



Ref. A5238344

19 September 2023

Dr Kris Funston
Executive General Manager, Network Regulation
Australian Energy Regulator
Level 27, 135 King St
SYDNEY NSW 2000

Dear Dr Funston,

NETWORK SUPPORT PASS THROUGH APPLICATION FOR 2022/23

Powerlink Queensland (Powerlink) submits this application for a network support pass through amount of \$774,541 (or \$866,339 after adjusting for the time value of money) for the regulatory year ending 30 June 2023. We seek the Australian Energy Regulator's (AER's) approval to recover these costs from transmission users via prescribed transmission prices in 2024/25.

We incurred these costs in 2022/23 to meet the power system security requirements identified in the Australian Energy Market Operator's (AEMO's) *2021 System Security Reports: System Strength, Inertia and NSCAS* and *Update to 2021 System Security Reports* (Reports), published on 17 December 2021 and 11 May 2022, respectively (that is, the trigger for the positive network support event). The Reports declared:

- an immediate system strength shortfall of up to 90 megavolt-amperes (MVA) at the Gin Gin fault level node, to be addressed by 31 March 2023; and
- a Network Support and Control Ancillary Services (NSCAS) gap in southern Queensland of up to 250 megavolt-amperes reactive (MVA_r), to be addressed immediately.

To ensure system security services were in place to meet these requirements in reasonable timeframes, Powerlink incurred costs in 2022/23 that comprise:

- the short-term solution where Powerlink entered into an agreement with CleanCo Queensland (CleanCo) to provide NSCAS from 1 January 2023 through use of one of its generation assets in south-east Queensland to address the gap in reactive power absorption;

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- administrative costs associated with the planning and assessment of network support arrangements; and
- legal costs associated with the implementation of network support contracts.

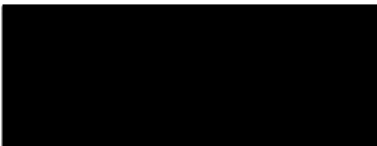
We consider the payments to CleanCo constitute network support payments under the National Electricity Rules (Rules). The administrative and legal costs claimed by Powerlink are the actual costs incurred solely as a consequence of the network support event. Therefore, we consider it appropriate to include these costs as part of the network support pass through amount.

We are yet to finalise the outcome of the assessment to fill the system strength shortfall at the Gin Gin fault level node. We continue to engage with AEMO on our proposed approach to address this shortfall, for which it provided in-principle support in April 2023.

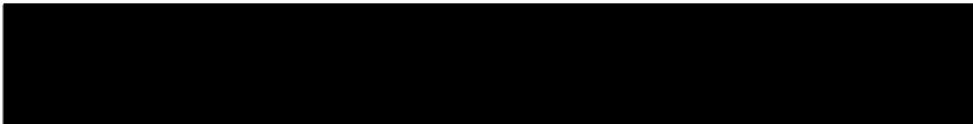
This application (see attachment) is consistent with clause 6A.7.2 of the Rules and the AER's *Procedural Guideline for Preparing a Transmission Network Support Pass Through Application* (the Guideline). The relevant calculations are contained in a separate confidential spreadsheet (**Confidential Attachment 1**) that accompanies this application, consistent with the Guideline's reporting template.

Please contact Jennifer Harris if you have any questions regarding our application.

Yours sincerely,



Jacqueline Bridge
EXECUTIVE GENERAL MANAGER, ENERGY FUTURES



ATTACHMENT

Powerlink Network Support Pass Through Application Information Requirements for the Year Ended 30 June 2023

(1) Network support payment allowance

The AER's Revenue Determination for the 2023–27 regulatory period provided us with a network support allowance of zero for 2022/23.

(2) Actual network support expenditure

Powerlink's total actual expenditure on network support services during 2022/23 was \$774,541. This comprised:

- payments to CleanCo to operate during times of reactive power shortfall from 1 January 2023 through use of an existing generation asset in south-east Queensland. This formed part of a short-term solution to address the NSCAS gap identified by AEMO;
- the reimbursement of costs incurred by CleanCo associated with modifications to protection system settings to enable increased reactive power absorption;
- administrative costs associated with the planning and assessment of network support arrangements for the system strength shortfall at the Gin Gin fault level node and the NSCAS gap in southern Queensland. These included labour costs associated with Powerlink employees and externally contracted resources; and
- external legal costs associated with the implementation of network support contracts.

The administrative and legal costs claimed by Powerlink are the actual costs incurred solely as a consequence of the network support event. Therefore, we consider it appropriate to include these costs as part of the network support pass through amount based on application requirements outlined in the AER's Guideline and the Rules.

(3) Network support pass through amount, including time cost of money calculations

A positive network support event was triggered in 2021/22, which resulted in actual costs to us of \$774,541 incurred in 2022/23. The positive pass through amount for 2024/25 is \$866,339, based on an adjustment for the time value of money that reflects our allowed rate of return. We propose to recover this amount from transmission network users via prescribed transmission prices for 2024/25, consistent with cost recovery arrangements under clause 6A.7.2(c)(2) of the Rules.

(4) Reasons for variation

The variation in expenditure from our network support allowance of zero in the 2023–27 regulatory period reflects the requirements for network support payments triggered by the Reports published by AEMO on 17 December 2021 and 11 May 2022 under clauses 5.20.3 and 5.20.7 of the Rules. The Reports declared:

- an immediate system strength shortfall of up to 90 MVA at the Gin Gin fault level node, to be addressed by 31 March 2023; and
- a NSCAS gap in southern Queensland of up to 250 MVAR, to be addressed immediately.

As the Transmission Network Service Provider and System Strength Service Provider for Queensland, we have responsibility to resolve a fault level shortfall or NSCAS gap efficiently and within the timeframe specified by AEMO.

On 19 May 2022, we commenced an Expression of Interest (EOI) process for:

- short and long-term non-network solutions to address the system strength shortfall; and
- short-term non-network solutions to address the NSCAS gap.

This difference in treatment in the EOI reflects the progress of the *Managing Voltages in South-East Queensland* Regulatory Investment Test for Transmission (RIT-T), which seeks to address NSCAS requirements in the longer term. As the Project Specification Consultation Report published in July 2021 had identified solutions capable of implementation from late 2023, the EOI only focused on fulfilment of requirements in the short-term.

As part of the engagement process for the EOI:

- AEMO issued a Market Communication Notice to all National Electricity Market participants on Powerlink's behalf on 19 May 2022;
- Powerlink emailed around 50 individual contacts on its Non-Network Engagement Stakeholder Register on 19 May 2022; and
- at their request, Powerlink undertook six pre-submission meetings with interested parties to ensure they understood the EOI requirements.

System Strength Shortfall at Gin Gin Node

Powerlink received five responses by the EOI's closing date of 24 June 2022. These responses proposed eight different possible solutions to address the system strength shortfall. Parties offered various combinations of new installations, including pumped storage hydroelectric systems, synchronous generators, plant conversions to hybrid facilities and batteries with grid-forming inverters.

Five of the eight proposed non-network solutions were not subjected to a more detailed assessment as they were:

- unlikely to be delivered before 2030;
- withdrawn by the proponent after the EOI closed;
- unable to meet the technical need; or
- an uncommitted greenfield project and therefore subject to considerable deliverability uncertainty.

Powerlink considered the remaining three non-network solutions against a counterfactual network solution for Powerlink to install a synchronous condenser in central or north Queensland, with services available from mid-2028 at the earliest.

Only one of the proposed non-network solutions was able to commence operation by the date requested by AEMO (31 March 2023), with the two other non-network solutions expected to be available by mid-2025. A technical assessment of the former solution showed it did not offer a material increase in system strength at the Gin Gin node. We therefore did not consider that proposal further.

The two non-network solutions capable of delivery by mid-2025 and the network solution were assessed against the following criteria:

- the estimated total cost of the solution, measured as a net present value over 20 years;
- deliverability considerations, such as whether the solution was already connected to the network and the delivery lead time for any new equipment;
- the technical capability to provide system strength at the Gin Gin node; and

- relevant operability considerations, including actions required by Powerlink’s control room.

The preferred option from this assessment was the modification of an existing generating system in northern Queensland by mid-2025. This solution offered the most reasonable balance of cost, technical capability and operability of all options that should fully address the declared system strength shortfall. Further details on Powerlink’s options assessment are included in **Confidential Attachment 2**.

In April 2023, AEMO provided in-principle support for Powerlink’s proposed two-stage approach, pending final design specifications (**Confidential Attachment 3**). In the absence of credible alternatives before mid-2025, it considered operational measures were sufficient to manage the declared system strength shortfall in the interim while the longer-term measure is delivered.

Powerlink has not yet entered into a contract for this service. We anticipate a contract will be signed by 31 December 2023, and costs associated with this contract will be included in an additional network support pass through application for 2023/24. Our 2022/23 application contains only as-incurred administrative and legal costs associated with the planning and assessment of network support arrangements for the Gin Gin system strength shortfall.

NSCAS Gap in Southern Queensland

We received four responses by the EOI’s closing date of 24 June 2022.

Three proposals involved the installation of Battery Energy Storage Systems (BESS) at various locations in Queensland, with operational commencement dates of between late 2024 to mid-2026. As these proposals were uncommitted and could not meet the immediate need, they were not progressed to the detailed assessment stage. Powerlink invited the three BESS proponents to make a submission in response to the Project Assessment Draft Report for the RIT-T to address reactive power absorption requirements in the longer term.

CleanCo’s proposal, which included several options, was available within the necessary timeframe and therefore considered in the detailed assessment. Powerlink progressed three of CleanCo’s options for assessment that reflected differences in:

- the number of generating units made available to provide reactive power absorption services;
- the times during which reactive power capability would be made available; and
- whether line switching¹ was included as a supplementary solution to reduce the reactive power gap by up to a further 70 MVAR by removing reactive power generation associated with up to two 275 kV transmission lines.

Powerlink’s assessment framework considered the three options against the following criteria:

- the estimated annual cost for the 2023 calendar year;
- the technical capability to provide reactive power absorption; and
- relevant operability considerations, including actions required by Powerlink’s control room.

¹ Following discussions with AEMO, we considered line switching was not an appropriate first response to address over-voltage issues, but could be a supplementary solution if the reactive support from a single generating unit was insufficient to maintain voltages within required limits.

The preferred option included the use of line switching as a back-up strategy to meet any remaining gap, which we expected to be required only rarely. AEMO also indicated its control room could take additional actions as required if the reactive support provided by a single generating unit and line switching were insufficient to address voltage issues. Further details on Powerlink's options assessment are included in **Confidential Attachment 2**.

Powerlink published its Final Report on outcomes from the EOI process to address the reactive power absorption gap in December 2022.² In April 2023, AEMO confirmed to Powerlink that it considers the short-term solution, including reliance on existing operational measures if required, is sufficient to address the declared NSCAS gap until January 2024 (**Confidential Attachment 4**).

Under a commitment letter and subsequent agreement between Powerlink and CleanCo, CleanCo has made NSCAS available to Powerlink since 1 January 2023.

(5) Verification of actual network support expenditure

The Queensland Audit Office (QAO) has reviewed our actual network support expenditure for 2022/23. A copy of the QAO's review opinion is included in this application (**Confidential Attachment 5**). The QAO is an independent organisation with appropriately qualified expertise.

(6) Date network support pass through application submitted to the AER

Powerlink's application is dated 19 September 2023, which is within 60 business days of the end of the 2022/23 regulatory year, as required under clause 6A.7.2(c) of the Rules.

(7) Details on contractual arrangements

Powerlink and CleanCo executed a commitment letter on 3 January 2023, which allowed for the interim provision of services from 1 January 2023 until the execution of a final Network Support Agreement (NSA). On 14 March 2023, Powerlink entered into a NSA with CleanCo to provide NSCAS between 1 January 2023 and 31 January 2024, with an option for a 12-month extension. Under this contract, Powerlink pays CleanCo a monthly availability payment as well as usage costs if AEMO instructs CleanCo to operate its asset during times of a reactive power absorption shortfall. By the end of January 2024, Powerlink will reassess the NSA in light of outcomes from Powerlink's *Managing Voltages in South-East Queensland* RIT-T process that seeks a longer-term solution to reactive power absorption in southern Queensland.

As the contractual arrangements with CleanCo extend into 2023/24, we expect to submit another network support pass through application for 2023/24. We also expect to include network support payments in relation to the preferred option to address the system strength shortfall at the Gin Gin node in future network support pass through applications.

(8) Details of Powerlink's decisions that may have affected the magnitude of the network support event

Powerlink acted promptly following AEMO's May 2022 updates to its declarations of a system strength shortfall and NSCAS gap to seek proposals from market participants that could address both short and long-term non-network solutions. The EOI process, which

² *Request for Power System Security Services in Central, Southern and Broader Queensland regions – Final Report, Part 1: Network Support and Control Ancillary Services* is available from: <https://www.powerlink.com.au/sites/default/files/2022-12/Final%20Report%20-%20Part%201.pdf>.

closed on 24 June 2022, identified technically and commercially feasible non-network solutions to address power system security requirements in timeframes to meet AEMO's requirements.