



REVIEW OF THE REGULATORY INVESTMENT TEST FOR TRANSMISSION

Response to COAG Energy Council – Consultation Paper
30 September 2016

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1. OVERVIEW

Key messages

- » It remains appropriate for TNSPs to be responsible for administering the RIT-T given their role and capabilities.
- » The framework including cost benefit analysis, network and non-network options is generally robust.
- » However, the current RIT-T framework is limited in its ability to evaluate benefits which are difficult to quantify, including reputational, system security benefits and the insurance value of avoiding 'High Impact, Low Probability' events.
- » The RIT-T framework and associated guidelines should be reviewed to better integrate the evaluation of security benefits and the net market benefits which can already be assessed in the RIT-T. This may require a different approach to weighting, or otherwise recognising, system security impacts of High Impact, Low Probability events. The RIT-T should enable these benefits to be evaluated in a nationally consistent manner, while retaining transparency and rigour. In the absence of that evaluation being internalised in the RIT-T, the benefits of interconnectors which are otherwise difficult to quantify could potentially be expressed through a requirement to meet minimum security criteria and standards set by jurisdictions. Where such an obligation exists, the RIT-T would be applied to minimise the net cost of meeting that obligation.
- » It would be beneficial to clarify the application of the RIT-T in relation to environmental policies and ancillary services benefits.
- » Given the national significance of interconnectors in the NEM, there may be justification to evaluate such projects with general equilibrium analysis given the magnitude of the potential implications for the wider economy; and
- » Without compromising important transparency and consultation benefits, potential changes could be made to streamline existing timeframes for the regulatory review of RIT-T decisions, and to avoid protracted disputation.

The ENA is pleased to make this submission to the COAG Energy Council's Review of the Regulatory Investment Test for Transmission (RIT-T), in response to the Consultation Paper published on 30 September 2016.

The ENA is the national industry association representing the businesses operating Australia's electricity transmission and distribution and gas distribution networks. Member businesses provide energy to virtually every household and business in Australia.

Given the significance of the issue of interconnectors in the National Electricity Market (NEM), the limited time allowed for stakeholder consultation is challenging.

Despite this observation, the ENA and its members look forward to a collaborative approach in examining and progressing the key issues proposed in this submission.

In relation to the issues discussed in the Consultation Paper, ENA would like to highlight the following points:

- » In a changing energy market, it will be important to retain governance arrangements in which TNSPs are responsible for the application of the RIT-T, including to investments (such as interconnectors) that affect flows between different regions of the NEM:
 - TNSPs are responsible for delivering a power system that can be operated securely and planning the development of the transmission network (or the adoption of non-network alternatives) to deliver that security;
 - Within this context, TNSPs have the direct incentive to ensure that network planning is undertaken in a timely fashion, and that timely, efficient and secure system outcomes are delivered; and
 - TNSPs also have deep understanding of power system operation and stability issues, as well as experience in the design and costing of network investment alternatives.
- » Given the responsibilities and accountabilities of TNSPs, the current RIT-T framework ensures that:

- all options considered under the RIT-T must be assessed in terms of their costs and benefits to the NEM as a whole, rather than only one particular TNSP's region;
- the TNSPs must consult with AEMO (in its role as National Transmission Planner) on RIT-T applications, and must request a report from AEMO where an option is expected to have a material inter-network impact; and
- there is explicit and transparent consideration of non-network options, which has been borne out by experience to date.
- » Notwithstanding the above, it is clear that interconnectors in particular, can have substantial benefits that are not easily quantified and which therefore are not captured in the RIT-T assessment.
 - These benefits include the 'insurance' value associated with having additional linkages between regions, which avoids the substantial negative impact on economic outcomes and associated reputational damage to Australia associated with severe and widespread disruptions to electricity supply.
- » The current RIT-T framework is limited in its ability to evaluate benefits which are difficult to quantify, including reputational, system security benefits and the insurance value of avoiding, High Impact, Low Probability' events. The framework should be reviewed to better integrate the evaluation of security benefits and net market benefits.
 - This may require a different approach to weighting, or otherwise recognising, outcomes of High Impact, Low Probability events against security objectives. The RIT-T should enable these benefits to be evaluated in a nationally consistent manner, while retaining transparency and rigour.
 - In the absence of that evaluation being internalised in the RIT-T, the benefits of interconnectors which are difficult to quantify could justify obligations set by jurisdictions, to be met at efficient or lowest cost.
- » There would be benefit in clarifying the application of the RIT-T in a number of areas, particularly in relation to environmental policies such as carbon abatement and the valuation of ancillary services.
- » Interconnector investments can also bring benefits to the wider economy through reducing the volatility of wholesale prices, and the divergence of prices across different NEM regions.
 - As highlighted in the Consultation Paper, currently the benefits from such an impact on prices can only be incorporated in the RIT-T in a limited fashion (linked to reductions in dispatch costs).
- » Given the national significance of interconnectors, it may be appropriate to consider the scope for interconnector investments to be evaluated via general equilibrium analysis. This may be justified by the magnitude of the potential benefits to the wider economy, which may make a difference in the outcome of the assessment and whether or not investment that will deliver these benefits proceeds.
- » The ENA notes the discussion in the Consultation Paper in relation to the timeliness of the RIT-T process, and the need to balance the requirements of a process that allows for adequate and transparent consultation to ensure that all options are considered, with an overall timeline that allows investments to proceed in a timely fashion, to deliver the benefits identified.
 - ENA considers that the current arrangements which allow 'fast-track' processes for investments that are lower cost are appropriate and should be retained
 - While, ENA considers the cost and complexity of benefits associated with interconnector investments requires appropriate time for consultation on these types of investments, it would be concerning if there was any lengthening of these timeframes, or if additional steps were imposed;
 - For interconnector investments in particular, there can be expected to be individual 'winners' and 'losers' between stakeholders. Experience to date in processes such as the Heywood interconnector upgrade suggests that timeframes for completing the RIT-T assessment and any subsequent AER review of the outcome run a substantial risk of being extended by parties who consider that they will be detrimentally impacted by a particular outcome.

Table 1 summarises how the current RIT-T framework addresses some of the concerns about the current application of the RIT-T raised in the Consultation Paper.

ENA members note that the current arrangements attempt to legitimately balance interested party concerns with the timely delivery of network investments.

The Council may consider potential changes to the existing timeframes allowed for the AER to review RIT-T decisions, and for disputes, as part of considering what steps can be

taken to improve the timeliness of the overall process. (Refer section 5 for more details).

The remainder of this submission expands on the above points. Responses to each of the questions posed in the Consultation Paper are provided in an appendix.

Table 1- ENA’s understanding of Current RIT-T

Concern with current RIT-T process	<i>How this can be addressed under the existing RIT-T framework</i>
<p>Ability of an assessment dependent on analysis conducted by proponents possessing imperfect information and inadequate incentives to effectively capture and assess distributed, system –wide benefits (page 14)</p>	<p>RIT-T requires the assessment to be conducted across the NEM as a whole, and for TNSPs to identify how they have taken benefits outside of their own region into account.</p> <p>RIT-T consultation requirements means that the assessment is transparent and incorporates information provided by other stakeholders. Additional calls from some stakeholders for more non-confidential TNSP information to be made available needs to be balanced against the costs and resources of NSPs to do so (over and above existing requirements) and in what form this information is being sought (e.g. standardised, raw, consolidated).</p> <p>AEMO (in its role as National Transmission Planner) is required to provide objective criteria for assessing whether an option is likely to have a material impact on inter-regional flows and, where it does, to provide an augmentation technical report.</p> <p>The AEMC also has a Last Resort Planning Power, and, to date, has never needed to use this to require network companies to consider options to alleviate constraints on the interconnected transmission network since TNSPs have initiated such considerations themselves.</p>
<p>Additional interconnection may be beneficial in providing redundancy in the event that an interconnector is non-operational due to planned maintenance or failure (page 14)</p>	<p>The full system security benefits to the Australian economy that additional interconnection provides are not fully captured by the current RIT-T.</p> <p>It cannot currently evaluate benefits which are difficult to quantify, including reputational benefits and the insurance value of avoiding ‘High Impact, Low Probability’ events. The framework should be reviewed to better integrate the evaluation of security benefits and net market benefits.</p> <ul style="list-style-type: none"> » This may require a different approach to weighting, or otherwise recognising, outcomes of High Impact, Low Probability events (including interconnector outages) (i.e. not requiring them to be based solely on probability. This could be achieved through a change in the AER’s RIT-T and RIT-T Guideline. » It may also require the articulation of explicit security objectives. <p>The RIT-T should enable these benefits to be evaluated in a nationally consistent manner, while retaining transparency and rigour.</p> <p>In the absence of that evaluation being internalised in the RIT-T, the benefits of interconnectors which are difficult to quantify could justify obligations set by jurisdictions. Where such an obligation exists, the RIT-T would be applied to minimise the net cost of meeting that obligation.</p>

<p>Limitations or uncertainty as to how environmental policies can be captured in the test (page 15)</p>	<p>The RIT-T requires the analysis to be conducted across 'reasonable scenarios'.</p> <p>These can include scenarios with an implicit carbon price (reflecting current government policies, although not pre-supposing a particular mechanism).</p> <p>There would be value in the AER RIT-T Guidelines being updated to clarify how scenarios should reflect carbon policy, in order to avoid this becoming an area of potential dispute (and therefore additional delay).</p>
<p>Concern that the RIT-T does not capture certain classes of benefits which are increasingly important in the transitioning energy market, in particular system security benefits delivered by ancillary services (page 17)</p>	<p>The RIT-T already includes 'changes in ancillary services' as a benefit category.</p> <p>As noted in the Consultation Paper, AEMO is progressing work to develop tools and processes for quantifying benefits associated with voltage and frequency control ancillary services. ENA supports this work as an effective means of addressing concerns in this area.</p> <p>The RIT-T assessment also incorporates changes in the value of electricity not provided to consumers, where an interconnector (or other investment) provides a higher level of security of supply. AEMO has recently commented that it would be appropriate to apply a multiplier to the value used in calculating this benefit ('Value of Customer Reliability (VCR)'¹), in order to reflect the greater impact of severe supply disruptions. The AER's RIT-T guideline could be updated to make clear that such multipliers could be applied. AEMO could also be requested to provide updated VCR estimates applicable to widespread disruptions, or guidance on appropriate multipliers.</p>

¹ The VCR was most recently estimated by AEMO in 2014, and most RIT-T assessments to date have adopted the AEMO estimates. See *AEMO RIT-T Improvements document to the Consumer Forum, 5 August 2016* can be found at <http://www.aemo.com.au/Stakeholder-Consultation/Industry-forums-and-working-groups/Other-meetings/Consumer-Forum>

2. CURRENT GOVERNANCE ARRANGEMENTS

The Consultation Paper poses the question of whether TNSPs are best placed to undertake the assessment of interconnection investments in the changing energy market.

Under the current governance arrangements, TNSPs are responsible for the application of the RIT-T, including to investments (such as interconnectors) that affect flows between different regions of the National Electricity Market (the NEM).

Against this background of responsibility and experience, the RIT-T framework ensures that:

- » all options considered under the RIT-T must be assessed in terms of their costs and benefits to the NEM as a whole, rather than only that particular TNSP's region,
- » the TNSPs must consult with AEMO on RIT-T applications, and must request a report from AEMO where an option is expected to have a material inter-network impact, and
- » there is explicit and transparent consideration of non-network options.

The ENA is of the opinion that these arrangements remain an appropriate model in the changing energy market.

The issue of appropriate governance arrangements for planning in the NEM has been examined a number of times.

The ENA notes that the AEMC in its Transmission Frameworks Review concluded that a single NEM-wide transmission planner and procurer was unlikely to be efficiency enhancing for two key reasons:²

- » financial incentives are likely to provide the most robust and transparent driver for efficient decision-making. Consequently, a not-for-profit decision maker was not the AEMC's preferred option.
- » consistent with the use of financial incentives, the AEMC supported arrangements whereby the owner and operator of a network is also responsible for planning and investment decisions, as a single entity is better placed to

trade off the relative costs and benefits of operational and investment decisions.

The current arrangements also take advantage of TNSPs local knowledge, close coordination between TNSPs, and between TNSPs and DNSPs. It can also minimise the duplication of resources and the potential loss of resources to manage connection applications

2.1 TNSPS RESPONSIBLE FOR DELIVERING POWER SYSTEM SECURITY

TNSPs and AEMO have complementary roles in the NEM. AEMO is fundamentally responsible for operational system security and TNSPs are responsible for planning for system security.

The institutional and regulatory framework in the NEM is predicated on TNSPs having responsibility for delivering a power system that can be operated securely. This obligation, by necessity, requires that TNSPs must also be responsible for planning the development of the transmission network (or the adoption of non-network alternatives), as this is a key input in delivering that security.

As a consequence, under the current framework it is the TNSPs that have the direct incentive to ensure that network planning (including the application of the RIT-T) is undertaken in a timely fashion, and that outcomes are delivered.

Any change to the current arrangements that made another party ultimately responsible for final decisions on network investments would require fundamental changes to the wider role and responsibilities of TNSPs within the NEM.

Moreover, ENA considers that the operation of the framework to date does not provide any urgent imperative for making such fundamental changes to the current governance arrangements in relation to the application of the RIT-T, or a change in the final decision making party.

TNSPs are the parties with a deep understanding of power system operation and stability issues, as well as expertise with the design and costing of network investment alternatives.

² AEMC, Transmission Frameworks Review, Second Interim Report, 15 August 2012, p.79.

2.2 RIT-T REQUIRES COSTS AND BENEFITS TO NEM AS A WHOLE

The assessment under the RIT-T is of the net benefit to the market as a whole. The NER makes explicit reference to the RIT-T specifying the methods for estimating market benefits that may occur outside of the region in which the networks affected by the RIT-T project are located.³ As part of the RIT-T assessment, the TNSP is required to identify any class of market benefit estimated to arise outside of the TNSP's own region.⁴

In applications of the RIT-T to date, the costs and benefits arising to parties outside of the TNSP's region have been explicitly considered.

For example, in both the Heywood interconnector upgrade RIT-T assessment and the QNI RIT-T assessment, the assessment itself was conducted jointly by those parties with planning responsibilities in each of the relevant regions (i.e., ElectraNet and AEMO (as Victorian transmission planner) in the case of the Heywood upgrade, and by TransGrid and Powerlink in the case of the QNI RIT-T). Both RIT-T assessments modelled the benefits from the interconnector options across the NEM as a whole, including changes in generation investment in all regions, and changes in dispatch costs in all regions.

The AEMC's recent review in the context of whether or not to exercise its Last Resort Planning Power concluded that:⁵

This analysis, [...] shows that transmission network companies are adequately considering the need for inter-regional transmission investment in their planning activities. It is therefore not necessary to exercise the last resort planning power in 2016.

2.3 RIT-T REQUIRES INTERACTION WITH AEMO (AS NATIONAL TRANSMISSION PLANNER)

The current RIT-T framework requires interaction between the TNSP applying the RIT-T and AEMO, in its role as national transmission planner. In particular, the RIT-T requires

recognition of where there is any discussion of either the drivers for the investment (the 'identified need') or the options being considered in the NTNDP.⁶ This reflects the fact that AEMO may have considered network options, including interconnectors, at a more conceptual level as part of the NTNDP. The RIT-T also requires the TNSP to identify where an option being considered is reasonably likely to have a material inter-network impact.⁷ AEMO (in its role as National Transmission Planner) publishes an objective set of criteria for assessing whether an option is likely to have a material inter-network impact. Where options have a material inter-regional impact, the TNSP is required to discuss with AEMO, who must provide an 'augmentation technical report'.⁸ In preparing this report, AEMO is required to consult with, and take account the recommendations of, jurisdictional planning representatives.⁹ Finally, the NER requires the TNSP to consult with AEMO (as well as other interested parties) for all applications of the RIT-T, and to provide a copy of each of the consultation reports it publishes as part of a RIT-T process to AEMO.¹⁰

2.4 CONSIDERATION OF NON-NETWORK OPTIONS

The RIT-T framework requires explicit and transparent consideration of non-network options, as well as all alternative transmission options (which could include transmission options in other regions). In particular, the RIT-T states that the TNSP must include a description of all credible options of which it is aware that address the identified need for the investment, which may include (without limitation) generation, demand side management, market network services, as well as alternative transmission options.¹¹

In practice non-network options have been included and evaluated as part of many RIT-T assessments, including interconnector assessments (in particular the RIT-T applied to the Heywood expansion). Table 2 table below sets out the consideration of non-network options in all of the RIT-T applications to date (excluding those applications which have been halted).

³ NER 5.16.1 (c)(10)(iii)

⁴ NER 5.16.4 (k)(6)

⁵ AEMC 13 October 2016, [Add ref]

⁶ NER 5.16.4(b)(4)

⁷ NER 5.16.4(b)(6)(ii).

⁸ NER 5.16.4 (k)(9)(iii), 5.21(a).

⁹ NER 5.21 (d).

¹⁰ NER 5.16.4(a), NER 5.16.4(c).

¹¹ NER 5.16.4(b)(5)

Table 2 - Non-Network options in RIT-T's				
Proponent	Project	Potential non-network options identified by TNSP/AEMO	Non-network options evaluated in RIT-T	Comments
ElectraNet Pty Ltd	Northern South Australia Region Voltage Control	New generator	Yet to be undertaken	
ElectraNet Pty Ltd	Baroota substation upgrade	New generator	Diesel Generator and Storage (Vibe Energy)	
Powerlink Queensland and TransGrid	Development of the Queensland – NSW interconnector	Load Reduction at peak times Load Shifting Energy Storage Pre-emptive load reduction	None	No proponents
Powerlink Queensland	Maintaining a reliable electricity supply to the Bowen Basin coal mining area	Local generation Demand side management	Upgrade existing and new generation (Energy Developments Limited)	Preferred option included non-network solution
AEMO	Regional Victoria Thermal Capacity – Ballarat and Bendigo Supply	Local generation Demand side management	Demand management	Assessed DM option even though no proponents
ElectraNet Pty Ltd	Lower Eyre Peninsula Reinforcement	Demand management New generation	Demand management (EnerNOC) Non-network generation options (International Power Australia GDF Suez)	
AEMO	Victorian Reliability Support	Generation reduction control scheme Additional generation	Post-contingent load reduction control scheme Demand management	Demand management was preferred option, even though no proponents.
AEMO	Eastern Metropolitan Melbourne thermal capacity upgrade	Demand management Local generation	Demand management Local generation	Assessed non-network options even though no proponents
AEMO, ElectraNet Pty Ltd	Heywood Interconnector	Demand management Control schemes Utility scale energy storage	Demand Management (EnerNOC) Control Schemes for wind generation (Infigen)	Evaluated combined network/non-network options
Transend Networks Pty Ltd	Electricity Supply Augmentation for the Kingston Area	Demand management Embedded generation Fuel substitution	None	No proponents

3. NOT ALL BENEFITS ARE CAPTURED IN RIT-T INTERCONNECTOR ANALYSIS

It is clear that interconnectors in particular can have substantial benefits that are not easily quantified in the current test and which therefore are not captured in the RIT-T assessment.

These benefits include the ‘insurance’ value associated with having additional linkages between regions, which is highlighted in the Consultation Paper. Such ‘intentional redundancy/insurance’ against the impacts of extreme events avoids the substantial negative impact on economic outcomes and associated reputational damage to Australia associated with severe and widespread disruptions to electricity supply.

It can be argued that such benefits are likely to be intrinsic considerations as to whether interconnectors are developed and therefore it would be beneficial to explicitly internalise their evaluation in the RIT-T. The RIT-T should enable these benefits to be evaluated in a manner which is nationally consistent, transparent and rigorous.

In the absence of that evaluation being internalised in the RIT-T, the benefits of interconnectors which are otherwise difficult to quantify could potentially be expressed through a requirement to meet minimum security criteria and standards set by jurisdictions. These could be established with the involvement of the AEMC’s Reliability Panel, AEMO, TNSPs and Jurisdictional System Security Coordinators. Where such an obligation exists, the RIT-T would be applied to minimise the net cost of meeting that obligation.

Where such obligations are in place, the application of the RIT-T becomes focused on minimising the overall net cost of meeting that obligation. That is, the investment option no longer needs to have an overall positive net market benefit under the RIT-T, but can be justified on the basis of being the ‘least cost’ solution to delivering the required level of security.

This is consistent with the assessment of ‘reliability corrective action’ under the RIT-T.¹²

Interconnector investments can also bring benefits to the wider economy through reducing the volatility of wholesale prices, and the divergence of prices across different NEM regions by alleviating potential inter-regional constraints to trade.

As highlighted in the Consultation Paper, currently the benefits from such an impact on prices can only be incorporated in the RIT-T in a limited fashion (linked to reductions in dispatch costs). ENA notes that a further benefit from a reduction in wholesale prices is that it leads to an increase in customers’ consumption of electricity and the consequent welfare that they derive from that consumption. This ‘demand-response’ benefit is similar to that previously identified as an element of ‘competition benefits’¹³ and may arise where an interconnector investment leads to a change in wholesale prices, even where there may not previously have been the exercise of market power. ENA considers that this benefit could be clarified in the AER RIT-T Guidelines as an applicable benefit for consideration, as part of the competition benefits category.

Proposition

The benefits associated with the wider impacts on investment and output in the Australian economy as a whole are not currently captured under the RIT-T, which is required to include only those costs and benefits to the electricity market as a whole.

It is worth re-evaluating whether it is appropriate to revisit this restriction for interconnector investments, where the greater complexity associated with general equilibrium analysis may be justified by the magnitude of the potential benefits to the wider economy, and which may make a difference in the outcome of the assessment.

¹² NER 5.16.1 (b).

¹³ Frontier Economics, *Evaluating interconnection competition benefits*, Final Report, Prepared for the ACCC, September 2004, p.20

4. RIT – T AREAS THAT COULD BENEFIT FROM CLARIFICATION

The following areas of the application of the RIT-T could benefit from being clarified in an updated version of the AER's RIT-T Guidelines.

In addition to the categories below, the AER RIT-T Guideline could be updated and expanded to include more practical examples of how the existing market benefit categories of the impact on ancillary services and option value could be calculated. Both of these benefit categories are likely to be important for interconnector assessments. There is an estimate (TransGrid and Powerlink¹⁴) that the introduction of the QNI interconnector brought about some \$80 m in net annual ancillary service cost benefits. It is a rule of thumb that these ancillary services benefits are more of an initial nature, and not necessarily of an on-going benefit of interconnection.

These may tend to be of higher benefit at the ends or the extremities of an interconnected network. AEMO, the AER, the AEMC and TNSPs could potentially collaborate on progressing this emerging issue.

Option value recognises the value of adapting an investment strategy over time, in response to learning about future uncertainties. It is a recognised assessment technique for large projects with phased stages, and has been included as a benefit category in the RIT-T since 2009. Interconnectors may have substantial option value in the light of the uncertainty surrounding new technologies and the future development of electricity supply and demand. To date, the AER RIT-T guidelines have not provided detailed consideration on the calculation of option value.

4.1 TREATMENT OF ENVIRONMENTAL POLICIES

A key feature of the current RIT-T arrangements, not explicitly discussed in the COAG Energy Council's Consultation Paper, is that the assessment of market benefits. is required to be

conducted against a range of 'reasonable scenarios of future supply and demand.' Future supply and demand in the energy market will be affected by government policies (including in relation to carbon emissions) and the development of new technologies.

The requirement to incorporate scenario analysis in the RIT-T is important, given that investments in transmission assets have a long life, and the inevitable uncertainty in relation to how the future will evolve.

Policies that place a value on carbon emissions will have a material impact on the future development of the electricity generation market. Australia's COP21 greenhouse gas reduction target commitments make some future mechanism that imposes a cost on carbon highly likely, even if the form of that mechanism is not yet known. For many transmission investments, including interconnector investments, it is therefore important the RIT-T assessments include scenarios which place a value on carbon emissions.

The RIT-T makes clear that the parameters that may be appropriate to include in a reasonable scenario, include those relating to environmental policies, viz:

(d) the form of any market-based regulatory instrument that may be used to address greenhouse and environmental issues;

The ENA notes that both of the scenarios adopted by AEMO in its 2015 NTNDP included an implicit cost on carbon for the majority of the 20-year assessment period¹⁵. AEMO's assumptions for the 2016 NTNDP are also expected to include implicit carbon price assumptions¹⁶. This has been reinforced at AEMO's most recent National Electricity Market Wholesale Consultative Forum, held on 28 September 2016. At the forum, the 2016 version of the NTNDP is expected to incorporate the Conference of Parties emission abatement commitment (COP21) to reduce emissions by 28% as well as including the Victorian Renewable Energy Target (VRET).

ENA therefore considers that RIT-T assessments, particularly for interconnectors, should include scenarios which place an implicit value on carbon. It would be worth updating the AER RIT-T guidelines, to make this clear, and to provide examples

¹⁴ Outcomes of joint planning investigation – Benefits of upgrading the capacity of the Queensland – New South Wales Interconnector (QNI) A preliminary assessment 19 March 2004.

¹⁵ AEMO, National Transmission Network Development Plan, November 2015, pp. 32-33.

¹⁶ AEMO, Consultation Paper, Material Issues and Proposed Inputs for the 2016 National Transmission Network Development Plan, January 2016 p. 11 and p. 13.

of how this value should be taken into account, to reduce the scope for later dispute.

4.2 TREATMENT OF SYSTEM SECURITY

Interconnectors provide benefits in terms of power system security and stability. These benefits can be incorporated in the RIT-T analysis in a number of ways, including by explicit modelling of changes in expected unserved energy (including in scenarios where there is a disruption to existing interconnector capacity) and changes in the cost of ancillary services. There is scope to clarify the approach to modelling each of these benefit categories.

Value of Customer Reliability

The additional system security provided by additional interconnection between regions can be reflected to some extent under the current RIT-T through consideration of the impact on unserved energy (USE) and dispatch costs (i.e., fuel and carbon costs), in scenarios in which a disruption to the existing interconnection occurs.

The ENA suggests that the RIT-T framework and guideline could be changed to make clear that an assumed VCR for Unserved Energy (USE) substantially greater than AEMO's standard VCR estimates is justified for widespread/prolonged supply disruptions. No change would be needed to the NER.

The implications of extended outages are acknowledged in AEMO's VCR Application Guidelines. AEMO could be asked to develop suitable VCR estimates/methodologies for such outages.

Recognition or Weighting of High Impact, Low Probability Scenarios

As noted above, the current RIT-T is limited in its ability to recognise the impact of High Impact, Low Probability events. ENA has proposed, as above a review of the AER guideline to better integrate the evaluation of security and net market benefit assessments. At a minimum, the ENA suggests changes to the RIT-T and RIT-T guideline to allow for greater flexibility in weighting scenarios.

An outage of an existing interconnector is an example of a High Impact, Low Probability (HILP) event. The market benefit associated with avoiding the impact of an interconnector outage (i.e., the 'insurance' provided by the additional link) can be expected to be substantial, where an interconnector outage would otherwise lead to a substantial disruption to supply and/or the need to run much higher cost generation in order to meet demand. However, the probability of an outage occurring is very low.

The current requirement under the RIT-T to weight the expected market benefit of a scenario by the probability of that event occurring means that overall the contribution of the additional insurance to the overall net market benefit associated with the investment can be expected to be low.

Providing flexibility to weight scenarios with an interconnector outage more highly, to reflect the fundamental importance to the economy of a robust electricity supply, would be in the long term interest of consumers and reflects the benefits of interconnectors in increasing system security.

Greater flexibility could be achieved through an updating of the AER's RIT-T and RIT-T guidelines. Again, this change could be made to the RIT-T without needing a change in the NER.

A summary table of benefits and changes recommended by the ENA is included below.

Table 3 - Summary of proposed changes to benefits

Benefit	Comment	Proposed change
Environmental	Need to appropriately account for carbon abatement and greenhouse targets	Implicit cost of carbon, as AEMO has initiated.
Ancillary Services	Appear to be most significant at ends of the regional network and for system security purposes. Can be substantial, but a one off in the first example.	Further examination of how best to include is proposed for AEMO, AER and TNSPs
Option Value	Interconnectors may have substantial option value in the light of the uncertainty surrounding new technologies and the future development of electricity supply and demand	Enhanced guidance in AER RIT-T Guideline should be sought.
Insurance value	Better integrate evaluation of security and probabilistic assessments.	The RIT-T should enable security benefits to be evaluated in a manner which is nationally consistent, transparent and rigorous. This may require a different approach to weighting, or otherwise recognising, system security impacts of High Impact, Low Probability events. Alternatively, benefits of interconnectors which are difficult to quantify could justify explicit security obligations set by jurisdictions.
Minimising outages and addressing High Impact Low Probability Events	Increase the sensitivity of the VCR and adequately address HILP	Providing flexibility to weight scenarios with an interconnector outage more highly
Reduction in wholesale prices	The 'demand' response of consumers	Potential clarification as a component of competition benefits in the AER's RIT – T guideline.

5. RIT-T TIMELINES REFLECT A TRADE-OFF

ENA notes the discussion in the Consultation Paper in relation to the timeliness of the RIT-T process, and the need to balance the requirements of a process that allows for adequate and transparent consultation to ensure that all options are considered, with an overall timeline that allows investments to proceed in a timely fashion, to deliver the benefits identified.

ENA considers that the current arrangements which allow 'fast-track' processes for investments that are lower cost are appropriate and should be retained.

While ENA considers the cost and complexity of benefits associated with interconnector investments requires appropriate time for consultation on these types of investments, it would be concerning if there was any lengthening of these timeframes, or if additional steps were imposed.

For interconnector investments in particular, there can be expected to be individual 'winners' and 'losers' between stakeholders. Experience to date suggests that timeframes for completing the RIT-T assessment run a substantial risk of being extended by parties who consider that they will be disadvantaged from a particular outcome.

The ENA sees the RIT-T process as a complete and valuable one. Given the need for frameworks to be more agile and 'fit for purpose' all stakeholders will need to be flexible in any attempts to streamline the RIT-T process.

Recognising that a dispute process is essential, the provision of greater and clearer guidance in the AER guidelines and the National Electricity Rules in assisting the undertaking and administering of the RIT-T should be a key strategic imperative of the Review.

The Council may consider potential changes to the existing timeframes allowed for the AER to review RIT-T decisions, and for disputes, as part of considering what steps can be taken to improve the timeliness of the overall process.

Heywood Interconnector Case Study

- » For the Heywood RIT-T, ElectraNet requested the AER under Rule clause 5.16.6 to determine that the RIT-T had been applied correctly.
- » This added considerable time to the process and led to additional consultation which was not originally foreseen.
- » Timeline:
 - » Project Assessment Conclusions Report (PACR) published – January 2013
 - » ElectraNet requested 5.16.6 review – 5 April 2013
 - » AER decision in relation to 5.16.6 request – September 2013
 - » ElectraNet's application for contingent project funding – 13 Dec 2013
 - » AER final decision in relation to this funding – 28 March 2014
 - » Eight months elapsed between the PACR publication and the AER decision that the RIT-T had been correctly applied.

The ENA proposes that this clause 5.16.6 should run in parallel with the RIT-T process, or at least be started during earlier phases of the RIT-T process.

APPENDIX 1 – RESPONSES TO SPECIFIC QUESTIONS

1. Are there specific aspects of interconnector projects that present particular challenges to the application of the RIT-T?

The construction of new or duplicate interconnectors are generally expensive investments due to large distances between load centres and generation across the NEM. They are also long lived investments (50 years plus) that must traverse market and regulatory uncertainties.

Interconnectors can have substantial benefits that are not easily quantified and which therefore are not captured in the RIT-T assessment.

These benefits include the 'insurance' value associated with having additional linkages between regions, which avoids the substantial negative impact on economic outcomes and associated reputational damage to Australia associated with severe and widespread disruptions to electricity supply.

It can be argued that such benefits are likely to be intrinsic considerations as to whether interconnectors are developed and therefore it would be beneficial to explicitly internalise their evaluation in the RIT-T. The RIT-T should enable these benefits to be evaluated in a manner which is nationally consistent, transparent and rigorous.

In the absence of that evaluation being internalised in the RIT-T, the benefits of interconnectors which are otherwise difficult to quantify could potentially be expressed through a requirement to meet minimum security criteria and standards set by jurisdictions. Where such an obligation exists, the RIT-T would be applied to minimise the net cost of meeting that obligation

Where such obligations are in place, the application of the RIT-T becomes focused on minimising the overall net cost of meeting that obligation.

Interconnector investments can also bring benefits to the wider economy through reducing the volatility of wholesale prices, and the divergence of prices across different NEM regions.

2. Do existing transmission planning processes/incentives support the timely initiation of a RIT-T to assess options to relieve existing or emerging transmission constraints?

ENA considers that existing planning processes do support the timely initiation of a RIT-T to assess options to relieve existing or emerging transmission constraints. See section 5.

TNSPs' TAPR reports provide information to non-network participants to highlight emerging constraints, ahead of formal RIT-T process – as recognised on p. 11 of the Consultation Paper. Engagement with non-network participants during the RIT-T process itself, also provides for consideration of non-network alternatives.

There may be an improvement opportunity in relation to more transparency of emerging market security issues associated with changes to generation (e.g. new wind or retirements) and bulk loads.

The lead times for commitments for changes in the market (generator and/or smelter closures, new generators) are generally shorter than the time it takes to establish regulated transmission infrastructure, which can cause a disjuncture between the market and regulated transmission development.

3. Do the RIT-T process and related planning frameworks adequately take in to account the evolving technology and policy environment? If not, how should they be included as part of the RIT-T process to support assessments/decisions about economically efficient options?

ENA considers that the current RIT-T arrangements do allow for the evolving technology and policy environment to be taken into account, through the requirement to consider a range of future 'scenarios.' The requirement to incorporate scenario analysis in the RIT-T is important, given that investments in transmission assets have a long life, and the inevitable uncertainty in relation to how the future will evolve. It provides sufficient flexibility to consider alternative evolution paths for government policies that affect the energy sector and the emergence of new technologies.

Greater clarity in this area could be obtained through further explanation and refinement in the RIT-T Application Guidelines. This would avoid concerns about 'current limitations or uncertainty as to how environmental policies can be captured in the test' (p. 15).

Also, see section 4.

4. Does the RIT-T process adequately assess all benefits interconnectors provide, including the contribution to efficiently achieve national carbon reduction goals, wholesale market competition and power system security and stability?

The current RIT-T framework is limited in its ability to evaluate benefits which are difficult to quantify, including reputational, system security benefits and the insurance value of avoiding 'High Impact, Low probability' events.

The RIT-T framework should be reviewed to better integrate the evaluation of security benefits and probabilistic market outcomes. This may require a different approach to weighting, or otherwise recognising, outcomes of High Impact, Low Probability events against security objectives. The RIT-T should enable these benefits to be evaluated in a nationally consistent manner, while retaining transparency and rigour.

Additionally, ENA suggests that consideration should be given as to whether wider economic benefits should also be included in the case of interconnectors.

The contribution that interconnectors may make to lowering the overall level of carbon emissions, consistent with **national carbon reduction goals**, is captured directly in the modelling of changes in generation investment and dispatch outcomes, under scenarios where an implicit cost is assumed for carbon emissions.

The RIT-T also allows for the inclusion of 'competition benefits', which are the benefits that interconnectors may provide through increasing the extent of **wholesale market competition** between generators who may otherwise have a degree of market power, and where this, in turn, results in changes in generator investment and/or generator outputs.

Interconnectors can also provide benefits in terms of **power system security and stability**. These benefits can be incorporated in the RIT-T analysis in a number of ways, including by explicit modelling of changes in expected unserved energy (including in scenarios where there is a disruption to existing interconnector capacity) and changes in the cost of ancillary services – as discussed in section 4. There is scope to clarify the approach to modelling each of these benefit categories.

ENA notes that the Terms of Reference for the review requires the continuation of a partial equilibrium approach to the cost benefit analysis, largely on the basis of the complexity involved in more comprehensive modelling of the wider benefits to the economy. There may be merit in considering changes to the RIT-T framework to allow for the inclusion of broader economic benefits in the case of

interconnector investments that materially affect generation flows and therefore wholesale price differentials between regions. This would allow benefits that flow from changes in price differentials, as well as benefits associated with increased retail competition to be captured in the RIT-T assessment.

Currently the extent of benefits from price changes is limited under the RIT-T (as acknowledged in the Consultation Paper), whilst benefits arising from increased retail competition (mentioned several times in the Consultation Paper) are not captured.

Wider economic benefits could be considered for interconnectors due to the significant impact of an (high impact/low probability) outage. For example, consideration of externalities for interconnectors may need to be broadened to reflect the potential of wider stakeholder impacts, such as those recently experienced in South Australia.

This would require a change in the NER, RIT-T and RIT-T guideline. The restriction to including this category of market benefit only for interconnectors reflects a balance between the additional complexity associated with general equilibrium analysis and a recognition that these wider benefits are material in the case of large-scale interconnector assessments, and including these wider benefits could make a difference in terms of the investment selected.

5. Is the RIT-T, as currently framed, appropriate to the assessment of interconnection investments? If not, what changes and/or alternative mechanisms should be considered?

Interconnectors can have substantial benefits that are not easily quantified and which therefore are not captured in the current RIT-T assessment.

As noted above, the current RIT-T framework should be reviewed to better integrate the evaluation of security benefits and net market benefits. This may require a different approach to weighting, or otherwise recognising, outcomes of High Impact, Low Probability events against security objectives. The RIT-T should enable these benefits to be evaluated in a nationally consistent manner, while retaining transparency and rigour.

In the absence of that evaluation being internalised in the RIT-T, the benefits of interconnectors which are otherwise difficult to quantify could potentially be expressed through a requirement to meet minimum security criteria and standards set by jurisdictions. Where such an obligation

exists, the RIT-T would be applied to minimise the net cost of meeting that obligation.

The appropriateness of cost recovery may also require further consideration as other parties (such as generators) may realise benefits.

6. Are there any particular barriers to the timely and effective conduct of the RIT-T?

The RIT-T process represents a balance between allowing adequate time for consultation, and enabling timely implementation of options (both network and non-network) to enable reliability standards to be met and/or market benefits to be achieved.

The Consultation Paper recognises that the current RIT-T process attempts to strike this balance by allowing a 'fast-tracking' of the process where the value of assets is lower and there are expected to be fewer material market benefits. However, there has been some instances where parties with competing interests have used the RIT-T to frustrate the interconnector investment process.

Given the wide range of benefits associated with interconnector investment, and the cost of the network assets involved, ENA considers that the current framework, although lengthy, remains appropriate.

7. Does the current RIT-T process strike the right balance between speed and efficiency versus a comprehensive and consultative process?

Yes – see above.

8. Are compliance costs associated with applying the test commensurate with benefits consistent with the guidelines? If not, how could a better balance be achieved?

Yes – see above.

In addition, compliance costs are a considerable overhead due to the mandated requirements to undertake technical analysis, publication and consultation processes, non-network proposal analysis etc. This becomes costlier for joint consultations. There is an opportunity for a better balance of compliance costs to be achieved through less regulation, i.e. similar to (existing) replacement investments.

9. What has been your experience of the RIT-Ts carried out to date?

a. Do you consider that they have delivered timely and effective investment outcomes?

To date, they have arrived at appropriate outcomes.

However, with an eye to the future, careful consideration should be given to ways to potentially streamline aspects of the RIT-T.

b. Do you consider the process has particular issues, problems or limitations?

ENA members consider that the RIT-T established in 2009 and commencing in 2010, rightfully embraced increased stakeholder consultation principles and practices. Given the significant changes and dynamic nature of the transforming energy market the RIT-T may require a revamp to be more agile and fit for purpose. Potential changes to the existing AER timeframes allowed to review RIT-T decisions, and for disputes, should be examined.

10. Should the RIT-T process be streamlined for certain types of investment? If yes, by whom and on what grounds should those investment types be determined?

The ENA acknowledges that the RIT-T needs to adequately balance stakeholder consultation, alternative options and timely investment. If the Energy Project Team, considers extending the current fast track mechanisms to nationally significant transmission (interconnector) investment then TNSPs are best placed to do so, based on existing arrangements and capabilities.

11. Do transmission investment decisions made using the RIT-T take into account the full value of the options considered to those who produce, consume and transport electricity in the NEM?

Yes – see response to question 4.

12. Is the current range of allowed costs and benefits appropriate? If not, what other costs or benefits should be captured in the test?

See response to question 4.

13. Is greater clarity required in the NER or guidelines on how implemented government policies should be accounted for in assessing investment options? Are there other aspects of the NER or guidelines, such as option value assessments, which could be clarified or improved?

See response to questions 3 and 4.

The Guidelines could be updated to make clear that scenarios should include an implicit carbon price, and to provide greater guidance on the calculation of option value.

14. Are the transmission businesses best placed to undertake the assessment of interconnection investments in the changing energy market? If not, who should be involved and who should be the final decision maker?

TNSPs remain the appropriate parties. Joint RIT-Ts have been completed for interconnectors, where appropriate – which ensures full consideration.

Requirement in the RIT-T to consider the benefits for the NEM as a whole, and for transparent consultation.

15. Is the level of oversight afforded to the test sufficient to ensure rigorous consideration of all credible options?

Yes – a rigorous and transparent consultation process is being utilised, which results in detailed consideration of all options put forward.

There is also the ability to request the AER to determine whether the RIT-T has been correctly applied – and informal applications to AER have also been utilised.