

25 May 2023

Anna Collyer
Chair
Australian Energy Market Commission
PO Box A2449 SYDNEY SOUTH NSW 1235
Submitted online

Dear Ms Collyer,

Consumer Energy Resources Technical Standards Review (EMO0045)

AEMO welcomes the opportunity to provide feedback on the Australian Energy Market Commission's (AEMC) draft report for its Consumer Energy Resources (CER) technical standards review. Effective Distributed Energy Resources (DER)¹ integration into the power system and market is a key reform priority for AEMO, driven by the increasing operational and technical challenges with higher DER levels, and the opportunity DER presents if integrated well.

AEMO supports the AEMC's recommendations in principle, noting some are likely to be more effective measures than others and that all recommendations are voluntary in nature. AEMO strongly advocates for continued efforts to be put towards developing an enduring governance and compliance framework to manage ongoing DER technical standards, to ensure that future system security risks do not arise as DER deployment expands. AEMO's considerations are further presented below.

1. AEMO's Compliance of Distributed Energy Resources (DER) with Technical Settings Report

AEMO's recent publication, *Compliance of DER with Technical Settings*², forms an important resource for industry in considering how to better integrate DER with respect to compliance with technical standards. We welcome the AEMC factoring this analysis into its draft report.

The report presents evidence of the nature and scale of non-compliance and the importance and urgency of improving DER compliance, as widespread non-compliance is causing serious system security challenges and risks. Poor disturbance ride-through capability of DER has been identified by AEMO as the most serious and urgent barrier to the secure and reliable operation of the National Electricity Market (NEM) and Wholesale Electricity Market (WEM) with high levels of DER. It is already having an impact on the operation of Australia's electricity markets, as seen recently during the South Australian 12 November 2022 event and subsequent days³.

¹ AEMO refers to DER rather than CER, to reflect that with respect to technical standards and governance frameworks AEMO considers that the discussion should encompass both CER (behind the meter resources at a consumer's premise) as well as distribution connected resources, including, for example, neighbourhood batteries.

² The report is available at [compliance-of-der-with-technical-settings.pdf \(aemo.com.au\)](https://aemo.com.au/compliance-of-der-with-technical-settings.pdf)

³ AEMO Power system operating incident reports. Available at: <https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-events-and-reports/power-system-operating-incident-reports>



The recent revision to AS/NZS4777.2 (or DER technical standards) requires DER to be able to ride-through a range of power system disturbances, such as voltage disturbances, rate of change of frequency or phase angle jumps, to ensure DER operates in a predictable and beneficial manner for power system security across a variety of circumstances. That is, ride-through capabilities relate to inverters' response to a range of disturbances, not just voltage disturbances as is often characterised in DER technical standards discussions.

As set out in our report, AEMO considers urgent industry action is needed to materially improve compliance, with a view to targeting at least 90% compliance of new installations with AS/NZS4777.2:20220 by the end of 2023. Industry action should be complemented by ongoing governance frameworks to maintain and further improve that level of compliance, cognisant that DER technical standards will need to continue to evolve for new technology and devices in the near term.

The benefits of action are significant, with more predictable system operations and reduced system risks, which will otherwise increase as DER deployment gathers pace.

2. AEMC draft recommendations

The AEMC's draft report is a valuable contribution to the standards debate and represents a significant step to better understanding both the nature of the compliance issues and potential options to address non-compliance concerns. The compliance challenges are complex in nature, in part because many different parties are involved in the delivery of DER products and services, and there are multiple different legislative instruments and frameworks that govern their interactions. This is reflected in the draft recommendations that ascribe voluntary roles to six different parties. AEMO also notes that the AEMC's remit is limited to activities pertaining to the compliance in the NEM and Northern Territory as governed by the National Electricity Rules (NER) and NER (Northern Territory) respectively but acknowledges the consideration the AEMC has given to implications beyond.

AEMO in principle supports the twelve draft recommendations for immediate action, noting that some are likely to be more effective measures than others and that all recommendations are voluntary. AEMO has already undertaken actions in collaboration with other parties to pursue some of the recommendations including:

- Recommendation 1: AEMO submitted a proposal to Standards Australia to amend AS/NZS4777.2, which has been approved and is progressing.
- Recommendation 3: AEMO has consulted widely with OEMs to request that they make remote changes to existing settings and/or revise product menus, with 10 OEMs undertaking some level of action.
- Recommendation 6: AEMO collaborated with the CEC to develop a voluntary training course for installers as part of their continuing professional development for accreditation, the course was made possible with funding through the Victorian Department of Energy, Environment and Climate Action (DEECA) for Victorian installers and made accessible for installers in all regions.
- Recommendation 7: after learning of compliance issues from AEMO, we understand that the CEC have pursued additional communication to installers.
- Recommendation 10: AEMO continues to work closely with OEMs to gather data on compliance to DER Technical Standards.

Draft recommendations relating to inverter settings, remote inverter updates and access to compliance data are considered most beneficial⁴, provided implementation is well considered. AEMO notes that while installers may appear to be responsible, having direct ability to set the appropriate setting on install, inverter manufacturing has been identified as a key part of the supply chain where non-compliance originates. Further, funded training and additional installer guidance have been implemented with mixed results.

As acknowledged by the AEMC, most of the draft recommendations fall outside the AEMC's remit, given the existing scope of the NER, and would rely on original equipment manufacturers (OEMs), the Clean Energy Council (CEC), entities that administer the Small-scale Renewable Energy Scheme (SRES), distribution network service providers (DNSPs) and jurisdictions to voluntarily implement them. Where draft recommendations are within the AEMC's remit, AEMO would strongly suggest the measures be made mandatory, provided an appropriate level of consultation on the implementation of the recommendation. This includes draft recommendations where DNSPs are the voluntary party; particularly introducing commissioning sheets for CER devices (recommendation 8).

AEMO also identified some other potential measures that could be implemented to improve compliance and suggests that the draft recommendations could extend to other measures not contemplated by the AEMC. These include updating model standing offers to provide customer consent for remote changes, improvements to product listing processes to incentivise preferred practices, standardised test reporting for inverter testing laboratories, penalties for non-compliance, and standardised remote reading and writing of inverter settings.

The AEMC has sought stakeholder views on access to feed-in tariffs for consumers with non-compliant DER devices, as there is little impetus for consumers to rectify non-compliance. AEMO considers there is merit in exploring making feed-in-tariffs contingent on demonstrating compliance with DER technical standards in the absence of any other incentive for consumers to take action and highlights the importance of ensuring the end-to-end frameworks support customer outcomes in these circumstances.

Notwithstanding the importance of the recommendations to improve short-term compliance, AEMO considers voluntary measures are unlikely to maintain and resolve compliance in the long-term. This includes coverage of any future changes that may occur within DER technical standards or extended coverage to other installation types (such as electric vehicles, medium voltage installations) and device operational requirements (such as remote curtailment and interoperability).

3. Establishing an Enduring Regulatory Framework for DER Technical Standards

AEMO acknowledges the Baker McKenzie report⁵ which summarises the current regulatory frameworks and arrangements in each state, territory and the Commonwealth in relation to compliance and enforcement of CER technical standards and the roles and responsibilities of relevant regulatory bodies. This analysis provides stakeholders with a common understanding of the existing regulatory landscape and will be critical to informing broader reform deliberations. It highlights the complexity and fragmented nature of the existing

⁴ Recommendations 1, 3, 8, 9 and 10

⁵ Baker McKenzie, Review into consumer energy resources technical standards.

https://www.aemc.gov.au/sites/default/files/2023-04/230424_appendix_-_baker_mckenzie_regulatory_report.pdf

regulatory regime, which lacks clarity as to how the frameworks interact while involving multiple different stakeholders.

AEMO understands the AEMC's dual approach to progress the immediate actions to deliver incremental improvements in compliance rates as well as progress substantive reform of the national regulation of CER technical standards. However, AEMO has a general concern that the over-reliance on implementation of the voluntary immediate actions to deliver an uplift in compliance with DER technical standards may result in longer-term regulatory reform not progressing at sufficient pace to ameliorate increasing risks and future costs. Without an enduring regulatory framework, system security risks will continue to increase as DER deployment expands from a capacity perspective as well as a new device/technology perspective, including DER operational requirements across different devices (i.e. electric vehicles chargers) that are accessed/operated by different parties (i.e. interoperability) with different operational risks (i.e. cyber considerations).

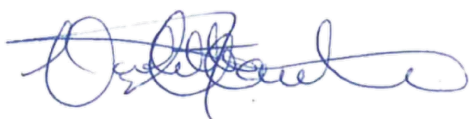
Additionally, the enduring regulatory framework should also consider that the WEM are also experiencing high penetrations of DER and similar challenges with non-compliance of inverters.

AEMO understands the AEMC is intending to conduct further quantitative analysis to understand the costs and benefits of addressing DER technical compliance and suggests that while the cost of inaction will likely be very significant, the costs of delayed action will also not be immaterial. From a bulk system operation point of view, non-compliance costs will be incurred when system disturbances arise that increase the size of credible contingencies that must be managed to maintain power system security. These are already being incurred to manage the power system and AEMO expects this trend will continue. The costs are discussed generally in our report and include increased procurement of frequency control services, increased distributed solar photovoltaic curtailment, reducing network stability limits, reduced windows for planned network outages, DNSP implications (including network performance and hosting capacity). While quantifying system security costs resulting from non-compliance is difficult, AEMO will work with the AEMC to ensure all relevant and latest insights we have surrounding potential costs are available to inform preparation of the final report.

We look forward to continuing to collaborate closely with the AEMC and industry to ensure regulatory regimes support the transition of the National Electricity Market.

If you have any questions or wish to discuss, please contact Kevin Ly, Group Manager Reform Development & Insights on kevin.ly@aemo.com.au.

Yours sincerely,



Violette Mouchaileh

Executive General Manager – Reform Delivery