

Powerlink Queensland



Summary  
Project Specification Consultation Report  
22 October 2018  
Maintaining reliability of supply to the  
Brisbane Metropolitan area

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## 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<sup>1</sup>, 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 continuing growth in forecast 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.

### 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 credible options have been identified to address the identified need

The Base Option reflects a conventional replacement strategy that seeks to maximise the life of the current lines while ensuring continued compliance with the Rules and serves as the basis of comparison between options. This strategy involves a two stage refit of the existing lines by December 2028, followed by full replacement in 2043.

This has then been compared with two other credible network options.

Option 1 involves a single stage refit by December 2020, followed by replacement in 2043.

Option 2 involves a minor single stage refit of the existing lines by December 2020, followed by full replacement in 2028.

All options will provide the Brisbane metropolitan area with a reliable, cost effective supply.

Details of each option are summarised in Table 1.

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<sup>1</sup> 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.

Table 1: 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 project

† Modelled projects

Powerlink has also considered whether non-network options could address the identified need. A non-network option that avoids replacement of the ageing West Darra to Rocklea and South Pine to Upper Kedron transmission lines would need to replicate the support that these lines provide Powerlink and Energex in meeting their reliability of supply obligations on an enduring basis at a cost that is lower than the network options under consideration.

Powerlink welcomes submissions from potential proponents who consider that they could offer a credible non-network option that is both economically and technically feasible.

#### Base Option has been identified as the preferred option.

Due to the nature of the investment, none of the credible options considered are expected to give rise to material market benefits. The major differences between the options relates primarily to the timing of the capital investments, with the Base Option and Option 1 being the most favourable in net present value (NPV) terms (refer to Table 2).

As can be seen from the "Relative NPV to Base Option" column in Table 2, the difference in NPVs between Base Option and Options 1 is immaterial in comparison to the net present value of the options.

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

Option	Weighted NPV (\$m)	Ranking	Relative NPV to Base Option (\$m)
Base option	-12.46	2	-
Option 1	-12.37	1	+0.09
Option 2	-15.66	3	-3.20

Powerlink recommends the Base Option for the following reasons:

- optimised life of existing plant
- minimum upfront investment to address the risks arising from the condition of ageing assets while providing greater flexibility for future network investments.

The 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 the second stage. This will confirm 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 \$4.55 million.

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 Brisbane metropolitan 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 Specification Consultation Report*. Submissions are particularly sought on the credible options presented.

Submissions are due on or before 19 February 2019.

Please address submissions to:

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