

Powerlink Queensland



Summary Project Assessment Conclusions Report

4 March 2019

Maintaining reliability of supply at Townsville South Substation

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Summary

Located approximately 11 kilometres south east of the Townsville CBD, Townsville South Substation is a major injection point into the Ergon Energy distribution network for southern and eastern Townsville, as well as a transfer point for enabling the flow of electricity between Clare to the south and Townsville to the north. Planning studies have confirmed there is an enduring need for the substation to maintain the supply of electricity in the Townsville area.

At over 40 years of age, much of the substation's primary plant is reaching the end of its technical service life and is no longer supported by the manufacturer, with few spares available.

The increasing likelihood of faults arising from the condition of Townsville South's ageing and obsolete primary plant remaining in service, places the network at risk of being unable to meet current and forecast energy demands.

Powerlink's obligations as a Transmission Network Service Provider (TNSP) require it to maintain (including repair and replace if necessary) its transmission grid to ensure the adequate, economic, reliable and safe transmission of electricity, including the ability to meet peak demand if a major element of the network was to fail.

This increased likelihood of faults combined with its TNSP obligations present Powerlink with a range of operational and safety risks, as well as compliance issues requiring resolution. Since consideration for this investment is driven by an obligation in the National Electricity Rules (the Rules), it is a 'reliability corrective action' under the Regulatory Investment Test for Transmission (RIT-T).

This Project Assessment Conclusions Report (PACR) represents the final step of the RIT-T process prescribed under the Rules undertaken by Powerlink to address the condition risks arising from ageing primary plant at Townsville South Substation. It contains the results of the planning investigation and cost-benefit analysis of credible options. In accordance with the RIT-T, the credible option that maximises the present value of net economic benefits is recommended for implementation.

Credible options considered

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

Table1: Summary of credible primary plant options

Option	Description	Indicative capital cost (\$million, 2018/19)	Indicative annual O&M costs* (\$million, 2018/19)
Base Option Staged replacement utilising live tank circuit breakers completed by 2045	Staged replacement of selected equipment in existing bays utilising live tank circuit breakers by:		0.101
	• December 2022*	4.94*	
	• December 2030†	0.99†	
	• December 2045†	4.14†	
Option 1 Staged replacement utilising dead tank circuit breakers completed by 2045	Staged replacement of selected equipment in existing bays utilising dead tank circuit breakers by:		0.084
	• December 2022*	7.77*	
	• December 2030†	1.09†	
	• December 2045†	4.86†	
Option 2 Upfront, single stage replacement utilising dead tank circuit breakers completed by 2022	Upfront, single stage replacement of selected equipment including all equipment in 7 bays utilising dead tank circuit breakers by December 2022*	10.96*	0.076

*Proposed RIT-T projects

†Modelled projects

Evaluation and conclusion

The RIT-T requires that the proposed preferred option maximises the present value of net economic benefit, or minimises the net cost, to all those who produce, consume and transport electricity in the market.

In accordance with the expedited process for this RIT-T, the Project Specification Consultation Report (PSCR), published in October 2018, made a draft recommendation to implement the Base Option, staged replacement of selected primary plant using live tank circuit breakers. The RIT-T project for the Base Option, involves the installation and commissioning of new plant by December 2022 and has an estimated capital cost of \$4.94 million in 2018/19 prices. Powerlink is the proponent of the proposed network project.

There were no submissions received in response to the PSCR.

As the outcomes of the economic analysis contained in this PACR remain unchanged from those published in the PSCR, the draft recommendation has been adopted without change as the final recommendation, and will now be implemented.



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