Powerlink Queensland

Summary of Project Specification Consultation Report

28 March 2018

Addressing the secondary systems condition risks at Baralaba Substation

Summary

Aging and obsolete secondary systems at Baralaba substation require Powerlink to take action

Baralaba Substation is located in central Queensland, approximately six kilometres south east of the Baralaba township, and forms part of the network that provides electricity supply for central Queensland and the surrounding local area.

Several secondary systems at Baralaba Substation are nearing the end of their technical lives and are increasingly at risk of failure. These secondary systems are now obsolete (i.e. they are no longer supported by the manufacturer and have no spares available), or will become obsolete in the near future. This presents Powerlink with operational and compliance issues, requiring resolution.

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 adequately protected.

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

Powerlink needs to take action to address the risks associated with the aging and obsolete secondary system assets at Baralaba Substation to maintain compliance with its obligations in the Rules.

The Rules were recently changed to require all replacement investment, such as that being considered at Baralaba, to have the Regulatory Investment Test for Transmission (RIT-T) applied. Since this investment is driven by an obligation in the Rules, it is a 'reliability corrective action' under the RIT-T.

Two credible options have been identified to address the identified need

Powerlink has identified two credible network options to address the identified need, as presented in Table 1.

Table 1: Summary of credible options

Option	Description	Indicative capital cost ($million, 2017/18)	Indicative annual O&M costs ($million, 2017/18)
Base option: Full in-situ replacement	Replace obsolete secondary system panels and associated wiring within the existing secondary systems building, beginning early 2019 and completed by December 2020.	8.68	0.02
Option 1: Full replacement with prefabricated building	Replace all secondary systems using a modular prefabricated building with new secondary systems installed. Installation on site and commissioning to occur by December 2020.	7.79	0.02

A base option reflecting a 'business as usual' approach to ensuring continued compliance with the secondary systems obligations in the Rules has been identified to serve as the basis of comparison between options. The particular corridor design of the existing secondary systems panels at Baralaba Substation means that replacement of individual components within an existing panel on failure is not technically feasible, due to safety and space constraints. The 'business as usual' approach therefore involves an in situ replacement of each of the existing

panels in their entirety within the existing secondary systems building, for three bays. A temporary network bypass would be required under this option while the works are completed.

This option has then been compared with an option in which the obsolete secondary systems for three bays are replaced with new panels within a new prefabricated building, which is built off site and then installed at Baralaba.

Both of these options result in the same final outcomes for the replacement of secondary systems at Baralaba, and therefore the same on-going future maintenance costs. The difference between the options relates solely to the project delivery approach under which the replacement systems are built and installed.

Powerlink has considered the potential for non-network options to form part of the solution

Powerlink has also considered whether non-network options could address the identified need. A non-network option that avoids replacement of secondary systems would need to replicate the support that Baralaba 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.

While a standalone non-network option to meet the identified need is not likely to be economically feasible, Powerlink has identified a possible longer term network reconfiguration opportunity of bypassing Baralaba Substation which, in conjunction with a non-network option at Moura, may be able to meet the identified need on a cost effective basis.

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

Option 1 (full replacement with a prefabricated building) has been identified as the preferred option

The difference between the options relates primarily to differences in upfront capital costs. Due to the nature of the investment, neither of the credible options considered are expected to give rise to material market benefits. Also, since the overall scope of works is the same under each of the credible options, the ongoing operating and maintenance costs are expected to be similar.

Option 1 has been identified as having the lowest cost in NPV terms under all sensitivities and is therefore the preferred option under the RIT-T. By adopting a prefabricated building approach, Option 1 considerably simplifies the scope of wiring and installation works compared to the in-situ base option, and there is also no need to enact a temporary network bypass in order to undertake the replacement works. Logistics are also simplified, as there are fewer times that Powerlink would need to mobilise contractors and specialised equipment to undertake work at a remote site.

Overall, the simplified scope and logistics enable Powerlink to deliver Option 1 at a lower capital cost of $7.79 million.

Powerlink invites written 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, 22 June 2018.

Please address submissions to:

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