



Ref.

2 August 2024

Ms Merryn York
Executive General Manager, System Design
Australian Energy Market Operator
GPO Box 2008
MELBOURNE VIC 3001

By email: 2024_security_consultations@aemo.com.au.

Dear Ms York,

AMENDMENTS TO NSCAS DESCRIPTION AND QUANTITY PROCEDURE & INERTIA REQUIREMENTS METHODOLOGY

Powerlink Queensland welcomes the opportunity to comment on the Australian Energy Market Operator's (AEMO's) proposed amendments to the Network Support and Control Ancillary Service (NSCAS) Description and Quantity Procedure, and Amendments to the Inertia Requirements Methodology.

Powerlink wishes to provide input on three aspects of AEMO's proposed amendments to the NSCAS procedure and inertia methodology:

- The proposed method for quantifying NSCAS needs and gaps for inertia and system strength;
- Whether NSCAS studies should consider 'system typical' cases to recognise the impact of outages of certain critical equipment, and the proposed definition of system typical configurations; and
- Methodology improvement related to redispatch assumptions and credible events leading to island formation.

Method for quantifying NSCAS needs and gaps for inertia and system strength

Powerlink welcomes AEMO's intention to describe the process for determining the location and quantity of inertia network and system strength services required to meet an NSCAS need for those services. Under the *Efficient Management of System Strength on the Power System Rule*, Powerlink is applying the Regulatory Investment Test for Transmission (RIT-T) to address system strength requirements in Queensland from December 2025. The Project Specification Consultation Report (p. 19) for the RIT-T states that Powerlink intends to plan for the annual availability of the (overall) preferred solution to meet system strength requirements 99% of the time. This approach aligns with AEMO's established practice for declaring shortfalls in system security services based on the 99th percentile of service availability. Powerlink is also required to respond to a declared inertia shortfall in Queensland of 1,660 megawatt seconds from 2027/28 (see AEMO 2023 Inertia Report, p. 3).

AEMO proposes to increase the threshold for inertia (currently the 84th percentile) and system strength to the 99.7th percentile, and indicates this change would more efficiently meet the National Electricity Objective and the intent of the planning frameworks. Powerlink anticipates that the change would increase the magnitude and frequency of shortfall declarations and wonders how the anticipated costs and benefits to consumers of increasing the threshold, compare to directing to secure an additional service if and when required.

Whether NSCAS studies should consider system typical cases, and the definition of system typical

Powerlink acknowledges AEMO's concern that forecasting NSCAS gaps based on system normal configurations can be problematic given system normal rarely occurs in real time operation, and welcomes the definition of system typical to provide better representation of real time operation. In terms of the proposed definition of system typical, historical unavailability of critical plant may not always be an indicator of future operation. Powerlink recommend that AEMO seek advice from Transmission Network Service Providers (TNSPs) on typical plant availability and planned outages which may have an impact on system security. System typical will be challenging to forecast and Powerlink considers that TNSPs would have information that could help inform future system typical configurations; for example, high maintenance requirements for ageing assets leading to an increase in planned outages, or longer-term outages planned to facilitate conductor restringing and/or life extension works. We would welcome the opportunity to advise AEMO on anticipated system typical arrangements.

When AEMO is considering whether an NSCAS gap exists, AEMO should consider what services are required to resecure the power system after a credible contingency from the system normal state (this is what Powerlink would consider as its planning obligation). This would provide a level of capacity whereby under a prior outage there would be sufficient services for at least the power system to fall to a satisfactory state following a credible contingency coincident with the prior outage. To resecure from here AEMO would need to direct. This would provide a level of coverage anticipated to be prudent under more typical system conditions.

Powerlink also considers there should be alignment between the network assumptions made for the analysis done by the TNSP to determine the magnitude and timing of the investment/s, and the analysis by AEMO to identify any subsequent gaps. This extends to not only the assumptions regarding prior outage of transmission elements but also the confidence interval if a probabilistic approach is also employed when making the 'planning' investment decision.

Methodology improvement related to redispatch assumptions and credible events leading to island formation

Powerlink agree with AEMO's concern that forecasting the generating units output level is difficult and that the output level impacts the contingency size and therefore the secure level of inertia that may need to be secured.

When AEMO make this assessment Powerlink urge that only plausible system conditions and dispatch patterns are considered. As described above when discussing the merit of increasing the threshold for inertia (to 99.7th percentile), AEMO still has the option of directions (the cost of which would be probability weighted) in lieu of making more conservative assumptions which has the impact of directly increasing the procurement costs of these inertia services.

Powerlink makes the same recommendation for when AEMO considers the maximum contingency size when there is a credible risk of separation. In this instance, the pre contingency transfer impacts the level of inertia required to land *satisfactory*. Given the risk of separation is *credible*, AEMO has the option of reducing the transfer across the vulnerable link and reduce the contingency size.

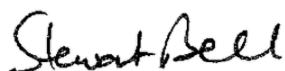
General comments to the Inertia requirements Methodology

Figure 1 in Section 2.2 (Satisfactory inertia level) states that "if there is a sub-network islanding risk ... the Inertia Service Provider must make network services available to meet the binding secure inertia level....". It is not clear to Powerlink why the secure level of inertia is required prior to the separation event occurring. Given that

the secure level of inertia is greater than the satisfactory level this would incur additional unnecessary costs, assuming that these additional levels of inertia could be made available within 30-minutes.

Powerlink has welcomed the opportunity to discuss these matters with AEMO staff to date. Should your team wish to discuss this submission further, please contact Cameron McLean, Manager Network Planning.

Yours sincerely,

A handwritten signature in black ink that reads "Stewart Bell". The signature is written in a cursive, slightly slanted style.

Dr Stewart Bell
Executive General Manager, Network and Business Development