Powerlink Queensland

Summary of Project Specification Consultation Report

31 August 2018

Addressing the secondary systems condition risks at Tarong Substation

Summary

Located approximately 130km north-west of Brisbane, Tarong Substation is a major part of the 275kV transmission backbone connecting generators to the major load centres in the south-east of the State. It also provides the major injection point for local, rural and bulk mining loads in south-west Queensland.

Several 275kV secondary systems at the Tarong Substation are reaching the end of their technical service life and are no longer supported by the manufacturer, with no spares available.

Secondary systems are the control, protection and communications equipment that are necessary to operate the transmission network and prevent damage to primary systems when adverse events occur. Under the National Electricity Rules ('the Rules'), Transmission Network Service Providers (TNSPs) are required to provide sufficient secondary systems, including redundancies, to ensure the transmission system is protected.

Powerlink is required to apply the RIT-T to this investment

This investment is driven by an obligation in the Rules, and is classified as a 'reliability corrective action' under the RIT-T.

Two credible options have been developed to address the identified need

Table 1: Summary of credible options

Option	Description	Indicative capital cost ($million, 2017/18)	Indicative average annual operating and maintenance costs ($million, 2017/18)
Base Option: Replace selected secondary systems in existing building by late 2022	Single stage replacement of selected secondary systems in free space of existing building	7.8	0.015
Option 1: Replace selected secondary systems using pre-fabricated building by late 2022	Single stage replacement of all obsolete secondary systems and associated panels, using a prefabricated building with new secondary systems equipment and wiring preinstalled. New yard cabling to bay marshalling kiosks	8.7	0.015

The Base Option reflects a conventional approach to ensuring continued compliance with the secondary systems obligations in the Rules, and has been selected to serve as a basis of comparison. Under this option, only those secondary systems that have reached their end of technical service life would be replaced, while existing support infrastructure and allied systems would remain. This has been compared with an alternative option under which all of the secondary systems are replaced using a new prefabricated building, built off-site and then installed at Tarong.

Powerlink has also considered whether non-network options could address the identified need. A non-network option that avoids replacement of the aging and obsolete secondary systems would need to replicate the support that Tarong Substation provides Powerlink in meeting its reliability obligations on an enduring basis at a cost that is lower than the network options currently under consideration.

The nature of the underlying problem (i.e. aging and obsolete secondary systems) limits the number of possible solutions that can be adopted. Powerlink is currently unaware of any technically and economically feasible non-network options.

Notwithstanding this, Powerlink welcomes submissions from potential proponents who consider that they could offer a credible non-network option that is both economically and technically feasible.

The Base Option has been identified as the preferred option

Due to the nature of the investment neither of the options considered are expected to give rise to market benefits. The difference between the options relates primarily to differences in capital costs. This is supported by the economic net present value (NPV) analysis (refer Table 2).

Table 2: NPV of options (NPV, $million 2017/18)

Option	Central Scenario NPV	Ranking
Base Option	-5.6	1
Option 1:	-6.2	2

Powerlink recommends the Base Option for the following reasons:

- least cost in capital and NPV terms
- optimised use of existing infrastructure.

Under the Base Option, work on designing the new systems would commence in early 2019, with on-site installation starting in early 2020 and final commissioning in mid-2022.

The indicative capital cost of this option is $7.8 million in 2017/18 prices.

Submissions

Powerlink welcomes written submissions on this *Project Specification Consultation Report*. Submissions are particularly sought on the credible options presented.

Submissions are due on or before Friday, 30 November 2018.

Please address submissions to:

Roger Smith
Manager Network and Alternate Solutions
Network Portfolio
Powerlink Queensland
PO Box 1193
VIRGINIA QLD 4014
Tel: (07) 3860 2328
networkassessments@powerlink.com.au

Contact us

Registered office	33 Harold St Virginia Queensland 4014 Australia
Postal address:	GPO Box 1193 Virginia Queensland 4014 Australia
Contact:	Roger Smith Manager Network and Alternate Solutions
Telephone	(+617) 3860 2328 (during business hours)
Email	networkassessments@powerlink.com.au
Internet	www.powerlink.com.au