



Final rule made standardising DER inverter performance and grid responsiveness

The Australian Energy Market Commission (AEMC) has made a more preferable final rule to introduce technical standards that will enable distribution network service providers (DNSPs) and the Australian Energy Market Operator (AEMO) to better manage the growing number of micro-embedded generators connecting across the national electricity market (NEM).

In making this final rule, the AEMC recognises the importance of promptly addressing the concerns of AEMO and the Energy Security Board (ESB) about the impact significant growth in distributed solar PV connections can have on networks and the electricity grid. In particular, the final rule focuses on the ability and role of DER in managing voltage disturbances. The AEMC has made the final rule in response to a rule change request from AEMO.

The Commission's final rule

The final rule requires all new or replacement micro-embedded generators connecting to distribution networks to comply with the DER Technical Standards specified in the National Electricity Rules (NER). The newly defined DER Technical Standards includes the requirements set out in Australian Standard AS 4777.2:2020 as updated from time to time. In addition, the final rule includes:

- A requirement that model standing offers for basic micro embedded generator connection services for embedded generating units that are the subject of a basic micro EG connection service be compliant with the DER Technical Standards.
- All new connection and replacement inverters and connection alterations (including upgrade, extension, expansion or augmentation) will be obliged to comply with the DER Technical Standards.

In addition, the AEMC's final rule utilises the application of existing compliance and monitoring systems under the Clean Energy Council (CEC) and the Clean Energy Regulator (CER), relating to the certification of products and installers of electricity-generating systems.

The final rule commences on 18 December 2021, allowing time for industry participants to prepare for the efficient implementation of the new requirements. Transitional provisions have also been included in the final rule to provide clarity on the application of the new requirements for connection processes under Chapter 5A of the NER that are underway at the time the rule commences.

Minor changes made from the draft to the final rule determination

A limited number of changes have been made between the draft rule and the final rule. The key changes are:

- **Referring to the most recent AS 4777.2:** The final rule defines DER Technical Standards by reference to AS 4777.2:2020. This will simplify the implementation pathway and minimise divergence or conflicting obligations in instances where the standard is called up in jurisdictional instruments.
- **Extending the implementation timeframe:** The final rule commences on 18 December 2021. As this date is the same as when AS 4777.2:2020 comes into effect, this provides a simple and clear changeover for industry participants from one set of technical requirements to the other, avoiding confusion of what requirements are relevant in different contexts.

- **Non-static reference to AS 4777.2:** The final rule refers to AS 4777.2:2020 as in force from time to time. This will enable changes made to the Australian Standard to flow through to the NEM without carrying out a rule change process. It will also prevent divergence between the NER, AS 4777.2 and other instruments where the standard is used.

Reasons for the final rule

The final rule has been made to address the immediate concerns arising from the increasing use of small rooftop solar generators in the NEM. By requiring micro-embedded generators connecting to distribution networks to be compliant with the DER Technical Standards, the urgent power system security issues identified by the ESB, AEMO and other stakeholders should be addressed.

Establishing the DER Technical Standards has been achieved by using the existing processes that DNSPs have in place to connect embedded generation, and the current compliance and monitoring systems under the CEC and the CER. This approach has received broad industry support and has been adopted in preference to the proposal to create a new process to establish technical standards which could have resulted in duplication and inefficient costs borne by consumers.

The final rule will also utilise existing rules and industry frameworks to provide governance processes to update the DER Technical Standards. Therefore, it is likely to be more cost-effective and timely than establishing a set of new requirements with bespoke governance arrangements.

Importantly, the final rule to establish the initial DER Technical Standards to meet immediate issues does not limit, in any way, any changes to the governance structure for these standards that may be needed in the future.

Background and rule change request

On 5 May 2020, AEMO submitted a rule change request to the AEMC to make a rule to implement initial minimum technical standards for DER. The rule change request was prepared in co-operation with the ESB as requested by the former COAG Energy Council prepared the rule change request. In the rule change request, AEMO stated that:

- There are gaps in current technical standards for DER, which are increasingly driving system risks to unmanageable sizes across the NEM.
- Without establishing minimum technical standards, especially given the exponential growth in DER, power system operation may be sub-optimal; increasing the reliance on inefficient interventions to manage waning system security parameters such as voltage, thermal capacity, or inertia.
- Particular capabilities of DER are critical and need to be standardised in line with network connection frameworks to integrate DER into the grid more efficiently.

AEMO's proposed solution involved establishing an obligation on AEMO to make, publish and, if necessary amend initial minimum technical standards for DER that will be contained in a new subordinate instrument (such as an AEMO procedure). AEMO proposed developing a high-level definition of DER to determine the coverage of the initial minimum technical standards.

The rule change request also proposed that the NER and NERR obligate DNSPs to include the minimum technical standard for DER into the model terms and conditions of their relevant connection agreements with retail customers. On the basis that the minimum technical standards for DER be housed in a subordinate instrument, AEMO proposed that the new framework require the Australian Energy Regulator (AER) to develop a light-touch monitoring and compliance framework.

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25 February 2021