ABN 70 250 995 390

180 Thomas Street, Sydney
PO Box A1000 Sydney South
NSW 1235 Australia
T (02) 9284 3000
F (02) 9284 3456

Wednesday, 6 November 2024

Daniel Fracalossi
Senior Engineer - Grid Performance and Integration
Australian Energy Market Operator
Lodged via email

Dear Daniel

Consultation on AEMO's GPSRR Methodology

Transgrid welcomes the opportunity to respond to the consultation paper on the Draft General Power System Risk Review (GPSRR) approach paper which published on 4 October. The consultation will assist the Australian Energy Market Operator (**AEMO**) in the development of the 2025 GPSRR Report.

We support AEMO's work to explore, prioritise, evaluate and potentially provide for the risks and consequences of non-credible contingencies, and other system events and conditions that could lead to cascading outages or major supply disruptions.

Our feedback on the consultation is in the attached submission.

Transgrid is committed to working with AEMO to ensure the appropriate methods and inputs are used in the 2025 IASR and the 2026 ISP. If you have any questions, please feel free to contact me Jenna Connellan, Major Projects Planning Manager at jenna.connellan@transgrid.com.au.

Yours faithfully,

Jenna Connellan
Manager of Major Projects Planning

1. Transgrid responses to GPSRR Approach consultation questions

1.1. AEMO Consultation Questions

No.	Consultation Question	Transgrid Response
1	Is it appropriate to apply the 2024 Integrated System Plan (ISP) Step Change scenario to assess future power system risks for the 2025 GPSRR?	In the 2024 ISP, AEMO has assigned a likelihood of 43% to the Step Change Scenario, and the Progressive Change Scenario a very similar likelihood of 42%. It would appear appropriate to apply both of these scenarios to assess future power system risks for the 2025 GPSRR. If the expansion of scope is prohibitive, the sensitivity of scenario choice should be considered for significant findings of the report. Transgrid is concerned that the 2024 ISP Step Change scenario does not account for the delay in New England (NE) REZ timing and the type, and capacity of generation published by EnergyCo. We think it prudent to consider a sensitivity of a scenario with a delayed NE REZ for significant findings. Transgrid would also recommend the update to other actionable network options such as the HCC REZ network plans as per the EnergyCo announcement.
2	Are there any suggested improvements regarding the risk assessments, considering the approach is based on the 2024 GPSRR?	• Consideration of the risk exposure to the NEM due to the allowed operation in a non-secure, yet satisfactory state, for short periods, not exceeding 30 minutes. • An analysis of historical occurrences and consequences of credible contingencies occurring whilst insecure. • Consideration of a Monte-Carlo simulation approach to show the general level of risk on the NEM.
3	What are stakeholder views on how to effectively consider risks where the impact is difficult to define as part of the 2025 GPSRR?	Transgrid had a positive experience engaging AEMO on risk mitigation measures taken to reduce network cascading risk as far as reasonably possible with a Humelink Non-Credible Contingency. Transgrid will continue to follow this protocol of collaborative engagement with AEMO and other relevant stakeholders and broadly aligns with the three proposed initial risk categories proposed.
4	What are stakeholder views regarding the priority risks proposed to be considered as part of the 2025 GPSRR, including any proposed changes to the events or the methodology for assessment? • Inverter-based resources (IBR) response to remote frequency events.	Transgrid considers the priority risks a reasonable list. The increasing impacts of non-credible contingencies is of particular interest. Anecdotally, the NEM appears to be running in a less resilient state, leading to the aforementioned increasing impacts of non-credible contingencies. Operation of the NEM seems closer to the edge of security for increasingly larger periods of time. The NEM is secure by definition most of the time, but statistical consideration of how often the NEM is more secure, and by how much, would provide insights.

	• Minimum system load conditions. • Unexpected operation and interaction of control and protection systems. • Increasing impacts of non-credible contingencies.	It would be useful to examine the practices of application of NER S5.1.8 to identify and require Control Systems to avoid and limit consequence of non-credible contingencies by AEMO and NSPs. Regarding the increased size of non-credible contingencies due to abnormal weather conditions and the rising levels of consumer energy resources (CER), is it possible to consider increasing the contingency size of the frequency control market instead of relying on a Special Protection Scheme (SPS)? With the growing number of BESS in the NEM, it might be more effective to coordinate the response of power plants within the same regional reference node.
5	What are stakeholder views regarding the proposed modelling approach for the priority risks for assessment in the 2025 GPSRR?	AEMO has replaced the Operations and Planning Data Management System (OPDMS) with the Asset Management Platform (AMP) and it would seem reasonable to update the GPSRR documents to reflect this. <u>Under Frequency Load Shedding (UFLS) Models</u> The large-scale installation of rooftop PV generation has led to a dilemma for UFLS, whereby traditional loads for UFLS are often a generation source rather than a load for a considerable period of time. One of the solutions to this outcome is to develop load shedding relays that may operate or not based on direction of power flow. UFLS models used in the GPSRR should accurately reflect the operation of such schemes. Over-simplification is likely to lead to inaccurate outcomes. In particular, the dynamic response of the direction detection should be accurately modelled. <u>Composite Load (CMLD) Model</u> The composite load model is reasonably new, has had limited benchmarking and is applied extensively across the NEM loads. The use of traditional load models as a sensitivity for studies with significant outcomes would be a useful exercise.
6	What are stakeholder views regarding the proposed risk cost assessment methodology to be applied in the 2025 GPSRR?	Transgrid does not have any additions to the approach proposed.
7	Does the proposed consultation approach meet stakeholder expectations and do stakeholders have any suggestions on how AEMO could best engage with industry on the 2025 GPSRR?	Transgrid can appropriately provide feedback in this format and does not have any improvement suggestions at this stage.