

Powerlink Queensland



Summary
Project Specification Consultation Report
30 November 2020
Addressing the secondary systems
condition risks at Innisfail

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Summary

Ageing and obsolete secondary systems at Innisfail Substation require Powerlink to take action

Innisfail Substation is located approximately 70 kilometres south-east of Cairns in Far North Queensland (FNQ). The site was originally established in the late 1950s as part of the Kareeya Hydro Power Station project to provide electricity to coastal communities in the area. It continues today as a 132/22kV bulk supply point for Energy Queensland's distribution network for the Innisfail area. Planning studies have confirmed there is a long-term requirement to supply the existing electricity services provided by Innisfail Substation.

The secondary systems at Innisfail broadly perform the functions of transmission element protection, data collection, remote (and local) control and monitoring. Many of the current systems were installed in 2003 and are reaching the end of their technical service lives, with respective manufacturers slowly withdrawing support and limited spares available.

Increasing failure rates, along with the increased time to rectify the faults due to the obsolescence of the equipment significantly affects the availability, reliability and technical capability of these systems to continue to meet the requirements of the National Electricity Rules (the Rules).

Powerlink must therefore take action to ensure ongoing compliance with the Rules.

Powerlink is required to apply the RIT-T to this investment

The estimated capital cost of the most expensive credible option to address the identified need meets the minimum threshold to apply the RIT-T.

As the proposed investment is to meet reliability and service standards specified within Powerlink's Transmission Authority, as well as 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'¹.

The identified need has not been included in the most recent Integrated System Plan (ISP) and is therefore subject to the application and consultation process for RIT-T projects not defined as *actionable ISP projects*².

Powerlink has presented two credible network options in this Project Specification Consultation Report (PSCR) to maintain the existing electricity services, ensuring an ongoing reliable, safe and cost effective electricity services to customers in the area.

Powerlink has adopted the expedited process for non-ISP projects for this RIT-T³, as the preferred option is below \$43 million and is unlikely to result in any material market benefits, other than those arising from a reduction in involuntary load shedding. The reduction in involuntary load shedding under the credible network options is included in the risk cost modelling and consequently represented in the economic analysis of the options.

A non-credible Base Case has been developed against which to compare the credible option

Consistent with the Australian Energy Regulator's (AER's) RIT-T Application Guidelines⁴, the assessment undertaken in this PSCR compares the net present value (NPV) of the credible network options identified to address the emerging risks, relative to a Base Case.

The Base Case is modelled as a **non-credible** option where the existing condition issues associated with an asset are managed via operational maintenance only, resulting in an increase in risk levels due to deterioration of asset condition and rectification of failures taking longer due to obsolescence issues. These increasing risk levels are assigned a monetary value and added to the ongoing maintenance costs to form the Base Case.

¹ The Rules clause 5.10.2, Definitions, reliability corrective action.

² Refer to Clause 5.16.2 of the NER.

³ In accordance with clause 5.16.4(z1) of the Rules and S4.1 AER Regulatory investment test for transition application guidelines, August 2020

⁴ AER, Regulatory investment test for transmission application guidelines, August 2020

Proposed network options to address the identified need

Powerlink has developed two credible network options to maintain the existing electricity services, ensuring an ongoing reliable, safe and cost effective supply to customers in the area.

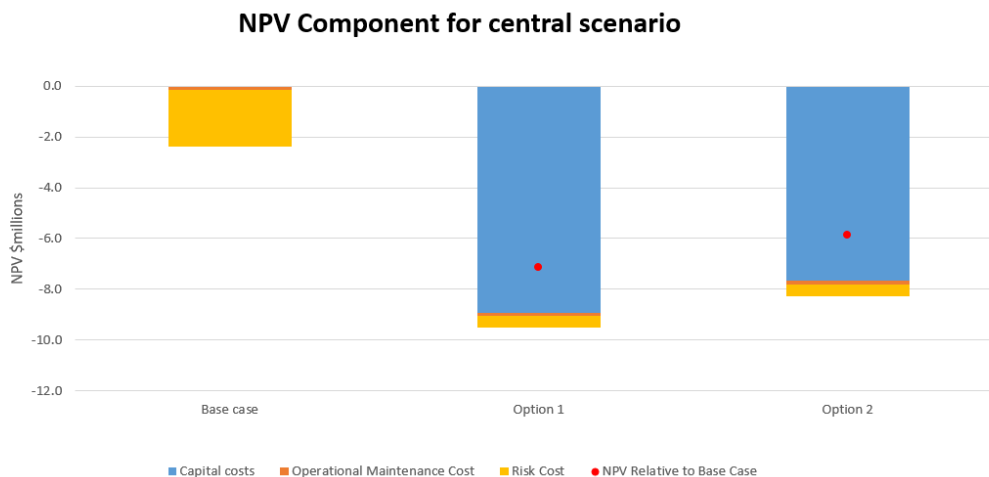
Table 1 shows the capital cost of the two credible network options, along with their NPVs relative to the Base Case. Of the two credible network options, Option 2 has the highest NPV.

Table 1: Summary of the credible network option

Option	Description	Total costs (\$m) 2020/21	NPV relative to base case (\$m) 2020/21
1	Full replacement of all secondary systems within the existing building by December 2024	12.90	-7.12
2	Full replacement of all secondary systems in a new demountable building by December 2024	11.63	-5.86

Figure 1 shows the absolute NPVs of the Base Case and the credible network options. Both credible options significantly reduce the total risks arising from the condition of the ageing and obsolete secondary systems at Innisfail Substation when compared to the Base Case.

Figure 1: NPV of Base Case and Credible Network Option



Option 2 has been identified as the preferred network option.

The Base Case is not a credible option, in that it does not allow Powerlink to continue to maintain compliance with relevant standards, applicable regulatory instruments and the Rules. As the investment is classified as a 'reliability corrective action' under the Rules, the purpose of the RIT-T is to identify the credible option that minimises the total cost to customers.

The economic analysis demonstrates that Option 2 has the highest NPV of the two credible options and is therefore the preferred option.

Option 2 involves the full replacement of all secondary systems at Innisfail substation in a new building by December 2024. The indicative capital cost of this option is \$11.63 million in 2020/21 prices. Powerlink is the proponent of this network option.

Design work will commence in 2022, with installation and commissioning of the new secondary systems completed by December 2024.

Powerlink welcomes the potential for non-network options to form part or all of the solution

Powerlink welcomes submissions from proponents who consider that they could offer a credible non-network option that is both economically and technically feasible by December 2024, on an ongoing basis.

A non-network option that avoids the proposed replacement of the ageing and obsolete secondary systems would need to replicate, in part or full, the support that Innisfail Substation delivers to customers in the area on a cost effective basis.

Lodging a submission with Powerlink

Powerlink is seeking written submissions on this Project Specification Consultation Report on or before Friday, 5 March 2021, particularly on the credible options presented⁵.

Please address submissions to:

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⁵ [Powerlink's website](#) has detailed information on the types of engagement activities, which may be undertaken during the consultation process. These activities focus on enhancing the value and outcomes of the RIT-T engagement process for customers and non-network providers.



Contact us

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