14 May 2026

Anna Collyer, Chair
Australian Energy Market Commission
GPO Box 2603 SYDNEY, NSW 2001

Dear Ms Collyer,

Amazon Corporate Services Pty Ltd, a subsidiary within the Amazon Web Services (AWS) group, welcomes the opportunity to respond to the AEMC's Draft Determination and Draft Rule on Improving the NEM access standards – Package 2 (ERC0394), published 12 March 2026.

AWS is one of the most active participants in Australia's data centre development pipeline, with operational, under-construction, and planned facilities across Sydney and Melbourne spanning a range of connection voltages, network service providers, and delivery structures. We are both a direct connection applicant at several sites and a large load tenant at others, giving us direct experience of the NEM connection process across multiple project structures and regulatory contexts.

We made a detailed submission to the consultation paper in July 2025. The improvements in the Draft Determination — the increase in the Large IBL threshold from 5 MW to 30 MW, the tiered framework, the third-party system strength procurement mechanism, and the instability detection prioritisation hierarchy — are genuine and material. We acknowledge them without reservation.

This submission raises eight focused issues where further refinement would materially improve the workability of the final rule. They are presented in strategic order: we lead with the structural sequencing concern we consider most significant, follow with the transition and compliance testing issues that depend on it, and then address the implementation and technical matters that flow from both. Detailed analysis and recommendations for each issue are set out in the Appendix.

Summary of Positions

#	Topic	Context	Recommendation
1	Implementation sequencing	AEMO's three implementing guidelines are not due until 12 months after the rule takes effect, yet connection applicants must finalise CPS before those guidelines exist.	Set the transition deadline at 12 months after AEMO publishes all three updated instruments, without a fixed calendar backstop.
2	Transition trigger and period	The 5.3.4A letter is the point at which a facility's technical design is committed. The six-month period does not reflect DC development or OEM model timelines.	5.3.4A letter as trigger for TNSP connections; connection application lodgement for DNSP. 24-month transition period.
3	Staged compliance testing for incrementally	The Draft Rule is silent on whether each staged capacity addition requires a fresh compliance demonstration, leaving	Material change at connection point as the test, not tier threshold crossing. Scope demonstrations to changed parameters only.

#	Topic	Context	Recommendation
	growing connections	connection applicants without a workable planning basis.	AEMO guidance no later than 6 months after rule commencement.
4	Large IBL threshold and Tier 2 discretion criteria	Without explicit Tier 2 discretion criteria, NSPs are likely to default to full AAS application, collapsing the practical distinction between Tier 2 and Tier 3.	Explicit Tier 2 discretion criteria in the final determination. National NSP guideline for consistent application.
5	Legacy facilities and campus expansions	The Draft Rule does not distinguish campus expansions from new connections. New obligations should apply to incremental plant only, not the embedded legacy fleet.	Incremental plant principle stated expressly. Generic model or grandfathering pathway in updated Power System Model Guidelines.
6	System strength	Space-constrained urban DC sites cannot accommodate behind-the-meter remediation. A shared in-front-of-meter asset achieves the same outcome at lower total system cost.	SSIAG review to consider in-front-of-meter remediation explicitly as a costed alternative, with a framework for large loads no later than 6 months after review commencement.
7	R0 modelling assumptions and commissioning for staged connections	R0 models are submitted before load characteristics are confirmed. Where R2 testing reveals a gap, the Draft Rule provides no framework for remediation scope or cost allocation.	AEMO guidelines to define R0 modelling requirements where load characteristics are staged or not yet finalised. Remediation scope and cost allocation where R2 testing reveals material gaps.
8	AEMO guidelines	Three implementation matters are better resolved through AEMO guideline updates: S5.3.14 trigger criteria, ride-through exception interpretive clarity, and protection system confidentiality.	Final determination to direct AEMO on these three priorities within the guidelines update process. Dedicated technical working group with DC operator participation.

We would welcome the opportunity to discuss any matters raised in this submission with the AEMC, AEMO, and the relevant NSPs.

Yours sincerely,

Amazon Corporate Services Pty Ltd

Appendix A

The following sections set out AWS's analysis and recommendations for each of the eight issues identified in the cover:

1. Implementation Sequencing: The Guidelines Gap

This is the most significant issue in this submission. It is a structural concern about the rule's own design and not a commercial interest argument.

The Draft Rule is proposed to take effect on 30 June 2026, with a transitional period expiring 31 December 2026. It also requires AEMO to update three instruments by 30 June 2027 that give those standards their practical content: 1/ the Power System Model Guidelines; 2/ the System Strength Impact Assessment Guidelines (SSIAG); and 3/ the Power System Stability Guidelines. Connection applicants negotiating CPS and approaching 5.3.4A letter stage between 1 January 2027 and 30 June 2027 will therefore be assessed against access standards whose practical meaning has not yet been defined.

The consequences are specific and material. The updated SSIAG will determine what SCR value applies at a given connection point and whether in-front-of-meter remediation is an acceptable alternative to behind-the-meter measures. Without it, connection applicants are engineering to a system strength standard that has not yet been written. The updated Power System Stability Guidelines will define what 'could reasonably contribute to instability' means in practice under NER clause S5.3.14 — the trigger for instability detection obligations. Without them, NSPs have no defined methodology for making that determination. The updated Power System Model Guidelines will define R0 modelling requirements by tier. Without them, R0 submissions made before 30 June 2027 may require revision or resubmission after the guidelines are published.

The consequence is that the transitional period does not deliver the certainty it is intended to provide. Connection applicants face a choice between rushing to execute connection agreements before 31 December 2026 on incomplete information or proceeding post-transition before the implementing instruments exist. Neither outcome is consistent with the AEMC's objective of a clear, consistent, and evidence-based connection framework.

Recommendation

Set the transition deadline at no earlier than 12 months after AEMO publishes the SSIAG, Power System Stability Guidelines, and Power System Model Guidelines. No fixed calendar backstop is proposed, given AEMO retains a potential extension to its publication timeline under the Draft Rule's provisions.

2. Transition Arrangements: Trigger and Period

Building on Item 1, the transition trigger and transition period each require revision independently of the guidelines sequencing issue. This item addresses the operative transition deadline mechanism in the Draft Rule's transitional provisions, under which connection applicants may elect to proceed under existing standards where the relevant connection milestone is achieved before the transitional date.

On the trigger

For transmission-connected facilities, the connection agreement execution date is the final administrative step in a process that typically spans 12 to 24 months from connection enquiry. The substantive technical commitment occurs when the TNSP issues the 5.3.4A letter following AEMO endorsement of the proposed CPS. After that point, the connection applicant's design, procurement, and construction program is committed. Using connection agreement execution as the trigger means transition relief is available only to projects that have already substantially completed their technical definition. For distribution-connected facilities, formal connection application lodgement with the DNSP is a more appropriate trigger.

On the period

A 24-month transition period from rule commencement is required. A typical large DC facility moves from connection enquiry to energisation over a 12-36 month cycle. Additionally, only a small number of UPS OEMs currently have NEM-compliant PSCAD® and PSS®E models available and for other OEMs to develop, validate, and submit compliant models they require substantially more than 6 months..

Recommendations

1. For transmission-connected facilities, set the transition trigger as the date the TNSP issues the 5.3.4A letter.
2. For distribution-connected facilities, set the transition trigger as the date of formal connection application lodgement with the DNSP.
3. Adopt a 24-month transition period from rule commencement, subject to the further extension in Section 1 where guidelines are not published within that period.
4. Establish a clear dispute-resolution pathway where operators and NSPs disagree on the applicable transition category, with AEMO as the determining body and a defined resolution timeframe.

3. Staged Compliance Testing for Incrementally Growing Connections

This issue is within AEMC's remit and is left unresolved by the Draft Rule. It affects any large load connection that grows in stages which is the structural reality of how large DC campuses are developed and energised in Australia.

The Draft Rule does not define the compliance testing obligations of a connection applicant whose registered load grows incrementally through staged capacity additions. It does not answer whether each addition that materially changes the connection point performance requires a fresh compliance demonstration under NER clauses 5.7.2 and 5.7.3, or whether the original commissioning demonstration remains valid subject only to the material modification test in NER clause 5.3.12.

The ambiguity produces two equally unsatisfactory outcomes. Under one reading, every capacity addition crossing a tier threshold triggers a full compliance demonstration, creating repeated testing obligations and cost uncertainty across the facility's operational life that cannot be reliably planned or contracted at the time of the initial connection agreement. Under the other, no subsequent testing is required unless NSP or AEMO-directed under NER clause 5.7.3, leaving the compliance status of an incrementally growing connection undefined between commissioning and any directed retest.

This ambiguity is further compounded by the guidelines gap pointed out in Item 1. Until AEMO publishes the updated Power System Stability Guidelines, there is no defined basis for determining whether a given capacity addition triggers NER S5.3.14 instability detection obligations, or whether updated modelling requirements alter the scope of any required resubmission. Connection applicants designing staged commissioning programs now are doing so without answers to either question.

Recommendations

1. Clarify that the compliance testing trigger for a capacity addition is whether it constitutes a material change at the connection point assessed against the agreed CPS envelope and not simply whether it crosses a tier threshold.
2. Where a material change is established, scope the compliance demonstration to changed performance parameters only, not full recommissioning of the entire connection, unless the NSP or AEMO demonstrates whole-of-connection testing is necessary.

3. Direct AEMO to publish explicit guidance on this question within the first phase of the guidelines update process and no later than six months after rule commencement, given that staged commissioning programs for in-flight projects are being designed and contracted now.

4. Large IBL Threshold and Tier 2 Discretion Criteria

AWS's primary ask on the threshold question is not a rule amendment. The AEMC has considered this carefully and we respect the decision. Our primary ask is that the final determination provides explicit, objective criteria for how NSPs must exercise Tier 2 discretion under NER clause S5.3.1a(a1)(2)(ii). Without such criteria, NSPs will default to conservative AAS application across all Tier 2 facilities to avoid regulatory risk, collapsing the practical distinction between Tier 2 and Tier 3 and imposing near-Tier-3 obligations far more broadly than the Draft Determination intends.

The Draft Rule also introduces multiple overlapping participant categories and thresholds that will produce inconsistent interpretation across NSPs and connection applicants: 5 MW for SCR, 10 MW for Compulsory Interruptible Load, 30 MW for Relevant Schedule 5 Participant and Large IBL in some contexts, 100 MW for Large IBL in others. A rationalised structure of two operative thresholds and two participant categories applied consistently across all relevant clauses would materially improve regulatory clarity.

AWS notes that AEMO's own evidence identifies system security risk as emerging at concentrations of IBL in the order of 100 MW or more at a local network level, and that the 30 MW threshold captures facilities that present no demonstrable system security risk.

Recommendations

1. The final determination should provide explicit criteria for NSP exercise of Tier 2 discretion, including: (a) connection point SCR relative to facility capacity; (b) network location (transmission versus distribution); (c) proximity to other large IBL concentrations; and (d) the ratio of IBL to traditional load at the facility.
2. Direct AEMO to develop a national guideline on consistent application of the tiered framework across DNSP jurisdictions, covering trigger thresholds, process timelines, and documentation requirements.
3. Rationalise the threshold and participant category structure to eliminate overlapping and inconsistent designations across the Draft Rule.

5. Legacy Facilities and Campus Expansions

A proportion of forecast DC capacity growth in Australia will be delivered through staged expansion of existing campuses, not through entirely new connections. The Draft Rule does not expressly address how the new access standards apply to expansions that cross a tier threshold, and this subsequently creates compliance uncertainty that the final determination should resolve.

The concern is that an existing facility operating under a connection agreement executed under current standards, when expanded to a capacity crossing a tier threshold, may be treated as triggering whole-of-site reassessment against the new access standards. This could require demonstrating compliance for legacy UPS and power conversion plant commissioned under earlier standards where in many cases are sourced from OEMs that do not provide NEM-compliant PSCAD® or PSS®E models, or for which dynamic models were never developed because they were not required at commissioning. Retrofitting or replacing functioning compliant plant imposes material cost and operational disruption to critical infrastructure for marginal system security benefit.

The appropriate principle is that new technical obligations should attach to new or materially modified plant, not reopen the compliance basis of the embedded legacy fleet. This principle requires explicit application to staged expansion scenarios in the final determination.

Recommendations

1. State expressly in the final determination that for expansions of existing facilities, the new access standards apply to the incremental plant being added, not the embedded legacy fleet, unless the expansion involves a material change at the connection point that independently triggers reassessment under NER clause 5.3.12.
2. AEMO's updated Power System Model Guidelines should establish a generic model or grandfathering pathway for legacy plant where OEM-specific PSCAD® or PSS®E models are unavailable.

6. System Strength: In-Front-of-Meter Remediation Pathway

AWS acknowledges and welcomes the provision permitting third-party procurement of system strength services under NER clause S5.3a.7, which directly addressed our 2025 submission concern. A further pathway now warrants explicit recognition in the final determination: in-front-of-meter remediation procured or provided by the network and recovered through network use-of-system charges.

Large DC sites, particularly transmission-connected facilities in developed urban areas, cannot accommodate behind-the-meter synchronous condensers or active front-end UPS retrofits within existing substation and DC electrical infrastructure footprints. A single optimally sized and located in-front-of-meter asset can address a system strength deficiency that would otherwise require multiple connection applicants to each independently resolve the same underlying network condition at higher total system cost. The NEM already recognises this principle for HVDC connections under the Draft Rule. Extending it to large loads is a costed and logical next step, appropriately developed through the SSIAG review.

Recommendation

1. The final determination should expressly direct the SSIAG review to consider in-front-of-meter remediation as a credible and costed alternative for large loads, building on the HVDC precedent already in the Draft Rule, and deliver a clear framework for large loads within the first consultation phase of the review and no later than six months after review commencement.

7. R0 Modelling Assumptions and Commissioning for Staged Connections

The Draft Rule does not address the adequacy of R0 modelling assumptions for connections where the ultimate load characteristics are not yet confirmed at the time of model submission. This is structurally the case for any large load connection that grows in stages and practically the case for many large load connections where capacity is contracted in tranches after the connection process has commenced.

R0 models submitted early in the connection process are by necessity based on design assumptions about load characteristics (e.g. UPS topology, harmonic profile, power factor range, and ramp rates) rather than confirmed equipment specifications. Where R2 performance testing subsequently reveals a material gap between those assumptions and actual plant behaviour, the Draft Rule provides no clear framework for what remediation is required, who determines its scope, and how costs are allocated. This risk is greatest at the point of maximum exposure: when plant is already constructed and remediation options are constrained and expensive.

The updated Power System Model Guidelines are the appropriate vehicle for addressing R0 modelling requirements for staged connections. However, the guidelines gap identified in Item 1 means connection

applicants are making R0 submissions now without knowing what those requirements will be. The final determination should direct AEMO to address this as a specific priority within the guidelines update.

Recommendations

1. The final determination should direct AEMO, in the updated Power System Model Guidelines, to define R0 modelling requirements for connections where load characteristics are staged or not yet confirmed at time of submission, including what assumptions are acceptable, what disclosure is required, and how model updates are managed as design is confirmed.
2. AEMO's updated commissioning guidelines should address the scope and cost allocation of remediation where R2 testing reveals a material gap between R0 modelling assumptions and actual plant performance.

8. AEMO Guidelines: Three Implementation Priorities

Three concerns that AWS raised in its 3 July 2025 submission are more appropriately addressed through AEMO's forthcoming guideline updates than through rule amendments. AWS does not seek rule changes on these issues. We ask only that the final determination provide clear direction to AEMO on their priority and scope.

Instability detection

The 'could reasonably contribute to instability' trigger in NER clause S5.3.14 lacks objective criteria. Without them, NSPs will make inconsistent and potentially arbitrary determinations about which facilities attract S5.3.14 obligations, exposing connection applicants to compliance uncertainty that cannot be resolved through the connection process. AEMO should develop and publish objective assessment criteria including connection point SCR, network location, load variability characteristics, and proximity to other large IBL concentrations as the priority in the Power System Stability Guidelines update, before the transitional period ends.

Ride-through exception

The 'beyond reasonable control' exception in NER clause S5.3.13(e) should be clarified in AEMO's updated connection guidelines to encompass equipment protection requirements consistent with manufacturer specifications and good electricity industry practice. Large DC facilities operate power conversion and UPS systems designed by equipment manufacturers to operate within defined voltage and frequency tolerance bands. Overriding those protections to achieve ride-through performance beyond what the manufacturer has specified as safe operating conditions, introduces equipment failure risk, may void manufacturer warranties, and could compromise the availability of the facility for the duration of any resulting remediation. The exception already exists in the rule, and we are seeking interpretive clarity on this basis.

Protection system confidentiality

Protection system settings shared with NSPs and AEMO as part of CPS negotiation are commercially sensitive. They reflect proprietary control architectures and reveal the conditions under which a facility will disconnect. This information carries competitive and security implications and must be protected pursuant to our obligations under Security of Critical Infrastructure Act. The NER contains established confidentiality frameworks for equivalent generator connection information. AEMO should develop standard confidentiality templates for load protection information sharing as part of the guidelines update, drawing on those precedents.

Technical working group

AWS recommends that AEMO establish a dedicated technical working group for the guidelines update process. The 12-month development timeline is tight for instruments of this complexity and consequence. AWS commits to continued collaboration and experience from its DC portfolio to that process, subject to appropriate confidentiality protections.