

18/04/2019

Mr John Pierce AO
Chair
Australian Energy Market Commission
PO Box A2449
Sydney NSW 1235

Lodged online via: www.aemc.gov.au

Dear John,

Electricity networks economic regulatory frameworks review – supplementary submission

TransGrid welcomes the opportunity to provide further comments on the AEMC's approach to the electricity networks economic regulatory frameworks (**ENERF**) 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.

We understand that the ENERF review forms part of the AEMC's ongoing program to support the continual evolution of the energy sector. This program responds to a request from the COAG Energy Council for the AEMC to monitor market developments (particularly the event of an increase in decentralised supply options) and to provide advice on whether the economic regulatory framework for electricity networks is sufficiently flexible and robust to continue to achieve the National Electricity Objective.¹

We would be interested to understand what market developments or trends have been observed by the AEMC as part of this review, particularly with respect to decentralised supply options.

The following sections of this supplementary submission provide some further commentary on the role of transmission and distributed energy resources (**DER**) in the power system as it transforms, and some suggestions for further focus in this and future ENERF reviews.

The transmission sector will play a critical role in keeping the lights on throughout the transformation of the power system, regardless of the level of DER

A significant focus for industry and market organisations has recently been on the integration of DER in the NEM. This is appropriate given the market and technical challenges presented by that integration. However, that focus should not divert attention from other priorities, such as the central role that transmission infrastructure will play in the transformation of the power system.

¹ COAG Energy Council, Terms of Reference: Australian Energy Market Commission reporting on the effectiveness of the economic regulatory framework for electricity networks in responding to the increased uptake of decentralised energy supply, August 2016.

The transformation of the system is being driven by:

- advancements in technology
- the need to reduce emissions to meet Australia's international commitments
- the progressive retirement of thermal generators, and
- changing consumer preferences and greater demand-side participation.

These drivers of transformation could lead the power system to take a wide range of possible pathways, involving a greater or lesser role for DER. Even based on estimates or scenarios taking into account higher proportions of DER, there remains a strong role for transmission and interconnection. These include Bloomberg modelling and projections through the Electricity Network Transformation Roadmap process, but is perhaps best exemplified in the outcomes of the Australian Energy Market Operator's 2018 Integrated System Plan (ISP).² The ISP conducted a detailed analysis of optimal transmission development across a range of future scenarios, including a high DER scenario, and concluded there is a need for new transmission investment across all scenarios.³

We agree that DER will play a growing role in Australian energy markets. Australia already has some of the highest rates of rooftop solar PV penetration globally, and as technology costs continue to decline, uptake of solar, energy storage and other behind-the-meter technologies will continue to grow. We consider appropriate price signals and other arrangements should be identified and implemented to efficiently and effectively integrate DER into the NEM. This could form one important work stream for the AEMC's ENERF review processes into the future, but should not overshadow other priorities that will have a significant impact on outcomes for consumers.

Transmission investment will play a critical role throughout the energy transition. The historical transmission system was designed around the transport of synchronous power from the coalfields to the load centres. These legacy transmission investments are being repurposed, and new investments made, to support a system designed to transport variable power from increasingly inverter based technologies from regions with stronger natural energy resources to load centres. This process is also occurring at a time when new uncertainties are arising due to the decisions and preferences of individual consumers potentially changing significantly over time.

Throughout this transformation the key obligations on the transmission sector to support the power system will become increasingly important. These obligations include:

- voltage control and reactive power coordination
- procurement of inertia services
- assessment, coordination and procurement of system strength services, and
- planning for and management of credible contingencies, including the resilience of the system to faults and other shocks.

These power system support services naturally sit with transmission operators due to the localised nature of the system needs they relate to. Any assessment of the economic regulatory framework settings should take into account the need for appropriate incentives to provide these services in line with consumer expectations.

The transmission sector faces significant challenges throughout the transformation of the power system

The transmission sector plays a critical role in planning for and implementing the reliability frameworks in the NEM. In an environment of rapidly changing technologies driven by cost and emissions imperatives, aligning the reliability and investment frameworks in the NEM with the need to keep power prices down and the lights on presents unique challenges for the electricity industry as a whole and the transmission sector in particular.

² See for example, Bloomberg New Energy Finance, New Energy Outlook 2018; Energy Networks Australia and CSIRO, Electricity Network Transformation Roadmap, April 2017; AEMO, 2018 Integrated System Plan, July 2018.

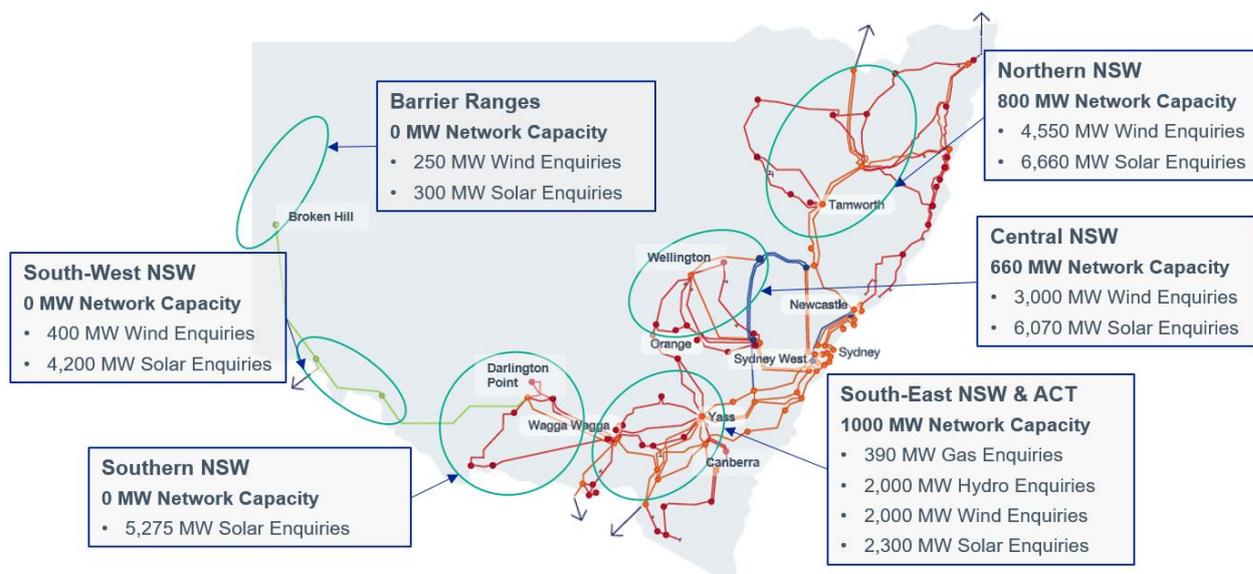
³ AEMO, 2018 Integrated System Plan, July 2018.

Throughout the transformation of the power system, the transmission network will continue to provide a platform for the lowest cost electricity generation to be connected and dispatched, enhancing energy market competition.

Indeed, large-scale wind and solar can supply energy with a lower levelised cost than new coal and gas fired power stations, in the timeframe required by the anticipated retirement of existing coal fired generation. CSIRO analysis finds that neither system costs nor firming requirements rise significantly until renewables are providing over 60% of power generated in the NEM, suggesting that even a majority renewable-based system will deliver lower costs in future than a system powered by new thermal generation.⁴

The cost competitiveness of large-scale renewable energy is reflected in the proposals for connection of new generation across TransGrid’s network. TransGrid currently has an unprecedented volume of generation connection enquiries, with over 45 GW of potential solar, wind and hydro projects at various stages of development within our network. Unfortunately, most regions with strong renewable resources are already facing network congestion, with new and existing renewable generators at risk of constraints. A summary of these enquiries by region as at March 2019 is shown in Figure 1.

Figure 1: Current connection enquiries to TransGrid network and available network capacity



Each of the NEM market bodies is progressing work to address the challenges of planning for and delivering efficient investment in the transmission system and new generation required to deliver new low-cost electricity to consumers. This includes AEMO’s and the Energy Security Board’s work on making the ISP actionable and embedding it in the rules framework, as well as the AEMC’s work on access and charging arrangements.

It will be important to take this evolving regulatory context into account when considering the revenue recovery and economic regulatory frameworks for transmission. We would be interested to hear how the ENERF review interacts with this other work noted above being undertaken by the energy market bodies and how this review will take into account the total system impacts – including transmission.

The economic regulatory framework should be reviewed in full to ensure it is appropriate to manage the transformation of the power system

There is a wide range of potential futures for the power system, including potential futures with high levels of DER coordinated at the distribution level, but still requiring transmission to keep the power system running securely and reliably. Other future scenarios rely more heavily on centralised

⁴ Analysis based on data sourced from: Bloomberg New Energy Finance, 2017; CSIRO Low Emissions Technology Roadmap, 2017; CSIRO Future Energy Trends, 2015

renewable generation. Regardless of the future that eventuates, the scale of investment and change is unprecedented, including at the transmission level.

The economic regulatory framework needs to be flexible enough to account for any of these potential futures, while ensuring a sustainable transmission network sector to provide the essential power system support services and reliability functions noted above, that consumers value when their lights go on and stay on.

With this in mind, we consider it is timely to review the whole economic regulatory framework, with a particular focus on the incentives within the framework as well as the process and overall form of regulation. It may also be time to consider whether the terms of reference for this review are still appropriate to achieve the outcomes needed across the network sector to address the challenges that arise as the power system transforms, including the matters set out below.

The review should look first at the services that networks provide and the outcomes that are desired for those services over the long term. In order to deliver these outcomes, the review should also consider the principles that could form the foundation of a successful regulatory framework achieving these outcomes. We note that these matters should also be considered in light of the external work being undertaken that affects the roles and responsibilities of network businesses, including for example the Energy Security Board's Post 2025 Market Design for the NEM project.

The review should also broadly consider issues with the current framework. We suggest there is merit in considering:

- the role and objectives of an incentives framework in the context of economic regulation of utilities
- how the current incentives framework aligns with and takes into account consumer preferences
- the effectiveness of the current incentives framework in achieving these objectives and outcomes, which should take into account:
 - gaps in the incentives framework
 - power of incentives to drive desired outcomes
 - complexity in incentives framework
 - the appropriate balance between long and short term incentives
- the impact of regulatory risk in the current regulatory framework, including the level of discretion afforded to the Australian Energy Regulator under the current arrangements and its approach to the application of that discretion
- whether it is appropriate for the regulatory determination process to be focussed on detailed inputs to build up the picture of the efficient costs of regulated businesses, rather than being focussed on outcomes.

It is important to review and consider issues broadly and together. Defining and considering issues narrowly or separately can lead to incremental thinking and compartmentalisation, which could lead to bolt on changes to the current framework. This may not result in the best outcomes for consumers. A better approach at this time may be to stand back and look at the big picture, allowing a principles based rethink of the overall arrangements if this is deemed necessary based on a review of the current arrangements.

We suggest that when conducting such a holistic review the AEMC should be mindful of the timescales for the implementation of reform in the revenue recovery framework for electricity networks. Reforms in this area are likely to be made for long term benefits, and will take time to implement. We suggest that this both increases the need to start now on conducting a holistic review and the need to provide clarity on reform timelines as issues are identified and options developed to address them during the review process. An example of the time required to introduce major reforms in economic regulation is the time for the implementation of the RIIO 1 framework in the United Kingdom. In this case, Ofgem commenced a detailed consultation process in 2008 under the RPI-X@20 Review which resulted in the RIIO-1 model applying to regulated energy networks from 2013.

We appreciate the opportunity to comment further on the AEMC's approach to the ENERF review and look forward to engaging throughout this process with the AEMC and other stakeholders. If you would like to discuss our submission, please contact Dominic Adams, Regulatory Reform Manager on 02 9284 3377.

Yours faithfully

A handwritten signature in purple ink that reads "Caroline Taylor". The signature is written in a cursive, flowing style.

Caroline Taylor
Head of Public Policy