

NOTICE OF FIRST STAGE OF CONSULTATION

National Electricity Rules – Rule 8.9

Network Support and Control Ancillary Services Description and Quantity Procedure Amendments

Date of Notice: 4 October 2021

This notice informs all Registered Participants and interested parties (**Consulted Persons**) that AEMO is conducting a consultation on a change to the Network Support and Control Ancillary Services (NSCAS) description and quantity procedure. This consultation is being conducted under clause 5.20.2 of the National Electricity Rules (**NER**), in accordance with the Rules consultation requirements detailed in rule 8.9 of the NER.

Matter under consultation

AEMO is consulting on a proposal to amend the current NSCAS description and quantity procedure¹ to facilitate the broader use of a planning assumption for no pre-contingent line switching for voltage control. AEMO considers that this change would permit more realistic planning for power system operational practices in the context of declining minimum operational demand in the National Electricity Market (NEM).

Some traditional network planning assumptions may no longer be fit for purpose

Annual NSCAS reviews assess power system security and reliability in the NEM for the upcoming five-year period. Where any gaps are identified, services may be procured by AEMO or transmission network service providers to maintain power system security and reliability.

In September 2020, AEMO published its updated NSCAS description and quantity procedure in order to allow NSCAS reviews to appropriately respond to the challenges introduced by the energy transition.

After applying the updated description and quantity procedure for the delivery of the 2020 NSCAS review², AEMO found that some traditional network planning assumptions may no longer be fit for purpose in the context of declining minimum demand.

Figure 1 below shows that the forecast occurrence of operational demand falling below 6,000 megawatts (MW) in the NEM mainland (excluding Tasmania) is increasing over the coming period 5-year period, most notably in the middle of the day due to distributed PV generation uptake³.

AEMO's 2021 Electricity Statement of Opportunities notes that a minimum of approximately 4 to 6 gigawatts (GW) of operational demand may be required in the mainland NEM. AEMO considers that power system planning and operational practices must be urgently reviewed and adjusted to

¹ AEMO, NSCAS description and quantity procedure, and supporting consultation documents, September 2020, accessible via <https://aemo.com.au/en/consultations/current-and-closed-consultations/network-support-and-control-ancillary-services-description-and-quantity-procedure-amendments>.

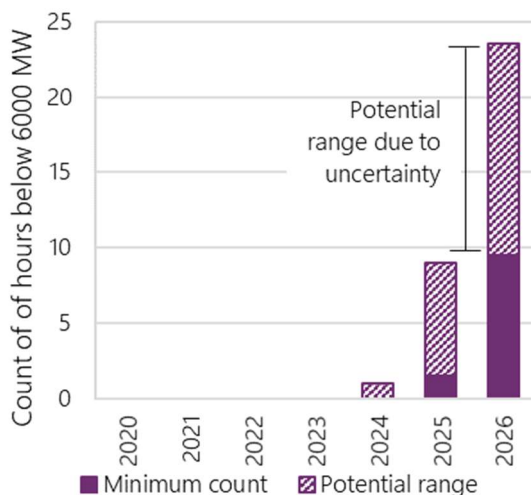
² AEMO, 2020 Network Support and Control Ancillary Services Report, December 2020, accessible via https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/Operability/2020/2020-NSCAS-Report.

³ AEMO, 2021 Electricity Statement of Opportunities, Chapter 5 'Factors and implications of an accelerated transition', August 2021, accessible via https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2021/2021-nem-esoo.pdf?la=en&hash=D53ED10E2E0D452C79F97812BDD926ED.

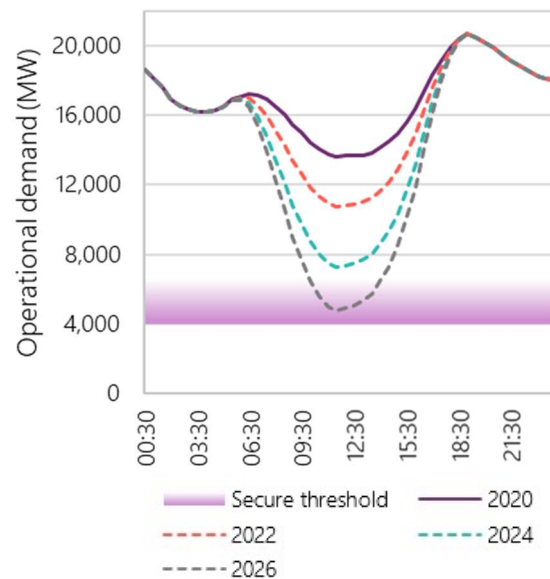
respond to this unprecedented situation, including through the planning assumption adjustment proposed in this notice of consultation.

Figure 1 Forecast incidence and duration of operational demand below secure thresholds (NEM mainland) identified in the 2021 Electricity Statement of Opportunities

(a) Indicative range of operational demand below 6,000MW across central scenario



(b) Example minimum demand day, central projection, 90% probability of exceedance (POE)



Multiple simulations with varying probability of exceedance (POE) were run to determine the number of hours in which demand fell below 6,000 MW.

AEMO has investigated the planning assumptions used for times of minimum demand on the network

In the first half of 2021, AEMO investigated whether planning assumptions need to change so that the system can be designed to more efficiently maintain reliability and security. As part of the investigation, AEMO consulted with network planning and operation specialists across both AEMO and the transmission network service providers in the NEM.

As a result of the investigation, AEMO considers that there is a need to consult on changing the existing assumption regarding line switching for voltage management in the current NSCAS description and quantity procedure⁴.

AEMO has previously assumed in planning assessments that one transmission line per region can be switched out of service before a credible contingency event ('pre-contingent') in order to manage voltage levels in the power system at times of minimum demand. This assumption is aligned with historical operational practices and historical power system design. Switching a transmission line (or lines) can reduce voltages during low demand periods.

However, switching transmission lines out of service creates other risks on the system. This is because:

- Maintaining system security under minimum demand conditions, particularly as we see record-breaking decline in minimum demand, is now differing from many historically planned-for system

⁴ AEMO has updated several other planning assumptions as a result of the investigation. As those updates are consistent with the provisions of the existing NSCAS description and quantity procedure, they are not addressed in this document, and instead will be provided in the 2021 NSCAS report due to be issued in Q4, 2021.

security challenges. For example, some last-resort strategies applied at times of maximum demand, such as manual load shedding, will not be effective at times of minimum demand in order to re-secure the system.

- Asset management risks must be considered when assuming more frequent switching practices.
- Finally, the increased forecast occurrence of minimum demand as well as the shift to daytime minima ahead of evening ramping events introduces an increased likelihood that power system operators will need to attempt to switch lines in the middle of the day and return them to service in time for evening peak demand events.

As such, although AEMO has previously assumed in planning assessments that one transmission line per region can be switched pre-contingent for voltage control, AEMO considers that line switching should no longer be assumed in system normal planning studies for the management of high voltages. This proposed assumption change is the topic of this consultation.

Proposed amendment to the NSCAS description and quantity procedure, to assume no pre-contingent line-switching for voltage management unless there is a regionally-specific justification

At present, the NSCAS description and quantity procedure states that:

“AEMO will conduct the NSCAS review by applying the planning assumption that one transmission line per region may be switched out of service in order to meet system security and reliability obligations such as addressing high voltage levels. Exceptions to this approach will include plausible network conditions which permit the assumption that more than one line may be switched in a region (or sub-region), or conversely plausible network conditions for which assuming pre-contingent switching of any transmission lines is not feasible. These exceptions would be subject to an appropriate assessment by AEMO of the risk associated with such an assumption, informed by the experience of the relevant AEMO and TNSP system operators.”

To address the system security risks identified above for minimum demand conditions, AEMO proposes to expand its ability to plan for no pre-contingent line switching by broadening the wording in the description and quantity procedure to read as follows:

“AEMO will conduct the NSCAS review by applying the planning assumption that no transmission line per region may be switched out of service 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), informed by the experience of the relevant AEMO and TNSP system operators.”

AEMO expects that under this amendment any exceptions to the default assumption (no pre-contingent line switching) would be required to be based on regionally specific justifications. This would be accompanied by an agreement between the local TNSP and AEMO documenting which line may be switched and under which conditions and providing assurance that system security is not put at risk as a result of the switching action.

In parallel with this consultation, AEMO is continuing the analysis required to complete and release the 2021 NSCAS assessment, including declaration of any system security and reliability gaps in the NEM. While this consultation is undertaken, AEMO will complete analysis both with and without the assumption of pre-contingent line switching.

The consultation process

The consultation process is outlined below. Dates are indicative only and subject to change.

PROCESS STAGE	INDICATIVE DATE
Publication of notice of consultation	4 October 2021
Closing date for submissions in response to the notice of consultation	8 November 2021
Publication of draft report and determination	15 November 2021
Closing date for submissions in response to the draft report	29 November 2021
Publication of final report and determination	6 December 2021

Invitation to make submissions

AEMO invites written submissions on the matter under consultation, including any alternative or additional proposals you consider may better meet the objectives of this consultation and the national electricity objective in section 7 of the National Electricity Law.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so.

Please note that material identified as confidential may be given less weight in the decision-making process than material that is published.

Meetings

In your submission, you may request a meeting with AEMO to discuss the matter under consultation, stating why you consider a meeting is necessary or desirable.

If appropriate, meetings may be held jointly with other Consulted Persons. Subject to confidentiality restrictions, AEMO will generally make details of matters discussed at a meeting available to other Consulted Persons, and may publish them.

Closing date and time

Submissions in response to this Notice of First Stage of Rules Consultation should be sent by email to planning@aemo.com.au, to reach AEMO by 5.00pm (AEDT) on 8 November 2021.

All submissions must be forwarded in electronic format (both pdf and Word). Please send any queries about this consultation to the same email address.

Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Publication

All submissions will be published on AEMO's website, other than confidential content.