10 November 2022

Australian Energy Market Commission
GPO Box 2603
Sydney NSW 2000

Submitted online

NSW DNSP response to: EMO0045 Review into consumer energy resources technical standards, Consultation paper

Ausgrid, Endeavour Energy and Essential Energy (NSW distribution network service providers (DNSPs)) welcome the opportunity to provide a submission on the Australian Energy Market Commission (AEMC) Consultation Paper, Review into Consumer Energy Resources Technical Standards.

NSW DNSPs strongly support the AEMC's review into technical standards for Consumer Energy Resources (CER). DNSPs also acknowledge the interconnectedness of this consultation paper, with its focus on compliance and enforcement of the standards, with other consultation currently being undertaken by the Energy Security Board (ESB) on interoperability and the Australian Energy Regulator (AER) on flexible export limits. When taken in context, the interconnected workstreams highlight the importance of the roles and responsibilities that need to be determined for the compliance and enforcement approach to be successful.

Being the interface between CER installations and connection to the network, DNSPs are in a key position to play a critical role in the compliance process through compliance monitoring and reporting. However, as highlighted throughout the responses to the consultation questions, access to relevant and timely information and data is critical to provide the level of reporting and oversight necessary to detect non-compliant installations. In particular, in the absence of this level of oversight, it is not possible for DNSPs to verify inverter settings. Further, if DNSPs are to participate in monitoring compliance with the standards and resolving any issues, the role needs to be adequately resourced to ensure it can be carried out efficiently and effectively. Further consultation will be required to establish the frameworks and platforms needed to deliver on the compliance and reporting objectives outlined by these initiatives.

Outside of monitoring and reporting functions, the compliance and enforcement framework will need to establish the roles and responsibilities for the rectification of non-compliant installations. Presently, DNSPs have a compliance role through connection contracts, and we play a role in advising and working with customers and installers of non-compliant installations when detected. The only other option available to DNSPs is isolation or disconnection, based on risk to the network or safety issues.

However, the effectiveness of our compliance role is limited by both our access to data and the range of actors involved, some of whom we have no ability to directly influence, such as the installers. Realistically, the entities with the greatest ability to influence compliance are the manufacturers (pre and post installation) and installers.

To be clear, DNSPs do not consider themselves to necessarily be the appropriate party to enforce compliance. This role could be undertaken by a number of market bodies to ensure a nationally consistent approach, such as the Clean Energy Regulator. We note that for any compliance measures to be effective, the organisation tasked with that role needs to be adequately resourced and empowered to act. Responsibility without the power to enforce is unlikely to produce the desired levels

of compliance. In this regard the Clean Energy Council already operates an installer accreditation process which could be better leveraged to ensure installers have the appropriate training and qualifications to perform their roles with incentive to maintain accreditation.

The Clean Energy Regulator could conduct enforcement activities and ensure that CER devices meet the technical standard. Metering providers could also play a role in ensuring that inverter settings are compliant before permitting the installation to enter the market. This would not stop rogue operators or customers from making adjustments to inverter settings after installation and audit, which is why a dynamic monitoring function, involving access to real-time information and data is important to the monitoring and reporting function. In any event, coordination of roles and responsibilities, along with timely access to relevant information and data, is critical and likely to be required across a number of organisations.

In adding these additional compliance and enforcement layers, and the resultant resourcing, care will need to be taken to ensure that the benefits to consumers for doing so exceeds the costs that consumers will ultimately bear. In doing so, we recognize that the existing costs of non-compliance – such as voltage control – are often hidden, with all customers bearing the burden. NSW DNSPs support the principle that risks and financial costs of the non-compliance burden should be borne by those who are able to manage the risk.

NSW DNSPs would welcome the opportunity to work alongside other DNSPs and the relevant market bodies to establish a framework for the monitoring, reporting and enforcement of compliance with CER technical standards that accounts the objectives of the other interrelated workstreams.

Our detailed response to the consultation questions is in Attachment A.

We welcome the opportunity to discuss any aspect of this submission with you.

Please contact for:

- Ausgrid: Nathan Laird at nathan.laird@ausgrid.com.au;
- Endeavour Energy: Albert Pors at albert.pors@endeavourenergy.com.au; and
- Essential Energy: Adam Young at adam.young@essentialenergy.com.au.

Yours sincerely,

Matt Webb
Head of Asset Investment
Ausgrid

Colin Crisafulli
Head of Regulation
Endeavour Energy

Anne Pearson
Chief Corporate Affairs Officer
Essential Energy

Attachment A: Detailed response to consultation paper options and questions

Contents

Assessment Framework

Consultation questions

1. Is the proposed assessment framework appropriate?

The framework outlined in the discussion paper represents an improvement from prior arrangements in Australian Standard AS4777.2:2015. The first three criteria of the assessment framework: Consumer outcomes; Safety, security and reliability; and Implementation considerations, consider the costs and risks of compliance with – and enforcement of – technical standards. However, there may be benefits of establishing and enforcing technical standards outside of the broad objectives of promoting the National Electricity Objective (NEO) and National Energy Retail Objective (NERO)s, that have not been considered. These include the assistance that orchestration and optimisation of Consumer Energy Resources (CER) could bring to the balancing of supply and demand across the power system. There is also the potential for the provision of new ancillary services. Benefits are only briefly mentioned in the "Principles-based approach" criteria.

Complying with CER technical standards

Consultation questions

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

Currently NSW distributors do not have a method for monitoring ongoing compliance of specific inverter settings for CER installations. Settings are applied by the installer. As a result, NSW distributors are unable to comment on the compliance rate. Reliance is placed on the Certificate of Compliance, supplied by the installer, as evidence of the installation complying with the relevant standards.

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

NSW distributors do not monitor compliance rates within or between jurisdictions, therefore we are unable to adequately answer this question. However, where there are differences between jurisdictions, it could be that compliance in jurisdictions that have adopted the default 'Australia A setting' is higher than in jurisdictions that have adopted the Australia, B or C settings.

Where compliance rates within or between jurisdictions arise differ may lead to incorrect settings being used by installers working close to (or across) network boundaries, particularly where different default settings are being used or networks are imposing additional requirements to the default requirements e.g. between inner west Sydney and western Sydney, or around other jurisdictional boundaries.

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

There are a range of possible reasons for non-compliance, including the following:

- Configuration errors by installers or back-end system configurators
- Potential tampering by consumers or installers to avoid restrictions

- Changing standards – introduction of a new standard may suddenly make previously compliant installation non-compliant, in particular, transition to adoption of IEEE 2030.5/CSIP-Aus. Non-compliance may be due to:
    - Standard/guide not being specific on certain aspects – leaving room for interpretation
    - loss of internet connection somewhere between CER and the DSO's IEEE 2030.5 systems
    - CER devices which do not natively support IEEE 2030.5/CSIP-Aus with home energy management system (HEMS) or cloud-based solution used to communicate to end CER device
- For newly installed systems, most jurisdictions allow for AS/NZS 4777.2:2015 compliant stock to be made compliant to AS/NZS 4777.2:2020 on the day of installation by conducting a firmware upgrade on site – temporary non-compliance.

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?

No, NSW solar installers are only required to comply with the minimum inverter standard set out in the NER. Additional requirements on top of that would only be imposed on a case-by-case basis and are reasonably rare in NSW networks at present.

Market impact of non-compliance for consumers

Consultation questions

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

NSW distributors expect that the direct compliance costs of meeting technical standards will be borne solely by customers with CER installed. On balance, these costs are likely to be marginal as installers should be applying settings at the time of commissioning.

The benefits are as listed in the AEMC review paper (i.e. increased hosting capacity and reduced network expenditure). Specifically, an installation that doesn't comply with the export settings in AS 4777.2 may result in network voltage rises curtailing other installations that are correctly set from exporting. This scenario could result in a loss of revenue for owners of the curtailed installations, depending on when the curtailment occurs and may result in network expenditure to reinforce the network or adjust tap settings. It may also lead to operational costs from network staff time spent on resolving customer complaints where this has occurred.

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

NSW distributors expect direct costs to be minimal as the inverters should be provided from the manufacturer with the Australia A, B and C settings already installed. The installer would select Australia A, B or C as relevant for the local jurisdiction. Benefits are as listed in the AEMC review paper (i.e. increased hosting capacity and reduced network expenditure). As per the prior scenario,

device owners that do comply with the requirements in AS 4777.2 contribute to minimising network expenditure due to inverter induced voltage rise.

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

Yes. As distributors may not have visibility over the settings within individual devices – nor is it currently able to obtain such information, except with the consent of the device owner and/or their manufacturer – distributors are unable to instruct a device owner to comply or recover the costs for non--compliance. Generally, DNSPs will try and work with customers to resolve issues resulting from non-compliance. However, when voltage rises occur due to non-compliant inverters, the distributor has no other recourse than to recover the costs for rectification of the voltage rise issue from the entire customer base (both those with solar and those without).

4. How are consumers able to manage compliance costs?

Consumers can directly manage compliance costs through early engagement with the installer to better understand their rights and obligations, to ensure that the device installed, as well as settings applied, are compliant with the relevant standard. However, some consumers may experience difficulties in understanding their rights and obligations in relation to installations and trust their installer.

Regulatory bodies could require installers to be licensed and comply with relevant regulations. An education campaign could focus on educating consumers. In order to further protect customers, regulatory bodies could consider requiring Metering service providers to check that a connection application has been approved by DNSPs before enabling the installation to enter the market. This would have a two-fold effect in removing non-compliant installers as well as to ensure there is no reward for non-compliant behaviour.

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

In terms of operational and installation issues, NSW distributors argue that the majority of customers would not be aware if installations are non-compliant as there is likely to be a high reliance on the competence of the installer to ensure compliance unless this is picked up by the network at the time of installation. Any compliance issues the customer might have regarding the operation or installation of CER devices is presumably directed to the installer. This also highlights the enforcement challenge and the decision about who is best place to do this. Networks' relationship is with the customer, not the installer. But it seems unfair to take action against the customer when installers are licensed and accredited to undertake the work, enforcement should be directed to the party at fault. Again, this points to enforcement being potentially better handled by a national body like the Clean Energy Regulator.

Generally, customers will raise a complaint where their PV system is "cutting-out" which, in most cases, is cause by non-compliant inverter settings. These are the obvious problems. Poor performing systems are rarely detected by a customer. Once the installer has completed the installation and has been paid, it can be difficult for a customer to get a resolution from the installer. The customer then raises a complaint with the network and expects the network to assist. Some inverters settings can be corrected remotely by the manufacturer once the issue has been identified. However, this generally requires the network, rather than the customer, to initiate contact with the manufacturer, so that the settings required to be used can be appropriately requested.

One would expect that, on becoming aware that the installation is non-compliant, a customer might consider the experience and rectification process – outlined below – detrimental, to the extent that the customer either rectifies the non-compliance or risks isolation of the installation.

Process for dealing with non-compliant installations

Where a Certificate Complaint Electrical Work (CCEW) has been submitted for the defective site the installer and customer receive notice of the defect. Follow-up will be with the installer in the first instance to discuss rectification. in cases where the installer still fails to rectify, we will isolate the installation if it presents a safety risk or poses a risk to the network. Repeat letters of defect notice without installers action are notified to the NSW department of Fair Trading.

When no CCEW has been submitted for the defective site, the notice of defect is sent direct to the customer only. In these cases, we rely on the customer to rectify the defect and only acts if there is a risk to the network or safety risk in which case we will isolate the installation.

There are also additional costs involved as part of this process in terms of re-inspection fees.

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

As previously indicated, it is unlikely that consumers are aware of their obligations to comply with CER technical standards under the NER. Customers would rely on the technical and regulatory competence of their selected installer. Any problems a customer may encounter with the installation are usually directed to the installer of the installation or the network as discussed above. In some instances, a customer may consider reporting issues to the Energy & Water Ombudsman (EWON). EWON may have information relating to solar complaints that may be of relevance for this review, even though these sorts of matters may not be within EWON's jurisdiction.

Market impact of non-compliance for DNSP's and other non-NEM participants

Consultation questions

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

The responsibility of distributors, as per the rule update, is to advise of compliance requirements as part of the connection process. Practically, however, compliance is dependent on the manufacturer/installer and this is also upon whom the customer would be reliant. Furthermore, connections may occur without prior connection agreements.

It is not uncommon for a distributor to find 'unapproved' solar installations connected to the network with metering arrangements in place. In such cases the customer is often unaware that no connection agreement exists as they rely on the installer to complete the relevant paperwork. The existence of a connection agreement is also no guarantee of compliance. Connection agreements with non-compliant installations happen occasionally, even though the customer or their agent (usually an ASP) has provided a declaration as part of the application process that they have met all of the requirements specified in the connection agreement.

The costs will depend on who is responsible for compliance and enforcement of CER technical standards in the NER. The benefits are as set out in the paper (i.e. increased hosting capacity and reduced network expenditure). DNSPs are unaware of the actual settings in the inverter and often have to monitor a site to determine if that particular site is operating outside of the expected parameters, this is a costly exercise. When non-compliance is identified, distributors are currently unable to recover the costs of trying to rectify this and can either work with the customer to make the site compliant, direct the customer to make the site compliance or enter into a disconnection process which is a lengthy and costly process, as well as detrimental to the customer experience.

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

Yes, particularly in relation to compliance depending on the final model chosen for ensuring this and whether additional technical standards are imposed.

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?

Currently NSW distributors do not face any significant challenges complying with jurisdictional requirements for CER technical standards in NSW. The rules require distributors to advise regarding compliance (chapter 5) as part of the connection agreement. Further additions or alterations to the requirements, altering existing distributor responsibilities may result in distributors facing challenges and wearing additional costs. For example, if distributors were made responsible for the reporting and rectification of non-compliant installations, distributors would face significant challenges in meeting this additional burden unless they were resourced appropriately to do so, both financially and in terms of their enforcement powers. Distributors in NSW have neither the visibility and access to data to detect the full range of non-compliance, nor the authority to act, particularly given the range of actors.

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

Normally, where issues arise, distributors endeavour to work with the customer to understand the nature of the issue, and work toward a solution to rectify. When appropriate, defect notices are issued – or if identified as unsafe or risk to the network – devices are isolated, and a non-compliance electrical inspection report is issued either to the installer or customer.

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

In NSW, the management of licensing arrangements for installers resides in the Fair-Trading framework (though we note as mentioned above the CEC also has a role in this regard in terms of accreditation if customers wish to access the Federal solar rebates for their installation) and is outside the remit of distributors. While OEMs and installers are required supply and install devices in compliance with the NER, it is beyond the remit of distributors to enforce compliance. Any action available to distributors is limited to isolation, or disconnection, based on risk to the network or safety and the only person whom they can directly take action in relation to is the customer.

The costs of meeting these requirements are currently likely to be low given they simply mirror AS4777.2. However, to the extent such requirements are extended they will come with a cost to

meet compliance with them which is why such changes need to be well thought through and nationally consistent as far as possible.

Enforcement and other potential solutions

Consultation questions

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

Through the obligation to meet AS4777.2 through our MSOs. However as NSW distributors do not generally have the capability to monitor or review the specific inverter settings (note in some instances it is possible as part of a site inspection to check the settings if there is a screen at ground level for reviewing and changing settings) they generally rely on the contractual terms of the MSO and the installers declaring as part of the connection process that they have met our standards as part of the connection. Where we discover that this has not occurred, we will take action as set out earlier.

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

One possibility, where issues are identified, is for OEMs to be required to update remotely. It is understood that this is challenging legally, given that the customer is not the OEM and the connection agreement is with the customer. NSW distributors query whether it would be better to extend the CER's remit to all inverters given it is looking at expanding its compliance approach. This could include installers being required to capture images at install to show correct settings have been inputted. Inverter manufacturers could also be required to share data with DNSPs to ensure/demonstrate compliance and to assist with network monitoring.

Currently, distributors are solely reliant on the OEM/installer ensuring that the inverters are installed as per AS4777 with the appropriate settings selected.

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

One way is to ensure that the key technical requirements or settings are hard wired into the device to reduce the chances of incorrect installation. Another way could be to change the technical requirements so that devices could be pre-commissioned and can have their settings done by the OEMs before they are provided to the installers.

A challenge for the Australian industry will be the application of the appropriate technical standards to electric vehicles (EV) vs equipment which is predominantly designed and manufactured internationally. For "smart" charging there is the consideration of e.g. control by DSOs and/or compliance with import dynamic operating envelopes. For Vehicle-to-grid (V2G), there is the consideration of whether the inverter is on-board the EV (V2G-AC) or in the EVSE (V2G-DC). Standards which may apply to EVs interacting with the grid are: OCPP, ISO 15118, AS 4777.2, IEEE 2030.5/CSIP/CSIP-Aus.

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

Where a site is defected, there are reinspection fees and to the extent a customer is disconnected there may be costs that flow from this.

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

In NSW this is left to networks to determine and currently this is largely limited to AS4777.2 in line with the NER requirements.

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

Again, as noted above this is largely left to networks in terms of direct compliance. In terms of the connection of CER more broadly, NSW customers engage an Accredited Installer as certified by the Clean Energy Council (CEC). For connection to the network the Accredited Service Provider needs to be engaged. Certificate of Compliance are to be provided to the customer and the DNSP by the Accredited Installer / ASP. The certificate of Compliance is intended to demonstrate that the installation is compliance with the relevant standards. The ASP is also required to declare they have met all of the relevant standards imposed by the network as part of the MSO as part of the connection application process.

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

Not to our knowledge (in NSW).

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

Ensure that compliance is made as easy as possible for installers and that installers/customers only have access to the bare minimum inverter settings required to ensure compliance. In addition, ensuring, appropriate visibility of settings to the body or bodies responsible for enforcement and compliance.

As CER are increasingly connected to vendor or aggregator back-end platforms via the internet, there is an opportunity on a voluntary basis for DSOs to receive bulk data sets to periodically confirm compliance of CER settings.

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

The committees and working groups for CSIP-Aus are and should be collaborating with IEEE 2030.5 and CSIP committees overseas to ensure that the standards/guides are as aligned as possible whilst acknowledging that Australia is leading the world in CER uptake and orchestration.

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

Ideally the CEC or the Clean Energy Regulator, or other relevant bodies involved in manufacturing, installation of and compliance verification of devices. Metering providers could require verification certificates from installers certifying the inverter settings before permitting the installation to enter the market. That is, different bodies need to be involved in the compliance and enforcement of CER technical standards across the lifecycle of CER. As products (CER, HEMS) are designed and manufactured, it is appropriate for testing to continue being done by third-party test houses and a register maintained by the CEC/Clean Energy Regulator.

If non-compliance is identified by DSOs, enforcement can be initiated by them, focussed on either the installer for a new/modified installation, or the property owner/occupier for an existing installation. We do not believe this process should change (e.g. a party appointed by the retailer) as a property owner's only enduring relationship is with the DSO/distributor.