Addressing reliability requirements in West Toowoomba Substation

Notice on screening for non-network options

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Notice

This notice has been prepared under clause 5.17.4(d) of the National Electricity Rules (NER) and summarises Ergon Energy's determination that no non-network option is, or forms a significant part of, any potential credible option for this RIT-D. The reasons for Ergon Energy's determination, including the methodologies and assumptions are outlined below.

Background

West Toowoomba Zone Substation (WETO) provides electricity supply to approximately 8923 predominantly residential customers in the Newtown and Wilsonton areas. There are approximately 640 industrial customers consisting of a hospital, shopping centres, schools and other retail / offices complexes.

West Toowoomba Substation was originally built around 1945. The last major upgrade of the substation occurred in the early 1970s. The substation is a 33/11kV substation and is a crucial part of the Toowoomba electricity supply network. There are four incoming 33kV feeders, two from South Toowoomba T043 bulk supply substation and two from Torrington T116 bulk supply substation. WETO is normally supplied from Torrington T116 substation.

Past load on West Toowoomba substation has been an average of 24MVA, however, after the commissioning of the new Toowoomba Central (TWCE) substation in 2016, the load at West Toowoomba has not exceeded 21MVA.

A number of assets in the substation are nearing end of life and are planned to be replaced. The earliest up for replacement are the oil circuit breakers on the seven 11kV feeders, three 11kV transformer circuit breakers, airbreak switches and a number of relays.

The NER requires that, subject to certain exclusion criteria, a regulatory investment test for distribution (RIT-D) project to address an identified need must be subject to a RIT-D. Ergon Energy has determined that the installation of new 11kV assets and associated infrastructure should be subject to a RIT-D. This Notice has been prepared by Ergon Energy in accordance with the requirements of clause 5.17.4(d) of the NER.
Assessment Methodologies

Ergon Energy’s Intelligent Grid Systems Customer Interactions (IGSCI) Team assesses the potential demand management options required to defer the network option and to ensure that the solution is technically and commercially viable, and delivered within the required timeframe. In order to comply with the safety net targets required by our Distribution Authority D01/99, a viable demand management solution must be capable of reducing the unsupplied load to <20MVA for the 2 hours required for restoration of supply in the event of an unplanned substation outage due to a bus outage to be considered a viable alternative solution. Any feasible non-network option must also be able to be implemented in sufficient time to satisfy the identified risk to public and the network due to the aged 11kV assets for deferral of the network investment.

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 are assessed for deferring or replacing the network investment required at West Toowoomba substation.

- Demand Management (Demand reduction); and
- Demand Response, including:
  - Customer Call-off Load (COL)
  - Customer Embedded Generation (CEG)
  - Large-scale Customer Generation (LSG)
  - Customer Solar Power Systems

Ergon Energy considers that the demand management options considered above do not sufficiently address the identified need and could not be feasibly implemented to technically and economically defer the network investment required at West Toowoomba to replace the aging 11kV assets. The options considered above are not readily available on-demand, not cost effective to be implemented permanently, or are only a short-term measure. In short, the internal option of replacing the 11kV assets is the most cost-effective, reliable and safe option. Further information on these demand management options will be detailed in the Final Project Assessment Report.