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Mr John Pierce
Chair
Australian Energy Market Commission
PO Box A2449
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Lodged online via: www.aemc.gov.au
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Dear John,

Coordination of generation and transmission investment review – Options paper

TransGrid welcomes the opportunity to respond to the AEMC's options paper in relation to its coordination of generation and transmission investment review.

TransGrid is the operator and manager of the high voltage transmission network connecting electricity generators, distributors and major end users in New South Wales and the Australian Capital Territory. TransGrid's network is also interconnected to Queensland and Victoria, and is instrumental to an electricity system that allows for interstate energy trading.

Australia is in the midst of an energy transformation. This is primarily driven by changing community expectations and choices, advances in renewable energy technologies, retirement of existing generation, and the adjustments required in Australia's economy to meet our international climate change commitments. These changes raise complex issues in relation to the design of the National Electricity Market (NEM) which must adapt to these changes and provide the basis for low emissions, reliable supply at the lowest cost to consumers over the long run.

TransGrid supports the development of the Integrated System Plan by the Australian Energy Market Operator and considers there should be a clear link from the Plan to the transmission planning and investment decisions by transmission network service providers. The Integrated System Plan has the potential to facilitate efficient and timely development of nationally strategic transmission infrastructure, resulting in significant market benefits and lower price outcomes for consumers.

TransGrid urges policymakers to consider the broader context of their decisions, including the cumulative effect of policy and regulatory interventions (such as the removal of merits review, reviewing the regulatory approach to taxation, lowering the rate of return and the potential for stranded asset risk) on transmission investment. Such interventions have the potential to undermine efficient transmission investment and the benefits it brings to consumers.

We appreciate the opportunity to comment on the AEMC's options paper and look forward to engaging with the AEMC and other stakeholders further on this project. If you would like to discuss our submission, please contact Neil Howes, Acting Manager/ Regulatory Policy on 02 9284 3748.

Yours faithfully



Caroline Taylor
Acting Executive Manager Regulation



TransGrid

TransGrid submission

AEMC Coordination of generation and transmission investment options paper

19 October 2018

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1. Introduction

TransGrid welcomes the opportunity to respond to the Australian Energy Market Commission (AEMC) options paper as part of its Coordination of generation and transmission investment review.

TransGrid is the operator and manager of the high voltage transmission network connecting electricity generators, distributors and major end users in New South Wales and the Australian Capital Territory. TransGrid's network is also interconnected to Queensland and Victoria, and is instrumental to an electricity system that allows for interstate energy trading.

Australia is in the midst of an energy transformation. This is primarily driven by changing community expectations and choices, advances in renewable energy technologies, retirement of existing generation, and the adjustments required in Australia's economy to meet our international climate change commitments. These changes raise complex issues in relation to the design of the National Electricity Market which must adapt to these changes and provide the basis for low emissions, reliable supply at the lowest cost to consumers over the long run.

At its August 2018 meeting, Ministers requested that the Energy Security Board (ESB) report to the December 2018 COAG Energy Council meeting on how to progress Group 1 and Group 2 projects in the inaugural 2018 Integrated System Plan (ISP) prepared by the Australian Energy Market Operator (AEMO). Ministers also asked the ESB to identify a work program including possible changes to the Regulatory Investment Test for Transmission (RIT-T) and convert the ISP to an "actionable strategic plan".

Consistent with this request, the AEMC options paper is consulting on the link between the ISP to be prepared by AEMO (a recommendation of the Finkel review) and individual investments in transmission infrastructure to make the ISP an actionable strategic plan. In this context, the AEMC is also considering potential changes to the RIT-T. Submissions to the AEMC will inform the ESB's considerations.

TransGrid supports the development of the ISP by AEMO and considers there should be a clear link from the ISP to the transmission planning and investment decisions by transmission network service providers. The ISP has the potential to facilitate the efficient and timely development of nationally strategic transmission infrastructure, resulting in significant market benefits and lower price outcomes for consumers.

TransGrid urges policymakers to consider the broader context of their decisions, including the cumulative effect of policy and regulatory interventions (such as the removal of merits review, reviewing the regulatory approach to taxation, lowering the rate of return and potential for stranded asset risk) on transmission investment. Such interventions have the potential to undermine efficient transmission investment and the benefits it brings to consumers.

The AEMC options paper also considers the issues of renewable energy zones (REZs), congestion, and storage. These issues were previously consulted on by the AEMC in its discussion paper published in April 2018.

This submission is structured as follows:

- > Chapter 2 sets out our views on how to incorporate AEMO's ISP into the regulatory framework and in particular how it should link to investments in transmission infrastructure by TNSPs.
- > Chapter 3 sets out TransGrid's views on the regulatory investment test (RIT-T) in the context of the ISP.
- > Chapter 4 sets out our views on Renewable Energy Zones.
- > Chapter 5 sets out TransGrid's views on congestion and the appropriate treatment of grid scale storage.
- > Chapter 6 sets out our views on how to progress Group 1 and Group 2 projects in the inaugural ISP that was published by AEMO in July 2018. This is an issue not directly addressed in the AEMC's options paper. However, the Energy Security Board is considering this issue as requested by Ministers.

Our views have been informed by our experience with the RIT-T (see Box 1). We have also contributed to the development of the submission by Energy Network Association and support the views in that submission.

Box 1: TransGrid's experience with the RIT-T

TransGrid's experience of the RIT-T in its current form has been limited to two projects:

- > The 2012 proposal to upgrade the interconnector between Queensland and NSW (known as QNI)
- > The 2017 proposal to alleviate the increasing risk to the supply of electricity to consumers from ageing electricity infrastructure in the inner Sydney area (known as Powering Sydney's Future).

TransGrid has also applied the RIT-D in a joint process with Essential Energy.

We also have RIT-T processes for the following projects currently underway:

- > Managing the Risk of Corrosion between Vales Point and Sydney North on Line 22.
- > Managing the South Sydney Substation's Asset Risks.
- > Managing the Risk of Corrosion between Marulan and Dapto on Line 8.
- > Managing the Risk of Corrosion between Vineyard and Munmorah on Line 25 & 26.

2. The role of AEMO's Integrated System Plan

This section sets out TransGrid's views on the appropriate role of AEMO's ISP and in particular the link between the ISP and transmission investment decisions made by TNSPs. This is an issue covered in the AEMC's coordination of generation and transmission investment review options paper. This issue is also of relevance to the ESB in reporting how to make the ISP an actionable plan.

2.1 Making the ISP an actionable strategic plan

The AEMC has identified five options for making the ISP an actionable strategic plan. Each of the options are described in terms of the stages needed in the investment planning and decision making process. They range from the ISP having a very limited role in the investment decision making process (option 1) to AEMO directing the TNSP to implement the investment (option 5).

TransGrid supports the development of an ISP by AEMO and considers this has the potential to facilitate the efficient and timely development of nationally strategic transmission infrastructure. The delivery of this infrastructure will unlock of significant market benefits in the NEM and lower price outcomes for consumers.

In this context, TransGrid considers there should be a clear link between the ISP and transmission planning and investment decisions by TNSPs.

We consider this is most effectively achieved by adopting an approach whereby:

- > The ISP provides an agreed set of inputs, assumptions and scenarios as well as precise and actionable recommendations for future NEM development.
- > The TNSP adopts the inputs, assumptions, scenarios and future NEM pathway in the ISP to undertake more detailed assessments of individual transmission investments in the ISP.

In addition, to increase its effectiveness the ISP must have standing in the regulatory framework and be subject to sufficient consultation. This will ensure that all stakeholders have confidence that the investments identified have been appropriately tested and will deliver net benefits to the market.

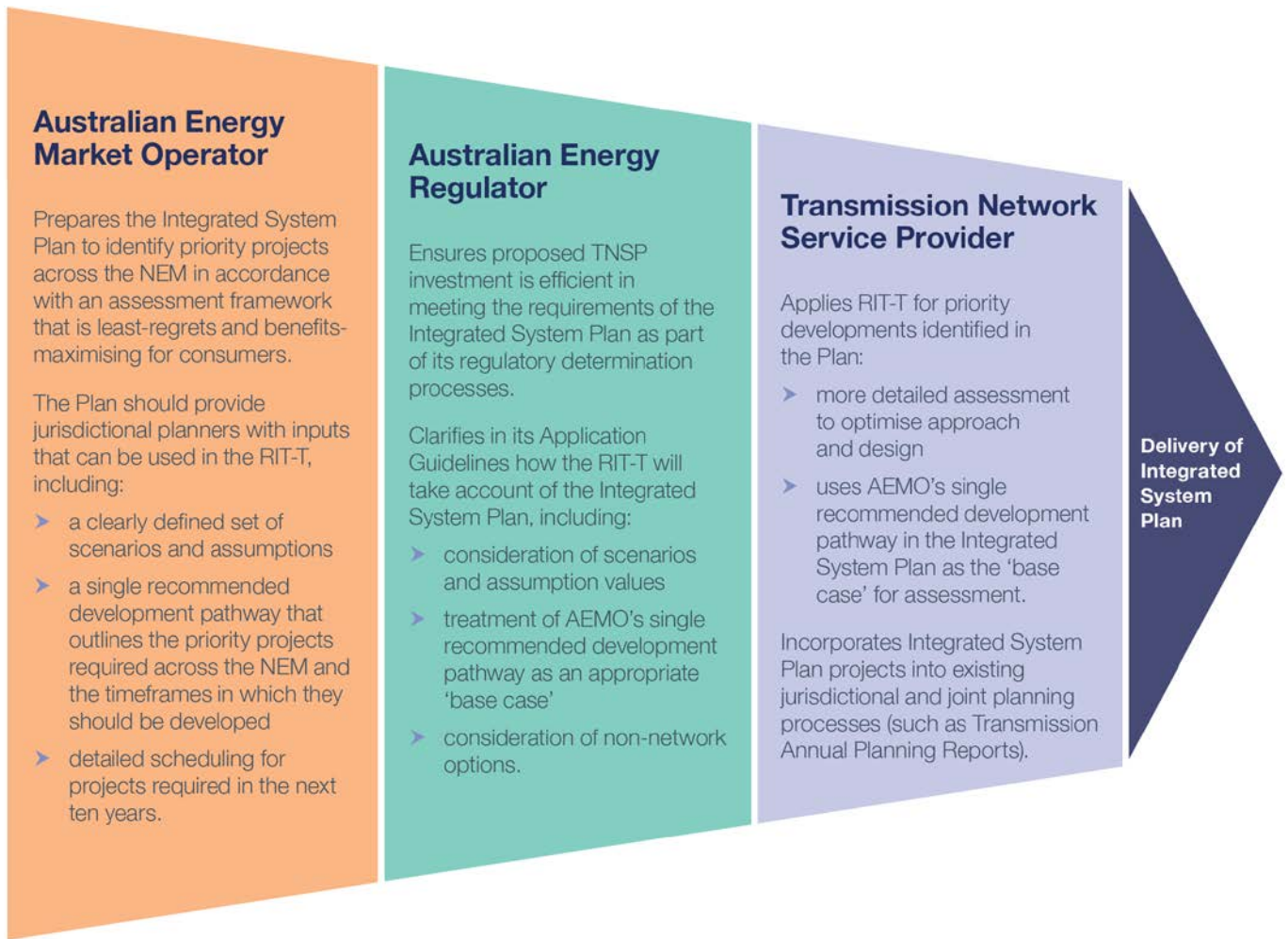
Figure 1 sets out TransGrid's proposed approach for making the ISP an actionable strategic plan that reflects these principles.¹

Importantly, this approach could be implemented through changes to the AER's RIT-T application guidelines. However, the AER's current draft RIT-T application guidelines do not provide the clear link which is necessary. We urge the AER to reconsider the changes proposed by TransGrid through the AER's review process which can help provide the clear link between the ISP and RIT-T.

We consider that TransGrid's proposed approach to making the ISP an actionable strategic plan sits in the middle ground of the AEMC's spectrum of options.

¹ TransGrid has previously proposed this approach: We proposed this approach in our submission to the AEMC's discussion paper. We also proposed this approach in our submissions to the AER on its review of the RIT-T application guidelines and to AEMO during its consultation on the inaugural 2018 ISP.

Figure 1: TransGrid’s proposed approach for making the Integrated System Plan an actionable strategic plan



2.2 Contestability of transmission investments in the ISP

The AEMC notes that consideration needs to be given to whether investments should be subject to a competitive process and, if so, whether the options identified support a level playing field for the investments.

TransGrid already undertakes competitive tender processes for capital works so there would be no benefit in any extension of the current arrangements.

While there is not a strong need for an extension of the current regulatory arrangements, any changes should be in a form which allow TNSPs to retain the role of transmission asset owner and receive a return on the efficient delivery of these assets.

There are a number of significant risks of making ISP investments subject to a competitive tender process undertaken by a third party:

- > There is evidence that contestable projects attract a higher rate of return compared to regulated investments leading to an increase in costs to customers.
- > A potential lack of effective competition to provide contestable transmission services due to the relatively small number of suitable players who would be vying for projects in the NEM. Without effective competition costs to customers would likely increase relative to the current framework of incentive-based regulation.
- > Complex issues in relation to accountability and governance would need to be resolved. The responsibility and accountability for the whole of life asset management including network planning, design, operation, maintenance and end of life decisions become unclear under a multi ownership model.

- > It will be important to ensure that any new players are subject to the same regulatory obligations as incumbent TNSPs to allow effective competition.
- > The complexity of the contracting process required to ensure an effective outcome, and the relative inflexibility of long-term contracts compared to the ability to 'revisit' arrangements for regulated businesses as part of the regular five-yearly regulatory review process.
- > Challenges associated with having multiple TNSPs within a region including difficulties in defining asset boundaries, particularly where new projects require augmentation elsewhere in the network and/or modification to existing assets. This could lead to difficulties matching responsibilities and corresponding remuneration for different TNSPs in the region.

3. The regulatory investment test for transmission (RIT-T)

TransGrid supports a transparent and thorough cost benefit assessment of transmission investments. However, without necessary changes, the existing RIT-T is not suitable for assessing strategic developments such as those identified in AEMO's ISP.

This section sets out:

- > TransGrid's current issues with the RIT-T for delivering strategic transmission investments.
- > A way forward.

3.1 Issues with the RIT-T

TransGrid considers the RIT-T is not suitable for assessing strategic developments such as those identified in AEMO's ISP for the following reasons.

- > Its consideration of strategic benefits valued by consumers is limited.
 - It offers limited flexibility to place appropriate weight on scenarios based on strategic objectives, such as potential ability of the electricity sector to reduce emissions more readily than other sectors.
 - It does not assign appropriate weight to high-consequence scenarios such as the earlier than expected retirement of generation which are therefore significantly discounted. These events expose consumers to market shocks and high prices during the extended timeframes required to upgrade infrastructure, as was the case with the recent withdrawals of the Northern and Hazelwood Power Stations.
 - It does not consider benefits that can be achieved outside the electricity market, for example the impact of lower wholesale gas and electricity prices on other sectors.

We need an investment test that appropriately considers strategic benefits.

- > It creates a "chicken and egg" dilemma.
 - The outcomes of the RIT-T are often inconclusive if new generation developments are uncertain.
 - However, new generation developments need certainty they will be able to export their power to market via suitable transmission connections to make a financial investment.
 - The timeframes to develop transmission are often longer than for wind and solar farms.

We need an investment test that can lead generation development rather than follow it.

- > The test favours incremental development in generation and transmission, which are often more expensive for consumers in the long run.
 - Incremental development does not provide the same economies of scale as larger connections.
 - Marginal investment in generation is likely to minimise capital at risk for proponents, which can result in sub-optimal technology selection, or placement of wind and solar developments, leading to higher unit energy prices for consumers. This is particularly true in the current uncertain policy environment.

We need an investment test that facilitates generation with the lowest unit cost for consumers.

- > The RIT-T can be delayed by individual interests through the disputes process
 - Transmission developments can create “winners” and “losers” amongst existing generators, despite providing overall benefits to consumers
 - The disputes process under the RIT-T can delay or derail beneficial projects, particularly where there is uncertainty

We need an investment test that cannot be frustrated by the interests of individual market participants, at the expense of consumers.

These issues broadly reflect the challenges with applying the current RIT-T to an inherently uncertain future. They need to be addressed as not doing so is likely to result in higher prices for consumers than they need to be.

As observed in the Finkel review:

“Incremental planning and investment decision making based on the next marginal investment required is unlikely to produce the best outcomes for consumers or for the system as a whole over the long-term or support a smooth transition. Proactively planning key elements of the network now, in order to create the flexibility to respond to changing technologies and preferences has the potential to reduce the cost of the system over the long term.”

3.2 A way forward

As set out in Chapter 2 of this paper, the ISP can be a circuit breaker in helping to address some of these issues and deliver nationally strategic transmission investment in an efficient and effective manner.

This can be achieved by adopting the approach proposed by TransGrid for making the ISP actionable in Figure 1 above.

Under this approach:

- > The ISP identifies priority projects across the NEM in accordance with an assessment framework that is least regrets and benefits maximising for customers.
- > The ISP provides an agreed set of inputs, assumptions and scenarios as well as precise and actionable recommendations that can be used by a TNSP.
- > The TNSP adopts the inputs, assumptions, scenarios and future NEM pathway in the ISP to undertake more detailed assessments of priority projects identified in the ISP.

In addition, the consideration of needs and options by AEMO in the development of the ISP should be appropriate to satisfy the requirements of the Project Specification Consultation Report (PSCR) of the RIT-T under this approach. TNSPs could rely on the consultation carried out by AEMO to satisfy the PSCR consultation and commence the RIT-T process at the Project Assessment Draft Report stage (following which there is a further round of consultation on the results of the investment test).

There may also be opportunity to further streamline this proposed approach. As a general principle, there should not be duplication of assessment processes undertaken by AEMO in the ISP and by TNSPs.

As noted in Chapter 2, the approach put forward by TransGrid in Figure 1 could be facilitated by providing a clear link between the ISP and transmission investment decisions in the AER’s RIT-T application guidelines. However, the AER’s current draft RIT-T application guidelines do not provide the clear link which is necessary to address our concerns.

4. Renewable energy zones (REZs)

The AEMC is focusing on the concept of renewable energy zones (REZs) to facilitate scale efficient generator connections.² TransGrid welcomes the consideration of this issue and set out our views in this section.

This section is set into two parts:

- > Our views on the AEMC’s four broad options for REZs.
- > Our views on a clustering approach for developing REZs put forward by the AEMC.

4.1 The AEMC’s four broad options for REZs

The AEMC sets out four possible broad options to deliver efficient renewable energy zones under current open access arrangements, as set out in Table 1 below.

Table 1: AEMC spectrum of options for Renewable Energy Zones

Option	Option 1: Enhanced information provision	Option 2: Generator coordination	Option 3: TNSP speculation	Option 4: TNSP prescribed Service
Features	Enhanced AEMO and TNSP coordinated planning to signal market	Generators connecting in the same area coordinate connections	TNSPs undertake speculative investment to build the REZ	TNSPs invest to deliver a prescribed service in anticipation of generators connecting
Who pays?	Same as now	Generators	TNSPs - if generators connect, costs recovered from consumers Potential to incorporate ENGIE’s proposal for managing risk	Consumers
Who bears the risk?	Same as now	Generators	TNSPs - they would be rewarded if generators connect in future	Consumers - including facing the stranded asset risk
Changes required	Minimal	Minimal - but larger coordination issues exist	Moderate	Substantial

TransGrid supports the strategically planned connection of large scale energy zones to provide consumers with the lowest priced energy and system security as ageing coal power stations retire from the market.

The provision of strategically coordinated information on facilitating REZs is already provided. TransGrid agrees with the AEMC’s conclusion that the enhancement of these information provisions under option 1 is unlikely to be enough to deliver the coordinated investment necessary to develop REZs.

AEMC’s option 2 involves generators coordinating to construct and build REZs, which is currently available under the National Electricity Rules. TransGrid’s past experience with the Renewable Energy Hub in New

² That is, REZs beyond those that are either: nationally strategic transmission flow path projects and so identified in AEMO’s inaugural ISP; and other shared transmission projects that would be justifiable under the RIT-T, and so are paid for by consumers.

England demonstrates that this option is unlikely to work³. Generators are competitors and experience has shown that they are unlikely to effectively coordinate with each other when connecting to a network. The current arrangements are not effective or efficient, and we agree with the AEMC's position that this option alone is not sufficient to overcome the necessary commercial hurdles in order to develop REZs.

TransGrid does not consider TNSP speculation under AEMC's option 3 is a practical solution, particularly in the current investment environment of heightened policy and regulatory risk.

As set out in our response to the AEMC's discussion paper, TransGrid considers the most effective way to achieve scale efficient generator connections in REZs is for connection assets to be initially funded as a prescribed service until generators pay to connect. This most closely aligns with AEMC option 4. However, we note the AEMC's concerns about the risks of asset stranding faced by consumers under this option. We would therefore like to explore with the AEMC how these risks could be addressed under this option.

In addition to the four broad options set out in Table 1, the AEMC also outlined a proposal by ENGIE for managing risk via transmission bonds.

TransGrid understands that under this approach:

- > TNSP would issue transmission bonds to underwrite project, which would be denominated as \$/MW.
- > Generators choose which projects they would like to underwrite through purchasing transmission bonds, allowing them to optimise investment decisions.
- > The transmission bonds act as a market-based mechanism of gauging if there is sufficient interest in a REZ development to justify it going ahead.

TransGrid is open to exploring the ENGIE model further.

4.2 Clustering

The AEMC has identified an idea of clustering to address the challenge of coordinating generation and transmission investment. It has suggested that this approach could, in particular, be effectively applied in conjunction with option 3 – TNSP speculation.

TransGrid understands that under this approach a TNSP:

- > Would establish a time window or 'season,' for connection applications.
- > Assess all applications received up to that point as a group, planning the system and providing connection offers on a jointly optimised basis.
- > Is able to delay or refuse a connection if it does not fit within an efficient augmentation.

The clustering approach is designed to incentivise proponents to: offer the most efficient connections; work constructively with the TNSP; and share information and work constructively with other proponents due to the risk of not being selected.

As mentioned in our submission to the AEMC's discussion paper, this approach may result in delays for generators that want to connect. Further, there is cost associated with developing clustering proposals, including the engineering analysis and marketing required to get proposals to market. A mechanism or process to recoup these costs that are borne on TNSPs would be needed.

However, TransGrid would support further exploration of adopting this approach in conjunction with an approach consistent with AEMC option 4.

³ TransGrid, 2016, *Renewable Energy Hub Knowledge Sharing Report (Version 23.0)*. 2 June, New South Wales, Australia. Report available at: <https://arena.gov.au/projects/transgrid-new-england-renewable-rehub-feasibility-study/>

5. Congestion and treatment of storage

This section sets out TransGrid's views on network congestion, access arrangements and the treatment of large scale electricity storage systems in the NEM.

5.1 Congestion and access

The AEMC states that congestion is projected to increase in the near term as a result of the ongoing influx of renewable generators connecting to the transmission network and, as a result, augmentation will be required to keep congestion at an efficient level.

TransGrid agrees that improvements to the coordination of generation and transmission investment would provide for more efficient network investment, and that this would most likely occur when:

- > The combined costs of generation and transmission are taken into account in investment and operational decisions by generators and TNSPs
- > Parties that make investment decisions have a direct financial stake in the efficiency of outcomes resulting from these decisions.

TransGrid supports the AEMC's view that congestion is an issue that will require further consideration following the conclusion of the AEMC's work in relation to the implementation of the ISP.

5.2 Treatment of storage

The AEMC is seeking to address two key questions that have arisen as a result of the recent and potential connection of utility-scale storage facilities to the power grid:

- > What is the appropriate market participant registration category for energy storage facilities?
- > Should energy storage facilities pay transmission use of system charges (TUOS)?

TransGrid supports the AEMC's view that a more holistic look at the registration framework in the National Electricity Rules may be needed to accommodate energy storage facilities. A review of registration framework should consider the most efficient approach to categorising participants, so to ensure that the full range of benefits provided by different technologies and business models are accessible. Further, the registration framework should minimise the operational complexity and administrative burden for AEMO and participants.

To recognise the range of benefits that storage can provide, TransGrid recommends that a separate registration category for grid scale storage be provided for in the National Electricity Rules rather than the current approach of classifying storage as generation. We acknowledge that careful consideration is needed to ensure that the benefits of changing these arrangements outweigh the potential costs of implementation. TransGrid supports further consideration of this issue and looks forward to engaging with the AEMC on this matter in the future.

Fixing the registration category for storage would have a flow on effect for developing appropriate charging arrangements.

6. Progressing Group 1 and Group 2 projects in the 2018 Integrated System Plan

The COAG Energy Council requested that the ESB report on:

- > How the Group 1 projects identified in the ISP can be implemented and delivered as soon as practicable and with efficient outcomes for customers.
- > How the Group 2 projects will be reviewed and progressed.

To provide this report, the ESB will explore opportunities to expedite the process for delivering Group 1 and Group 2 projects and has sought assistance from stakeholders with this task.

6.1 How to expedite the process for Group 1 projects

The ISP shows there is an imperative to deliver these projects in a timely and efficient manner. However, we also support a transparent and thorough cost benefit assessment of these projects.

TransGrid makes the following recommendations for expediting the process for Group 1 projects:

- > Consistent with our proposed approach to make the ISP actionable in Chapter 2, the AER could streamline the RIT-T process, including by requiring TNSPs to use the ISP as the basis for the inputs, assumptions, scenarios, development pathway (base case) in any assessment. The AER could also streamline its approval of the successful completion of a RIT-T by engaging early with TNSPs and other stakeholders in the public consultation of a RIT-T. If using the RIT-T to assess these projects, there should not need to be duplication with work already done by AEMO.
- > The AER could streamline its revenue allowance adjustment process by engaging early with TNSPs and other stakeholders and combine the contingent project approval process with the RIT-T review process. This will facilitate more efficient assessment and consultation of the contingent project application by the AER under the NER.
- > The procurement, design and construction of a project occurs after regulatory approval. These processes could be brought forward by TNSPs under certain conditions. These processes could only be brought forward if there is certainty that costs incurred before regulatory approval could be recovered. This is particularly important in the current context of increased policy and regulatory risk resulting in increased risk of transmission investment.

6.2 How to progress Group 2 projects

We make the following recommendations for expediting the process for Group 2 projects:

- > The SA-NSW interconnector project is already past all the steps in the RIT-T that TransGrid proposes should be modified. No change in the process is necessary to meet delivery of SA-NSW interconnector.
- > The AER should streamline the RIT-T process for medium QNI and SnowyLink North and South, including by requiring TNSPs to use the ISP as the basis for the inputs, assumptions, scenarios, development pathway (base case) in any assessment.
- > Conditional RIT-Ts for SnowyLink North and South (on the basis that generation will go ahead) could be undertaken to reduce the overall timeframe for following commitment of the generation and storage project.

Any significant change in responsibilities to make the ISP actionable will need to be balanced to ensure that it does not result in delays to the delivery of these Group 2 projects.