

Support South Western NSW for Renewables

1.1. Background

AEMO's generation information reports are a key reference for likely generation retirement. In particular, both Liddell and Smithfield are noted by AEMO to be "committed" to retirement¹. AEMO states that Smithfield Power Partnership advised them that the Smithfield energy facility would be retired in 2017 and AGL advised that Liddell power station would be shut down in 2022.

The reserve plant margins and energy balances within NSW will be heavily impacted by the retirement of Liddell. The ability of NSW's existing generation to meet demand has been assessed based on the following assumptions:

- NSW 10% POE medium demand growth forecast
- The full capacity of all existing coal, gas and hydro generations is available for dispatch
- Maximum interconnector import capacity (1200 MW import from Queensland, 600 MW import from Victoria)
- Network losses are assumed to be 4% of the maximum demand level

The generator retirements assumed are:

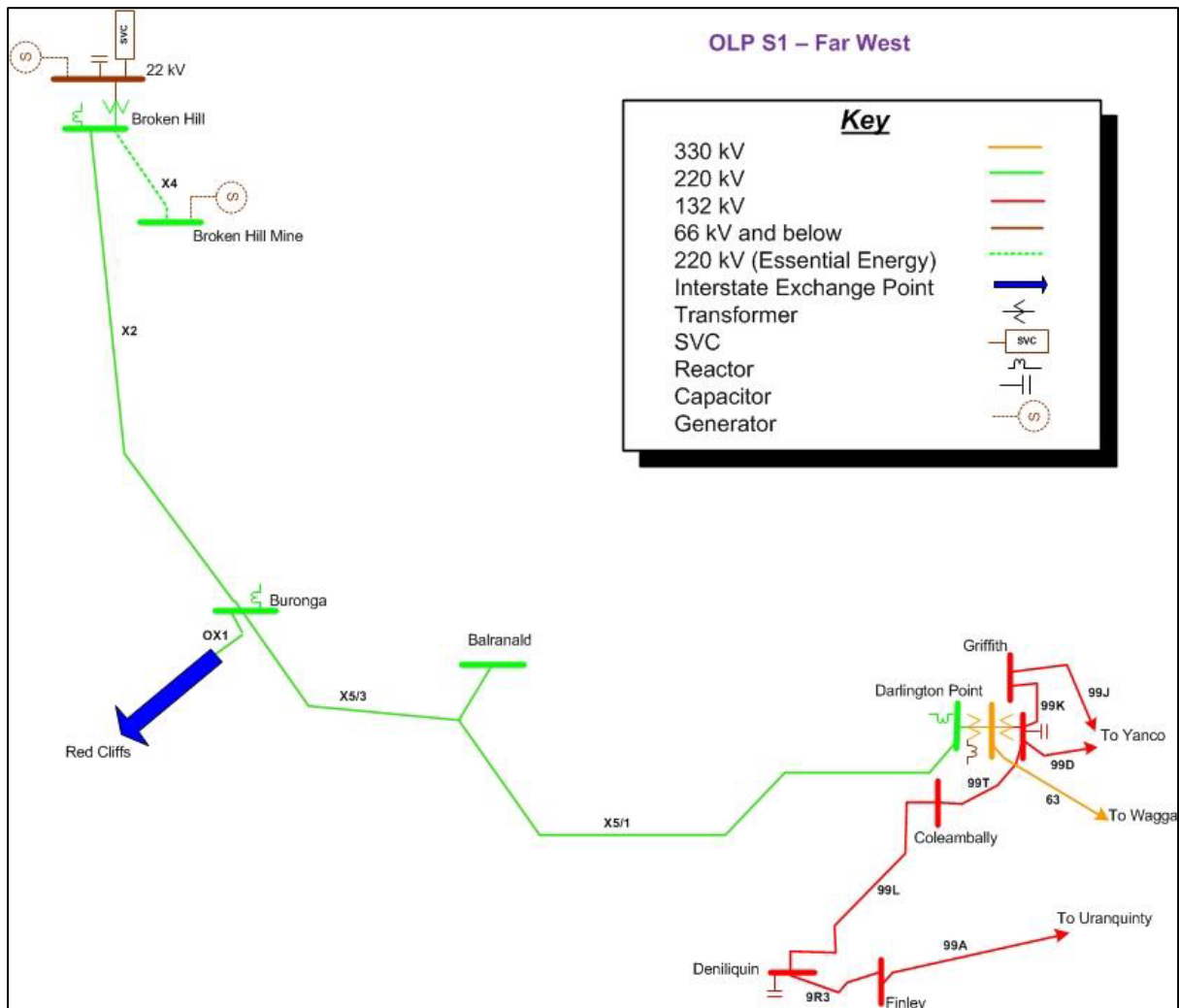
- Smithfield generator with total capacity 162 MW in 2017
- Liddell power station with total capacity 2000 MW in 2022.

TransGrid engaged Ernst & Young to develop generation outlook scenarios for the period 2018/19 to 2022/23. The generation scenarios identified by Ernst & Young² indicate that there is potential for new generation in NSW that would cater for existing generation retirements. Among these potential new generation connections in NSW, over 1000 MW new generation connections are proposed in the South Western NSW area (west of Wagga Wagga in Figure 1 below). However, this new renewable generation along with import from Victoria could be constrained due to transmission system limitations west of Wagga.

¹ AEMO classification of generation developments as being at the 'committed' stage of development on their 'Generator Information' webpage at <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information>

² Refer to the RIN supporting document "TransGrid - Ernst and Young - Report to TransGrid on load developments - 1016 - PUBLIC"

Figure 1: Existing System to the West of Wagga Wagga



The transmission limitations include:

- Transmission capacity (thermal) limitations between Buronga and Broken Hill
- Transmission capacity (thermal) limitations between Buronga and Darlington Point
- Transmission capacity (thermal) limitations between Darlington Point and Wagga
- Voltage control issues in the South Western transmission network

Reinforcing the transmission network in the area west of Wagga would contribute in addressing any potential supply shortages in NSW following the retirement of Liddell power station. In addition, such reinforcements that will allow additional renewable generation to connect to the system and provide market benefits to NSW and the rest of the National Electricity Market (*i.e.* reduced energy cost by dispatch of lower cost generating plant, increased competition of generators etc.).

1.2. Project Description

Given the uncertainties presently around generation developments, it is difficult to predict what would be the most opportune time to commit to transmission capacity augmentation. TransGrid considers that this project should be accepted as a contingent project for the 2019-2023 regulatory period due to the uncertainty of the trigger events occurring and the scope and cost of the project.

1.3. Trigger Events

The proposed triggers for this contingent project are:

- New generation more than 400 MW³ is committed in South Western NSW (west of Wagga)⁴; and/or
- New generation in North West Victoria⁵
 - exceeding 800 MW for connection to the Ballarat – Waubra – Ararat – Horsham 220 kV Lines or connection point(s); and/or
 - exceeding 200 MW for connection to the Redcliffs – Weman – Kerang 220 kV Lines or connection point(s); and/or
 - exceeding 500 MW for connection to the Ballarat – Terang – Moorabool 220 kV Lines or connection point(s); and/or
 - exceeding 1,500 MW in the North West Victoria zone
- Successful completion of a RIT-T, either by TransGrid for South West NSW or AEMO for North West Victoria, demonstrating positive net market benefits with an augmentation of the transmission network south-west of Wagga identified as the preferred option or part of the preferred option.
- Determination by the AER under clause 5.16.6 of the NER that the proposed investment satisfies the RIT-T.
- TransGrid Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the Rules.

The triggers are specific and capable of objective verification, relate to a specific location or locations, and are probable but too uncertain to include the proposed contingent project in the ex-ante capital expenditure forecast.

³ Based on the contingency rating of Line X5

⁴ AEMO classification of generation developments as being at the 'committed' stage of development on their 'Generator Information' webpage at <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information>

⁵ AEMO classification of generation developments as being at the 'committed' stage of development on their 'Generator Information' webpage at <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information>

1.4. Project Requirement

Four options were identified and considered to address the potential needs. However, both the timing and scope of this project, and therefore the transmission requirements, are uncertain at this point in time and depend on the outcome of the RIT-T.

The identified options (including scope of works) are:

- Uprate X5 transmission line to conductor capacity (single circuit 220 kV transmission line) and additional voltage support
- Uprate X5 transmission line (single circuit 275 kV transmission line), uprate the line 63 transmission line conductor capacity and install additional voltage support
- Duplicate X5 transmission line (add new single circuit 275 kV transmission line and uprate existing X5 transmission line to 275 kV), duplicate 63 transmission line (add a new single circuit 330 kV transmission line) and install additional voltage support
- Non-network options: Generation runback and load curtailment

1.5. Contingent Capital Expenditure

The preferred option will be identified at the end of the RIT-T process. However, the likely preferred option is the third option [Duplicate X5 transmission line (add new single circuit 275 kV transmission line and uprate existing X5 transmission line to 275 kV), duplicate 63 transmission line (add a new single circuit 330 kV transmission line) and install additional voltage support]. This is based on the increase in transfer capability and potential for higher market benefits due to the availability of firm transmission capacity (due to transmission line duplication between Buronga and Wagga).

The total estimated cost is **\$530 million (Nominal)**.

TransGrid notes that, by definition, it is generally not possible to accurately define the scope of a proposed contingent project at this early stage. Therefore, the estimated cost of the project is indicative only. In accordance with clause 6A.8.2(b)(3), a detailed project scope and cost estimate will be required before any amendment to the revenue determination is considered by the AER should the specified trigger events occur during the regulatory period.

Consistent with clause 6A.8.1(b)(iii) of the NER, the range of estimated contingent capital expenditure exceeds the applicable contingent project threshold of the larger of either \$30 million or \$40 million⁶.

This proposed project is subject to a positive net economic benefit confirmed through RIT-T.

⁶ This represents 5% of the value of the maximum allowed revenue for the first year of the regulatory control period.

1.6. Demonstration of Rules Compliance

TransGrid considers that this project should be accepted as a contingent project for the forthcoming regulatory control period as it complies with the provisions set down in clause 6A.8.1(b) of the NER as:

- (a) it is reasonably required to achieve the capital expenditure objectives as set out in 1.4 above;
- (b) it is not otherwise provided for in the total forecast capital expenditure;
- (c) it reasonably reflects the capital expenditure criteria, noting that the costs are an estimate at this point;
- (d) it exceeds the contingent project threshold as set out in 1.5 above;
- (e) it complies with the requirements of the Submission Guidelines; and
- (f) it has an appropriately defined trigger event as set out in 1.3 above.