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17 January 2024

Ms Anna Collyer
Chair
Australian Energy Market Commission
Level 15, 60 Castlereagh Street
Sydney NSW 2000

Dear Ms Collyer,

Submission: Draft rule determination – calculation of system strength quantity rule 2024

AEMO supports the AEMC's draft rule determination on the calculation of system strength quantity and appreciates the opportunity to make this submission.

There is a need for efficient investment in the National Electricity Market (NEM) to maintain system strength with the increasing installation of "grid following" inverters (including wind and solar generation and large-scale batteries). The risk of system failures and interruptions to electricity supply increases without this investment.

Efficient investment in system strength to support the connection of new generation promotes the national electricity objective. The AEMC's draft rule will better align the charge for procuring system strength services with the system strength service provider's costs of providing them. This alignment will give connection applicants a more cost reflective choice – promoting efficient investment in the NEM consistent with the intention of 2021 efficient management of system strength rule.

The AEMC's draft rule will also lower the charge for procuring system strength services. This allows connections (that might be otherwise financially unviable) to proceed where system strength can be efficiently provided by system strength service providers. This supports the connection of new generation and storage to meet future demand for electricity and deliver on Government commitments to reduce carbon emissions.

AEMO considers the draft rule aligns with its rule change proposal in most respects. There are, however, some differences between the draft rule and AEMO's rule change proposal that we would ask the AEMC to reconsider. The attachment to this letter explains the effect of those differences and requests some small amendments to the draft rule to address the associated issues.

AEMO aims to commence consultation on the necessary amendments to the system strength impact assessment guidelines as soon as possible after the AEMC's final determination, working towards achieving an outcome by June 2024.

If you have any questions regarding this submission please contact Kevin Ly, Group Manager – Reform Development & Insights on kevin.ly@aemo.com.au.

Yours sincerely,

Violette Mouchaileh
Executive General Manager – Reform Delivery

Attachment A: Detailed comments on AEMC draft rule determination: calculation of system strength quantity (SSQ)

Separating impact assessments from the calculation of charging parameters

The system strength impact assessment (impact assessment) for a new connection or a connection alteration and the calculation of charging parameters for system strength services have different purposes.

The impact assessment determines the amount of system strength that a connection applicant must contribute to support its connection if it chooses to self-remediate. This is a detailed assessment that considers the system strength impact of the connection using power system modelling.

The calculation of charging parameters (SSQ and the system strength locational factor – the SSL) determine what a connection applicant may elect to pay their system strength service provider (SSSP) to procure the required system strength instead of self-remediating. This calculation represents the share of the SSSP's system strength service costs attributed to the connection.

The AEMC's draft rule makes this distinction by altering Clause 4.6.6(a)(1) to separate the requirement for the impact assessment (Clause 4.6.6(b)) from the calculation of SSQ and SSL (Clause 4.6.6(b1)), using a methodology in the system strength impact assessment guidelines (SSIAG).[1] However, draft Clause 4.6.6(b)(1)(B) incorporates the SSL and SSQ calculation into the first stage of the impact assessment. Whilst AEMO agrees that the preliminary impact assessment and calculation of SSQ and SSL should run in parallel, AEMO requests that draft clause 4.6.6(b)(1)(B) is removed to clarify that these processes are undertaken for different purposes.

This is consistent with both AEMO's proposed rule and the way the draft rule separates the requirements for AEMO to determine the methodology for impact assessments (NER cl.4.6.6(b)) from the methodology for calculating SSL and SSQ (NER cl. 4.6.6(b1)).

Equivalence between SSQ and general system strength impact

AEMO welcomes the updated drafting in the draft rule Clause 4.6.6(b1)(3). The updated drafting clearly articulates the objective of equivalence between the option of remediating and paying the system strength charge (SSC).

Indicative system strength

AEMO's proposed rule was more explicit regarding the differences between the methods, timing, and role of the indicative and final SSQ. AEMO recommends that this distinction is made clearer in the final rule.

The purpose of determining an indicative SSQ is to facilitate the decision to allocate the primary responsibility for the provision of system strength to either the SSSP or the connection applicant. This decision is made by the connection applicant by electing to either pay the charge or self-remediate their impact. This decision must be made at the application stage, as an election to pay the charge must be included in a connection application under Clause 5.3.4(b)(5). The applicant can request recalculation of an indicative SSQ under Clause 5.3.4B(a4) if it is not satisfied with the calculation of either the SSL or SSQ.

AEMO's rule change proposal made provision for separate calculation methodologies for calculating the indicative and final SSQ and SSL, if desirable. The AEMC's rule change requires the same method be applied

[1] AEMO notes the difference may not be correctly articulated in section 3.2.2 of the draft determination, which seems to suggest the SSQ is calculated to verify the connection is stable under clause 5.3.4B(a2)(4).

in both circumstances. AEMO agrees that mandating the same approach gives connection applicants more certainty that the indicative and final SSQ and SSL will align.

That said, though the same methodology may be applied, the inputs and underpinning assumptions will likely differ. An indicative SSQ, calculated in response to a connection enquiry, will frequently use assumptions on the plant short circuit ratio (SCR) and rated active power if not provided by the party making the connection enquiry. Final values recorded in the connection agreement and performance standards are used to determine the actual system strength charge. AEMO submits that the final rule, whilst prescribing the same methodology, recognise that the values of the inputs and assumptions used to calculate the indicative and final charging parameters may differ.

SSC and connection alterations

Draft rule Clause 5.3.4B(a2)(2A) obliges network service providers to calculate the indicative SSQ to be notified under Clause 5.3.3(b5)(3). Clause 5.3.3(b5)(3) only applies to new generation connections. AEMO considers that this obligation should extend to connection alterations, as triggered by Clauses 5.3.9(c4) or 5.3.12(d), thus ensuring applicants for alterations can consider their indicative SSC or self-remediation if this is a lower cost alternative.

Final system strength requirement and charging parameters

AEMO considers it is important to clearly specify how and when the process for determining the final SSC relates to the broader process for negotiating a connection agreement.

Practically, to ensure reliability and security of the energy system, the required SSC should be set when a connection agreement is finalised. The characteristics of the connection, as prescribed in the connection agreement, determine the system strength required.

Setting the SSC with reference to the connection agreement also promotes efficient outcomes. A connection proponent may elect to alter its proposed plant to reduce their SSC. SSSPs and connection applicants may work together to identify the lowest-cost approach to providing necessary system strength.

To ensure that the SSQ is determined after a connection agreement is finalised AEMO submits that the final SSQ for a new generation connection be linked to the final performance standard for S5.2.5.15[2] and this should be described clearly in the relevant rule, being 5.3.4B.

AEMO proposed, in its rule change proposal, that Clause. 5.3.4B(a2)(2) require: *NSPs calculate … the final system strength quantity following the finalisation of access standards under clause S5.2.5.15, clause S5.3.11 or clause S5.3a.7 (as applicable) for the new connection*. AEMO recommends that the AEMC's final rule make a similar explicit statement in 5.3.4B.

In doing this, the AEMC may take the opportunity to reduce duplication and associated ambiguity in the draft rule, in Clauses 4.6.6(b1)(3) and 6A.23.5(j). Implicitly, both these Clauses have the effect of requiring the calculation to be made upon finalising the performance standards[3], but create some ambiguity over the calculation of indicative SSQ at the enquiry stage, well before these values are available. AEMO requests the AEMC to consider making the final rule more explicit on the differences between the methods, timing, and role of the indicative and final SSQ.

[2] And the equivalents in schedules S5.3 and S5.3a, which concern the short circuit ratio.

[3] Although using different wording in that 6A.23.5(j)(2) replicates 4.6.6(b1)(3) but only partially, which could cause interpretation issues

Timeline for updating the SSIAG

AEMO's rule change proposal requested flexibility regarding the timeframe for updating the SSIAG, given that consultation processes can be unpredictable. The AEMC's draft rule requires AEMO to update the SSIAG by 30 June 2024. AEMO aims to commence the necessary consultation to implement the rule as quickly as possible after the AEMC's final determination, working towards achieving an outcome by June 2024.

AEMO notes the Market Bodies System Strength Implementation Working Group, led by the AEMC, is working closely with industry to identify and prioritise other changes to the system strength framework that may be needed. AEMO will work closely with the working group to implement additional improvements to the SSIAG as a separate package of work.