

**Submission
No 158**

SUSTAINABILITY OF ENERGY SUPPLY AND RESOURCES IN NSW

Organisation: Transgrid

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Mr A Greenwich MP
Chair
Legislative Assembly Committee on Environment and Planning
Parliament of New South Wales
Macquarie Street
Sydney, NSW, 2000

Dear Mr Greenwich,

Inquiry into the sustainability of energy supply and resources in NSW

TransGrid welcomes the opportunity to respond to the NSW Environment and Planning Committee inquiry into the sustainability of energy supply and resources in NSW.

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

TransGrid strongly supports ways to increase the reliability of energy supply, sustainable economic development in regional communities and putting downward pressure on power prices. It supports the implementation of an overarching energy strategy from Government to deal with the issues facing the sector to achieve these policy objectives.

TransGrid is proud to be a signatory to the Energy Charter as we put consumers at the centre of what we do. The Charter commits energy sector businesses to demonstrate the real benefits they provide to customers through delivering safe, reliable and affordable energy. As one of the first signatories, we have been a key contributor to the development of the Energy Charter, alongside stakeholders within the energy sector, government, business and consumer representatives.

The energy sector is transforming

Australia is in the midst of an energy transformation towards increased reliance on renewable generation. A successful transition will lower emissions, keep prices as low as possible, and ensure safe, secure and reliable electricity supply for consumers. This challenge is often referred to as the energy 'trilemma'.

The transition 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 for the design and structure of the National Electricity Market (**NEM**), which must adapt and respond flexibly to solve the energy trilemma.

A key part of the NEM transformation is the rapid increase in large-scale renewable generation connecting to the system. Last year alone, TransGrid connected almost 500 megawatts (**MW**) of renewable generation capacity and expects to connect over 2000 MW of new renewables this year. This was initially driven by renewable energy policies, grants and other support mechanisms. It is now driven by economics and cost competitiveness.¹

The entry of new large scale renewable generation and storage capacity, with the technical capability to support power system security and reliability, is required to maintain downward pressure on wholesale market prices while reducing emissions. This is particularly important in the near to medium term as existing coal-fired generation retires and resource prices fluctuate.

Transmission investment is required to successfully deliver the energy transformation

Investment in new transmission will help facilitate the transformation of the electricity sector, while balancing the competing needs of the energy trilemma. Transmission investment enables the transportation of large volumes of electricity across long distances. This facilitates greater competition to provide electricity to load centres in two ways.

First, increasing power transfer capacity between NEM regions (known as “transmission interconnection”) allows electricity to be provided from cheaper sources to NSW load centres, as well as allowing NSW generators to export when demand is higher in neighbouring regions, which reduces prices and improves the reliability and security of power supply in NSW.

Second, opening up areas that are rich in energy resources to connect new generation to the power system (known as “Energy Zones”) reduces the cost of new generation in NSW and puts downward pressure on wholesale prices.

The benefits of new transmission investment accrue to all NEM regions during the energy sector transition. NSW is well placed however, to capitalise on the regional development opportunities arising from the transition, as it is strategically located at the heart of the NEM, and could provide a range of energy services to neighbouring jurisdictions. In addition to facilitating lower prices and greater reliability, transmission investment in NSW can also lead to significant economic activity in regional areas.

This submission will focus on the work TransGrid is doing to deliver investment in new interconnection and new Energy Zones. This will include discussion on the broader benefits to the NSW economy of this investment and any barriers to investment.

Interconnection

Stronger interconnection between NEM regions offers significant benefits to consumers by reducing prices and increasing the reliability and security of the power system. There are two main ways to strengthen interconnection: transfer capacity can be increased on existing interconnectors; or new interconnectors can be developed. TransGrid is currently progressing three interconnection projects, which are subject to a Regulatory Investment Test for Transmission (RIT-T) and approval by the Australian Energy Regulator (AER):

- > Project EnergyConnect – a new interconnector between NSW and South Australia (**SA**)
- > QNI - expanding NSW to Queensland Transmission Transfer Capacity
- > VNI - Victoria to NSW Interconnector Upgrade

The benefits of interconnection can be illustrated by highlighting the expected outcomes from Project EnergyConnect, which is a proposed new electricity interconnector between Robertstown in SA and Wagga Wagga in NSW, with a connection into Victoria.

¹ CSIRO, *GenCost 2018 Updated projections of electricity generation technology costs*, December 2018

The project is being jointly delivered by TransGrid and ElectraNet (the transmission network service provider in SA). The RIT-T² for Project EnergyConnect forecasts the benefits the project is likely to bring to NSW and SA. These benefits are spread throughout NSW and SA, and include lower prices, improved energy security and increased economic activity in regional areas.

Project EnergyConnect will provide NSW customers with access to a diverse range of cheaper utility scale renewable generation. This is estimated to reduce a typical residential electricity bill in NSW by around \$30 and \$71 for a typical small business bill.³ Reliability and security for the energy supply would also improve due to greater integration and flexibility.

The economic impacts of Project EnergyConnect are state significant. The benefits are likely to be more pronounced in regional NSW, with an increase in real incomes of around \$209 million in areas of NSW hosting the interconnector infrastructure⁴. During construction, new jobs will peak at around 800 full time employees in NSW,³ with the potential for a significant number of ongoing jobs. The project is also expected to enable the development of new renewable projects, leading to around 700 ongoing jobs in NSW.³ Broader economic activity in regional NSW is also expected to increase to support the workers directly engaged in and indirectly resulting from the project.

It is critical for NSW energy consumers that this investment is delivered in a timely manner to ensure the full potential benefits are realised. The main barriers to the timely delivery of these projects are the negative factors influencing the investment environment in transmission infrastructure:

- > a lack of policy certainty is weighing on investors being asked to place significant capital into long term assets in a rapidly transforming power sector without a clear long-term vision,
- > regulatory interventions have recently had a significant impact on the perceived levels of risk for future investments in transmission assets, including the cumulative effect of interventions such as the removal of merits review processes, lowering the rate of return and the potential for stranded asset risks, and
- > regulatory challenges remain as current frameworks struggle to cope with the nature and scope of changes required to reconfigure the power system.

TransGrid supports the NSW Transmission Infrastructure Strategy, released in November 2018 by the NSW Government, as an important step in providing certainty to investors in the transmission and generation sectors. In particular, TransGrid commends the NSW Government for its recognition that transmission investments take a long time to plan, approve, develop and build, and that government can play a critical role in supporting the timely and efficient delivery of projects.

TransGrid considers that the independent planning process under the Australian Energy Market Operator's Integrated System Plan (**ISP**) is the appropriate mechanism to identify strategic long-term transmission needs across the power system, taking into account the policy settings and signals provided by governments. The ISP develops a considered view of likely future scenarios for the power system and identifies the investment needed to operate the power system efficiently and securely for the long term benefit of consumers. Government policy settings form a crucial input into the development of future scenarios that are analysed in the ISP. Clear and consistent policy signals from governments are therefore important for assessing future power system needs so that investments are appropriate to deliver efficient outcomes for consumers.

TransGrid recognises and supports the Energy Security Board's work towards actioning and embedding the ISP process into the regulatory framework. Working quickly to deliver the current ISP projects in NSW is an effective approach to address many of the congestion and other barriers to new and cheaper capacity reaching NSW consumers.

² The RIT-T is a form of cost benefit analysis required under the National Electricity Rules before any major transmission investment proposal is approved by the Australian Energy Regulator

³ ElectraNet, *SA Energy Transformation RIT-T Project Assessment Conclusions Report*, February 2019, p. 3

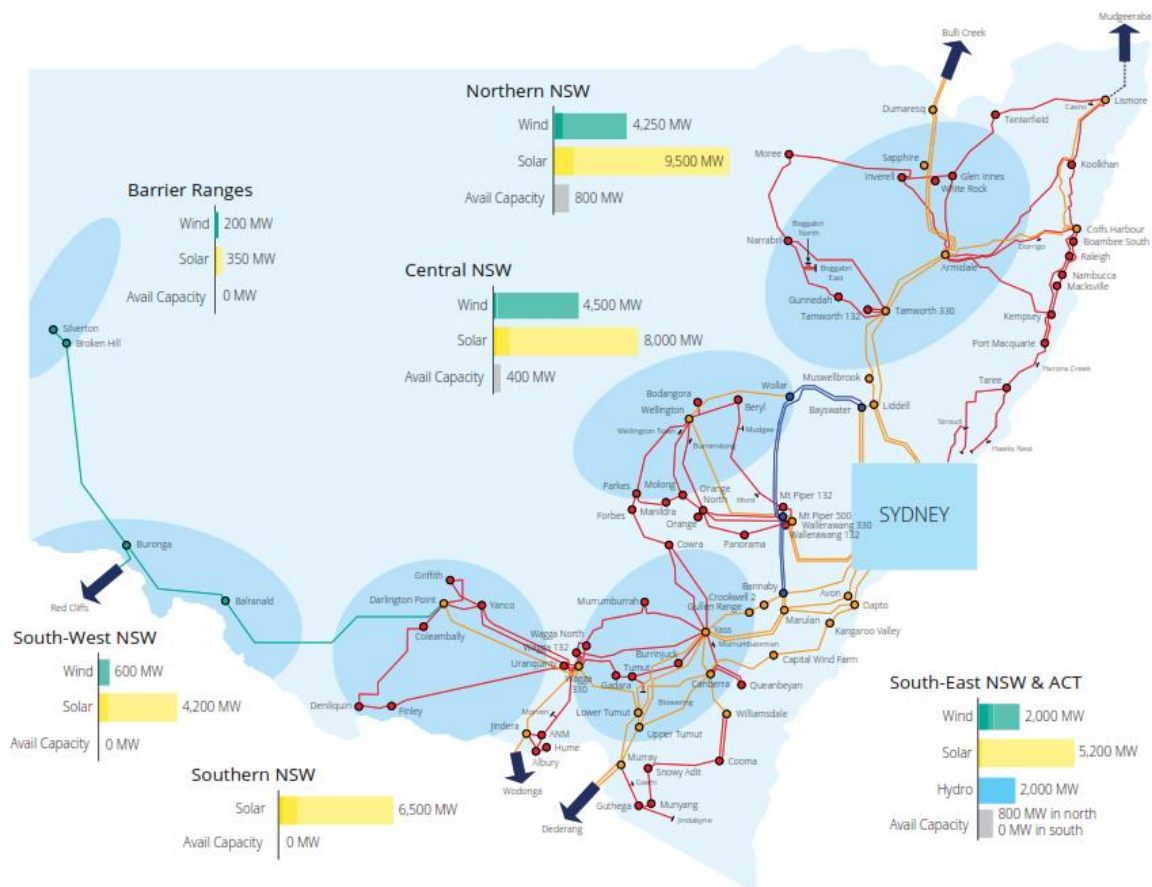
⁴ ACIL Allen, *South Australia New South Wales Interconnector Updated Analysis of Potential Impact on Electricity Prices and Assessment of Broader Economic Benefits*, February 2019, p. 27

New Energy Zones

Opening up new areas which are rich in natural energy resources (Energy Zones) to connect new generation to the grid is essential to achieving a smooth transition in the power system. A number of barriers however, have hindered any significant investment to achieve this.

There is currently increasing congestion on the power system as the market continues the transition to a lower emissions generation mix. This trend is occurring as new generators tend to locate near stronger renewable resources, which are often remote from the spine of the existing transmission network. This network has the greatest capacity to transfer power but was built to deliver power from the coal fired generators that are scheduled to close progressively. As noted above, TransGrid is connecting record levels of renewable generation in NSW, and the level of interest in connecting to the network shows no signs of abating. The pipeline of generator connection enquiries now totals over 48,000 MW. A summary of TransGrid’s connection activity from 2016-2019 is shown in Figure 1: **Figure 1:**

NSW Transmission Connection Activity 2016-2019



Source: TransGrid, *New South Wales Transmission Annual Planning Report 2019*, p. 45

The principal barrier to the connection of new low-cost renewable generation is that the system is physically constrained. A physically constrained power system is costly to connect to, and also increases the risk that investments in generation equipment will not earn an adequate return due to curtailed access to the wholesale electricity market.

Investment in transmission infrastructure to enable new Energy Zones is a prerequisite to stimulate investment in new generation projects, giving confidence that they will earn acceptable returns over time. TransGrid strongly supports the development of Energy Zones as a pathway for efficient transmission connection for utility scale generation and to unlock cost efficiencies through economies of scale across the whole supply chain. There are however, a range of barriers to the transmission investment needed to open up new Energy Zones.

One such barrier is the challenging environment for investment in new Energy Zones under current planning and investment arrangements for transmission in the NEM. The concept of Energy Zones has been widely supported by Government, regulatory bodies and industry participants but the mechanisms to identify, prioritise and fund new Energy Zones are yet to be determined.

The existing frameworks were developed to support a mature generation fleet and transmission system and, as such, the regulatory arrangements were established to support incremental investment in energy infrastructure. For example, the RIT-T is well suited to facilitating the connection of single large new sources of generation but is not well suited to facilitating the opening up of new areas where a range of smaller new generation projects will be developed over a period of time. This framework is not suitable for the transformation of the generation sector the industry is currently experiencing, nor the delivery of strategic transmission investments such as the connection of new Energy Zones. For the most efficient outcome to occur for the delivery of these investments, transmission needs to be well planned and be committed to be delivered in advance of generation investments, which typically have shorter timeframes for planning and development.

Further work is also required to support funding mechanisms that underpin investment in transmission infrastructure for new Energy Zones. This is problematic due to the challenges and risks involved in making significant financial commitments to build transmission infrastructure to support multiple generators in advance of those generators making their commitment to connect. Currently, connecting generators would need to coordinate their projects and commit to invest at the same time in order for the costs of any new transmission investment to facilitate their connection to be recovered from electricity consumers. This is highly unlikely and has not yet occurred in practice. Generator coordination is unlikely because they compete with each other in a number of important respects, including but not limited to, access to the wholesale market and energy offtake contracts.

To address these barriers to transmission investment in new Energy Zones, TransGrid considers the following broad requirements are needed:

- > Incorporating the concept of Energy Zones in the regulatory framework, and providing clear responsibility within the ISP to identify and prioritise new Energy Zones.
- > Flexible approaches to funding mechanisms to allow a variety and combination of different funding structures, where appropriate.
- > Clarifying the role of the AER under these funding arrangements (to the extent consumers may pay for any part of an investment) to ensure that risks to all parties are managed appropriately throughout the investment cycle.
- > Sufficient incentives for generators to pay to locate within an Energy Zone, as well as disincentives for competing generators to locate outside of an Energy Zone, to avoid asset underutilisation and network constraints.

Government can play an important role in helping overcome these challenges. Strategic involvement could range from Government taking on a role in mitigating key commercial risks for private investment to occur, as well as by helping incentivise renewable generation to locate within particular areas so that the development of new Energy Zones can be streamlined.

TransGrid is working closely and constructively with the NSW Government to progress the much needed investment in transmission interconnection and Energy Zones in NSW. We would be pleased to engage further with the Committee on these important issues and the matters raised in this submission. I can be contacted on [REDACTED]

Yours faithfully,

Graeme Wedderburn
Head of Corporate Affairs