AEMC
Australian Energy Market Commission

INFORMATION

Improving the NEM access standards - Package 2

The Commission has made a final rule to improve the NEM access standards

The Commission has made a more preferable final rule (final rule) to improve the technical access standards that apply to plant connecting to the National Electricity Market (NEM). The access standards, set out in Chapter 5 of the National Electricity Rules (NER), establish the technical performance requirements that connection applicants must meet to connect plant to the power system. They help ensure new connections operate reliably and do not adversely affect other connected plant or broader power system security.

As the NEM evolves, the access standards need to remain fit for purpose and appropriately address the technical characteristics and potential impacts of different types of plant. The final rule strengthens the framework for inverter based loads (IBLs), including large data centres, and makes targeted improvements to requirements applying to other plant, including generators and high voltage direct current (HVDC) links.

The final rule responds to three consolidated rule change requests:

- **Improving the NEM access standards – Package 2**, submitted by the Australian Energy Market Operator (AEMO).
- **Definitions of protection system requirements**, submitted by Rod Hughes Consulting.
- **Conditions for generator protection systems**, submitted by Rod Hughes Consulting.

The reforms made by this final rule, outlined below, have been informed by technical analysis and close collaboration with stakeholders, including through four technical working group meetings.

The final rule responds to the growth of large IBLs

The NEM is experiencing significant growth in large IBL connections, particularly data centres. AEMO's 2026 Electricity Statement of Opportunities projects data centre electricity consumption will increase around sevenfold over the next decade, from approximately 5 TWh to around 34 TWh. This would increase data centres' share of operational demand from around 3 per cent to approximately 13 per cent.

Large data centres commonly use power electronic technology in their power supply and uninterruptible power supply (UPS) systems. Unlike traditional, relatively passive loads, inverter-based plant can respond rapidly to changes in power system conditions. Depending on their control systems and the strength of the surrounding network, these responses can interact with the power system and other connected plant.

If large IBLs disconnect rapidly or respond adversely during a disturbance, the resulting loss of demand can exacerbate the disturbance and contribute to further disconnections. Where multiple loads respond in a similar way, the combined impact can be significant. The final rule strengthens the connection framework to manage these risks while supporting the efficient integration of new demand and the economic benefits associated with data centres.

The final rule strengthens the framework for connecting and operating large IBLs

A clear and consistent framework for classifying loads

The final rule establishes a consistent approach to classifying IBLs and applying technical access standards. It defines a large IBL as one with a nameplate rating of 30 MW or more, to which Schedule 5.3 access standards automatically apply, regardless of whether it connects to a transmission or distribution network. For IBLs below 30 MW, the network

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service provider (NSP) may apply Schedule 5.3 access standards where the connection could adversely affect the power system. This approach removes reliance on the 5 MW threshold in AEMO's System Strength Impact Assessment Guidelines (SSIAG), which was intended only to determine when system strength requirements apply, not to classify large IBLs more broadly.

The final rule also requires NSPs to consider the combined impact of IBL connections where their electrical configuration, proposed connection arrangements and intended operation indicate they should reasonably be assessed together. This allows NSPs to assess the combined behaviour of a cluster of electrically proximate IBLs, rather than considering each connection in isolation. Where the combined capacity of the cluster is 30 MW or more, the connections may be treated as a large IBL for the purposes of applying the access standards, triggering the automatic application of Schedule 5.3. This ensures the assessment captures the potential impact of the cluster on power system security and stability.

The Commission also published an industry fact sheet along this final rule determination that explains how Schedule 5.3 access standards would apply based on load classification and network connection, available on our website.

New disturbance ride-through requirements

The final rule introduces new disturbance ride-through access standards for large IBLs. These require large IBLs to remain connected through specified voltage and frequency disturbances and to meet performance requirements following those disturbances, including requirements relating to post-disturbance active power recovery. Connecting loads must also provide information about their ride-through capability when requested by the NSP.

The requirements are intended to reduce the risk of unnecessary or widespread load disconnection during power system disturbances. They have been calibrated having regard to technical feasibility, proportionality and international developments.

New instability monitoring requirements

The final rule introduces an instability monitoring access standard for large IBLs. It requires large IBLs to detect and respond to specified forms of instability, strengthening the ability of the power system to manage risks arising from interactions between power electronic devices and the power system.

Clearer and more proportionate modelling requirements

The final rule requires AEMO to develop, publish and maintain modelling guidelines for Schedule 5.3 Participants. The NER establishes six principles to guide the development of the guidelines: proportionality and scalability, materiality, consistency, practicability, efficiency and transparency.

These principles are intended to ensure modelling requirements are proportionate to the potential system impact of a connection, focus on information reasonably necessary to assess compliance, and recognise the practical availability and maturity of modelling information. This provides greater consistency and transparency while allowing detailed requirements to evolve as modelling capability develops.

Stronger ongoing compliance arrangements

The final rule strengthens ongoing compliance arrangements for non-registered Schedule 5 Participants. Connection agreements must include a commitment to ongoing compliance with applicable performance standards and specify how compliance will be demonstrated. Non-Registered Participants may have regard to the Reliability Panel's Template for Compliance Programs when specifying how they would undertake their commitment. The final rule also extends AEMO's performance standards register to all Schedule 5 Participants.

The final rule makes further improvements to the access standards framework

Clarifies the treatment of UPS and protection systems: The final rule clarifies that UPS systems, commonly used by data centres, are assessed under Schedule 5.3 rather than

Schedule 5.2. It also introduces definitions for 'primary protection system' and 'back-up protection system' to reduce the potential for misinterpretation.

Improves the system strength framework: The final rule provides flexibility in the short circuit ratio (SCR) withstand access standard for IBLs and allows high voltage direct current (HVDC) link operators to procure system strength services from third parties.

Provides flexibility for load shedding: Loads may meet under-frequency load shedding obligations by using fast ramp down, where technically possible, rather than disconnecting load in blocks.

Clarifies disturbance ride-through requirements for generating plant: The final rule clarifies the scope of credible contingency events for the Schedule 5.2 disturbance ride-through access standard, improving transparency and predictability.

Strengthens testing and assessment arrangements: All Schedule 5 Participants, regardless of registration status, may request testing of Schedule 5 plant. Similarly, all Schedule 5 plant may be tested. Prior to this final rule, testing and assessment requirements only applied to Registered Participants.

Supports future reviews of access standards: The final rule provides AEMO with flexibility to extend the timeframe for future access standards reviews up to six months, where there are issues of complexity or a material change in circumstances. To extend the timeframe, AEMO must publish a notice that specifies the reason for delay and the plan for stakeholder consultation.

The final rule differs from the draft rule

The Commission has considered stakeholder submissions and undertaken further technical analysis since publishing the draft determination. The final rule retains the objective of applying technical access standards in a way that reflects the characteristics and potential impacts of connecting plant, while refining the framework to provide greater clarity, consistency and proportionality.

Key changes from the draft rule include:

- **Simplifying the classification framework:** The final rule replaces the proposed three-tier framework for distribution-connected IBLs with a clear 30 MW threshold for the automatic application of Schedule 5.3. The same threshold applies to transmission- and distribution-connected IBLs, rather than for only distribution-connected IBLs.
- **Expanding aggregate impact assessment:** NSPs must consider the combined impact of IBL connections where they should reasonably be assessed together. This is not limited to smaller IBLs or to the disturbance ride-through standards, as was proposed in the draft rule.
- **Introducing modelling guidelines for loads:** AEMO must develop Schedule 5.3 Participant Modelling Guidelines, guided by principles established in the NER. This is in response to consistent stakeholder requests for clearer guidance.
- **Refining transitional arrangements:** The final rule provides a defined six-month grace period for eligible connection applications and plant alteration proposals, rather than the broader or less time-limited arrangements proposed in the draft rule.

The final rule contributes to the National Electricity Objective

The Commission considers that the final rule will contribute to the National Electricity Objective (NEO) by supporting the safe, secure and reliable operation of the power system. It strengthens technical requirements for large IBLs, improves the assessment of connections and their combined impacts, and supports ongoing compliance with agreed performance standards.

The final rule also promotes innovation and flexibility by providing clearer and more consistent requirements while allowing technical solutions to reflect the characteristics of individual connections and changing technologies. Its proportionate modelling and transitional arrangements support efficient investment and connection processes, while avoiding unnecessary costs and disruption.

Commencement and transitional arrangements

The final rule commenced on 12 November 2026. A six-month grace period applies to certain connection applications and plant alteration proposals that were already underway at commencement. Eligible applicants and participants may continue to negotiate using the old access standards until 12 May 2027.

- **Connection applications:** The grace period applies where a valid connection application was made, the technical requirements had been accepted under clause 5.3.4A of the NER before commencement, and an offer to connect had not yet been received. If an offer is not made by 12 May 2027, the new access standards apply.
- **Plant alteration proposals:** A six-month grace period also applies to valid alteration proposals submitted before commencement under clause 5.3.9 or 5.3.12. The relevant updated technical requirements must be accepted by 12 May 2027 for the old access standards to continue to apply.

AEMO is also required to develop the new Schedule 5.3 Participant Modelling Guidelines and update relevant existing guidelines, where necessary or desirable, to take account of the final rule.

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