scenarios. The draft RIT-T defined the base case as the situation in which no option is implemented by, or on behalf of, the TNSP.

Submissions

Grid Australia, EnergyAustralia and Ergon Energy argued that the requirement to include a base case in the assessment of augmentations driven by reliability requirements serves no purpose under the RIT-T. Grid Australia and EnergyAustralia both indicated that in this circumstance, the base case reflects a state of the world that will not exist because the TNSP faces an obligation to meet the reliability requirements, so by definition there is no 'do nothing option' available. Both Grid Australia and EnergyAustralia added that significant effort was involved in developing the base case.

Grid Australia suggested that as an assessment against a 'do nothing' option serves no purpose for reliability augmentations, the RIT-T guidelines should make clear that in this circumstance the base case can be assigned a value of zero.

AER consideration

The AER appreciates that there is no 'do nothing' option available in the case of reliability driven investments. However, the requirement to undertake a RIT-T assessment in relation to a base case is explicitly included in the Electricity Rules. In developing the RIT-T rules, there is clear policy intent to amalgamate the market benefits and reliability limbs of the regulatory test, with a cost-benefit analysis to be applied to all investment rather than just market benefits assessments. As the AEMC noted in its Rule Determination accompanying the RIT-T Rule:[6]

> In the Rule Change Proposal the MCE stated that the RIT-T would provide a single framework to apply to all transmission investment and remove the current distinction between reliability driven projects and projects motivated by the delivery of market benefits.

This policy intent is reflected in clause 5.6.5B(c)(1) of the Electricity Rules. This clause requires that the RIT-T developed by the AER be based on a cost benefit analysis which includes "an assessment of reasonable scenarios of future supply and demand if each credible option were implemented compared to the situation where no option is implemented."

The AER does not have the discretion under this Electricity Rule to introduce a different cost-benefit framework for projects driven by reliability requirements.

The AER also does not consider that the Electricity Rules permit a TNSP to assign a value of zero to the base case for reliability driven investments as suggested by Grid

[6] AEMC 2009, *Regulatory Investment Test for Transmission*, Final Rule Determination, 25 June 2009, Sydney, p. 1. See also section 6.3.1.

Australia. Not only does this proposal introduce a different cost-benefit framework for projects driven by reliability requirements, but would also potentially inaccurately reflect the likely benefits of the credible options under consideration.

Therefore, the AER has retained the requirement to undertake a RIT-T assessment in relation to a base case.

AER decision

The AER has not made any changes to the RIT-T or application guidelines in response to the comments raised on the requirement to consider a base case. Paragraph (4) of the RIT-T requires a comparison (for each reasonable scenario) between:

- a *state of the world* with the *credible option* in place and
- a *state of the world* in the *base case*.

The base case is defined as a situation in which no option is implemented by, or on behalf of, the TNSP.

4.3 Probability weighting

Draft RIT-T and application guidelines

To calculate the overall market benefit of a credible option, the draft RIT-T required a TNSP to weight the market benefits in each reasonable scenario by the likelihood of that reasonable scenario arising. The probability weighted benefits in each reasonable scenario could then be summed to derive the overall market benefit for a particular credible option.

Section 3.6 and 3.7 of the draft application guidelines provided simple methods for assigning probabilities to each reasonable scenario and worked examples on how this information could be presented. The application guidelines and draft RIT-T also noted that where a TNSP has no material evidence for assigning a higher probability for one reasonable scenario over another, it may weight all reasonable scenarios equally.

Submissions

Ergon Energy and Grid Australia questioned the benefit in applying probability weightings to reasonable scenarios. Ergon Energy considered that probability weighting is unnecessary because:

- the medium classified reasonable scenario is based on inputs and assumptions which the TNSP believes is the most accurate and therefore this scenario has the highest probability, and
- the assignment of probabilities to each scenario introduces a level of subjectiveness in the RIT-T.

Grid Australia noted that under a probability-weighted approach the outcome of the RIT-T assessment is no longer a matrix of net benefit of each option against each

reasonable scenario, but instead a ranking based on a single net benefit number for each option. It also considered that probability weighting alone does not result in option value being addressed and that even if it did capture option value, it would not be material for most RIT-T applications.

Grid Australia also questioned the value of assigning probabilities across all sensitivities. As noted above it considered that the RIT-T should distinguish between sensitivity testing and reasonable scenarios, and that a TNSP should not be required to probability weight the outcome of sensitivity tests.

AER consideration

As noted in the explanatory statement accompanying the draft RIT-T and application guidelines, the AER considers that a probability weighted approach to ranking options is a more robust and transparent way of ranking options than the current approach in the regulatory test (version three) which requires TNSPs to compare likely benefits over a "majority of reasonable scenarios".

The AER agrees with Grid Australia that probability weighting alone will not capture any additional benefit associated with option value. However there are other advantages of assigning probabilities to reasonable scenario that will arise regardless of whether a TNSP is attempting to capture option value. Requiring a TNSP to specify probability weightings for each scenario allows interested parties to more thoroughly understand the assumptions a TNSP has made in comparing options. It also allows a TNSP to better capture the market benefits of a credible option which has a low probability, but a very high market impact.

Regarding Ergon Energy's comments, the AER does not agree that assigning probabilities is unnecessary because the 'medium classified scenario' has the highest probability. To the extent that a 'medium classified scenario' has a higher probability than the other scenarios considered, it is appropriate that this is reflected in the RIT-T analysis through probability weighting because the benefits in this scenario are more likely to arise than under the other scenarios considered.

The AER accepts that TNSPs will need to use some subjective judgement to assign probabilities to reasonable scenarios. However, this requirement does not introduce a higher level of subjective analysis than the current approach in the regulatory test (version three) which implicitly assumes that all reasonable scenarios have an equal likelihood arising. Requiring a TNSP to explicitly state the underlying assumptions it has made about the probability that its reasonable scenarios are likely to arise will improve interested parties understanding of the matters a TNSP has considered in undertaking its analysis.

Finally, as noted above a TNSP will only need to consider those variables which are likely to affect the outcome of the RIT-T assessment in its reasonable scenario analysis. This will limit the number of scenarios which will require a probability weighting to only those that will affect the outcome of the assessment.

AER decision

The AER has not made any changes to the RIT-T or application guidelines in response to the comments raised on the requirement to weight the market benefits in each reasonable scenario by the likelihood of that reasonable scenario arising.

4.4 Classes of market benefits

Draft RIT-T and application guidelines

Paragraph 5 of the draft RIT-T set out the classes of market benefits and costs that the AER proposed should be considered under a RIT-T analysis. The AER proposed that in addition to classes of market benefits specified in clause 5.6.5B(c)(4) of the Electricity Rules, that the RIT-T:

- define competition benefits as the net changes in market benefit arising from the impact of the credible option on participant bidding behaviour
- list option value as a separate class of market benefit, with the application guidelines setting out the AER's view on how option value can be captured under the existing classes of market benefits and costs
- provide that a TNSP should consider the negative of any penalty paid or payable (meaning the penalty price multiplied by the shortfall) for not meeting the renewable energy target, grossed up if not tax deductible to its value it is were deductible, and
- not require the specification of any additional classes of market benefit.

Appendix A of the draft application guidelines set out guidance and worked examples on each of the classes of market benefit listed in paragraph 5 of the RIT-T. The AER also noted that under clause 5.6.5B(c), TNSPs may consider other relevant classes of costs and market benefits which are agreed to by the AER in writing.

Submissions

Competition benefits

The MEU was concerned that inter-regional price differentials cannot be used to demonstrate the benefits of augmenting interconnectors. It noted that example 29 in the draft application guidelines calculates the expected net benefit of an upgrade to an interconnector to a competitive region by reference to short-run marginal cost of generation plant rather than the expected spot price outcome. The MEU considered that this approach excludes benefits to consumers.

The MEU was also concerned that there are very few proposals for inter-regional connectors and that the application guidelines should provide an incentive to TNSPs to augment inter-regional connections.

Option value

Grid Australia supported the AER's proposed approach which leaves it open for the TNSP to estimate additional option value which is not already captured in other

classes of market benefit. It considered that option value analysis would not be suitable for most RIT-T applications and that there would be merit in the RIT-T guidelines stating that the following three conditions are necessary for positive option value:

- uncertainty regarding future outcomes
- learning, that is the state of information regarding future uncertainty must change, and
- flexibility must also be associated with at least one of the investment alternatives being considered.

Grid Australia also considered that calculating option value would require additional analysis beyond the standard 'scenario' analysis in the regulatory test (version three) and the AER's suggested 'probability weighted' approach under the draft RIT-T. The proposed approach in the RIT-T does not encompass the 'learning' that takes place as market conditions unfold.

Voluntary load curtailment

Grid Australia considered that the application guidelines could provide further guidance on the calculation of changes in voluntary load curtailment. It noted that where an option is expected to change wholesale market prices, it will be difficult for TNSPs to estimate the change in voluntary load curtailment given that load curtailment contracts are confidential. Grid Australia considered that the application guidelines should specify that in the absence of more specific information, it is appropriate for the TNSP to use more generally available data such as the indicative data on voluntary load curtailment which forms part of AEMO's dataset for the NTNDP analysis.

Involuntary load shedding

Grid Australia considered that the application guidelines should make clear that in the absence of specific jurisdictional estimates, the value of customer reliability (VCR) estimate used by AEMO for network planning purposes in Victoria (referred to in section A.3 of the draft application guidelines) is also a reasonable estimate to apply to other jurisdictions.

The MEU raised concerns regarding example 23 in the draft application guidelines. Specifically it considered that following the implementation of a credible option which will reduce involuntary load shedding, the spot price will increase from $10/MWh to $100/MWh and there is a transfer of wealth from customers to the remote generator of $18 000/MWh.

Changes in ancillary services costs

Grid Australia also considered that further guidance should be provided regarding the calculation of changes in ancillary services costs. It considered that the worked example in section A.7 of the draft application guideline did not provide guidance on when changes in ancillary service costs are likely to be material or how they should be quantified. It noted that changes in ancillary service costs are not likely to be material for many RIT-T assessments and in particular changes in frequency control

ancillary services (FCAS) services are likely to be quite rare and small. Grid Australia also considered that modelling ancillary services markets would result in a disproportionate level of analysis. It proposed a worked example for estimating reactive power ancillary services. This example estimated the reduction in reactive power ancillary services costs as the estimated annualised cost of a capacitor bank.

AER consideration

Competition benefits

The AER has considered the MEU's proposal that TNSPs be permitted to consider inter-regional price differentials as a benefit under a RIT-T analysis and is of the view that calculating competition benefits by reference to inter-regional price differentials will not provide an accurate measure of the benefits associated with improving competition between regions. Worked examples 28 and 29 in the draft application guidelines calculate competition benefits as the difference between the present value of:

- the overall economic surplus arising with the credible option, with bidding behaviour reflecting any market power prevailing with that option in place, and
- the overall economic surplus in the base case, with bidding behaviour reflecting any market power in the base case.

The AER considers that these examples correctly identify the net economic benefits of improved competition to all those who produce, consume and transport electricity in the NEM.

Regarding the MEU's concerns that there are very few proposed interconnectors, the AER considers that to the extent that these proposals provide net economic benefits to all those who produce, transport and consume electricity in the NEM, a requirement to apply the RIT-T should not provide a barrier to undertaking these investments. The AER notes that AEMO's NTNDP should also assist in identifying areas for efficient development of the national transmission network.

Option value

The AER has reviewed the provisions in the draft application guidelines regarding option value and agrees with Grid Australia that there may be merit in more explicitly setting out the circumstances in which option value is likely to arise. In particular the AER considers that option value is likely to arise where there is uncertainty regarding future outcomes, the information that is available in the future is likely to change and the options considered by a TNSP are sufficiently flexible to respond to that change.

Section A.9 of the application guidelines includes additional guidance on the conditions that are necessary for positive option value.

Voluntary load curtailment

The AER has considered the comments made by Grid Australia and agrees that in the absence of more specific data, it may be appropriate for TNSPs to utilise the dataset for estimating voluntary load curtailment which is adopted by AEMO in its NTNDP analysis. However the AER does not consider that the commentary on voluntary load

curtailment needs to address this specific issue. The AER instead considers that the general guidance on the use of external documents (see section 4.9 below) may address some of these concerns.

Involuntary load shedding

Regarding Grid Australia's comments on the applicability of the Victorian VCR, the AER considers that it is may be appropriate for TNSPs to use the estimates used by AEMO for network planning in Victoria provided that there is not jurisdictional specific estimates or information which suggests that the Victorian VCR is not a reasonable estimate in other jurisdictions. However the draft application guidelines do not prohibit the use of the VCR, so the AER does not consider it necessary to revise this aspect of the application guidelines.

Regarding the MEU's concerns with example 23 in the draft application guidelines, the AER does not consider that the implementation of the credible option (and subsequent reduction in involuntary load shedding) will increase the spot price from $10/MWh to $100/MWh. In the base case, while the fuel cost of the remote generator is $10/MWh, the under-supply of generation (and resulting involuntary load shedding) would indicate that the price is set at the market price cap (in this example assumed at $30 000/MWh). The implementation of the credible option reduces the market price in this example from $30 000/MWh to $100/MWh.

Nevertheless, the AER recognises that the references to price in the example (rather than cost) may lead to some confusion in interpreting the example and has revised the wording in the final application guidelines.

Changes in ancillary services costs

The AER has considered Grid Australia's proposed worked example for estimating changes in the cost of reactive power ancillary services. The AER has decided not to include the example as proposed in the final application guidelines as it was unclear what the identified need was and the proposed credible options for addressing that need. Given this, it was difficult to determine whether the proposed methodology was reasonable.

In addition, while changes in ancillary services costs may often be small, the AER is hesitant to provide specific worked examples which set out the particular circumstances under which a particular class of market benefit will not be material to a RIT-T assessment and the extent of the analysis which should be undertaken in any particular circumstances. Classes of market benefits which should be considered should be determined by a TNSP following consultation with interested parties. This is discussed further below.

Nevertheless, the AER recognises that in some circumstances it may be appropriate to use methods other than market modelling to estimate some classes of market benefits, including benefits associated with changes in ancillary services costs. Given this, section A.7 of the final application guidelines includes additional guidance which draws on the material set out in Grid Australia's proposed example.

AER decision

The AER has not made any amendments to the RIT-T in response to the issues raised in submissions regarding the classes of market benefits considered under a RIT-T analysis. However the AER has made a number of amendments to the application guidelines. These changes include:

- revising the commentary in section A.9 to more explicitly set out the circumstances under which option value is likely to arise. In particular this section now states that option value is likely to arise where there is uncertainty regarding future outcomes, the information that is available in the future is likely to change and the credible options considered by a TNSP are sufficiently flexible to respond to that change.

- making minor changes to section A.3 to revise the wording in example 23 to remove the references to price, and

- including additional guidance in section A.7 on a possible method for valuing a change in reactive power ancillary service requirements.

4.5 Which market benefits must be considered

Draft RIT-T and application guidelines

Paragraph 7 of the draft RIT-T required TNSPs to quantify all classes of market benefits which they determined to be material. Paragraph 8 noted that a TNSP must consider all classes of market benefit as material unless it could provide reasons why:

- a particular class of market benefit is unlikely to materially affect the assessment of credible options under the RIT-T, or

- the cost of undertaking the analysis to quantify the market benefit is likely to be disproportionate to the scale, size and potential benefits of the credible options being considered.

Submissions

Grid Australia argued that it would be helpful for the application guidelines to provide guidance on situations where market benefits are not likely to be material. It suggested that if the proposed investment will not have an impact on the wholesale market then a range of market benefits will not be material so would not need to be estimated. Grid Australia proposed a worked example for a situation where market dispatch modelling would not be required.

EnergyAustralia similarly argued that there needs to be some guidance from the AER on when some classes of market benefit can be omitted from the application of the RIT-T because they are not material. It was concerned that the onus is on the TNSP to demonstrate that the benefits are not material or the cost of assessment is disproportionate.

AER consideration

Regarding EnergyAustralia's concern with the requirement in the RIT-T for a TNSP to determine which classes of market benefits are material, the AER notes that this requirement is consistent with clause 5.6.5B(5) of the Electricity Rules and the AEMC's intention as expressed in its Draft Rule Determination that the RIT-T Rule:

> …allows the TNSP in each application of the RIT-T to identify and consult on which classes of benefits and costs are likely to be materially relevant to the decision being made, thus allowing the TNSPs to apply judgement, supported by reasoning and analysis, to justify the specification of the RIT-T in any given case, with stakeholders given the opportunity to comment.

Nevertheless the AER agrees with interested parties that the application guidelines could provide guidance on situations where specific market benefits are not likely to be material. However the AER is hesitant to include a prescriptive list of all the potential classes of market benefits that will not be material in a particular case as suggested by Grid Australia. The AER considers that the classes of market benefits should be determined by a TNSP following consultation with interested parties and that this is consistent with the AEMC's intention that: [7]

> The project specification stage would provide an opportunity for TNSP's to consult on their reasoning [as to which classes of market benefits should be considered]. In making its judgement on whether a class of market benefit is material the TNSP should have regard to the views of market participants raised during the project consultation process. The views of stakeholders on these matters would go some way to addressing the concerns raised by stakeholders.

The AER has instead included a section in the application guidelines which notes that where credible options are not expected to affect the wholesale market, there will be a range of market benefits that may not be material.

AER decision

The AER has included the following words in section 3.4 of the application guidelines:

> The classes of *market benefits* which should be considered will depend on the circumstances surrounding the individual RIT-T assessment and the *credible options* under consideration. For example, where a *credible option* is not expected to affect the wholesale market, a number of the classes of *market benefit* listed in paragraph 5 of the RIT-T, such as competition benefits and changes in fuel consumption arising through different patterns of generation dispatch, will not be material and therefore will not need to be estimated.

4.6 Methods for estimating market benefits

Draft RIT-T and application guidelines

The AER proposed that, for estimating the magnitude of different classes of market benefits, the RIT-T require a TNSP to use a market dispatch modelling methodology unless the TNSP can provide reasons why this methodology is not relevant. The

[7] AEMC 2009, *Regulatory Investment Test for Transmission*, Final Rule Determination, 25 June 2009, Sydney, p. 45.

TNSP's reasons would be set out in the project assessment draft report (or, in respect of a proposed preferred option which is subject to the exemption in clause 5.6.6(y) of the Electricity Rules, the project specification consultation report).

Paragraph 12 of the draft RIT-T provided that the market dispatch modelling methodology must incorporate:

- a realistic treatment of plant characteristics including, for example, minimum generation levels and variable operating costs, and
- a realistic treatment of the network constraints and losses.

The AER also proposed in paragraph 13 of the draft RIT-T that the method for estimating market benefits must include benefits which occur outside the region in which the TNSP's network is located.

Submissions

Grid Australia and AEMO agreed that there may be some circumstances where market dispatch modelling may not be necessary. For example, a transmission augmentation to support the distribution network may not have any impact on the wholesale market.

AEMO requested that the AER clarify the wording in paragraph 13 of the draft RIT-T. It considered that paragraph 13 required a TNSP to estimate benefits outside its region using market dispatch modelling and it was unclear whether the AER intended that this clause was only intended to apply to those situations which are not subject to the exemption in paragraph 12.

AER consideration

The AER agrees with AEMO that the drafting in paragraph 13 in the draft RIT-T could be clarified. The AER intended that the RIT-T require that the method used to estimate market benefits includes market benefits arising across all regions in the NEM. This paragraph was not intended to require a TNSP to estimate market benefits which arise outside a TNSP's region using market dispatch modelling if this method of modelling was not appropriate or necessary.

AER decision

The AER has amended paragraph 13 (new paragraph 12) of the RIT-T to remove the reference to paragraph 12 (new paragraph 11). Paragraph 12 of the final RIT-T states:

> The method for estimating market benefits must capture any benefits which occur outside the *region* in which the *transmission network service provider's* network is located.

The AER considers that this revised drafting removes the ambiguity that existed in the draft RIT-T and better reflects the AER's intention in developing the provision.

4.7 Further requirements for costs and benefits

Draft RIT-T and application guidelines

The AER proposed that the RIT-T provide that the allocation of costs and market benefits between electricity and other markets must be based on the cost allocation principles. Paragraph 11 also provided that if a credible option will enable a TNSP to provide prescribed and other services, the market benefits and costs must be allocated in accordance with the cost allocation principles and only included to the extent it is associated with the provision of prescribed services.

Submissions

AEMO noted that the effect of proposed paragraph 11 in the draft RIT-T is that those elements that do not fall into the definition of prescribed transmission services may not be taken into account. This may impose higher overall costs on consumers and may also be inconsistent with the definition of market benefits which includes, for example, capital cost savings of generation assets. AEMO noted that changes to a generator's connection costs, which are negotiated services, should be taken into account in the assessment.

AER consideration

The AER adapted paragraph 11 from the AER's regulatory test (version three). A similar paragraph was also in the first and second versions of the ACCC's regulatory test. The ACCC's final decision on the regulatory test (version one) indicates that this paragraph was included to ensure that the regulatory test is concerned with the network investments that will be recovered through the regulated pricing arrangements.

The AER considers that paragraph 11 may be of limited benefit in the RIT-T and agrees with AEMO that paragraph 11 may be inconsistent with the definition of market benefits. Given this, paragraph 11 has been removed from the final RIT-T. Paragraph 10 has been retained and provides that the allocation of costs and market benefits between electricity and other markets must be based on the cost allocation principles.

AER decision

The AER has removed paragraph 11 of the draft RIT-T from the final RIT-T.

4.8 Assets subject to the RIT-T

Draft RIT-T and application guidelines

Part 2 of the draft application guidelines noted that clause 5.6.5C of the Electricity Rules provides that a TNSP must apply the RIT-T to all proposed transmission investments unless the investment falls under defined circumstances. Under clause5.6.5C(a)(2) of the Electricity Rules a TNSP does not need to apply the RIT-T

where the estimated capital cost of the most expensive option to address the relevant identified need which is technically and economically feasible is less than $5 million.[8]

Submissions

EnergyAustralia and Grid Australia considered that the application guidelines should provide guidance on how to define 'economically feasible' in clause 5.6.5C(a)(2) of the Electricity Rules. They noted that it is often possible to conceive an extremely high cost option for addressing an identified need even though the same need could be addressed by a range of cheaper options.

EnergyAustralia proposed that an option should be considered economically feasible if its cost is within 50 per cent of other potential options offering similar benefits. Grid Australia considered that the application guidelines should provide that "an option is generally economically feasible if its cost is comparable to other potential credible options to address the identified need. The exception is where a significantly higher option is considered economically feasible because it has a materially higher net market benefit than the other credible options."[9]

AER consideration

The AER agrees with EnergyAustralia and Grid Australia that the application guidelines could provide guidance on the circumstances under which the AER consider that an option is 'economically feasible' under clause 5.6.5C(a)(2) of the Electricity Rules. However the AER is concerned that a numerical formula such as that suggested by EnergyAustralia may not be sufficiently flexible to apply to all situations and that qualitative guidance may prove more useful.

General guidance has been included in section 2.2 of the application guideline on when the AER considers that an option can be considered 'economically feasible' for the purpose of clause 5.6.5C(a)(2) of the Electricity Rules.

AER decision

The AER has included the following guidance in section 2.2 of the application guidelines:

> **Economically feasible**
>
> As noted under clause 5.6.5C(a)(2) of the Electricity Rules a TNSP does not need to apply the RIT-T where the most expensive option to address the identified need which is technically and economically feasible is less than $5 million. The Electricity Rules do not define the term "economically feasible". Whether an option is economically feasible will depend on the particular circumstances surrounding the RIT-T assessment. However, as general guidance, the AER considers that an option is likely to be economically feasible where its estimated costs are comparable to other *credible options* which address the *identified need*. One important exception to this general rule applies where it is expected that a *credible option* or options are likely to deliver materially higher *market benefits*. In these

[8] Under clause 5.6.5E of the National Electricity Rules the AER must review this threshold every three years with the first review to commence in 2010.

[9] Grid Australia 2010, *Regulatory investment test for transmission—response to draft RIT-T and application guidelines*, 14 May 2010, p.15.

circumstances the option may be 'economically feasible' despite the higher expected cost.

4.9 References to external documents

Draft RIT-T and application guidelines

In the explanatory statement accompanying the draft RIT-T, the AER invited comment on whether the application guidelines should reference external documents. The AER noted that, for example, ACIL Tasman provides estimates of emissions factors for various fuels for new and existing generation sources. The AER questioned whether it was appropriate to reference documents such as this in the application guidelines.

Submissions

Grid Australia argued that it would be appropriate for the application guidelines to reference external sources, such as the work AEMO publishes in developing the NTNDP, which could be used as a starting point for assumptions used in RIT-T analysis.

AEMO argued that the AER could reference reputable data and information sources, but added that there was a need to retain flexibility to refer to up to date information sources.

AER consideration

The AER agrees that there is merit in the application guidelines noting that external data and information sources can be used by TNSPs in developing assumptions for their RIT-T analysis. The use of these external sources can encourage a greater consistency of approach across TNSPs. Therefore, the AER believes it is appropriate to include a reference to the use of external documents in the application guidelines.

However, the AER acknowledges that in some circumstances TNSPs may have access to better information than is available in external sources. Therefore, it is inappropriate to prescribe certain external sources that TNSPs must use in their RIT-T analysis. Instead, the application guidelines note that external information and data sources may be used by TNSPs as a starting point for their RIT-T analysis.

AER decision

The AER has included the following new section 3.10 in the application guidelines:

> **3.10 Use of external documents**
>
> External documents, such as the material published by AEMO in developing the National Transmission Network Development Plan, may be used as a starting point for the assumptions used in RIT-T analysis. However it may be appropriate to use alternate sources of information where this information is more up-to-date or is more appropriate to the particular circumstances under consideration.

4.10 Process for applying the RIT-T

Draft RIT-T and application guidelines

The draft RIT-T application guidelines summarised the process that a TNSP must follow when applying the RIT-T as set out in the Electricity Rules.

Submissions

Alinta Energy raised a number of concerns regarding the process that TNSPs may follow in applying the RIT-T. It argued that network service providers have substantial discretion in how they apply the RIT-T, which can influence the options considered. In particular Alinta Energy focused on the importance of network service providers:

- following a prescribed minimum timeframe to enable interested parties appropriate time to present credible options for consideration
- seeking submissions from interested parties relating to credible options, as opposed to a committed project only submission, and
- providing detailed cost information on the network option to allow participants to consider the commercial viability of non-network options.

AER consideration

The AER notes that the concerns raised by Alinta Energy relate to the processes adopted by TNSPs in conducting the current regulatory test. However, as highlighted below, the RIT-T framework involves more extensive consultation than required previously which may help to address Alinta Energy's concerns.

Alinta Energy argued that it was imperative that TNSPs follow a prescribed timeframe to enable interested parties appropriate time to present credible options for consideration. The AER notes that there is a requirement at clause 5.6.6(h) of the Electricity Rules that TNSPs allow a minimum of 12 weeks for submissions on the credible options presented in the project specification consultation report. Previously, the request for information (RFI) process outlined in the regulatory test specified an eight week consultation process. Further, the RFI process under the regulatory test only applied to market benefits assessments, while project consultation specification under the RIT-T framework also extends to reliability driven investments.

Alinta Energy also raised the concern that TNSPs may not be seeking submissions from interested parties relating to credible options, but rather may be requiring that these alternatives are committed projects. The AER notes that clause 5.6.6(g) of the Electricity Rules requires TNSPs to seek submissions on the credible options presented. The AER considers that only allowing committed projects to be considered is inconsistent with the requirement that is now in the Electricity Rules as the definition of credible option does not require that all of the requirements for a committed project be satisfied.

Finally, Alinta Energy stressed the importance of TNSPs providing detailed cost information on the network option to allow participants to consider the commercial

viability of non-network options. The AER notes that clause 5.6.6(c)(6)(v) requires TNSPs to provide, to the extent practicable, the total indicative capital and operating and maintenance costs. The RFI process under the regulatory test only required cost information, where this was known, for market benefits assessments, while project consultation specification under the RIT-T framework extends this requirement to reliability driven investments.

The more extensive consultation required under the RIT-T framework may help address Alinta Energy's concerns. Indeed, as noted by the AEMC in its Final Rule Determination accompanying the RIT-T Rule, this expanded consultation is designed to help ensure that all potential options were identified and considered.[10]

However the AER considers that there would be benefit in providing further guidance in the application guidelines on information that should be included in the description of an identified need. Clearly setting out the identified need will assist non-network proponents understand the requirements that non-network credible options would need to meet and assist them in proposing alternative credible options.

In addition, the AER considers that, where relevant, RIT-T consultation documents should also include information regarding how any proposed augmentation credible options link to the TNSP's asset refurbishment or replacement plans, the assumptions the TNSP has made regarding future generation and demand and any assumptions the TNSP has made when undertaking market modelling.

The AER considers that this information would assist interested parties and non-network proponents understand some of the information a TNSP has considered when undertaking its assessments.

The AER also notes that if the concerns raised by Alinta Energy relate to alleged ongoing non-compliance with the Electricity Rules, there are mechanisms available for dealing with these issues. As the agency responsible for Rule compliance and enforcement, the AER would welcome any potential Rule breaches being brought to its attention. Depending on the issue involved, disputes may also be raised with the AER concerning the TNSP's application of the RIT-T.

AER decision

In response to the comments raised on the process for applying the RIT-T, the AER has amended section 4.1 of the application guidelines to provide that:

> In describing the *identified need* under clause 5.6.6(c)(6), it is often useful for a TNSP to specify (where the *identified need* is for *reliability corrective action*):
>
> - the maximum demand in MW and energy in MWhs at risk. This should include the TNSP's expectations regarding the timing of any expected breach of a reliability standard and by how much.
>
> - specific details on the planning criteria which is being applied (for example specific clause and section references to the legislation or other regulatory instruments that apply)

[10] AEMC 2009, *Regulatory Investment Test for Transmission*, Final Rule Determination, 25 June 2009, Sydney, p.18.

- in an ‘n–x’ reliability assessment, any assumptions the TNSP has made in developing ‘x’ (including for example information regarding generator and interconnector availability).

In addition to the material TNSPs are required to publish under clause 5.6.6(c)(6), it may assist non-network proponents to propose alternative *credible options*, if the *project specification consultation report* also specifies (where relevant):

- how any proposed augmentation *credible option* links to the TNSP’s asset refurbishment or replacement plans, and

- information regarding future generation and demand assumptions.

The AER has also amended sections 4.2 and 4.3 of the application guidelines to indicate that where a TNSP has undertaken market modelling, the project assessment draft and conclusions reports should also include a description of any assumptions the TNSP has made.