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AUSTRALIAN ENERGY MARKET OPERATOR

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Mr. Peter Adams
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Dear Peter,

Submission to the Review of the Application Guidelines for the Regulatory Investment Tests (RITs)

AEMO welcomes the opportunity to provide input to the AER's review of the RIT Application Guidelines.

AEMO is the independent National Electricity Market (NEM) and Western Australian Wholesale Electricity Market (WEM) market and systems operator, and the NEM National Electricity Transmission Planner, with primary responsibility to manage and maintain power system security and reliability. This role is undertaken within the legislated policy and market frameworks of the day and in adherence to the National Gas and Electricity Objectives and Rules.

As the National Planner, AEMO uses a modelling approach which seeks to determine the most efficient network investment. While it does not apply a RIT test, it applies a similar logic and any network investments identified in the plan process must pass the RIT to be implemented. Through this, AEMO has an interest in the effectiveness of the test and a number of perspectives on its application.

As the planner and procurer of transmission services in Victoria, AEMO produces an Annual Planning Report, outlining the future limitations on the network and the proposed actions to address those limitations. As projects move into the decision phase, AEMO applies the RIT-T to justify network investment in Victoria where relevant. We have also been involved in several joint assessments of interconnector upgrades which have used the RIT-T process.

The network investment planning framework must keep pace with the changes occurring and projected to occur in the energy market so that efficient and coordinated investment is provided in the long-term interests of consumers. To deliver this successfully, AEMO believes that the framework must be clear and consistently applied across all NEM regions. As such, AEMO supports the AER's review to provide further clarity to the RIT Application Guidelines and to ensure they remain relevant to the transforming market so that affordable energy is delivered reliably to all Australians. AEMO also believes that appropriate transitionary measures will be required for RITs currently in progress and therefore suggests that the AER provide some guidance for these as part of this review.

The Finkel Review and Integrated System Plan

In June 2017, Australia's Chief scientist, Dr. Alan Finkel, concluded a review of the Future Security of the National Electricity Market ("the Finkel Review")[1]. We note that the RIT Application Guidelines has some linkages to the Finkel Review recommendations, particularly:

- The Finkel Review noted that the AER's current role in the RIT process is limited and COAG Energy Council's review of the RIT recommended exploring the merits of increasing the AER's oversight of the RIT process.
- Finkel Recommendation 5.1 noted that AEMO should develop an integrated plan in consultation with transmission network services providers (TNSPs) and relevant stakeholders by mid-2018.
- Finkel Recommendation 5.3 noted that the COAG Energy Council, in consultation with the ESB, should review ways in which AEMO's role in national transmission planning can be enhanced.

AEMO believes national planning can be enhanced through the production of an ISP and presents an opportunity for broader changes to the RIT-T, particularly for nationally driven projects identified through the ISP. AEMO has engaged consultants to identify best practice internationally for network investment planning and the relevant roles and responsibilities required to facilitate the implementation of Finkel recommendations in the context of the NEM. We would welcome the opportunity to discuss this in further detail with the AER as the work progresses.

We also believe the role of the RIT-T in national investment decision-making should be considered to support an efficient and coordinated long-term strategy, that is the ISP, for generation and transmission investment for the NEM as a whole instead of by parts. As has been found overseas, it is vital that in areas where there are multiple utility transmission owners within a single organised market, such as the NEM, that the scope of transmission benefits and perspectives accounted for are in accordance with the value to all customers in that organised market, not just the region(s) in which the transmission investments are being located. Our consultant's work will also provide recommendations on the decision-making process required and the manner in which investment requirements are to be realised.

To reflect the above sentiments, AEMO acknowledges that the AER, and potentially the ESB, will need to determine how a broader range of changes to the regulatory arrangements around network investment is to be undertaken, which is out of scope of this review. AEMO believes however that while a large-scale review is being undertaken by the AER on its Guidelines, it is timely to consider broader factors that may be impacted by the application of RITs, particularly with AEMO's ISP due to be published mid-2018.

The remainder of our submission below has been developed in two main sections. The first section suggesting improvements to the existing Guidelines and the second providing AEMO's views on broader changes required in the future to ensure the test remains relevant

[1] Finkel et al., Independent Review into the future security of the National Electricity Market. Available at: https://www.energy.gov.au/publications/independent-review-future-security-national-electricity-market-blueprint-future.

and effective. This includes the requirement to consider the relationship between the RIT-T and our Integrated System Plan and to consider the need for alternative or additional criteria. AEMO believes our suggestions will enhance the overall effectiveness of the investment planning framework to ensure developments occur in an efficient and coordinated manner.

If you would like to discuss any aspect of our submission in more detail please contact Reena Kwong (reena.kwong@aemo.com.au).

Yours sincerely,

Brett Hausler

Executive General Manager, Governance and Regulation

1. Improvements to the current RIT Application Guidelines

AEMO believes efficient development of a power system can be delivered through investment planning frameworks that encourage provision of information that is transparent and consistent while remaining adaptable to the transforming market conditions. These factors are even more important in the NEM's circumstance where there are multiple network businesses who plan and make investment decisions for their own region according to their state-based reliability planning standard.

AEMO understands that the RIT Application Guideline has been developed by the AER to assist network planners across the NEM in applying the cost-benefit framework in a transparent and consistent manner. While this Guideline has served its purpose to a large extent, AEMO believes there are still some areas which could be improved to enhance the Guidelines' overall effectiveness and have outlined these below.

Transparency and consistency of information

The provision of information is key for network planners to make informed decisions in order to select the most efficient investment option. In a similar way, clear and consistent information must be provided by the network planner to the market on the identified need and requirements so that both network and non-network providers commence on a level playing field and the most efficient option is selected in the long-term interest of consumers.

AEMO supports the recent changes the AER and AEMC have made, including the Distribution Annual Planning Report (DAPR) template and Rule changes resulting from the Transmission Connection and Planning arrangements respectively, to improve the transparency and consistency of information within the investment planning framework. However, we believe there are further improvements that would enhance the framework.

AEMO sees benefits in the RIT Guidelines providing some guidance to reflect certain information required to be published as part of the RIT reports, such as the Project Specification Consultation Report (PSCR) and the Project Assessment Draft Report (PADR), for all RITs in the NEM. This would not only improve consistency in the RIT reports but would facilitate better understanding to the market on the identified need as well as how solutions to a need were determined.

Further, AEMO supports the AER's sentiments that consultation on options, particularly on non-network options, in the first stage of a RIT-T will improve the efficiency and transparency of the RIT-T process. By adding onto this requirement guidance on the information the RIT-T proponent is seeking from providers will also ensure consistency of information provision across all options.

AEMO, as the Victorian planner, has implemented this type of mechanism at the start of a RIT-T through an Expressions of Interest (EOI) request. This inclusion at the beginning of the process may prevent the need to undertake major re-work if additional options are proposed later in the process, at the PADR stage. However, we do note that as this step in the process is not mandated in the Rules or Guidelines, some proponents were reluctant to provide information that they consider confidential, including information on costs and technology and/or are reluctant to have these published in the RIT-T documents. This in turn, prohibits transparency of information on options against the intent of the RIT-T process.

AEMO believes that this issue could be overcome by the AER providing some guidelines on the additional information to be provided by both network and non-network providers as well as guidance on resolving potential information confidentiality issues. AEMO would welcome the opportunity to work with the AER on this matter in more detail.

Guidelines that reflect the transforming energy market

AEMO recognises that the AER's Issues Paper is an opportunity to raise matters of detail in the existing Guidelines which could be improved. AEMO also believes that guidance on other factors resulting from the transforming energy sector should be considered.

The RIT regime must facilitate, where expenditure is justified, reinforcement of the power system so that it is resilient to more extreme weather, including high impact, low probability events and meeting system security needs. AEMO's work with Bureau of Meteorology has shown that the expected number of extreme weather event days, due to temperature, bush fires or flooding, over the next 20 years across the NEM will increase, and investments needed for system resilience for this changing risk paradigm will become increasingly important.

As such, AEMO believes that this analysis used for assessing investments needed to manage increasing risks from HILP events and system resilience will increasingly factor in future RIT-Ts. The Application Guidelines should therefore provide clarity on preferred ways of doing so for greater consistency and assurance across the NEM.

A related matter to the need to focus on future resilience is the Value of Customer Reliability (VCR), which is used as a proxy when procuring such services or investments. AEMO believes the AER should provide guidance on the selection of an appropriate VCR for this purpose, to clearly indicate the level of economic threshold for reinforcing the power system against future risk.

Another consideration for the AER to include in its Guidelines resulting from the changing energy market is to provide guidance as to how non-physical investment options, for example information technology or communications systems, to meet a system need can be assessed. With the existing levels and projected growth of distributed energy resources, including battery storage and active demand response connecting to the distribution network, it is likely that Distribution Network Service Providers (DNSPs) will need to enhance their network monitoring and control systems and provide services that support the management and operation of the network. AEMO believes that for consistency across the NEM, to determine if this additional investment is in the long-term interest of consumers, a RIT type of framework needs to apply and therefore suggests this Review consider extending the application of the RIT to these types of investment options.

Additionally, as the energy market continues to evolve, the importance of an investment planning framework that supports flexibility increases. The current Guidelines provide that the option value an individual project being considered can bring should be assessed and included as a benefit in the test. This can theoretically account for the potential future benefits certain options might bring in positioning the network for future enhancements or to effectively account for ongoing uncertainty in the market. This should allow greater flexibility and adaptability for the longer-term development of the network without locking in a particular

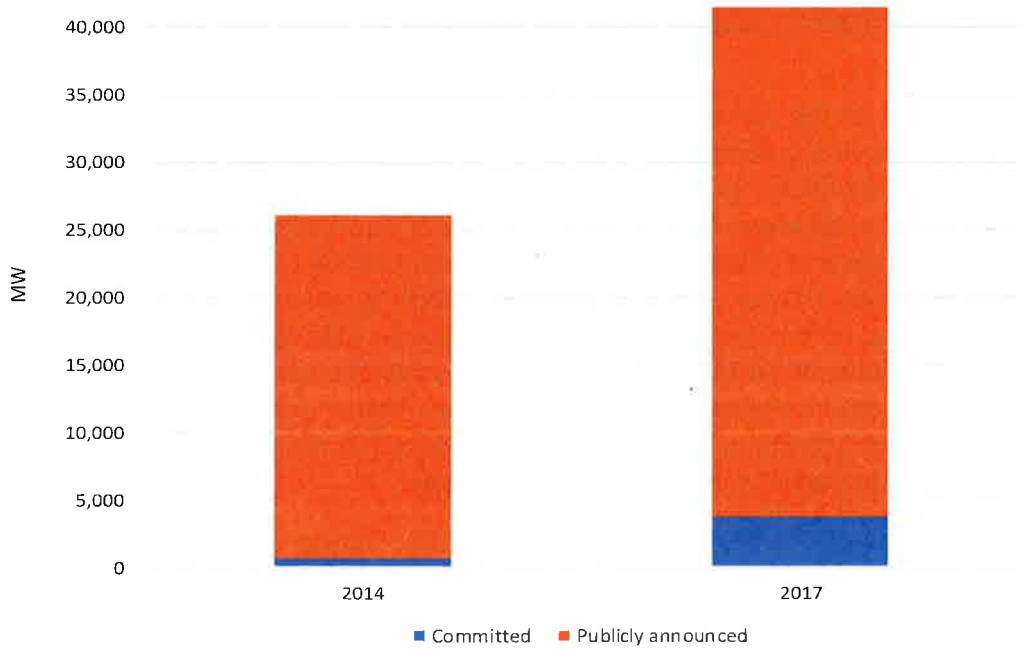
path, which can lead to inefficient spending of consumer money due to stranded assets if market conditions change. However the approach is not simple to apply in practice. The AER should consider whether the RIT framework would benefit from clarity in the Guidelines, through worked examples on the calculation of option value and how it could be applied to network options, non-network options as well as replacement projects. An alternate approach would be to seek to assess individual candidate projects within longer term network or sub-network development plans and using several scenarios to highlight any key differences in the long term total cost of network development. An alternative approach may be a more practical way to incorporate the intent of options analysis.

2. The RIT-T and AEMO's Integrated System Plan

Finkel Recommendation 5.1 concluded that AEMO, in consultation with stakeholders, particularly TNSPs, develop an integrated grid plan to facilitate the efficient development and connection of renewable energy zones across the National Electricity Market. In line with this recommendation, AEMO will be publishing its inaugural ISP in mid-2018.

AEMO believes that having a longer-term strategy that considers the whole of system needs and developments will allow transmission development to keep pace with changes in the supply side. In recent years there has been a significant increase in generation proposals, as shown in Figure 1 below. This indicates that the driver for network or non-network investment is changing from the historical driver of investment which has been to meet growing demand. As such, the investment planning framework must also change.

Figure 1 Changes in generation proposals between 2014 and 2017



The 2018 ISP will identify overall national network development needs in a coordinated manner, including new and enhanced interconnectors, renewable energy zones which

warrant network investment as well as 'priority projects'. ISP priority projects that are robust to future conditions and required in the short-term will be classed as 'least-regret'.

AEMO notes that the Rules, the RIT, and the RIT Guidelines will need to be modified to enable the delivery of a long-term strategic plan, such as the ISP. We suggest that one such way of achieving this is for the RIT Application Guidelines to establish a modified RIT path for projects which have been determined to be broadly justified in the ISP. The ISP could also provide consistent forecasts and the expected national network development path within which TNSPs undertake all RIT-Ts.

The ISP can provide guidance on uncertainty

The need for a project can change depending on the assumptions applied. There is difficulty in applying the current RIT-T framework due to ongoing uncertainty around the underlying assumptions that are used to develop the RIT-T base cases and other scenarios. Further, there are different views amongst all stakeholders on the most appropriate assumptions that should be applied.

The ISP will be developed based on certain assumptions on demand forecasts, generation expansion plan and environmental policies with adjustments made to each of these to account for sensitivities in the market. This information will be consulted on and published and therefore can allow the ISP to be used as the basis of the identified need for individual projects which must undergo a RIT-T.

The ISP will also provide information on the broader national development of the grid which could be used in modelling and testing individual candidate projects.

This approach provides guidance on overcoming uncertainty involved in developing base cases and scenario modelling and also provides all RIT-T stakeholders with transparent and consistent information on the development of a need for an individual project. It will also mean that the RIT-T proponents will not be required to duplicate effort selecting the most appropriate assumptions and having to justify these to the AER or other parties.

Capturing the benefits of a project

To achieve the most efficient network in the long-term interests of consumers, a series of developments must occur. AEMO's 2016 NTNDP highlighted that the value of an individual upgrade, particularly an interconnector upgrade, has been shown to depend upon other interconnector upgrades and renewable energy zones also proceeding as part of an overall enhancement. RIT-Ts currently underway in Western Victoria and South Australia are also demonstrating that the benefits from intra-regional transmission development that open up renewable energy developments for competition across regions, can result in overall increased benefits across regions and ultimately to consumers in other regions, even if they do not directly fund these investments.

Through the existing RIT-T framework, many major and contested applications have been to test proposed interconnector upgrades where the process has required extensive market modelling and assessment of market impacts to justify the individual upgrade. Benefits analysis that is limited to direct impact on customers in the localised region will overlook benefits that could accrue to the wider NEM and economy. Further, overly limiting benefits

evaluations may not fully capture the range of benefits to other regions. The benefits that a project provides should be assessed on the basis that it links to and enables greater whole-of-system benefits rather than only delivering localised benefits. For example, justifying a link in a chain might only realise a benefit if the entire chain is ultimately built.

Having a long-term strategic plan such as the ISP which outlines each individual development required to deliver the most efficient plan in a coordinated manner will enable the full value of the individual project to be demonstrated.

ISP Renewable Energy Zones and the RIT

Traditionally, the RIT has been designed to assess investments in a world where transmission development needs were based on incremental augmentations driven predominantly by the need to meet incrementally growing demand. Looking forward, the needs assessments for transmission will have different drivers. In future, transmission development will be driven by the need to transport energy from generation developments, largely renewable, located in different areas of the network.

The scale of change contemplated includes the need for development of new transmission corridors and investment in new transmission, not just augmentation, to be able to transport the needed quantities of firm supplies from often weak parts of the current network to the load centres.

The ISP is aimed at facilitating renewable generation development in in areas that are overall optimal for the NEM, considering the broader benefits and end-to-end costs including any transmission development needed to support these zones.

AEMO therefore suggests that the revised Application Guidelines must consider how the RIT can be applied to REZs and the needs for transmission investments to support development of new generation to maintain reliability and security into the future.

There would be benefits in the AER providing a worked example in the guidelines to demonstrate this. In AEMO's view, there is a clear process to follow:

1. Develop/build a REZ
2. Use scenario analysis to predict connections under each scenario
3. Derive market benefits from these scenarios

AEMO would welcome working with the AER to develop an example in further detail for the Guidelines.

Streamlining the RIT-T process for ISP individual developments

The aim of the ISP is for an efficient power system to be developed in a timely manner and across the whole of the NEM. For a single augmentation to be able to be properly assessed and progressed in this context requires a different approach to the current application and assessment process of the RIT-T on a project-by-project basis.

AEMO believes that the ISP analysis should be sufficient to justify the strategic high-level need for the project, allowing the regional RIT process to be streamlined to determining the most cost-effective solution to deliver projects in accordance with this ISP. This would have

the advantage of more timely developments to support new generation developments as needed.

It may also be appropriate that priority projects recommended as 'least-regret' in AEMO's ISP could be facilitated by a 'fast-tracked' RIT-T process. This has also been proposed by numerous stakeholders in response to AEMO's ISP Consultation[2].

Through the development of the ISP, a number of tasks required to be undertaken in a RIT-T process, particularly at the PSCR stage, are already considered to some extent. These include:

- Selection and justification of assumptions on demand forecasts, expected generation as well as climate policies
- Selection of scenarios or sensitivities to be modelled
- Consultation with stakeholders on assumptions, scenarios and regional developments expected to occur
- Identification of the need for an individual project with consideration of the whole-of-system needs, rather than only an intra-regional focus
- Optimisation of augmentation options, considering economic costs and benefits

As a result, projects that form part of the longer-term overall strategic plan, that is the ISP, should not require the same amount of rigour and therefore time that the RIT imposes on a project that does not form part of the ISP.

Decision criteria for the investment planning framework

The energy market continues to transform through government policy initiatives, a changing generation mix, changing customer behaviours and changing consumer expectations. A major change seen as a result is that the driver for network investment in the NEM is shifting from meeting growing demand to accommodating increasing renewable generation, both embedded and utility scale. To complement these changes, there is a need to ensure the criteria for which investments are assessed and proceed remains relevant.

One option is to consider frameworks applied internationally, such as the framework applied by the Federal Energy Regulatory Commission (FERC) through FERC Order 1000[3]. This mechanism requires local and regional transmission planning processes to consider transmission needs driven by public policy requirements established by state or federal laws or regulations. A procedure is to be developed and applied by each of the transmission providers to identify the needs driven by public policy as well as a procedure to evaluate the potential solutions to those needs. In a similar manner, the AER's RIT Application Guidelines may be the appropriate instrument to outline the procedure to be undertaken by all NEM network service providers for developments that are proposed in the ISP as well as other projects required in response to state or federal policy.

[2] Integrated System Plan. Available at: http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Integrated-System-Plan

[3] FERC Order 1000 superseded Order 890 in 2011.