

SwitchDin Pty Ltd
Level 1, Building B, 91 Parry Street,
Newcastle NSW 2302
T +61 421131550
E andrew.mears@switchdin.com

3 November 2022

Benn Barr
Chief Executive Officer
Australian Energy Market Commission

Dear Benn,

RE: Review of Consumer Energy Resources Technical Standards

SwitchDin welcomes the opportunity to provide feedback to the Australian Energy Market Commission (AEMC) consultation paper for the review of consumer energy resources (CER) technical standards.

SwitchDin is an Australian energy software company that bridges the gap between energy companies, equipment manufacturers and energy end users to integrate and manage energy resources on the grid. SwitchDin's technology enables our clients to build and operate vendor-agnostic virtual power plants and microgrids, and to optimise performance across fleets of diverse assets. Founded in Newcastle NSW in 2014, SwitchDin now operates in all states of Australia, including in leading-edge distributed energy projects like Simply Energy's national Virtual Power Plant (VPP), Flexible Exports (SA, VIC), Project Symphony (WA) and the Solar Connect VPP (NT), among others.

General Consultation Feedback

We welcome the clarification that the work of the Energy Security Board (ESB) to promote greater interoperability of CER will be investigated more fully through the AEMC CER Technical Standards Review process. It is vital that there should be only one market body in charge of reform of roles and responsibilities and the AEMC is the appropriate body to fulfil that role.

We agree it is appropriate that the review commences by considering compliance with and enforcement of CER technical standards in the National Electricity Rules (NER). We concur with the AEMC's assessment that devices are largely complying with the standard at the manufacturing stage and that the difficulties lie with compliance and enforcement of CER technical standards at the installation stage.

The AEMC is clear¹ that the distribution network service provider (DNSP) is the responsible party for determining whether CER complies with technical standards via the connection arrangements. This clarification is an important first step. The AEMC should next assess whether DNSPs have the tools at their disposal to discharge their enforcement obligations under the NER. If they do not, the AEMC should consider what changes are needed to enable DNSPs to do so.

There are simple and inexpensive solutions to monitoring and verification of regional settings and other technical requirements that may be applied at the time of installation. This is a problem that

¹ https://www.aemc.gov.au/sites/default/files/2022-09/220928_emo0045_consultation_paper_-_public_version.pdf, p.24

could be solved relatively cheaply and quickly, provided the AEMC clarifies and, if necessary, strengthens the enforcement powers and capabilities of DNSPs.

Responses to questions raised in the consultation paper

QUESTION 1: ASSESSMENT FRAMEWORK

1. Is the proposed assessment framework appropriate?

The proposed assessment framework is appropriate. It should also include criteria relating to impacts of regulation and mandatory application of standards on competition.

2. Are there any other relevant considerations that should be included in the assessment framework?

The assessment should also consider the impact of regulation and mandatory application of standards upon competition. The prescriptive and mandatory application of technical standards can limit competition. To minimise unintended consequences on competition, policy makers and regulators should mandate what needs to be achieved and should avoid mandating how to achieve minimum capability requirements.

QUESTION 2: COMPLYING WITH CER TECHNICAL STANDARDS

1. What is the rate of compliance with the NER's minimum inverter standards for micro embedded generation units?

We concur with the AEMC's assessment that devices are largely complying with the standard at the manufacturing stage and that the difficulties lie with compliance and enforcement of CER technical standards at the installation stage.

2. Do compliance rates differ between NEM jurisdictions? If so, why would this be the case?

The consultation paper (p.15) demonstrates that compliance rates vary between jurisdictions and DNSPs. In practice this is also the experience of SwitchDin and our clients.

3. What are the reasons for any non-compliance by DNSPs, manufacturers and consumers?

As noted in the consultation paper, CER technical standards must be met in the manufacturing, installation and operational stages.

We concur with the AEMC's assessment that the primary reason for non-compliance is associated with installation of relevant devices in accordance with AS 4777.2:2020. The high level of non-compliance at the installation stage is due to the lack of a verification and enforcement framework for CER standards at the point of installation.

4. Are there differences in the obligations to comply with minimum inverter standards between the NER and jurisdictional frameworks? If so, what do you understand these differences to be? What is the rate of compliance with jurisdictional requirements for minimum inverter standards?

Yes, there are differences between jurisdictions and DNSPs. e.g., different regional settings, different approval to connect processes, different export limitation requirements, different ramp rates, different post-installation reporting requirements, different jurisdictional reporting requirements on DNSPs. The variations between DNSPs' and jurisdictions' requirements contributes to the complexity of training installers.

5. *What are the rates of compliance with other CER technical standards obligations under jurisdictional frameworks?*

It would be helpful if the AEMC could outline the technical standards obligations (i.e., beyond the regional settings in AS 4777.2:2020) that are within scope for this question. For example, would export limitation and ramp rates be within scope?

Data on settings required through the connection approval process is most likely to be held by DNSPs.

QUESTION 3: MARKET IMPACT OF NON-COMPLIANCE FOR CONSUMERS

1. *What are the costs and benefits for all consumers from device owners complying with the NER's CER technical standards?*

We note the AEMC's observation that the market impact of any non-compliance with CER technical standards includes costs to consumers from:

- Less secure and reliable power supply,
- Increased network expenditure, and
- Reduced ability to install CER.

The consultation paper also notes that market impacts include the potential benefits from regulatory intervention. A potential cost of regulatory intervention can be reduction in competition. This risk can be managed if policy makers require capabilities and avoid prescriptive approaches to technical standards. In other words, tell the industry what to do, not how to do it. Allow multiple ways to achieve the same outcome, noting that a framework for assessing and verifying the suitability of alternative approaches is required to maintain scheme integrity.

2. *What are the costs and benefits for device owners from complying with the NER's CER technical standards?*

The benefits for device owners of compliance with the NER's CER technical standards are like those enjoyed by all consumers, namely:

- More secure and reliable power supply,
- Reduced network expenditure, and
- Enhanced ability to install CER.

The costs for device owners for ensuring compliance with the NER's CER technical standards at the installation stage will depend on the regulatory framework for enforcement and compliance. The key to minimising enforcement costs will be to facilitate competition so that industry can provide data verifying compliance at least cost.

3. *Are consumers facing any market-wide costs from non-compliance by device owners?*

SwitchDin does not have data on any market-wide costs from non-compliance by device owners.

4. *How are consumers able to manage compliance costs?*

It should not be the responsibility of consumers to manage unreasonable compliance costs. It would be more reasonable for the consumer to expect and assume that their compliance obligations and those of their service providers will be enforced through a regulatory framework with clear roles and

responsibilities, which allows industry to provide verification at least cost, and for DNSPs to apply enforcement action through grid connection approval processes, as appropriate.

5. *Do consumers face any other detrimental experiences from non-compliance, such as complex experiences installing and operating devices?*

The current regulatory framework hinges on the connection agreement, which is between the DNSP and the customer. This leaves the DNSP with the unusable enforcement option of disconnecting the customer due to non-compliance by the installer.

If DNSPs are given responsibility for enforcement, they will need tools to ensure compliance by installers. This could include:

- arrangements for data exchange between DNSPs and the Clean Energy Regulator regarding compliance rates observed for individual installers, and
- clarifying whether DNSPs have the power to refuse connection agreements with installers who have a previous record of persistent non-compliance.

Alternatively, the role of the installer and the original equipment manufacturer (OEM) could be defined in the NER. This would enable the Australian Energy Regulator (AER) to regulate installers and OEMs directly, rather than indirectly via DNSPs.

6. *Are device owning consumers aware of their obligations to comply with CER technical standards under the NER?*

Probably not, but the consumer shouldn't have to worry about compliance at the installation stage. The onus should be on the installer, not on the device owner. This shows the inadequacy of the current regulatory framework and installer certification requirements. The only responsibility for the consumer should be to ensure ongoing compliance (e.g., maintaining a stable internet connection) during the operating stage.

QUESTION 4: MARKET IMPACT OF NON-COMPLIANCE FOR DNSPS AND OTHER NON-NEM PARTICIPANTS

1. *What are the costs and benefits for DNSPs complying with the NER's CER technical standards?*

DNSPs are best placed to provide this data.

2. *Are these compliance costs and benefits expected to change with the NEM's increasing reliance on CER?*

The benefits of compliance will increase as the NEM's reliance on CER increases.

Future costs of compliance will depend on how data is collected, and how compliance is verified and enforced. If policy makers set a governance framework with clearly defined roles and responsibilities and avoid setting highly prescriptive rules that limit competition, industry can be expected to continuously reduce compliance costs using remote communication and automation.

3. *Do DNSPs face any significant challenges complying with jurisdictional requirements for CER technical standards? If so, how do these external challenges affect compliance with the NER?*

DNSPs are best placed to answer this question.

4. *How are DNSPs responding to non-compliant consumers?*

DNSPs are best placed to answer this question.

5. *What are the costs for non-NEM participants (such as OEMs and installers) from complying with the NER's CER technical standards?*

Inverter OEMs are best placed to provide data on the cost of updating their hardware, software and firmware and the cost of laboratory testing, certification and product listing to ensure that their products are suitable for installation. It is worth noting that this is now a 'sunk cost'. It is the compliance cost of installation, reporting, verification and compliance that is the ongoing cost.

6. *Do NEM consumers face any indirect costs from compliance obligations on non-NEM participants?*

Yes. A needlessly expensive compliance regime places indirect costs on NEM consumers in the form of opportunity costs from reduced benefits of CER that it would otherwise deliver across the system.

QUESTION 5: ENFORCEMENT AND OTHER POTENTIAL SOLUTIONS

1. *How are CER technical standards in the NER enforced?*

The consultation paper (p.24) states:

"In the context of the NER, the final determination on DER technical standards stated:

Placing the standard in the NER places an obligation on DNSPs to ensure the standard is met. This triggers the AER's existing capability to monitor and enforce this obligation."

The AEMC is clear that the DNSP is the responsible party for determining whether CER complies with the technical standards via the connection agreements. However, DNSPs might not have interpreted their role in this way. We understand, for example, that SA Power Networks is considering proposing expenditure for enforcement of technical standards in its next regulatory period, whereas the DNSPs in New South Wales (NSW), the Australian Capital Territory (ACT), Northern Territory (NT) and Tasmania have not done so. It is unclear whether this reflects differences in the interpretation of the NER, willingness to undertake an enforcement role, urgency of the enforcement issue or all the above.

To assist those DNSPs preparing to undertake an enforcement role, the AEMC should:

- Review the NER to ensure there is no regulatory barrier to DNSPs requiring data from OEMs (or their partners and agents) to verify compliance of the OEM's fleet of inverters.
- Do not specify how OEMs should obtain data and prevent DNSPs from prescribing how OEMs should collect data. Allow industry to solve the challenge of verification and reporting at least cost, within the limits of customer privacy and informed consent.
- Review the NER to ensure that adequate enforcement mechanisms are available to DNSPs regarding non-compliance by installers e.g., the power to refuse connection approval to installers with a track record of persistent non-compliance.

2. *What are the benefits of existing enforcement approaches? Are there any challenges?*

A potential benefit of the current enforcement approach is that the DNSP can exert influence through the grid connection approval process.

As outlined in the Consultation Paper, the challenge of the current approach is that there exists "a lack of clarity for some industry participants on the extent to which DNSPs have options for enforcing compliance with the NER's requirements for micro-embedded generators connecting to the

distribution network". DNSPs are reluctant to enforce compliance by disconnecting non-compliant customers. The connection agreement does not give DNSPs explicit enforcement powers over installers.

The connection approval process is where enforcement action can take place most efficiently and effectively. The Commission should clarify whether DNSPs can refuse grid connection applications on the grounds of persistent non-compliant behaviour on the part of the proposed installer.

3. *What, if any, gaps are there in the enforcement framework for DER technical standards?*

The AEMC is clear that the DNSP is the responsible party for determining whether CER complies with technical standards via the connection agreements. It would be helpful to clarify whether this applies to compliance with respect to manufacture, installation and ongoing operation.

It is unclear what powers are available to DNSPs to exert influence over OEMs and installers. We urge the AEMC to further explore:

- What enforcement actions are open to DNSPs if they identify installers whose work is persistently non-compliant?
- How are DNSPs expected to recover costs for enforcement of CER technical standards?
- What is the role for policy makers in ensuring that DNSPs do not mandate prescriptive technical approaches that reduce competition, deter innovation and risk locking in old technology?

4. *How can the NEM's market bodies work with non-NEM participants such as original equipment manufacturers, to improve compliance?*

Some OEMs can already report on the compliance (with respect to technical standards) of their installed fleet. Some OEMs have been providing data on compliance to market bodies such as the Australian Energy Market Operator (AEMO) for some time. Data collected through this process will (presumably) be made available to the AEMC by AEMO. The AEMC or the AER could also establish partnerships with OEMs, as AEMO has done.

5. *Are you aware of any penalties being applied to NEM participants for non-compliance with CER technical standards?*

DNSPs or the Clean Energy Regulator are likely best placed to answer this.

The Clean Energy Council (CEC) operates an installer accreditation process, whereby CEC accredited installers must comply with all relevant Australian standards, CEC guidelines, applicable laws, regulations and codes of practice This includes complying with network regulations when connecting to the grid and government rebate, grant or incentive scheme requirements.² The CEC's compliance procedure relating to CEC-accredited installers includes a rectification process for non-compliant installations, but often notification of non-compliance via the Clean Energy Regulator or responsible jurisdictional body is over a year after the installation was completed. Additionally, neither the CEC nor the Clean Energy Regulator nor the jurisdictional body would have access to data that would confirm non-compliance with technical standards such as AS 4777.2:2020. That data would likely come via a smart meter or direct from an inverter (where supported).

6. *How do jurisdictions enforce CER technical standards (including the use of penalties)?*

2

<https://www.cleanenergycouncil.org.au/industry/installers/compliance-toolkit/obligations#:~:text=CEC%20accredited%20installers%20and%20designers,grant%20or%20incentive%20scheme%20requirements>

The enforcement approaches vary by jurisdiction. Jurisdictional governments would be best placed to provide a summary of their activities.

7. How do jurisdictional frameworks interact with NEM-wide CER technical standards introduced through the NER?

Jurisdictional governments and the AEMC would be best placed to provide a summary of how their regulatory frameworks interact.

8. Is the ability of NEM participants to comply with technical standards in the NER affected by jurisdictional regulatory requirements?

DNSPs are also subject to regulation at the jurisdictional level and via the NER. The ability of DNSPs to prevent persistently non-compliant installers from connecting to their network could be affected by jurisdictional laws and regulations.

9. What are some solutions for non-compliance with CER technical standards?

The AEMC has already taken the first and arguably most important step, by making it clear that DNSP is the responsible party for determining whether CER complies with technical standards via the connection agreements. The next important step is for the AEMC to review and clarify the powers that DNSPs can exercise over OEMs and installers, particularly:

- Can DNSPs require OEMs (or their agents) to provide data to verify compliance of the OEM's inverter fleet?
- Could the DNSP withhold connection approval for a system if it proposes to use an inverter supplied by an OEM that has failed to comply with the DNSP's reporting requirements?
- Could a DNSP withhold connection approval for a system that will be installed by an installer that has a track record of persistent non-compliance?

10. Are there any solutions from other jurisdictions that should be considered, both domestically and internationally?

There is much room for improvement in connection approval processes, which are largely determined by DNSPs rather than jurisdictions. For example, all DNSPs in NSW should follow the example of DNSPs in other jurisdictions by requiring connection approval for CER systems prior to installation. NSW is out of step with the rest of the country. This is the logical place to begin if we are going to have a regulatory framework enforced through the power of the connection approval process.

11. Who should be responsible for compliance and enforcement of CER technical standards in the NER?

The AEMC is clear that the DNSP is the responsible party for determining whether CER complies with technical standards via the connection arrangements.

It is unclear what powers are available to DNSPs for enforcing compliance with the NER's requirements for micro-embedded generators connecting to the distribution network.

DNSPs should be able to require data from OEMs to verify the compliance of their fleet with relevant technical standards. The AEMC should clarify whether a DNSP can refuse connection approval for a system that proposes to use an inverter supplied by an OEM that has been unwilling or unable to provide the data required for verification of compliance of its fleet.

DNSPs should be able to request that installers rectify their work where there is evidence of non-compliant installations. The AEMC should clarify whether a DNSP can refuse connection approval for a system that proposes to utilise the services of an installer with a track record of persistent non-compliance.