Powerlink Queensland

Summary
Project Assessment Conclusions Report

4 March 2019

Maintaining reliability of supply to the Brisbane Metropolitan area

Summary

The West Darra to Rocklea and South Pine to Upper Kedron transmission lines are 110kV double circuit lines that form part of the Greater Brisbane transmission network in the Moreton transmission zone[1], with the South Pine and Rocklea Substations providing the high voltage injection points for the western part of the Greater Brisbane area. Originally commissioned in 1963 the lines consist of 68 galvanised steel lattice towers with a combined route length of 22.5 kilometres.

Under the *Electricity Act 1994*, Powerlink is required to "operate, maintain (including repair and replace if necessary) and protect its transmission grid to ensure the adequate, economic, reliable and safe transmission of electricity". The West Darra to Rocklea and South Pine to Upper Kedron transmission lines are nearing the end of their technical service lives, with the majority of structures exhibiting signs of degradation. The presence of advanced corrosion on the lines' earth wire attachment points and hardware, as well as the total loss of sacrificial galvanising to the foundation interfaces on 30% of the tower legs, have increased the risk of mechanical failure, particularly in storm and severe wind conditions. The earth wires are also not sufficiently rated to cater for the continued growth in fault levels over time.

The condition of the West Darra to Rocklea and South Pine to Upper Kedron transmission lines present Powerlink with a range of safety, reliability of supply and compliance risks requiring resolution.

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 the ageing West Darra to Rocklea and South Pine to Upper Kedron transmission lines. 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.

[1] This relates to the standard geographic definitions (zones) identified within the Powerlink's Transmission Annual Planning Report, (TAPR) which is published annually by 30 June.

Table1: Summary of credible options

Option	Description	Indicative capital cost ($million, 2018/19)	Indicative annual O&M costs ($million, 2018/19)
Base Option: Two stage refit by 2028, replacement by 2043	Repair or replace selected components, by December 2020*	4.55*	0.037
	Repair or replace selected components, including members, by December 2028†	8.47†	
	Rebuild lines by December 2043†	22.53†	
Option 1: Refit by 2020, replacement by 2043	Repair or replace selected components, including members, by December 2020*	10.25*	0.038
	Rebuild lines by December 2043†	22.53†	
Option 2: Minor refit by 2020, replacement by 2028	Repair or replace selected components, by December 2020*	4.55*	0.043
	Rebuild lines by December 2028†	22.53†	

*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 November 2018, made a draft recommendation to implement the Base Option; a two-staged refit of selected components by December 2028, with a full rebuild of the lines by December 2043. The RIT-T project for the Base Option involves the repair or replacement of selected components by December 2020 with an estimated capital cost of $4.55 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.

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