Powerlink Queensland

Summary of Project Specification Consultation Report

21 August 2018

Addressing the secondary systems condition risks at Palmwoods Substation

Summary

Located in the Sunshine Coast hinterland, Palmwoods Substation is approximately 18 kilometres west of Mooloolaba and is part of Powerlink's 275kV transmission network between generators and the main South East Queensland load centre. Palmwoods Substation also provides the major injection point into Ergon Energy's (part of the Energy Queensland Group) distribution network for the Sunshine Coast and north Caboolture areas.

Several secondary systems at the Palmwoods Substation are reaching the end of their technical service life and are facing obsolescence with manufacturer support and spares no longer available.

Secondary systems include the control, protection and communications equipment that operate the transmission network and prevent damage to primary systems during adverse events. 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

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

Three options have been identified to address the identified need

Table 1: Summary of credible options

Option	Description	Indicative capital cost ($million, 2017/18)	Indicative annual O&M costs ($million, 2017/18)
Base Option: Staged replacement in existing building	Replace all obsolete secondary systems using new pre-wired panels installed in free space of the existing building in two stages between 2019 and 2024.	8.1	0.198
Option 1: Single stage replacement in existing building	Replace all secondary systems using new pre-wired panels installed in free space of the existing building by mid-2021	7.2	0.190
Option 2: Single stage replacement in prefabricated building	Replace all secondary systems using a modular prefabricated building with new secondary systems installed by mid-2021	7.3	0.190

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 the basis of comparison between options. Replacement would occur in two stages in order to maximise asset life and defer investment: one completed in late 2020 and a second in late 2024.

This option has then been compared with an option in which all of the secondary systems are replaced with pre-wired panels within the existing building by mid-2021 and a third option where all of the secondary systems are replaced using a new prefabricated building, which is built off-site and then installed at Palmwoods, also by mid-2021.

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 Palmwoods Substation provides both Powerlink and Energex in meeting reliability obligations on an enduring basis at a cost lower than the network options 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 not currently aware of other credible network or non-network options that could be adopted.

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.

Option 2 has been identified as the preferred option

Due to the nature of the investment, none of the options considered, including the preferred option, are expected to give rise to market benefits. The difference between the options relates primarily to differences in capital costs and timing, which in combination have no material impact on rankings. This is supported by the NPV analysis which demonstrates only marginal variances between the options (refer to Table 2).

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

Option	Central scenario	Ranking
Base option	-5.6	3
Option 1	-5.5	1
Option 2	-5.5	2

Powerlink recommends Option 2 based on the following benefits:

- avoiding existing health and safety risks arising during implementation due to the constraints of legacy designs and architecture, under both the Base Option & Option 1
- resolving health and safety risks by avoiding the continued use of the existing secondary systems corridor panels at Palmwoods until 2024, which otherwise would remain under the Base Option
- realising moderate cost savings associated with more complex project delivery, by reducing the travel time of specialist resources to site, under the Base Option.

Under Option 2, work on prefabricating the secondary systems building will commence off-site in late 2019, with preparatory construction activities occurring on-site in mid-2020. Installation of the prefabricated secondary systems building on site will take place in late 2020 with full commissioning by July 2021.

The indicative capital cost of this option is $7.3 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, 16 November 2018.

Please address submissions to:

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