

Reinforcing the NSW Southern Shared Network to increase transfer capacity to demand centres (HumeLink)

PADR Public Forum

Wednesday 12 February 2020



Presenter Introductions

TransGrid

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Agenda

1. Identified Need
2. Process Overview
3. Credible Options
4. NPV Results
5. Market Modelling Overview
6. Market Modelling Outcome – benefits and sensitivities
7. Questions
8. Next Steps – submissions by 24th February 2020

Identified Need

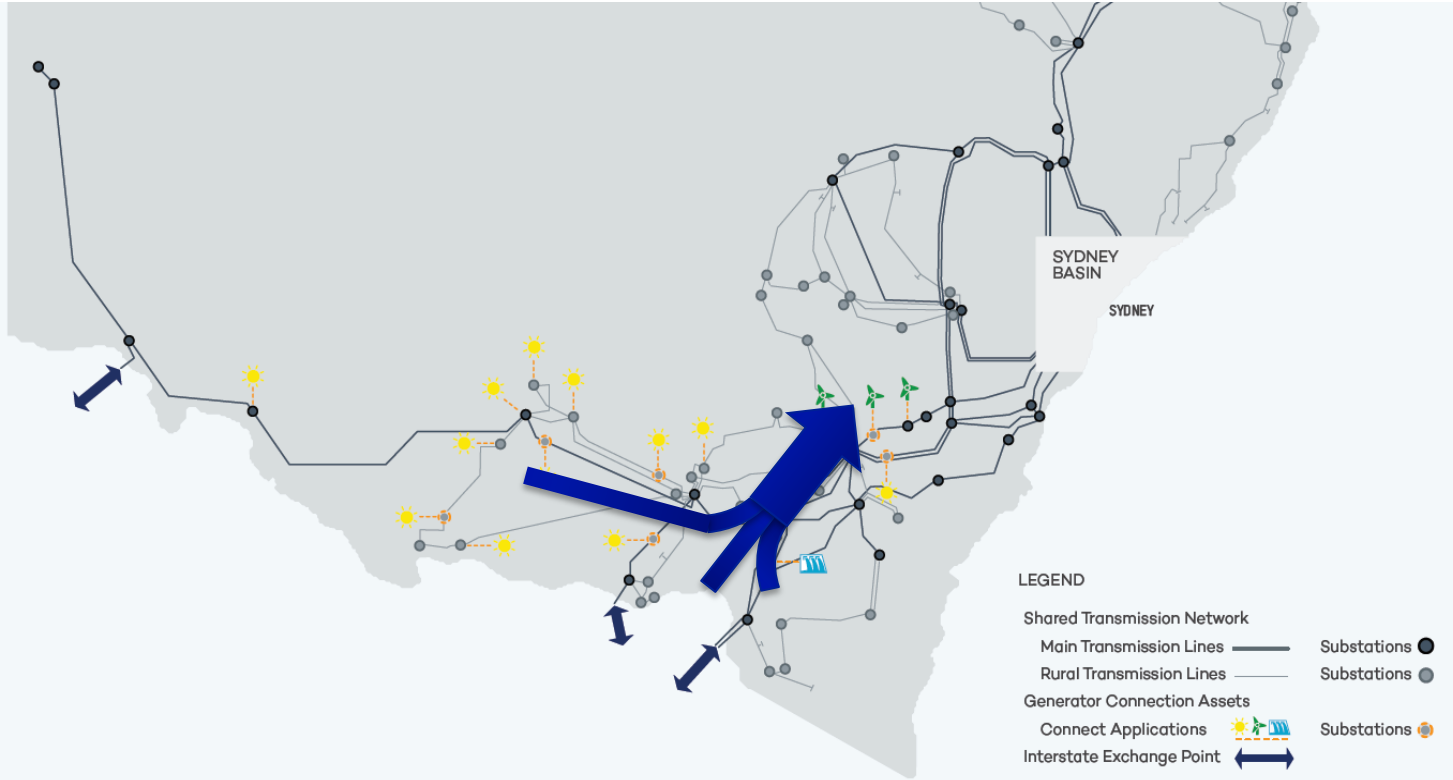
The 'identified need'

To increase overall net market benefits in the NEM through increasing transfer capacity of the shared network between the Snowy Mountains and major NSW load centres.

The key sources of market benefit are:

- Increasing the transfer capacity and stability limits between the Snowy Mountains and major load centres of Sydney, Newcastle and Wollongong;
- Enabling greater access to lower cost generation to meet demand in these major load centres; and
- Facilitating the development of renewable generation in high quality renewable resource areas in southern NSW, which will further lower the overall investment and dispatch costs in meeting NSW demand while also ensuring emissions targets are met at the lowest overall cost to consumers.

Addressing the need



Process Overview

Project Overview

- TransGrid is undertaking a Regulatory Investment Test for Transmission (RIT-T) to assess the technical and economic feasibility of reinforcing the NSW southern shared network to increase transfer capacity to demand centres.
- A Project Specification Consultation Report (PSCR) was published on 25nd June 2019.
- A Project Assessment Draft Report (PADR) was published on 10th January 2020, along with an accompanying detailed Market Modelling Report.
- The PADR confirms the ISP 2018 Group 2 and draft ISP 2020 Group 1 HumeLink the preferred option (500kV option going between Maragle and Bannaby via Wagga Wagga) delivers the greatest expected net benefits of all options considered and provides additional unquantified benefits on account of its topology involving more opportunity for route diversity.

Stakeholder Consultation

- We published the PSCR, along with an accompanying input and methodology consultation paper and assumptions workbook, in May 2019. The input and methodology documents provided additional detail on the proposed economic and wholesale market modelling to be undertaken, as well as further information on the specifications of the credible options assessed.
- We ran a consultation session on the HumeLink PSCR and modelling assumptions at our Transmission Annual Planning Report (TAPR) public forum in September 2019.
- Six submissions to the PSCR were received and published on TransGrid's website.
- We held bilateral meetings with interested parties in order to their submissions.

Submissions to the PSCR

- There are three broad topics that were most commented on:

Modelling approach, assumptions, scenarios and sensitivities

PADR market modelling assumptions are based on the 2020 ISP assumptions and the latest views on committed and anticipated generation developments.

Various sensitivities have been tested (including without Snowy2.0, coal generator retirements based on economic viability, staging development of HumeLink, 50% POE demand forecast and high DER in central scenario).

Assumptions around coincident transmission developments: QNI minor, VNI minor, PEC and Western VIC are included, QNI major is excluded, VNI West is excluded in slow-change scenario and MarinusLink is included in the fast-change scenario.

The 500kV options via Wagga Wagga are robust across the four different scenarios and ranking will not change using different weighting of scenarios.

SRMC modelling is a standard practice in investment requirement under the RIT-T. Competition benefits are not required as we do not expect it would materially affect the ranking of the options in the context of the RIT-T.

Submissions to the PSCR

Options considered and the proposal of alternative options

A power flow control solution is not required, as the preferred option assessed does not include phase shifting transformers (PSTs).

Bringing forward timing of one of circuits is not technically feasible, as there is insufficient time to obtain the necessary environmental approvals.

Option value associated with flexible/staged options has been tested. The option with the highest value is to deliver the entire solution at the same time.

Option routes 1A, 1B, 2A, 2B, 3A and 3B all include PSTs, therefore inclusion of Bannaby – Sydney West in route 4 should not be separated out, in order that options can be compared on a like-for-like basis.

Provision of information to support the PADR and modelling

We have released a range of supplementary material alongside the PADR to help interested stakeholders understand the drivers of the estimated net benefits.

The methodology for modelling storage is explained in detail in the market modelling methodology report.

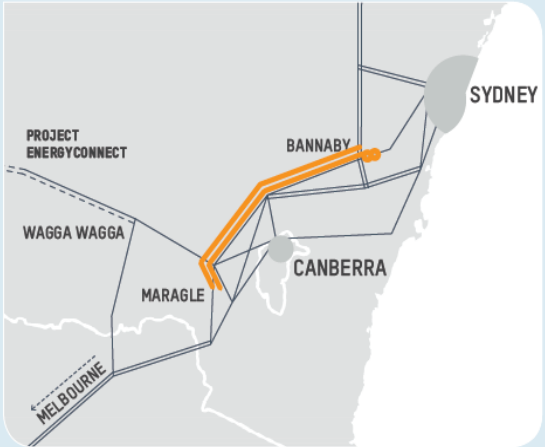
Key Developments since the PSCR

- The market modelling assumptions have been updated to closely align with those to be used for the 2020 ISP.
- The assessment no longer includes a “Neutral + Low emissions” scenario and instead, includes AEMO’s “Step-change” scenario.
- Updates from NSW coal generators made after the PSCR publication (Mt Piper Power Station upgrade by 60 MW, Bayswater Power Station upgrade by 100 MW and updated retirement dates for Liddell Power Station units).
- The 2019 AEMO ESOO and draft 2020 ISP results have reconfirmed the need to provide additional transmission capacity in line with what is being considered in this RIT-T.

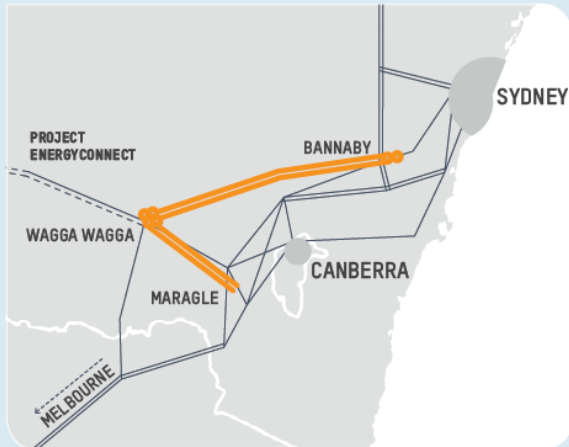
Credible Options

Credible Options

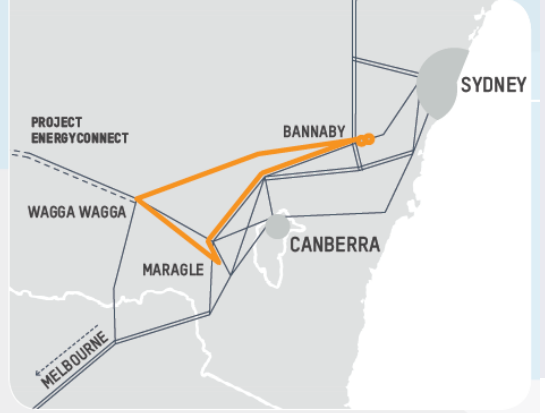
Option 1



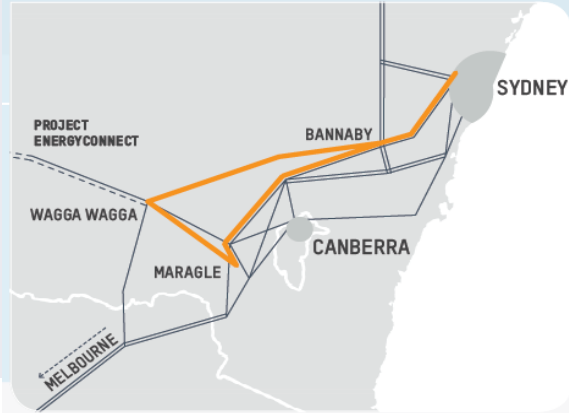
Option 2



Option 3



Option 4



Demand Management

- Fast-acting reductions in load and generation on both ends of transmission lines between the Snowy Mountains and Sydney, at peak times may increase the transfer capacity of the southern network by up to 110 MW, using 5-minute transmission line ratings.
- Non-network option requirements
 - 110 MW of interruptible load and generation
 - Can respond to an automated dispatch signal in less than 5 minutes
 - Summer (Dec – Feb), 11am – 8pm weekdays, <10 hours p.a.
 - Load location: north of Bannaby and south of Liddell
 - Generation location: Lower Tumut, Upper Tumut, Murray, Wagga Wagga area
- 110 MW additional transfer capacity would provide approximately \$2.4 million in gross market benefits. This corresponds with a value of approximately \$700,000 per year for non-network options to be economic.
- We have engaged with large customers to discuss the opportunity.
- We invite proponents of non-network solutions that can contribute to submit binding offers.

Panel Discussion

Next steps

- TransGrid welcomes written submissions from Registered Participants, AEMO and interested parties on the preferred option presented, and the issues addressed, in the PADR
- Please email your submissions to regulatory.consultation@transgrid.com.au on or before 24 February 2020.
- The next formal stage of this RIT-T is the Project Assessment Conclusion Report (PACR). The PACR will address PADR consultation responses and determine the final preferred option. PACR is expected to be published in the first half of 2020.

Thank you.

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