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: AGL Energy

Schedule 5.2 Conditions for Connection of Generators

Issue	Schedule 5.2 Generator Recommendation feedback
NER S5.2.1 – Outline of requirements	
Application of Schedule 5.2 based on plant type instead of registration category and extension to synchronous condensers	AGL supports the proposal to amend NER S5.2.1 to provide that references to generating systems, synchronous generating systems and synchronous generating units are taken to include synchronous condensers, provided that a the carve outs are quite specific.
NER S5.2.5.1 – Reactive power capability	
Voltage range for full reactive power requirement	AGL is supportive of this proposal for new connections but note that caution must be applied should such requirements be imposed on existing generators (e.g., through a cl.5.3.9 process), as some existing generators would not be able to meet this standard.
Treatment of reactive power capability considering temperature derating	AGL does support this proposal and the desire to create consistency. On the requirement to reduce reactive power capability along with active power, AGL considers this should be a drafted so that a generator 'can' reduce reactive power capability along with active power but is not forced to.
Compensation of reactive power when units are out of service	AGL does not support a blanket obligation to require reactive power requirement when there is no active power coming from the generator. In experience with our wind farms, this requirement burns plant out and has implications for the overall life of the asset. Requiring this is seeking a power system service for free, when markets should be developed to pay for system needs. Having said all that, any drafting should maintain optionality, as modes of operation that are a detrimental to wind and solar, can be provided by batteries.
S5.2.5.1, S5.2.5.5, S5.2.5.7, S5.2.5.8, S5.2.5.10	
Simplifying standards for small connections	
NER S5.2.5.2 – Quality of electricity generated	

Issue	Schedule 5.2 Generator Recommendation feedback
Reference to plant standard	AGL supports this proposed amendment.

NER S5.2.5.4 – Generating system response to voltage disturbances

Issue	
Overvoltage requirements for medium voltage and lower connections	AGL supports this proposed amendment.
Requirements for overvoltages above 130%	AGL supports Option 7. Additionally, AGL supports the introduction of an upper boundary and use of a peak value instead of RMS value.
Clarification of continuous uninterrupted operation in the range 90% to 110% of normal voltage	AGL considers that the current clause does not work for grid-forming technology. Regarding the proposed amendment, AGL supports a ramp over five seconds, but we need more information on what "active power not substantially reduced" means (e.g., not more than 10% or no impact to power system security).

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

Issue	
Definition of end of a disturbance for multiple fault ride through	AGL supports option 3, so long as it includes the 20ms time limit stated in the summary.
Form of multiple fault ride through clause	AGL supports option 2. We support development of a common suite of tests, but consider that performance assessment could be simplified as either trip or not trip. Where there is zero time delay between faults, this means that the same fault continues for longer. It is unreasonable to expect plant to ride through "consecutive" faults when there is no time delay between them.
Number of faults with 200 ms between them	AGL supports option 2.
Reduction of fault level below minimum level for which the plant has been tuned	AGL is not opposed to option 4 but consider that the document should also reference relevant plant characteristics, for example, due to PLL technology the plant may experience oscillations. On this basis, we suggest not using the term "operate stably", as it does not account for these characteristics. AGL considers that any amendments should deal with a situation where a plant cannot be retuned to match the reduced fault level.
Active power recovery after a fault	AGL supports option 2
Rise time and settling time for reactive current injection	AGL supports this amendment but would prefer inclusion of parameters around what "adequately controlled" means.
Commencement of reactive current injection	AGL supports option 2
Clarity on reactive current injection volume and location and consideration of unbalanced voltages	Option 2 requires clarity on the term "system stability" and on "range of system impedances to which the plant may be exposed" AGL supports option 3. Regarding option 5, AGL notes that capturing negative sequence contribution by way of a percentage only works if it operates in the same way as a positive sequence contribution.
Metallic conducting path	AGL supports this proposed amendment.
Reclassified contingency events	AGL supports this proposed amendment.

NER S5.2.5.7 – Partial load rejection

Issue	Schedule 5.2 Generator Recommendation feedback
Application of minimum generation to energy storage systems	AGL supports this proposed amendment.
Clarification of meaning of continuous uninterrupted operation for NER S5.2.5.7	AGL supports option 3 and 4, but not option 2.

NER S5.2.5.8 – Protection of generating systems from power system disturbances

Emergency over-frequency response	AGL supports option 2 and 5, and 6. AGL does not support option 3, as it forces some plant off earlier than others, which is inequitable. AGL also does not support option 4 or option 7.

NER S5.2.5.10 – Protection to trip plant for unstable operation

Requirements for stability protection on asynchronous generating systems	AGL does not support inclusion of a detection device requirement in the AAS.

NER S5.2.5.13 – Voltage and reactive power control

Voltage control at unit level and slow setpoint change	
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	AGL supports options 2 and 3.
Clarification of when multiple modes of operation are required	AGL supports Option 2.
Impact of a generating system on power system oscillation modes	AGL supports Option 4.

Definition – continuous uninterrupted operation

Recognition of frequency response mode, inertial response and active power response to an angle jump	AGL supports amendments that would recognise inertial response and primary frequency response in CUO definition. AGL supports Option 2

Schedule 5.3a Conditions for connection of MNSPs

Issue	Schedule 5.3a HVDC Recommendation feedback

NER S5.3a.1a Introduction to the schedule

Alignment of schedule with plant-type rather than registration category	

NER S5.3a.8 – Reactive power capability

Reactive power	

NER S5.3a.13 – Market network service response to disturbances in the power system

Voltage disturbances	
Frequency disturbances	
Fault ride through requirements	

NER S5.3a.4 – Monitoring and control requirements

Remote monitoring and protection against instability	

New standards

Voltage control	
Active power dispatch	

Multiple Schedules

Issue	Multiple schedule Recommendation feedback

NER Multiple clauses

References to superseded standards	AGL supports amendments to remove references to superseded standards.

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