Powerlink Queensland

Summary of Project Assessment Conclusions Report

10 April 2019

Maintaining power transfer capability and reliability of supply at Ross Substation.

Summary

Ross Substation was first established in the 1983 and is an essential switching station for 275kV power transfer from central to north and far north Queensland, as well as the major injection point for the Townsville area distribution network. Three 275/132kV transformers provide the bulk supply of electricity to Townsville and the surrounding area via Powerlink substations at Townsville South, Millchester, Alan Sherriff, Dan Gleeson, Kidston and Yabulu South.

At over 35 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 ageing and obsolete plant at Ross Substation remaining in service, presents 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 Ross 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.

Table 1: Summary of credible options

Option	Description	Indicative project costs ($million, 2018/19)	Indicative annual average O&M costs ($million, 2018/19)
Base Option Two stage replacement of selected 132kV and 275kV primary plant by October 2038, including 16 dead tank circuit breakers	Refurbishment of selected earth switches and disconnectors by October 2024#	3.43#	0.16
	Replacement of selected primary plant by October 2024*	22.63*	
	Replacement of remaining ageing and obsolete 132kV and 275kV plant by October 2038†	10.82†	
Option 1 Two stage replacement of selected 132kV and 275kV primary plant by October 2038, including 20 dead tank circuit breakers	Refurbishment of selected earth switches and disconnectors by October 2024#	3.43#	0.16
	Replacement of selected equipment including 4 new DTBs for the SVC, transformer 4 and feeder 8858 by October 2024*	22.66*	
	Replacement of remaining ageing and obsolete 132kV and 275kV plant by October 2038†	11.45†	

Option	Description	Indicative project costs ($million, 2018/19)	Indicative annual average O&M costs ($million, 2018/19)
Option 2 Upfront replacement of all ageing and obsolete 275kV primary plant by October 2024. Two stage replacement of selected 132kV primary plant by October 2038	Upfront replacement of all ageing and obsolete 275kV plant by October 2024*	13.16*	0.14
	Replacement of selected 132kV equipment by October 2024*	11.21*	
	Replacement of remaining ageing and obsolete 132kV plant by October 2038†	2.29†	

*Proposed RIT-T project
†Modelled project

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 Option 2. Option 2 involves the upfront replacement of all ageing and obsolete 275kV primary plant and the replacement of selected 132kV equipment by October 2024. The estimated capital cost of the RIT-T project for the preferred option is $24.37 million in 2018/19 prices. Powerlink is the proponent of this 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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