

# 2023-27

# POWERLINK QUEENSLAND REVENUE PROPOSAL

## Appendix 5.07 – PUBLIC

### Contingent Projects

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## 1. Purpose

Our Revenue Proposal may include proposed contingent capital expenditure which we consider is reasonably required for the purpose of undertaking proposed contingent projects<sup>1</sup>.

This Appendix presents our single proposed contingent project for the 2023-27 regulatory period.

### 1.2 Regulatory requirements

Consistent with clause 6A.8.1(b) of the Rules, the Australian Energy Regulator (AER) must accept proposed contingent projects where it is satisfied that:

- the proposed expenditure is not otherwise provided for (either in part or in whole) in the total of the forecast capital expenditure for the relevant regulatory period;
- the proposed expenditure reasonably reflects the capital expenditure criteria;
- the proposed expenditure exceeds either \$30m or 5% of the value of the maximum allowed revenue (MAR) for the first year of the regulatory period, whichever is the larger amount;
- the proposed contingent projects are reasonably required to be undertaken in order to achieve the capital expenditure objectives; and
- the trigger events for the proposed contingent projects are appropriate.

### 1.3 Approach to contingent projects

Contingent projects are those which are significant, may arise in the period, but not yet committed and not provided for in the capital expenditure forecast for the relevant regulatory period. Such projects are linked to unique investment drivers such as a major point load rather than to general investment drivers (such as expectations of load growth within a region).

Our 2020 Transmission Annual Planning Report identified several proposals for large mining, metal processing and other industrial loads whose development status is not yet at the stage that they have been included in Australian Energy Market Operator's (AEMO's) 2020 Electricity Statement of Opportunities (ESOO) Central scenario forecast. These loads have the potential to significantly impact the performance of the transmission system supplying these areas, including power flows reaching the secure limits of the transmission network.

Those projects we consider as being probable or plausible to occur by 2027 are potential contingent projects<sup>2</sup>. We have defined plausible and probable as follows:

- Probable – the project has received required state/federal approvals (where applicable). It has the resources in place to proceed but is not publicly considered a committed project. There may be some speculation around the date of commencement.
- Plausible – the project may not have received final state and/or federal approvals but it has completed preliminary investigations and reports. There is likely some media attention

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<sup>1</sup> National Electricity Rules, clause 6A.8.1(a)

<sup>2</sup> The Rules require the occurrence of a contingent project trigger to be probable during the regulatory period. Our definitions of probable and plausible for a development project are consistent with it being probable that the trigger event could occur during the regulatory period. This is the same criteria that we applied in our 2018-22 Revenue Proposal which was accepted by the AER.

surrounding the progress of the project. If the project gains momentum it is within reason that it could be operating before 2027.

Table 1.1 summarises those potential new large loads that we have considered as being Probable or Plausible.

Table 1.1: Probable or Plausible potential new large loads

Connection Zone	Description	Possible load
Ross	Connection to North West Minerals Province (Mt Isa)	Up to 350 MW
North	New coal mining load (northern Galilee Basin area) and associated port expansion	Up to 300 MW

We have analysed the impact of these projects on power transfers and assessed the adequacy of the network capability to meet the required needs. Where the capability of the prescribed network is forecast to be exceeded due to the changed needs the expected network developments that could be required to meet those needs have been identified. Where the estimated cost of the expected network development exceeds the contingent project cost threshold the project is proposed as a contingent project.

By definition, it is not possible to completely define the scope of proposed contingent projects at this early stage. Therefore, the proposed contingent projects are described by the most likely network development at the trigger level (the event which will result in a transmission network project of value in excess of the contingent project threshold). Detailed planning analyses, project scopes, cost estimates and Regulatory Investment Test for Transmission (RIT-T) consultation will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event for a proposed contingent project occur during the 2023-27 regulatory period.

Powerlink's proposed MAR for the first year of the next regulatory period (2022/23) is \$689.7m (refer to Table 11.8 of our 2023-27 Revenue Proposal). Five percent of the MAR is \$34.5m, which makes this amount the threshold for a contingent project for the purpose of Powerlink's Revenue Proposal. Table 1.2 summarises the indicative costs of the contingent project detailed in this Appendix.

Table 1.2: Indicative cost of contingent projects (\$m, real, 2021/22)

Project name	Indicative cost* \$m
Central to North Queensland reinforcement	52.3

\*Indicative cost is based on the expected network solution. The actual scope will be determined through a RIT-T should the trigger eventuate. There is also expected to be a small incremental increase in operating expenditure.

## 2. Central to North Queensland Reinforcement

**Category:** Augmentation

**Indicative cost:** \$52.3m

### 2.1 Project overview

This proposed contingent project comprises the stringing of the second circuit of an existing double circuit line between Stanwell and Broadsound that currently has only one side strung.

Powerlink considers that the project should be accepted as a contingent project for the 2023-27 regulatory period due to the uncertainty about the trigger event occurring and the scope and cost of the project required to maintain reliability of supply.

### 2.2 Background

The Central West and North Queensland zones are areas where significant increases in the demand and energy are plausible during the 2023-27 regulatory period. The most significant sources for this increased load include, but may not be limited to, development of the Copperstring transmission project to connect Mt Isa and the North West Minerals province to the National Electricity Market, and development of large scale coal mines in the northern Galilee Basin and associated rail and port infrastructure.

Power transfer capability into northern Queensland is limited by thermal ratings or voltage stability limitations, depending on prevailing weather conditions and scheduled generation. Thermal limitations may occur on the Bouldercombe to Broadsound 275kV line following a critical contingency of a Stanwell to Broadsound 275kV circuit. Voltage stability limitations may occur following the trip of the Townsville gas turbine or following a contingency of a Stanwell to Broadsound 275kV circuit. The existing 275kV network between Bouldercombe and Broadsound / Lilyvale is shown in Figure 2.1.

Figure 2.1: Bouldercombe and Broadsound / Lilyvale network



As demand increases in northern Queensland transmission congestion may occur, requiring northern Queensland generators to be constrained on. Network analysis has identified that additional load north of Bouldercombe in excess of 90 MW above AEMO's 2020 ESOC Central Scenario demand forecast will result in network congestion between Central Queensland and North Queensland that will require dispatch of additional, out-of-merit-order generation in North Queensland. As generation costs are higher in northern Queensland, due to reliance on liquid fuels, it may be economic to advance the timing of augmentation to deliver positive net market benefits. The additional load in northern Queensland that would justify the network augmentation in preference to continued network support is between 250 MW and 380 MW. The lower bound assumes the out-of-merit-order generation is predominantly liquid fuelled at approximately \$450/MWh, while the upper bound assumes up to 240 MW of gas-fired generation is available at approximately \$60/MWh.

### 2.3 Contingent capital expenditure

The proposed contingent project is estimated to cost \$52.3m (real, 2021/22) or \$57.2m (nominal).

This estimate is based on stringing the second side of an existing 275kV double circuit steel tower line between Stanwell and Broadsound Substations and has been developed in the same manner as other elements of our forecast capital expenditure. It reasonably reflects the capital expenditure criteria, as discussed in Appendix 5.01 Operating and Capital Expenditure Criteria and Factors.

The forecast capital expenditure in our Revenue Proposal does not include any allowance for projects that overlap in scope with this proposed contingent project.

By definition, it is not possible to completely define the scope of proposed contingent projects at this early stage. Detailed planning analyses, project scopes and cost estimates will be required before any amendment to the revenue determination is considered by the AER should the specified trigger event for a proposed contingent project occur during the 2023-27 regulatory period.

The estimated net contingent capital expenditure exceeds the contingent project threshold of \$34.5m (nominal).

### 2.4 Project requirement

A proposed contingent project must be reasonably required to be undertaken to achieve any of the capital expenditure objectives<sup>3</sup>.

Connection of new or additional loads in the northern Galilee Basin or the North West Minerals province is expected to add load to a level that will require increasing reliance on more expensive generation in northern Queensland to maintain a reliable electricity supply. Undertaking the proposed contingent project will reduce the reliance on this more expensive generation. If the reduction in generation costs exceeds the cost of the proposed contingent project there will be positive net market benefits.

If the trigger event occurs the proposed contingent project would be reasonably required to meet the Rules capital expenditure objectives to efficiently meet expected demand for prescribed transmission services, comply with all applicable regulatory obligations associated

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<sup>3</sup> National Electricity Rules, clause 6A.8.1(b)(1).

with the provision of prescribed transmission services and maintain the quality, reliability and security of supply of prescribed services.

## 2.5 Trigger event

Network analysis indicates that additional load in excess of at least an additional 250 MW connected to the Central West and/or North Queensland zones is required to trigger the proposed contingent project.

### ***Copperstring / North West Minerals Province***

The Copperstring transmission project proposes to connect Mt Isa and the North West Minerals Province to the NEM at a new substation south of our existing Ross Substation. One of the key benefits of the Copperstring project is to allow the North West Minerals Province to access cheaper electricity from the NEM and not rely on more expensive local generation in Mt Isa. As a result the Copperstring project could result in immediate additional demand of up to 350 MW to be supplied from our transmission network in North Queensland. In addition, there is up to 100 MW of demand that is currently not connected to the Mt Isa grid and supplied from stand-alone power stations that could rapidly connect once Mt Isa is connected to the NEM.

### ***Galilee Basin / Abbot Point***

The Galilee Basin, 320 – 450 km west of Mackay and Rockhampton, is the last remaining major coal province yet to be developed in Queensland. It is also an emerging asset with many significant energy related proposals including multiple coal mines, underground coal gasification, and oil and gas exploration.

Mining proponents in the northern Galilee Basin are proposing to develop several large scale coal mines, which would result in a substantial increase in electricity demand. The proposed mines include:

- Carmichael Coal and Rail Project (Bravus);
- Alpha Coal Project (joint venture GVK and Hancock Prospecting Pty Ltd);
- Kevin's Corner Mine (joint venture GVK and Hancock Prospecting Pty Ltd); and
- China First Project (Waratah Coal).

The Carmichael Coal and Rail project could demand up to 200 MW of supply from the transmission network from a connection to Powerlink's Strathmore Substation near Collinsville. This is the most advanced of the proposed new mine developments and early construction works on the rail corridor have already commenced<sup>4</sup>. The Queensland Department of State Development notes that, as at 1 October 2020, both of the outstanding environmental approvals have now been met and all but one of the other key milestones have also been met<sup>5</sup>.

In addition to the Carmichael Coal and Rail Project, expansion of the Abbot Point port facility could add up to a further 100 MW of demand.

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<sup>4</sup> Bravus Mining & Resources, Bravus <https://www.bravus.com.au/bravus-begins-laying-200km-australian-made-railway/>

<sup>5</sup> Adani Outstanding Approvals Milestones Reached, Queensland Government [https://www.statedevelopment.qld.gov.au/\\_data/assets/pdf\\_file/0021/22656/adani-outstanding-approvals-milestones-reached-01-10-2020.pdf](https://www.statedevelopment.qld.gov.au/_data/assets/pdf_file/0021/22656/adani-outstanding-approvals-milestones-reached-01-10-2020.pdf)

A summary of the plausible and probable load developments that make up the load trigger for this proposed contingent project is presented in Table 2.1.

Table 2.1: Plausible and Probable load developments

Connection Zone	Description	Possible load
Ross	Connection to North West Minerals Province (Mt Isa)	Up to 350 MW*
North	New coal mining load (northern Galilee Basin area) and associated port expansion	Up to 300 MW

\* Up to an additional 100 MW of demand that is currently not connected to the Mt Isa grid and supplied from stand-alone power stations could rapidly connect once Mt Isa is connected to the NEM.

These plausible and probable load developments would increase the required power transfers between Central Queensland and North Queensland beyond the limits of the existing transmission network.

Powerlink proposes the following trigger events:

- commitment of additional load in excess of 250 MW to be connected to the Central West and/or North Queensland zones that requires the dispatch of higher cost generation in northern Queensland to maintain power transfers within limits<sup>6</sup>;
- successful completion of the RIT-T, including a comprehensive assessment of credible options, that demonstrates a network investment by Powerlink maximises the net market benefits while meeting Powerlink's reliability of supply obligations to North Queensland; and
- Powerlink Board commitment to proceed with the project subject to the AER amending Powerlink's 2023-27 revenue determination pursuant to the Rules.

These triggers are appropriate in relation to the proposed contingent project in that they:

- are specific and capable of objective verification and are all that is required for the revenue determination to be amended;
- are of a nature that if they occur the undertaking of the proposed contingent project is reasonably necessary to achieve the capital expenditure objectives;
- relate to a specific location or locations on the transmission network and not the transmission network as a whole; and
- are probable but too uncertain to include the proposed contingent project in the capital expenditure forecast.

<sup>6</sup> That is, "out-of-merit" generation either through network support arrangements or constrained / directed on by AEMO.

## 2.6 Demonstration of Rules compliance

Powerlink considers that the project should be accepted as a contingent project for the 2023-27 regulatory period as it is:

- not otherwise provided for in the total forecast capital expenditure as set out in Section 2.3;
- reasonably reflects the capital expenditure criteria as set out in Section 2.3, noting that the costs are an estimate at this time;
- exceeds the contingent project threshold as set out in Section 2.3;
- is reasonably required to achieve the capital expenditure objectives as set out in Section 2.4; and
- has an appropriately defined trigger event as set out in Section 2.5.