



Maintaining Reliability of Supply and Addressing Condition Risks at Ingham South

Project Specification Consultation Report



Summary

Ageing and obsolete secondary systems and primary plant at Ingham South Substation require Powerlink to take action

Ingham South Substation was established in 2005 to replace the original Ingham substation equipment and provide an injection point into the Ergon Energy (part of the Energy Queensland Group) distribution network. Planning studies have confirmed there is an enduring need for Ingham South Substation to maintain the supply of electricity to the Ingham area and meet legislative requirements.

The primary switchgear and secondary systems at Ingham South Substation have been identified as being in poor condition or at the end of their technical service lives, with identified obsolescence issues. The condition of the substation's primary switchgear – the equipment through which the electrical power passes – has significantly deteriorated, with a high number of associated defects and obsolescence issues, increasing the risk to supply in the Ingham area. The site utilises gas insulated hybrid modules for all switching bays and manufacturer support has ceased for these units and there are now limited spares available. This poses a significant risk to Powerlink's ability to undertake emergency replacement works as there is no direct like for like replacement option.

Secondary systems are the control, protection and communications equipment that are necessary to operate the transmission network and prevent damage to primary systems when adverse events occur. Many of the secondary systems at Ingham South Substation are nearing the end of their technical service lives and have become or are becoming obsolete, where they are no longer supported by the manufacturer and have only limited, or no, spares available. Under the National Electricity Rules (NER), Powerlink is required to provide sufficient secondary systems, including redundancies, to ensure the transmission system is adequately protected.

Powerlink must therefore take action to avoid the increasing likelihood of unserved energy arising from failure of the aging equipment at Ingham South substation and to ensure customers are provided with a reliable and safe supply of electricity.

Powerlink is required to apply the Regulatory Investment Test for Transmission

The estimated capital cost of the most expensive credible option to address secondary system and primary plant risks at Ingham South Substation meets the minimum threshold (currently \$8 million) to apply the Regulatory Investment Test for Transmission (RIT-T). As the identified need for the proposed investment is to meet reliability and service standards specified within Powerlink's Transmission Authority, guidelines and standards published by AEMO, and Powerlink's ongoing compliance with Schedule 5.1 of the NER, it is classified as a reliability corrective action under the NER. The identified need is not discussed in AEMO's most recent [Integrated System Plan](#) (ISP) and is therefore subject to the application and consultation process for RIT-T projects that are not actionable ISP projects. As the identified need is a reliability corrective action, the preferred option may have a net economic cost.

Powerlink will adopt the expedited process for non-ISP projects for this RIT-T, as the estimated capital cost of the preferred option is below \$54 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 consequentially represented in the economic analysis of the options.

Powerlink has developed a non-credible base case against which to compare credible options

Powerlink has modelled a non-credible option where the asset condition issues are managed via operational maintenance or operational measures only. This would result in an increase in overall risk levels due to continuing deterioration of asset condition and increasing failure rectification timeframes 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.

Powerlink has developed two credible network options to address the identified need

The table below details the credible network options and shows that both options have a negative Net Present Value (NPV) relative to the base case, as allowed for under the NER for reliability corrective actions. Of the credible network options, Option 1 has the highest NPV relative to the base case.

Summary of Credible Options

Option	Description	Total Costs (\$m, 2025)	NPV relative to base case (\$m)	Ranking
1	Replace hybrid switchgear modules in-situ with air insulated switchgear. Replace secondary systems in a new control building on existing substation platform by 2028.	25.60	-17.58	1
2	Extend substation platform and replace hybrid switchgear modules with air insulated switchgear using adjacent spare bay locations. Replace secondary systems in a new control building by 2028.	31.62	-22.10	2

Note: Total costs exclude risk and contingency.

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

To enhance engagement outcomes, Powerlink proactively applies an engagement strategy to each RIT-T consultation. The scope of engagement activities undertaken is dependent upon various considerations, such as the characteristics and complexity of the identified need and potential credible options outlined in the [RIT-T stakeholder engagement matrix](#). A non-network option that avoids the proposed replacement of the ageing assets would need to provide supply to the 66kV network of up to a peak of 22 megawatts, and up to a peak of 370 megawatt hours per day on a continuous basis. Powerlink welcomes submissions from proponents who consider they could offer a potential non-network option that is both economically and technically feasible, on an ongoing basis.

Lodging a submission with Powerlink

Powerlink seeks written submissions on this Project Specification Consultation Report (PSCR), on or before **Friday, 5 September 2025**, particularly on the credible options presented in this PSCR. Submissions should be addressed to:

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