Powerlink Queensland

Summary
Project Assessment Draft Report
25 January 2019
Maintaining reliability of supply to the Rockhampton area

Summary

Overview

The Egans Hill to Rockhampton transmission line is a 132kV double circuit line commissioned in 1963 that forms part of the connection between Powerlink's Bouldercombe and Rockhampton substations. It provides a critical link into the Rockhampton Substation which is a major injection point for the Rockhampton and surrounding area distribution network.

The transmission line between Egans Hill and Rockhampton is nearing the end of its technical service life, with the majority of structures on the transmission line exhibiting signs of degradation. Specifically, loss of the galvanising on members, the onset of early corrosion to nuts, bolts and hardware, and the decay of grillage foundations, all increase the risk of mechanical failure of components of the transmission line, particularly in storm and cyclonic conditions. This presents a risk to the ongoing safe, reliable and economic supply of electricity into Rockhampton and the surrounding area.

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.

Powerlink is required to apply the RIT-T to this proposed investment, which is driven by an obligation under the Rules, and is classified as a 'reliability corrective action' under the RIT-T.

This Project Assessment Draft Report (PADR) has been prepared as part of a prescribed process under the National Electricity Rules (the Rules) for the proposed transmission investment. It contains the results of the planning investigation and cost benefit analysis of credible options.

Options considered

Powerlink published a Project Specification Consultation Report (PSCR) to Registered Participants, the Australian Energy Market Operator (AEMO) and interested parties in September 2018 with respect to maintaining reliability of supply to the Rockhampton area. The PSCR invited submissions of credible non-network options to replicate the support that the Egans Hill to Rockhampton transmission line provides both Powerlink and Ergon Energy in meeting the Rule's reliability obligations on an enduring basis.

No submissions were received in response to the PSCR that closed on 24 December 2018. As a result, no additional credible options, that could deliver a material market benefit, have been identified as a part of the PSCR Stage of this RIT-T consultation.

Powerlink proposed four credible network options in the PSCR to address the identified condition-based need on the Egans Hill to Rockhampton transmission line.

The Base Option reflects a conventional approach to ensuring continued compliance with the Rules' obligations and has been selected to serve as the basis of comparison between options. The current line would be partially refitted by 2020, maintained for 10 years and then replaced with a new line in 2030.

This option has then been compared with three other options where rebuilding of the entire line is deferred until 2044 under a number of interim strategies. This latest date for the replacement of the transmission line is determined by the expected end of technical service life of the conductors of the line.

A summary of the credible options is given in Table 1.

Table 1: Summary of credible options

Option	Description	Indicative capital cost ($million, 2018/19)	Indicative annual O&M costs ($million, 2018/19)
Base Option: Partial refit by December 2020. Rebuild by December 2030	Minimalist refit of line without painting by December 2020*	8.08*	0.112
	Rebuild entire line by December 2030†	24.85†	
Option 1: Staged life extension by December 2020 and December 2030. Rebuild by December 2044	Refit and paint northern section of the line by December 2020* Refit without painting the southern section by December 2020*	9.98*	0.071
	Minimalist refit and paint of the southern section by December 2030†	2.30†	
	Rebuild entire line by December 2044†	24.85†	
Option 2: Life extension by December 2020. Rebuild by December 2044.	Refit and paint entire line by December 2020*	12.48*	0.041
	Rebuild entire line by December 2044†	24.85†	
Option 3: Partial rebuild and life extension by December 2020. Rebuild of balance by December 2044.	Rebuild southern section of the line by December 2020* Refit and paint northern section of the line by December 2020*	14.49*	0.015
	Rebuild northern section of line by December 2044†	16.02†	

* Proposed RIT-T project
† Modelled project

Evaluation and Conclusion

The RIT-T requires that the preferred option maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the market compared to other credible options.

The difference between the options relates primarily to the timing of the investments, all of which culminate in the rebuilding of the line. Under the Base Option the entire line is rebuilt in 2030, while under Options 1 and 2, it is rebuilt by 2044. Under Option 3 the southern section is rebuilt by 2020 and the northern by 2044.

Due to the nature of the investment, none of the credible options considered, including the preferred option, are expected to give rise to material market benefits. Table 2 shows the Net Present Value (NPV) of all options.

Table 2: NPV of credible options (NPV, $m 2018/19)

Option	Central Scenario NPV	Ranking
Base option	-17.05	4
Option 1	-11.78	1
Option 2	-12.89	2
Option 3	-15.22	3

This PADR includes a draft recommendation to implement Option 1 as the preferred option based on the following:

- least cost option in NPV terms
- optimised service life of the current asset
- complete rebuild deferred until 2044.

The three-staged approach of this option also allows for a further review of the risks arising from the condition of the lines remaining in service prior to subsequent stages. This will confirm if the need for remedial action is still required at that point in time.

The indicative capital cost of the RIT-T project for the preferred option is $9.98 million in 2018/19 prices.

Powerlink will:

- review and refine the timing of subsequent stages of this option, if required, based on future condition assessments of the risks arising from these lines remaining in service
- review and realign the strategy of the anticipated subsequent stages of this option, if required, based on future network topology requirements to meet forecast demand in the Rockhampton area and
- undertake any necessary additional regulatory consultations at the appropriate time for future investments if required.

Submissions

Powerlink welcomes written submissions on this 'Project Assessment Draft Report'. Submissions are particularly sought on the credible options presented.

Submissions are due on or before Friday 15 March 2019.

Please address submissions to:

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