28 May 2018

ModelGuidelines@aemo.com.au
AEMO
GPO Box 2008
Melbourne VIC 3001

Dear AEMO,

SA Power Networks recognises the importance of accurate model representations to both AEMO and the wider power system community to ensure system integrity is maintained both now and into the future. We also appreciate that these models are becoming increasingly important as the generation mix within the NEM transitions from traditional base load synchronous generation to a greater reliance on renewable asynchronous forms of generation.

We welcome the opportunity to comment on AEMO's draft of its Power Systems Model Guidelines together with any responses AEMO way wish to provide to our comments and queries posed below.

Section Ref	Comment / Query
Section 2.1 - Generators	AEMO should clarify whether this table is only intended to cover those generating systems required to register the generating system with AEMO (ie does not include those generating systems covered under the standing exemption rules; ie export <5MW). At present, no lower bound is provided within the table.
	The following statement appears (bold added) "Furthermore, a Generator who has previously provided adequate RMS models and associated information to AEMO will be required to provide up-to-date EMT models if required by an **NSP**…". Should this reference to "NSP" actually be AEMO? How does AEMO envisage that NSPs (or AEMO for that matter) could convince existing generators (for example connected to a DNSP's network) to provide such models in a timely manner or if at all?
Section 3.3 - Exemptions	Table 2 suggests that generators proposing to connect a generating system >1MVA but less than or equal to 5MVA would be required to provide detailed models of their generating system where the SCR is less that 10.

Section Ref	Comment / Query
	At present such generating systems are normally exempt from registration according to AEMO's standing exemption. Greater clarity is sought from SA Power Networks regarding this matter as presently, SA Power Networks does not involve AEMO for such sized systems. Such detailed network models (ie RMT or EMT) are not presently provided by these sized generator proponents. It appears odd that ratings usually used with respect to generation connections is normally expressed in MW rather than MVA however within the exemption table provided they are expressed in MVA. Is this an oversight or are these threshold values genuinely intended to be assessed against MVA rather than MW values? In addition, is AEMO suggesting that any existing generator within these sizes will be required to retrospectively provide such models as per Section 2.1? If so, this will be exceptionally difficult for DNSPs to achieve for those systems connected to its networks.
Section 4 – Model Adequacy	Again, clarity needs to be provided over when such models (ie RMS and EMT) models are required to be provided by generator proponents (even if only by way of reference to section 3.3). Such models are presently only requested for systems required to register with AEMO (ie greater than 5MW).
Section 4.3.6, Table 4	It is presumed that the plant type described as "Solar (generating unit)" applies to inverter connected photo-voltaic (PV) systems. Can AEMO confirm this is the case.
	Can AEMO clarify what is meant by the term "Energy storage level" with respect to Battery systems within the table. Presumably this is the rating of the unit / system expressed in MWh rather than the MW capacity of the system.
Section 4.8 – Model and plant updates	Can AEMO advise how it expects NSP to know when a generator alters its firmware settings in order to enforce these requirements? Whilst NSP can place clauses within its Network Connection Agreement (NCA) with the generator requiring such updates, the likelihood is that NSPs (and therefore AEMO) will not be made aware of when such changes are made unless it is to the benefit of the generator or unless revealed following an event where the generator did not respond as expected.
Section 5.2.1 – Additional information required for fault level calculations	It is presumed that the intent of this section applies not only to converters but also to inverter connected generating systems?

Should any of the items raised in this response to the draft modelling guidelines require further clarification by AEMO, please contact Steve Fraser on (08) 8404 5442 or at steve.fraser@sapowernetworks.com.au.

Yours sincerely

Grant Cox
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