

28th August 2020

Zach Geale
Network Development and Planning
Power and Water Corporation (PWC)
Level 7, Mitchell Centre,
55 Mitchell Street, Darwin
NetworkDevelopmentandPlanning.PWC@powerwater.com.au

Dear Zach,

Thank you for the opportunity to comment on the proposed System Strength Impact Assessment Guidelines, and Generator and Load Model Guidelines and Change Management Requirements. NT Solar's comments are provided below.

System Strength Impact Assessment Guideline

- 1. General** – it is noted that “This document was developed by considering the information in the publication, “AEMO System Strength Impact Assessment Guidelines v1.0” effective from 01 July 2018 published by the Australian Energy Market Operator (AEMO) and implementing appropriate revisions to align with the requirements in Network Technical Code and Network Planning Criteria Version 4 dated March 2020. PWCs approach to use the AEMO Guidelines as a basis is welcomed, and ensures good alignment with the other jurisdictions.
- 2. 4 Adverse System Strength Impact** – To determine an adverse system strength impact for a new generator connection (or change to an existing generator connection), there is an underlying assumption that the power system is stable for credible contingency events under test without the new or altered generator connection. It's our knowledge this has not been objectively proven to be the case. PWC need to undertake modelling to demonstrate the stability of the system or otherwise per a new or altered generator connection. Only with this baseline assessment can a new or altered generator connection be assessed objectively.

Generator and Load Model Guidelines and Change Management Requirements

- 3. General** - The AEMO Power System Model Guidelines July 2018, being used as a reference is welcomed, and ensures good alignment with the other jurisdictions.
- 4. 2.2.1 RMS model format** – Based on our discussions with OEMs, their strong preference is for PSSE v34 models to be required as this aligns with the AEMO requirements on the NEM. This is the largest electricity market in Australia and hence alignment with their requirements is seen as beneficial. OEMs and consultants can provide maximum local support for PSSE v34 platform.

Having said that, OEMs can typically provide RMS models in PowerFactory and is consistent with the approach taken by Western Power in the WEM.

5. **2.2.1 RMS model format** – unencrypted version– The ability of OEMs to provide unencrypted version of the model is a significant issue. Some OEM’s models are developed in the form of a fully encrypted model using DLL files. OEMs implement a single-root model approach to maintain model consistency across various simulation platforms, e.g. PSSE, PowerFactory. The entire Firmware is developed in MATLAB/SIMULINK and the DLL files directly generated from that model. Hence, this ensures a high level of consistency, regardless of which platform will be used for power system studies. Models are not individually developed in and for each platform. Hence, to fulfil the definition of an unencrypted model requires access to the modelling source code which is considered as the OEM’s intellectual property. More details on this approach for the Fimer/ABB Solar Inverters can be found here:

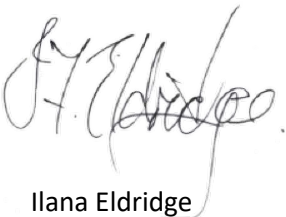
<https://new.abb.com/news/detail/9998/modeling-of-abb-solar-inverters-in-power-system-simulations>

NTSF and Fimer/ABB are open to direct discussions on this point, as workarounds have been implemented in other jurisdictions including the WEM.

6. **2.2.2 EMT model format** – Similar to the above discussion, the strong OEM preference is for EMT models to be provided in PSCAD/EMTDC. This is the main modelling platform used for EMT studies in Australia and hence there is considerable knowledge and experience built up locally. Having said that, OEMs can typically provide PowerFactory EMT models and do provide in some other jurisdictions, such as in the German market.

We provide our submission in the interest of achieving a workable Guidelines and look forward to working with PWC further on these matters.

Yours sincerely,



Ilana Eldridge
Director