

# Draft report Stakeholder feedback template:

## AEMO Review of technical requirements for connection (NER 5.2.6A)

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

Issue	Schedule 5.2 Generator Recommendation feedback
<b>NER S5.2.1 – Outline of requirements</b>	
<b>Application of Schedule 5.2 based on plant type instead of registration category and extension to synchronous condensers</b>	
<b>NER S5.2.5.1 – Reactive power capability</b>	
<b>Voltage range for full reactive power requirement</b>	We support both option 2 and option 3. However, we would like AEMO to provide more clarification on whether option 3 offers any additional benefits, and consider choosing option 2 instead. Option 2 is easier to implement and evaluate, and would prevent investments in marginal cases. Additionally, since generators are typically in voltage droop control, it is unlikely they will operate when exporting reactive power during high voltage situations.
<b>Treatment of reactive power capability considering temperature derating</b>	We support Options 2 and 3.
<b>Compensation of reactive power when units are out of service</b>	
<b>S5.2.5.1, S5.2.5.5, S5.2.5.7, S5.2.5.8, S5.2.5.10</b>	
<b>Simplifying standards for small connections</b>	
<b>NER S5.2.5.2 – Quality of electricity generated</b>	
<b>Reference to plant standard</b>	We support Option 2

Issue	Schedule 5.2 Generator Recommendation feedback

**NER S5.2.5.4 – Generating system response to voltage disturbances**

<b>Overvoltage requirements for medium voltage and lower connections</b>	We support Options 2 and 3.
<b>Requirements for overvoltages above 130%</b>	We support Option 3. Regarding option 4: Which factors influence the upper threshold? Identifying the appropriate upper limit may necessitate a thorough analysis to establish a suitable limit that caters to the majority of industry applications, without showing favouritism towards any particular technology.
<b>Clarification of continuous uninterrupted operation in the range 90% to 110% of normal voltage</b>	We are in favour of the proposed changes to the CUO requirements. However, it would be beneficial if AEMO could provide a definition for what constitutes a "substantial" drop in active power (preferably as a percentage of Pmax), even if it is just a guide number that is included with the final rule change.

**NER S5.2.5.5 – Generating system response to disturbances following contingency events**

<b>Definition of end of a disturbance for multiple fault ride through</b>	We support option 4. We would like AEMO to provide more clarification on whether the time required for voltage recovery to remain within the range of 90 to 110% of normal voltage may vary depending on the technology used?
<b>Form of multiple fault ride through clause</b>	
<b>Number of faults with 200 ms between them</b>	
<b>Reduction of fault level below minimum level for which the plant has been tuned</b>	We support the implementation of Options 4 and 6.
<b>Active power recovery after a fault</b>	We support Option 2.
<b>Rise time and settling time for reactive current injection</b>	We would suggest the following: <ul style="list-style-type: none"> <li>Add a commencement time requirement, less than 20 ms, with response in a direction that opposes the change in voltage at the production unit terminals.</li> </ul> We recommend that AEMO provide a clear definition for the term "adequately controlled".
<b>Commencement of reactive current injection</b>	We support Option 2.
<b>Clarity on reactive current injection volume and location and consideration of unbalanced voltages</b>	We support option 3 and recommend that it be implemented at the connection point, but only be applicable during fault conditions and not during normal operation of the plant. Regarding option 5 to capture the negative sequence contribution, the current requirement is to agree on the ratio of negative sequence to positive sequence with both AEMO and NSP. Should this requirement be changed? We recommend that it should be changed because the ratio of negative to positive sequence is not fixed and varies depending on the fault's nature.
<b>Metallic conducting path</b>	
<b>Reclassified contingency events</b>	

Issue		Schedule 5.2 Generator Recommendation feedback
<b>NER S5.2.5.7 – Partial load rejection</b>		
Application of minimum generation to energy storage systems		
Clarification of meaning of continuous uninterrupted operation for NER S5.2.5.7		
<b>NER S5.2.5.8 – Protection of generating systems from power system disturbances</b>		
Emergency over-frequency response		We support Options 2 and 5.
<b>NER S5.2.5.10 – Protection to trip plant for unstable operation</b>		
Requirements for stability protection on asynchronous generating systems		
<b>NER S5.2.5.13 – Voltage and reactive power control</b>		
Voltage control at unit level and slow setpoint change		We support Option 2.
Realignment of performance requirements to optimise power system performance over expected fault level (system impedance) range – Voltage control		
Materiality threshold on settling time error band and voltage settling time for reactive power and power factor setpoints		
Clarification of when multiple modes of operation are required		
Impact of a generating system on power system oscillation modes		
<b>Definition – continuous uninterrupted operation</b>		
Recognition of frequency response mode, inertial response and active power response to an angle jump		

## Schedule 5.3a Conditions for connection of MNSPs

Issue	Schedule 5.3a HVDC Recommendation feedback
<b>NER S5.3a.1a Introduction to the schedule</b>	
Alignment of schedule with plant-type rather than registration category	
<b>NER S5.3a.8 – Reactive power capability</b>	
Reactive power	
<b>NER S5.3a.13 – Market network service response to disturbances in the power system</b>	
Voltage disturbances	
Frequency disturbances	
Fault ride through requirements	
<b>NER S5.3a.4 – Monitoring and control requirements</b>	
Remote monitoring and protection against instability	
<b>New standards</b>	
Voltage control	
Active power dispatch	

## Multiple Schedules

Issue	Multiple schedule Recommendation feedback
<b>NER Multiple clauses</b>	
References to superseded standards	

## 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.