Reliable Provision of Electricity to the Kilkivan Supply Area

Notice on screening for non-network options

Publication Date: 05 September 2019

Notice

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

Background

Kilkivan bulk supply substation (KILK) is an Ergon Energy site with outdoor 132kV and 66kV assets, which supplies approximately 9000 customers and 18MVA at peak load (indirectly). KILK is geographically and electrically centered between Tarong and Maryborough, 102km and 97km respectively.

KILK is supplied from Powerlink's H005 Woolooga 275/132kV substation via two 132kV feeders 764 and 765. A third 132kV feeder 7331 extends from Ergon Energy Aramara 132kV Switching Station (ARAM) to KILK 132/66kV substation.

KILK was constructed in 1969 and is an integral node within the South Burnett sub-transmission (66kV) network linking six zone substations. Under normal network configuration, KILK supplies 66/11kV zone substations Kilkivan Town (KITO), Murgon (MURG), Proston (PROS) and Woolooga (WOOL) via three 66kV feeders M008, M009 and M011.

KILK provides 66kV load transfer capability from Maryborough 132/66kV bulk supply substation (MARY), as it is able to supply 66/11kV zone substations Owanyilla (OWAN) and Gootchie (GOOT) in network contingency and maintenance scenarios.

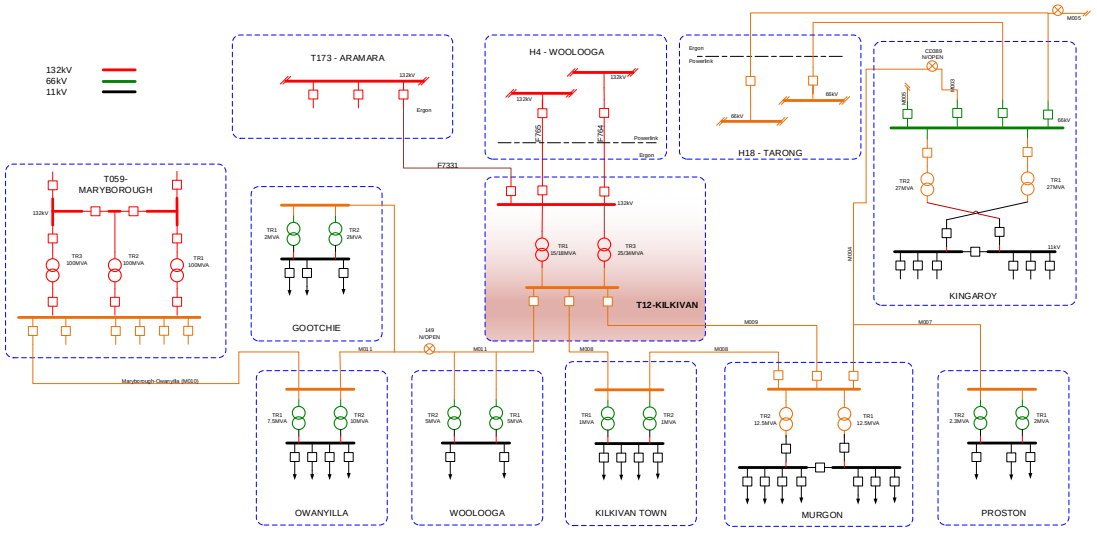

Figure 1: Kilkivan Schematic Sub-transmission Network

There is minimal forecast load growth at KILK, however, the majority of primary and secondary systems assets are approaching end of service life, with some equipment 52-56 years old. The nearby KITO zone substation was constructed in the 1950s and has a number of assets in very poor condition. The continued operation of these aging assets at KILK and KITO is expensive and uneconomical, and poses a significant challenge in maintaining a reliable supply to the distribution area.

Under its Distribution Authority (DA) Ergon Energy is responsible for electricity supply to the Kilkivan area. The DA requires that Ergon Energy must:

- comply with the Guaranteed Service Levels regime notified by the Queensland Regulator which includes reliability of supply to customers;
- plan and develop its supply network in accordance with good electricity industry practice, having regard to the value that end users of electricity place on the quality and reliability of electricity services;
- use all reasonable endeavours to ensure that it does not exceed in a financial year the Minimum Service Standards (System Average Interruption Duration Index and System Average Interruption Frequency Index limits) applicable to its feeder types; and
- ensure, to the extent reasonably practicable, that it achieves its Safety Net targets.

The primary objective of this RIT-D is to identify alternative cost-effective, reliable solutions for providing electricity to the consumers in the KILK and KITO supply areas. The key drivers requiring Ergon Energy to make further investments in the KILK and KITO supply areas are the reliability of assets that are at end of their life, environmental risk and compliance with safety and current standards. In identifying the most cost-effective solution, Ergon Energy must continue to meet its legal and regulatory requirements including the customer service standards (most notably the security and reliability of supply requirements of its DA listed above).

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 KILK and KITO supply areas in a reliable, safe and cost-effective manner. 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.

Assessment Methodologies

Ergon Energy's Intelligent Grid Systems Customer Interactions (IGSCI) 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. It must also ensure that the solution is technically and commercially viable, and delivered within the 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 Kilkivan supply area.

Demand Management (Demand Reduction)

Kilkivan (KILK)

Energy efficiency and other demand reduction measures such as power factor correction, high efficiency lighting etc. have been assessed as not technically viable as it will not address the reliability, environmental risk or standard compliance issues.

Kilkivan Town (KITO)

The customer base is largely residential and small business. Demand savings in these customer market segments are characterised by very small demand saving increments with a slow rate of uptake. The most cost-effective demand reduction measure for this market in a short timeframe could be increased utilisation of the existing load control by Ergon.

Demand Response

Demand response through customer embedded generation, call off load and load curtailment contracts have been assessed as technically not viable as:

- it will not address reliability, environmental risk or standards compliance issues at KILK and KITO substations; and
- customer types supplied from KITO substation are predominantly residential and small business with only one large customer. The demand reduction potential of these customers is not of sufficient value to be attractive enough to contract to “call off” or curtail.

Large-scale Customer Generation (LSG)

LSG sites such as renewable energy generation, solar or wind farms of multiple MW’s capacity constitute an opportunity to support zone substation investment by reducing demand on and potentially providing reactive power support for substation assets.

This option could potentially reduce future demand, but has been assessed as technically not viable as there is no known existing or proposed LSG demand response available.

Ergon Energy considers that the demand management options assessed above do not sufficiently address the identified need and could not be feasibly implemented to technically and economically defer or substitute for the network investment required at KILK. The options considered above are not readily available on-demand, not cost effective to be implemented permanently, or are only a short-term measure. Therefore the internal network option of replacing the assets is deemed to be the most cost-effective, reliable and safe solution to address the identified need.

Further information on these demand management options will be detailed in the Draft Project Assessment Report which will be published shortly on the Ergon Energy RIT-D website and the Partner Portal.

https://www.ergon.com.au/network/network-management/network-infrastructure/regulatory-test-consultations