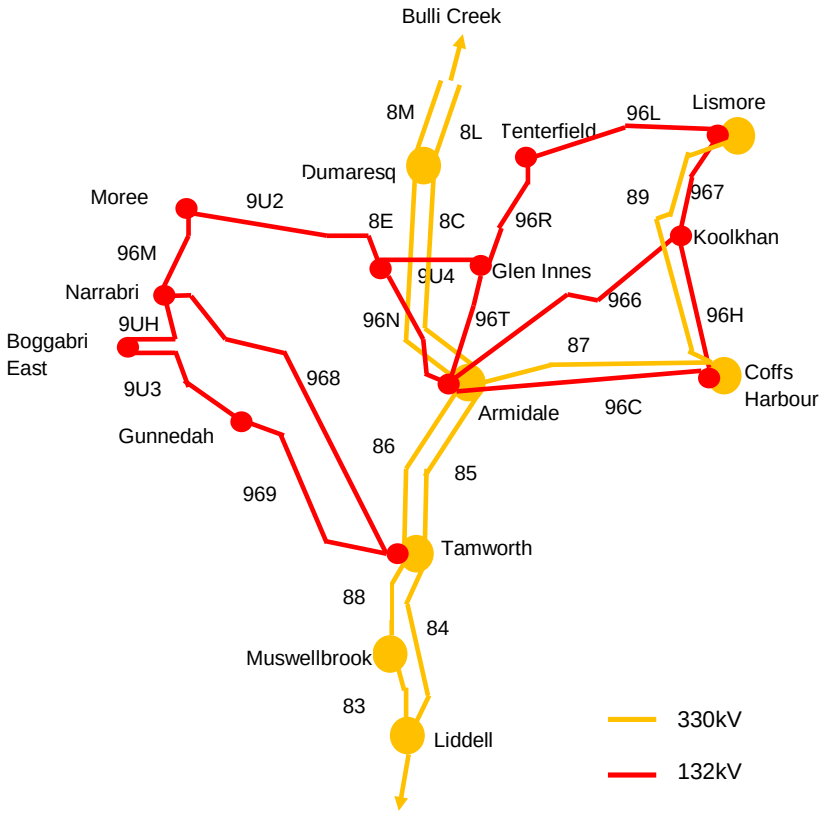
5.5.1.2 Reinforcement of Northern Network

1.1. Background

As noted in section 5.6.1.1, there are material uncertainties in the future generation availability in NSW. Among the potential new generation connections in NSW, about 1,000 MW of new generation connections are proposed in the northern NSW New England area (north of Armidale in the Figure below). Some of this new generation has recently been commissioned or is at an advanced design stage, and further new generation is forecast to be commissioned towards the end of the present regulatory control period.



TransGrid engaged Ernst & Young to develop generation outlook scenarios for the period 2018/19 to 2022/23. The generation scenarios identified by Ernst & Young[1] indicate that there is potential for new generation in NSW that would cater for existing generation retirements. However, the system adequacy studies indicate that new northern generation along with import from Queensland could be constrained due to transmission system limitations, in particular in the Liddell to Armidale corridor. Consequently, contingent on the new generation connections and retirement of existing generation taking place there could be opportunity to provide market benefits to customers through lower wholesale energy prices by reinforcing the transfer capability of the northern NSW transmission network. In addition, this new generation in Northern NSW and expected new generation in Southern NSW could lead to market benefits from reinforcing the Queensland and NSW Interconnector (QNI).

[1] Refer to the supporting document " TransGrid - Ernst and Young - Report to TransGrid on load developments - 1016 - PUBLIC"

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. However, it is probable that significant market benefits may be accrued from 2019 onwards.

TransGrid considers that the project should be accepted as a contingent project for the 2019-2023 regulatory period because of the uncertainty about the trigger events occurring and the scope and cost of the project.

1.3. Trigger Event

The proposed triggers for this contingent project are:

- Either:
  - Committed retirement of more than 1100 MW of generation in the Hunter or Central Coast area; and/or
  - AEMO classification of generation developments as being at the 'committed' stage of development on the 'Generator Information' webpage, exceeding 1100 MW at any current or future connection point(s) north of Armidale; and/or
  - AEMO classification of generation developments as being at the 'committed' stage of development on the 'Generator Information' webpage, exceeding 350 MW at any current or future connection point(s) south of Liddell and Bayswater.
- Successful completion of the RIT-T which will be initiated in the event of occurrence of any of the above triggers, including a comprehensive assessment of credible options demonstrating positive net market benefits
- Determination by the AER under clause 5.16.6 of the NER that the proposed investment satisfies the Regulatory Investment Test for Transmission.
- TransGrid Board commitment to proceed with the project pursuant 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.

1.4. Project Requirement

The preferred option will be determined through the RIT-T process based on detailed network analysis, market modelling, and technical and economic assessments. However, the likely preferred option involves:

- Installion of two SVCs with a range of -100 MVAr – 350 MVAr at Tamworth and Dumaresq (one at each site).
- Upgrading the following lines to 120°C design temperature
  - Line 83 (Liddell – Muswellbrook)
  - Line 88 (Muswellbrook – Tamworth)
  - Line 84 (Liddell – Tamworth)
- Installation of shunt connected capacitor banks at Tamworth, Armidale and Dumaresq 330 kV substations as detailed below.

Site	Capacitor (MVAr)	Total MVAr

Tamworth 330 kV substation	2 x 60 + 120	240
Armidale 330 kV substation	2 x 50 + 120	220
Dumaresq 330 kV substation	2 x 120	240

- Upgrade Line 85 to achieve a summer day rating of 1200MVA
- Rebuild Line 86 on its existing easement with a summer day rating of 1200MVA (this need to be addressed separately under the Project 1555 - 86 330 kV Transmission Line Renewal)

1.5. Contingent Capital Expenditure

The total estimated cost for the likely preferred option is: $204.83 million (June 16) or **$161 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 event occur during the regulatory period.

Consistent with clause 6A.8.1(b)(iii) of the NER, the estimated contingent capital expenditure exceeds the applicable contingent project threshold of the larger of either $30 million or $40 million.[4]

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

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.

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