25th January 2025

Achint Jain
Senior Advisor
Australian Energy Market Commission (AEMC)
Level 15/60 Castlereagh St, Sydney NSW 2000

Re: Improving the NEM access standards – Package 1 (ERC0393) – Response to draft determination

Dear Mr. Jain,

gridmo welcomes the opportunity to provide comments on the Commission's draft determination for *Improving the NEM access standards – Package 1* (ERC0393).

gridmo is a software platform that provides engineers with access to fast and accurate power system studies. Our software platform is actively supporting over 5 GW of generation projects throughout the NEM. As part of our platform, we also provide standardised templates to help accelerate the connection of renewable energy to the grid – such as our AEMO GPS template available at: https://docs.gridmo.io/docs/templates/au_aemo_gps/.

We commend the efforts of the Commission, AEMO and the wider industry on the work completed to revise the Rules, so the NER can continue to evolve to meet the needs of the rapidly changing Australian electricity network.

Please refer overleaf for our comments on the proposed rule change.

Yours sincerely,

Damien Vermeer

Co-founder | gridmo

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1. General

We encourage the Commission to define terms and set boundaries to help reduce uncertainty in the grid connection process.

2. Define “mean sustained change” in the definition of rise time

The “mean sustained change” of a time-series signal is undefined and unclear. Any new terms such as this should be defined in the Rules clearly. To our reading, AEMO hadn’t clearly defined it their Rule Change initiation documents either. We recommend providing an example of such a calculation (e.g. https://docs.gridmo.io/docs/reference/nodes/plot#rise_t--rise-time).

3. Defining a maximum test voltage for S5.2.5.4

We believe the term “*marginally exceeding 130%*” is not effective in reducing ambiguity in the grid connection process.

We recommend the Commission select a maximum voltage for testing.

4. Defining “commencement time” for S5.2.5.5A

We acknowledge that “commencement time” was not added in this rule change, but its inclusion in the proposed S5.2.5.5A automatic access standard means that its lack of definition is relevant to this rule change.

The term “… a response opposing the voltage deviation” is subjective – it also only features in the Draft Determination, not the Draft Rule.

gridmo have developed an assumed definition of ”commencement time" as a rise time, starting from fault inception to when reactive current passes the initial value + 10% of the final steady state value – and several GW of new projects are using this definition in lieu of a more robust definition [source: https://docs.gridmo.io/docs/reference/nodes/plot#commencement_t--commencement-time].

We recommend the Commission propose a firm definition of commencement time, or remove it altogether, instead using the rise time definition, except the trigger to start the rise time calculation is not 10% of the final, but the time voltage at the connection point drops below 0.90 pu.

5. Table S5.2.1 (S5.2.5.13) in the Draft Rule, in its current form, may lead to confusion

There are several confusing aspects of the proposed AAS Table for S5.2.5.13:

- “Voltage as primary” states that “setpoint input ramp rate limit, if applicable, may be disabled for test purposes”. If this ramp rate limit is enabled on the real plant, this may cause difference in response between modelled performance and real plant performance. Is this the expected outcome from modelling and on-site commissioning?
- *Power factor primary* and *reactive power primary* state two different acceptable settling times, depending on the response being subjectively oscillatory or not. There isn’t a clear reason why this is proposed, given an appropriately calculated settling time will consider an oscillatory response to not settle.

6. S5.2.5.8(a2) implies a generator must not trip on any over-voltage disturbance

The current wording of the new clause S5.2.5.8(a2) is not clear on when the 20ms requirement starts .

We encourage the Commission to consider “…within 20 milliseconds of the commencement of an over-voltage disturbance….” or similar.

7. Box 21 changes “be capable of” – consider reviewing the rest of S5.2.5 for similar

We agree with the Commission’s proposed change of S5.2.5.7 to reduce ambiguity caused by the term “be capable of”. However, there are several other “be capable of” terms in S5.2.5, such as in S5.2.5.1.

We encourage the Commission to review the other instances of this terms and see if a similar level of ambiguity exists.

For example, we believe new clause S5.2.5.1(a1) has a similar level of ambiguity by the addition of the same term (does the reactive capability have to be *always available*?)

8. Box 23 / S5.2.5.8(b5)(2) making this clause subjective goes against the access standard framework

The Commission is proposing that generators are now required to “*…maximise the plant’s capability to remain in operation for abnormal power system conditions for which the plant is not required to disconnect under any performance standard”* – this means even if a generator is fully compliant with the Automatic Access Standard of this clause, the reviewing party can commence negotiations of not enough capability being offered or require further verification if the generating system could offer more capability

This adds unnecessary additional negotiation and slows down the connection process.

We believe that if additional capability is necessary, it should be clearly stated and included in the automatic access standard – not up to subjective negotiation.