

# Update report Stakeholder feedback template:

## AEMO Review of technical requirements for connection

Stakeholders making a submission on the recommendations set out in the AEMO draft report may use the below template to provide feedback. Please consider the confidentiality disclaimer at the end of this document.

**Stakeholder: Goldwind Australia**

### Schedule 5.2 Conditions for Connection of Generators

NER Schedule 5.2 issue	Schedule 5.2 (Generators) – feedback on revised recommendations and relevant draft NER amendments
<b>NER S5.2.5.1 – Reactive power capability</b>	
<b>Treatment of reactive power capability considering temperature derating</b>	We support the proposed option 3 seems like a reasonable balance.
<b>Compensation of reactive power when units are out of service</b>	<p>We think it is important to distinguish two different potential scenarios that AEMO may be trying to capture as one:</p> <ul style="list-style-type: none"> <li>All generating units are in service but for intermittent generators, the energy source (e.g. sun or wind) is unavailable.</li> <li>All/some generating units are offline/unavailable</li> </ul> <p>For case 1, it would be reasonable to have all/some generating units to continue provide voltage control. It is noted that not all generators have the ability to continue providing voltage support in the absence of the energy source, therefore it is important to maintain the flexibility around the number of units that can mitigate any voltage impact to a reasonably agreed value – in this case the proposed 0.5% would be reasonable.</p> <p>For case 2, this is where we recommend AEMO consider the practicalities around the physical plant being switched in and out without the presence of any mitigation from generating units. For example, this could be energising the transformers and/or overhead lines for a project after a maintenance regime. In such situations sometimes it may not be practical to limit the voltage impact to 0.5% (e.g. due to line charging currents of long transmission lines). Such scenarios in our view would be quite rare occurrences, therefore on that basis we propose AEMO consider 3% voltage impact limit similarly to the specification of “Infrequent events” under “ENA Engineering Recommendation P28” standard in the UK.</p>
<b>NER S5.2.5.4 – Generating system response to voltage disturbances</b>	
<b>Clarification of continuous uninterrupted operation (CUO) in the range 90% to 110% of normal voltage</b>	We are supportive of the proposed changes. We consider these changes to be important to enable efficient connection of newer technologies such as grid forming.
<b>NER S5.2.5.10 – Protection to trip plant for unstable operation</b>	
<b>Requirements for stability protection on asynchronous generating systems</b>	No objections to the proposed changes to the rules, however it would be important for make to define oscillation assessment methodology/methodologies that are acceptable considering the limited number of options available at this time.

NER Schedule 5.2 issue		Schedule 5.2 (Generators) – feedback on revised recommendations and relevant draft NER amendments
<b>NER S5.2.5.13 – Voltage and reactive power control</b>		
<b>Realignment of performance requirements to optimise power system performance over expected fault level (system impedance) range – Voltage control</b>	The concept of having flexibility on writing the GPS to cover a wide range of SCR operation is welcome. We think that the introduction of “apparent system impedance” is more representative of the actual small signal response of the network. However, we believe it would be important to limit the assessment only to the “apparent system impedance” range rather than traditional short circuit range. We recommend this is made explicit in the rules as lack of clarity on this will introduce grey areas where AEMO/NSPs can request additional studies based on the traditional short circuit range which just adds more unnecessary work to the industry.	
<b>Materiality threshold on settling time error band and voltage settling time for reactive power and power factor setpoints</b>	As new generator sizes get bigger and bigger, such absolute threshold values are not appropriate. We propose materiality thresholds be defined as a % of Pmax.	

### NER structural amendments

Issue		NER structural amendments – feedback on revised recommendations and relevant draft NER amendments
<b>NER structural amendments</b>		
<b>Drafting principles</b>	<p>We consider that it just as important to address some limitations placed by the provisions under clause 5.3.4A as the changes AEMO proposed for all the S5.2.5 clauses. Clause 5.3.4A(b)(1A) specifies that the performance standard must be no less onerous than the existing performance standard under a 5.3.9 process. However, our experience has shown that some modifications (e.g. retrofitting grid forming capabilities) may lead to small reduction in performance for some aspects of the GPS (e.g. active power recovery time, reactive power and voltage rise/settling times) but with a net positive effect on the network around them. This clause would preclude and likely discourage such changes due to the risks associated with a drawn out 5.3.9 process.</p> <p>Further more under clause 5.3.4A(b1) there is a requirement to aim for the automatic access standard even when modifying existing generators. This presents a sizeable risk for projects considering expansion or addition of BESS since there is a risk AEMO and/or NSP can request for higher performance standard even for existing plant. Not only can this end up in requiring lots of engineering effort to investigate the headroom to meet AAS which constitutes a time and cost risk to the project but also be forced to install costly hardware to meet the demands of the AAS. This prevents projects to augment BESS which can be a net positive contributor the network</p>	
<b>Proposed approach</b>	We propose both clauses are removed from the rules.	

### Confidentiality disclaimer

Under clause 5.2.6A(d)(2), AEMO is required to publish all submissions received about this Review on its website. Please identify any part of your submission that is confidential, which you do not wish to be published. Please note that if material identified as confidential cannot be shared and validated with other interested persons, then it may be accorded less weight in AEMO’s decision-making process than published material. AEMO prefers that submissions be forwarded in electronic format.