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6 December 2021

Samantha Christie
Manager Network Planning
Australian Energy Market Operator (AEMO)

Lodged via email: planning@aemo.com.au

Dear Ms Christie,

RE: NSCAS Description and Quantity Procedure

TasNetworks is appreciative of the opportunity to respond to the Australian Energy Market Operator's (**AEMO's**) Network Support and Control Ancillary Services (**NSCAS**) Description and Quantity Procedure Draft Report and Determination published on 18 November 2021.

TasNetworks is the Transmission Network Service Provider (**TNSP**), Distribution Network Service Provider (**DNSP**) and Jurisdictional Planner (**JP**) in Tasmania. TasNetworks is also the proponent behind Marinus Link, a new interconnector between Tasmania and Victoria. The focus in all of these roles is to deliver safe and reliable electricity network services to Tasmanian and National Electricity Market (**NEM**) customers at the lowest sustainable prices. TasNetworks is therefore appreciative of the AEMO's efforts to review the NSCAS which will maintain power system security and reliability of supply of the transmission network, or maintain or increase the power transfer capability of the transmission network.

We remain supportive of AEMO's updated planning assumption, considering the minor amendments made as part of the first stage consultation process, that no transmission lines are switched out of service (pre-contingency) to achieve a *secure operating state* when the network is in a 'system normal' configuration.

In our view, this approach promotes a resilient power system that is robust and, in the case of the Tasmanian network, is better able to manage any subsequent credible or non-credible contingency events, noting that:

(a) The Tasmanian transmission network is not heavily meshed, with the 220 kV 'backbone' mostly reliant on a limited number of double circuit lines. In some cases, deliberate removal of a single circuit introduces the following additional risks:

- exposure to increased frequency control ancillary service (**FCAS**) requirements due to multiple generating units being radially connected;

- potential increased loss of system strength and inertia support following any subsequent contingency event; and
- increased probability of islanding events following any subsequent contingency.

In practice, TasNetworks would manage such issues in a 'post-contingency scenario' via network reconfigurations (e.g. splitting of substation buses) and application of specific constraints (especially those relating to FCAS). To do so as part of managing 'normal network operation' would be a measure of last resort.

(b) Noting the practical limitations associated with (a), there are a limited number of candidate circuits remaining for pre-contingent switching, with most being relatively short (in length) and therefore not contributing significant amounts of capacitive reactive current (when operating at low power transfer levels).

(c) TasNetworks considers that, in the unlikely situation they are required, there would be other practical and cost effective alternatives to manage high network voltages, noting that AEMO has not forecast any NSCAS requirements in the Tasmanian region as part of its 2021 review. In practice, the procurement of synchronous machine based services to maintain minimum inertia and system strength requirements inherently provides a base level of network voltage control capability. Procuring access to additional reactive absorption capability beyond what is already mandated as part of registered Generator Performance Standards (**GPS**) is one example of a practical alternative which does not have the same consequential impacts as described in (a) and is likely to be cost effective (as an incremental offering to what is already being provided through other mechanisms).

(d) While Tasmania is also experiencing ongoing growth of distributed energy resources (**DER**), with approximately 205 MW of small-scale solar installations being registered with the Clean Energy Regulator (**CER**) as of November 2021, we are not currently faced with the same quantum of network issues as other NEM regions. As a result, TasNetworks is of the view that other counter-measures will be technically feasible and cost effective for some time to come before needing to resort to what is effectively a 'weakening' of the power system (by removing transmission elements from service).

We are supportive of the flexibility built into AEMO's updated planning assumption which retains the ability to deploy such solutions where they are plausible or have already proven effective (as TasNetworks understands is the case in at least one NEM region).

We also support the notion that line switching may be necessary (and appropriate) 'post contingency', especially when considering abnormal, low probability events such as the unexpected loss of significant industrial load. While not appropriate as a 'standard planning assumption', TasNetworks would like to emphasise that there are situations where management of high network voltages may require the switching out of transmission lines in an operational time frame to help manage abnormal system conditions.

In terms of drafting, AEMO may wish to consider the following alternate wording to its key assumption which may help with its ongoing implementation:

> AEMO will conduct the *NSCAS* review by applying the planning assumption that no transmission lines ~~per region~~ may be switched out of service in any region before the impact of a *credible contingency event* or *protected event* is considered, in order to meet system security and reliability obligations such as addressing high voltage levels. Exceptions to this approach may

include plausible network conditions which permit the assumption that one or more lines may be switched in a region (or sub-region), as informed by the experience of the relevant AEMO and *TNSP* system operators.

Should you have any questions or would like to discuss any aspects of this submission further, please contact Andrew Halley (Principal Operations Engineer) at the following email address andrew.halley@tasnetworks.com.au or by phone on 0419 120 115.

Yours sincerely,

Chantal Hopwood
Leader Regulation