Powerlink Queensland

# Summary of Project Specification Consultation Report

18 June 2018

## Maintaining reliability of supply to Ingham

## Executive Summary

Ingham South Substation was established in 2005 as a replacement for the original Ingham Substation. Two 132/66kV transformers connect the Powerlink substation to the Ergon Energy switchyard at Ingham supplying the local area. Both transformers are now over 50 years old, having previously been installed at other locations on the network.

The transformers are nearing the end of their technical lives, with an increasing risk of failure. The failure of a transformer can result in an extensive replacement timeframe increasing the risk of loss of supply to the local area, and in extreme cases, could present a risk to the safety of personnel and members of the public.

Planning studies have confirmed there is an enduring need for the transformer capacity to maintain the supply of electricity in the Ingham area.

The National Electricity Rules (the Rules) require Transmission Network Service Providers (TNSPs) to plan, design, operate and maintain the transmission network to allow the efficient transfer of electrical energy from producers to users. In addition, under its *Transmission Authority* and obligations set out in the *Electricity Act*, Powerlink must make appropriate investments to ensure continuity of supply.

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

Since this investment is driven by an obligation in the Rules, it is a 'reliability corrective action' under the RIT-T.

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

Powerlink has identified three credible network options to address the identified need, as presented in Table 1.

A base option reflecting a conventional approach to ensuring continued compliance with Powerlink's obligations in the Rules has been identified to serve as the basis of comparison between options. Under this option both transformers would be refitted in 2019 to extend their lives and then replaced around 2032.

This option has then been compared with the initial replacement of one transformer and refit of the second, with a subsequent need to replace the refitted transformer in 2032, and a third option in which both transformers are replaced in 2019.

**Table 1: Summary of credible options**

| Option | Description | Indicative capital cost ($m, 2017/18) |
|---|---|---|
| Base option: | Refit both T1 and T2 in 2019, then replace both T1 & T2 in 2032 | 10.5 |
| Option 1: | Replace T1 and refit T2 in 2019, then replace T2 in 2032 | 8.1 |
| Option 2: | Replace both T1 and T2 in 2019 | 5.7 |

Powerlink has also considered whether non-network options could address the identified need. A non-network option that offsets the need to replace both transformers would be required to partially replicate the support Ingham South Substation provides Powerlink in meeting its reliability obligations on an enduring basis at a cost that is lower than the network options currently under consideration.

The nature of the underlying problem (i.e. ageing assets) limits the number of possible solutions that can be adopted. Powerlink is not currently aware of other credible network or non-network options that could be adopted. Notwithstanding this assessment, Powerlink welcomes submissions from potential proponents who consider that they could offer a credible non-network option that is both economically and technically feasible.

### Option 2 has been identified as the preferred option

Due to the nature of the investment, none of the options considered, including the preferred option, are expected to give rise to market benefits. The difference between the options relates primarily to the costs of life extending the transformers, an interim measure to help offset the timing of the replacement. This is supported by the NPV analysis (Table 2 below).

**Table 2 NPV of options (NPV $m, 2017/18)**

| Option | Central scenario | Ranking |
|---|---|---|
| Base option | -4.7 | 3 |
| Option 1 | -4.5 | 2 |
| Option 2 | -4.2 | 1 |

Powerlink has elected to recommend Option 2 based on the following characteristics:

- lowest capital costs in terms of net present value of all the credible options
- lower risk to electricity supply compared to the base option and Option 1 which both rely upon an ageing asset as the sole source of supply during the refit process
- simplified planning, design and implementation as there is no need to support two different transformer configurations, which would be required under the base option and Option 1 and
- simplified project delivery, by avoiding multiple mobilisations of specialist resources for staged projects, which would be required under both the base option and Option 1.

Under Option 2, preparatory construction activities would occur on site early in 2019 to provide for installation of the two transformers in late 2019 with completion of the project in December 2019. The indicative capital cost of this option is $5.7 million in 2017/18 prices.

### 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 Wednesday, 12 September 2018.

Please address submissions to:

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