

Reliable Provision of Electricity to the East Bundaberg area



Notice of No Non- Network Options

22/06/2020



Executive Summary

ABOUT ERGON ENERGY

Ergon Energy Corporation Limited (Ergon Energy) is part of the Energy Queensland Group and manages an electricity distribution network which supplies electricity to more than 740,000 customers. Our vast operating area covers over one million square kilometres – around 97% of the state of Queensland – from the expanding coastal and rural population centres to the remote communities of outback Queensland and the Torres Strait.

Our electricity network consists of approximately 160,000 kilometres of powerlines and one million power poles, along with associated infrastructure such as major substations and power transformers.

We also own and operate 33 stand-alone power stations that provide supply to isolated communities across Queensland which are not connected to the main electricity grid.

IDENTIFIED NEED

A condition assessment of East Bundaberg Zone Substation (EABU) has identified assets that are recommended for replacement. These assets are forecast to reach retirement based on a combination of Condition Based Risk Management (CBRM) modelling and known issues with problematic plant, which are required to be replaced or decommissioned to manage the safety and network risks associated with unplanned failure.

The assessment identified that several major items of substation plant require replacement. These include the 66/11kV power transformers and 66kV circuit breakers.

Failure of the primary and secondary plant is a risk to network security which may lead to a breach of legislated Safety Net requirements. Catastrophic failure of plant or structures also presents a safety risk to the general public as well as to our own staff.

The purpose of this project is to address the risk to safety and network security posed by poor condition and problematic assets.

APPROACH

The NER requires that, subject to certain exclusion criteria, network business investments for meeting service standards for a distribution business are subject to a Regulatory Investment Test for Distribution (RIT-D). Ergon Energy has determined that network investment is essential in this case for it to continue to provide electricity to the consumers in the East Bundaberg supply areas in a reliable, safe and cost-effective manner. Accordingly, this investment is subject to a RIT-D. An internal assessment has been carried out and it has been determined that no non-network solutions can potentially meet the identified need or form a significant part of the solution. This Notice has hence been prepared by Ergon Energy in accordance with the requirements of clause 5.17.4(d) of the NER.

1 Background

Bundaberg is a regional city located 360km north of Brisbane with a population of approximately 93,000 people. East Bundaberg 66/11kV Zone Substation (EABU) is located on the eastern edge of Bundaberg city and supplies a diverse mix of industrial, residential, and agricultural zones. EABU has two 66kV feeders connecting to Bundaberg Central Zone Substation (BUCE) and South Bundaberg Zone Substation (SOBU) respectively. The feeders form part of the Bundaberg 66kV ring and the 66kV network ultimately originates from the Bundaberg 132/66kV Bulk Supply Point (BUND T20).

There are approximately 8900 customers connected to the distribution network, including a number of major commercial and industrial customers located in Bundaberg and further north at Burnett Heads. These include Bundaberg Rum Distillery, Bundaberg Brewed Drinks, Rubyanna Waste Water Treatment Plant, Knauf plasterboard factory, and the Port of Bundaberg.

The 11kV distribution network from EABU is supplied through eight feeders. The feeder network supplies a predominantly urban area near the substation and extends further east and north to the growing coastal towns of Bargara and Burnett Heads.

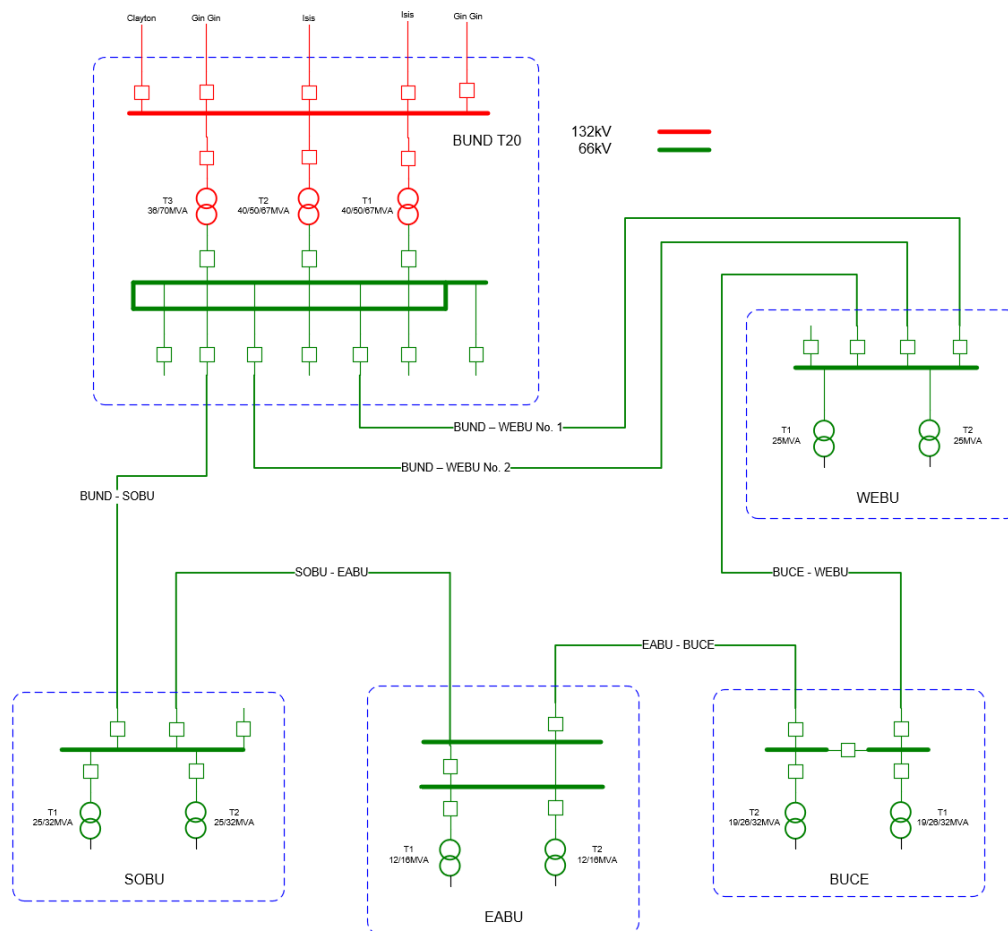


Figure 1 – Bundaberg area subtransmission network

2 Identified Need

2.1. Asset Replacement

A condition assessment of East Bundaberg Zone Substation (EABU) has identified assets that are recommended for replacement. These assets are forecast to reach retirement based on a combination of Condition Based Risk Management (CBRM) modelling and known issues with problematic plant, which are required to be replaced or decommissioned to manage the safety and network risks associated with unplanned failure.

The assessment identified that several major items of substation plant require replacement. These include the 66/11kV power transformers and 66kV circuit breakers.

Failure of the primary and secondary plant is a risk to network security which may lead to a breach of legislated Safety Net requirements. Catastrophic failure of plant or structures also presents a safety risk to the general public as well as to our own staff.

3 Network Options Considered

The preferred network option is to replace assets at East Bundaberg Substation that have been identified as being in poor condition.

The estimated preferred project cost is \$8.2M.

4 Assessment of Non-Network Solutions

Ergon Energy's Demand and Energy Management (DEM) Team assesses the potential non-network options that individually or jointly might constitute a credible option. Credible options must be able to either substitute or defer the network investment and ensure that the solution is technically and commercially viable and can be delivered within required timeframe. Feasible non-network options must be able to be implemented in sufficient time to satisfy the identified risk to the public and/or the network due to the identified constraints.

Ergon Energy has considered a number of demand management technologies to determine their commercial and technical feasibility to assist with the identified need.

The following non-network solutions have been assessed for either deferring or replacing the network investment required in the East Bundaberg supply area:

- Demand Management (Demand Reduction) such as power factor correction, energy efficiency, load control.
- Demand Response through customer embedded generation, call off load and load curtailment contracts.

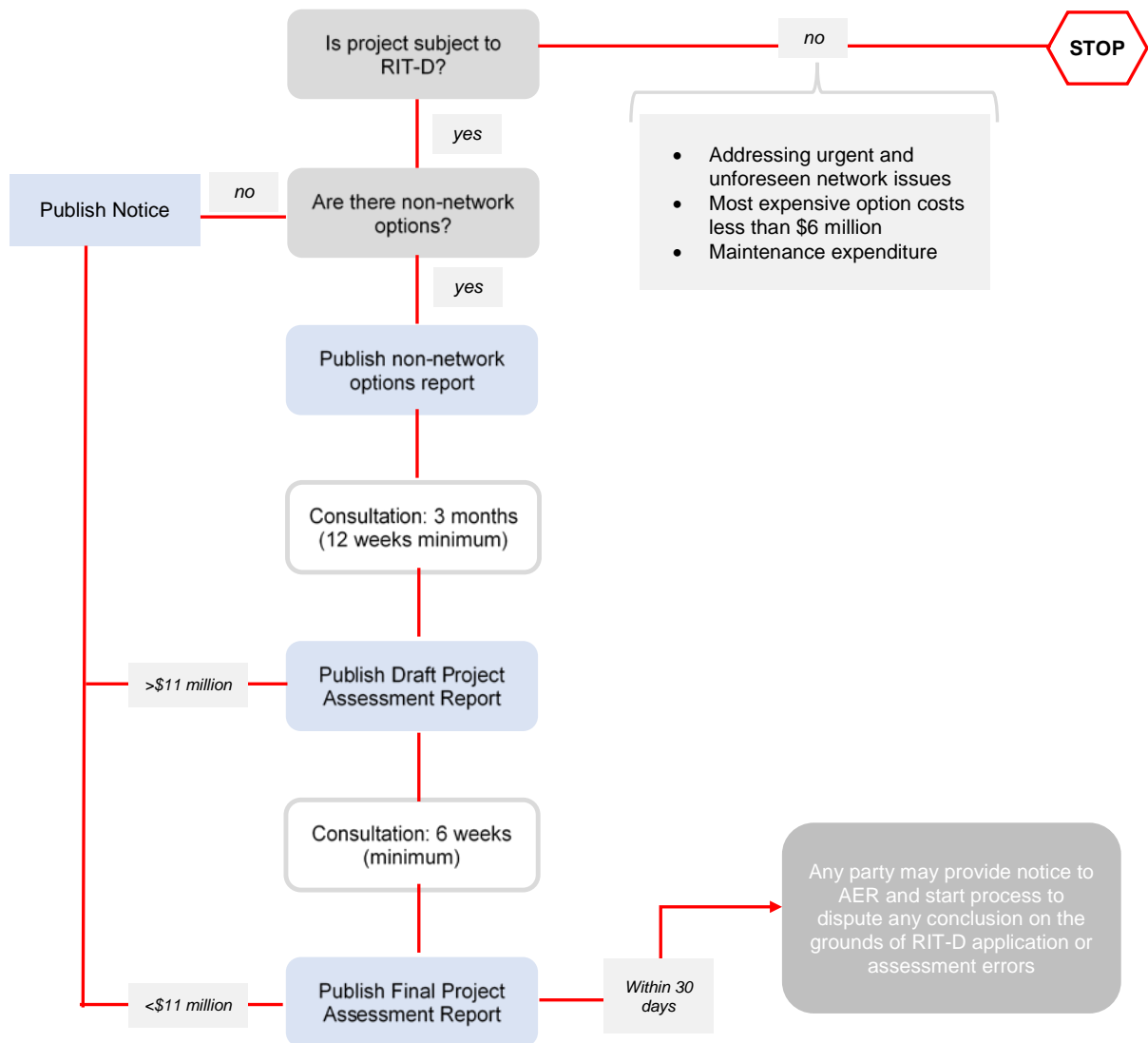
They have been assessed as not technically viable as they will not address the network risk associated with poor condition assets.

5 Conclusion and Next Steps

The internal investigations undertaken on the feasibility of the non-network solutions revealed that it is unlikely to find a complete non-network solution or a hybrid (combined network and non-network) solution to provide the magnitude of network support required in the East Bundaberg area to address the identified need.

The preferred network option is to replace the assets in poor condition. This notice of no non-network options is therefore published in accordance with rule 5.17.4(d) of the National Electricity Rules. As the next step in the RIT-D process, Ergon Energy will now proceed to publish a Final Project Assessment Report.

Appendix – The RIT-D Process



Source: AEMC, *Rule determination: National Electricity Amendment (Replacement expenditure planning arrangements) Rule 2017*, July 2017, p. 64.