

Powerlink Queensland



# Summary of Project Assessment Conclusions Report 21 July 2022

## Maintaining reliability of supply in the Tarong and Chinchilla local areas

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## Executive Summary

Tarong Substation was commissioned in 1982 and forms part of the 275kV backbone servicing South East Queensland as well as local loads in the Tarong and Chinchilla areas. The Tarong local area load includes auxiliary supply to Tarong Power Station. Chinchilla Substation was commissioned in 1986 to supply bulk electricity to the distribution network in the area via a double circuit 132kV transmission line from Tarong Substation.

Two 275/66/11kV transformers at Tarong Substation supply the local area load while two 275/132kV transformers provide back-up supply to Chinchilla. All four transformers at Tarong are nearing the end of their respective service lives, with recent condition assessments revealing a range of increasing network and safety risks arising from their continued operation. In addition, the fault level rating of these original transformers may be exceeded in the event of certain credible contingency events.

Chinchilla's secondary systems and the majority of its primary plant are also approaching the end of their respective technical lives. In particular, the secondary systems and circuit breakers are now obsolete and no longer supported by their manufacturers, with only limited spares available.

As planning studies have confirmed an enduring need for the supply of existing electricity services to the area, there is a requirement for Powerlink to address the emerging risks arising from the condition of the transformers and primary plant at Tarong and Chinchilla substations and secondary systems at Chinchilla Substation.

As the identified need of the proposed investment is to meet reliability and service standards specified within Powerlink's Transmission Authority and guidelines and standards published by the Australian Energy Market Operator (AEMO), and to ensure Powerlink's ongoing compliance with Schedule 5.1 of the Rules, it is classified as a 'reliability corrective action'<sup>1</sup>.

This Project Assessment Conclusions Report (PACR) represents the final step in the Regulatory Investment Test for Transmission (RIT-T) process prescribed under the National Electricity Rules (Rules) undertaken by Powerlink to address the condition risks of the transformers and primary plant at Tarong and Chinchilla substations and secondary systems at Chinchilla Substation. It contains the results of the planning investigation and the cost-benefit analysis of credible options compared to a non-credible Base Case where the emerging risks are left to increase over time. In accordance with the RIT-T, the credible option that maximises the present value of net economic benefit, or minimises the net cost, is recommended as the *preferred option*.

### Credible options considered

Powerlink has developed two credible network options to maintain the existing electricity services, ensuring a reliable, safe and cost effective supply to customers in the area. Both options retain the opportunity to allow for future growth and potential new connections in the area.

Powerlink published a Project Specification Consultation Report (PSCR) in August 2021 to address the condition risks of the transformers and primary plant at Tarong and Chinchilla substations and secondary systems at Chinchilla Substation. No submissions were received in response to the PSCR that closed on 22 November 2021. As a result, no additional credible options have been identified as a part of this RIT-T consultation.

The two credible network options, along with their NPVs relative to the Base Case are summarised in Table 1.

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<sup>1</sup> The Rules clause 5.10.2, Definitions, reliability corrective action.

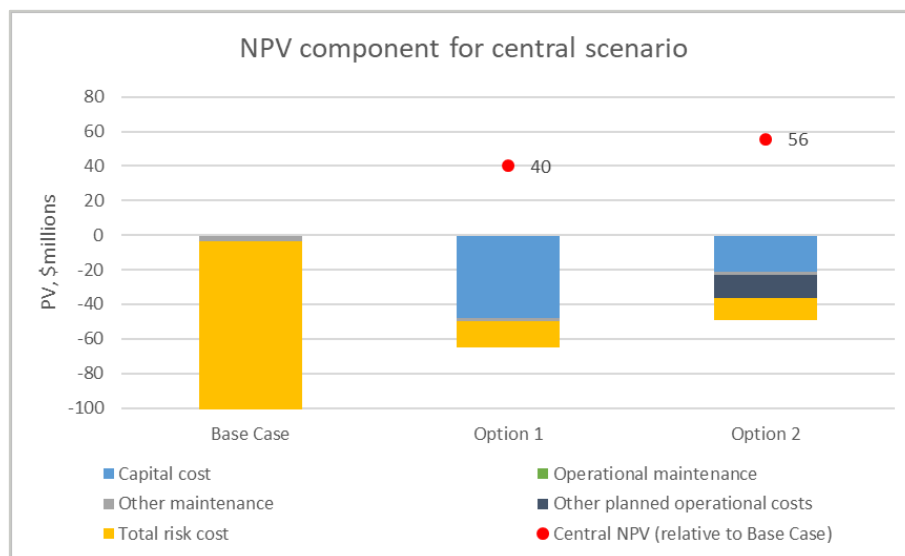
Table 1: Summary of credible options

Option	Indicative capital cost (\$million, 2020/21)	Central scenario NPV relative to base case (\$million, 2020/21)	Ranking
<b>Maintain existing network topology</b>			
Option 1:			
Replace all at-risk assets like-for-like by June 2025	42.88	40.0	2
<b>Reconfigure network topology</b>			
Option 2:			
Reconfigure Chinchilla and replace selected assets by June 2025	27.90	55.6	1

By addressing the condition risks, both options allow Powerlink to meet the identified need and continue to meet the reliability and service standards specified within Powerlink’s Transmission Authority, Schedule 5.1 or the Rules, AEMO guidelines and standards and applicable regulatory instruments.

Figure 1 illustrates the results of the economic assessment, comparing both options to the non-credible Base Case. The credible options considered significantly reduce risk cost relative to the Base Case and both result in a positive NPV relative to Base Case.

Figure 1: Net present value of Base Case and credible network options



**Evaluation and Conclusion**

The RIT-T requires that the preferred option maximises the present value of net economic benefit, or minimises the net cost, to all those who produce, consume and transport electricity. The economic analysis demonstrates that Option 2 provides the greatest net economic benefit in NPV terms and is therefore the preferred option.

In accordance with the expedited process for the RIT-T, the PSCR made a draft recommendation to implement Option 2, reconfiguring Chinchilla Substation such that supply is from the Surat Basin network, by replacing selected primary plant and secondary systems, and replacing only two of the four transformers at Tarong. The Chinchilla to Tarong transmission line will be also mothballed under Option 2, preserving the option for potential connection of renewable generation in the area should the need arise.

The indicative capital cost of the RIT-T project for the preferred option is \$27.9 million in 2020/21 prices. Under this option, design work will commence in 2023 with all work completed by 2025. Powerlink is the proponent of the proposed network project.

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 as the final recommendation, and will now be implemented.

#### Dispute Resolution

In accordance with the provisions of clause 5.16B.(a) of the NER, Registered Participants, the AEMC, Connection Applicants, Intending Participants, AEMO and interested parties may, by notice to the AER, dispute conclusions in this report in relation to:

- the application of the RIT-T,
- the basis upon which the preferred option was classified as a reliability corrective action or
- the assessment of whether the preferred option has a *material inter-regional impact* or not

Notice of a dispute must be given to the AER within 30 days of the publication date of this report. Any parties raising a dispute are also required to simultaneously provide a copy of the dispute notice to the RIT-T proponent.



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