19 May 2023

Australian Energy Market Operator

Lodged via email: PSMGReview@aemo.com.au

Dear Sir/Madam,

Re: Power System Model Guidelines Review Consultation – Submission on Draft Version 2.0

ElectraNet welcomes the opportunity to comment on the draft 2023 Power System Modelling Guidelines (PSMG) proposed by AEMO.

ElectraNet shares AEMO's view that the existing PSMG published in 2018 requires updates to ensure they are fit for purpose considering the rapid and ongoing changes to the types of plant and equipment that will connect to the NEM. Fit for purpose models are essential to enable appropriate power system analysis to be undertaken to support ongoing planning and the secure operation of the NEM.

We acknowledge that, with the addition of new participant categories to the National Electricity Rules (namely Integrated Resource Providers), revisions to the PSMG are necessary to clarify the modelling obligations of NEM participants.

The proposed connection of very large power electronic interfaced customer loads to the NEM necessitates new load modelling requirements to ensure the impact of these connections on power system performance can be assessed and understood. ElectraNet notes the importance of ensuring fit for purpose models for such facilities that present a material impact to system performance. In addition, we recognise the importance of retaining lesser detailed modelling requirements (such as IEEE ZIP or composite load models) for other load types where this type of representation remains appropriate and proportional to their power system impact. The draft 2023 PSMG describes the scenarios under which detailed load models are required and ElectraNet considers that the specified requirements are appropriate.

ElectraNet welcomes the updates proposed for EMT models that utilise compiled or "blackboxed" code. We note that maintaining models of legacy plant has been problematic in the past as the developers of software simulation tools release updates that required models to be redeveloped. Nominating a standard interface for compiled models is beneficial in removing the dependency between models and software versions. Additionally, other expected benefits include lower development cost through the use of plant real code and alignment with international practice, protection of OEM Intellectual Property while maintaining the necessary model functionality and portability between software tools.

The following observations were made with the proposed amendments to the PSMG:

- The glossary term 'R2' incorrectly references NER S5.5.6. ElectraNet considers that the intended reference should be NER S5.5.2 Categories of data. Noting this, AEMO is

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encouraged to undertake a complete review of all references in the PSMG as part of this update to ensure alignment with the NER.

- The description provided under Section 2 of the draft PSMG does not adequately describe the Rules process and hierarchy for updating models and information and is potentially misleading. ElectraNet suggest the following updates:
    a) Inclusion of a reference to NER S5.2.4(d) and a corresponding description of the obligations on Generators to update models and information
        1) within 3 months of commissioning tests or following tests to demonstrate compliance with connection requirements;
        2) at any time that the Generator becomes aware that the information is incomplete, inaccurate or out of date; and
        3) on request by AEMO or the relevant NSP where it is considered that the information is incomplete, inaccurate or out of date.
    b) Redraft the description for the use of NER 5.7.6, noting that the use of this clause is considered to be a last resort considering the other obligations on Generators to maintain and update their models. Additionally, the current text states that the Generator is responsible for the costs of tests under NER 5.7.6. However, it is our understanding that all parties involved in this type test (i.e. AEMO, the Generator and the NSP) are responsible for their own associated costs.

Should you have any questions in relation to this submission or require further clarification, please contact Andrew van Eyk, Principal Power System Engineer, at vanEyk.Andrew@electranet.com.au.

Yours sincerely,

Jock Baker

Manager Network Capability