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Submitted via email to [futureenergy@aemo.com.au](mailto:futureenergy@aemo.com.au)

Dear Daniel,

**Technical requirements for 200kW – 5MW DER connections: Public Consultation Report**

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback to the Australian Energy Market Operator (AEMO) on the Technical Requirements for 200kW – 5MW Distributed Energy Resource (DER) connections: Public Consultation Report ('the Consultation Paper').

The CEC is the peak body for the clean energy industry in Australia. We represent and work with Australia's leading renewable energy and energy storage businesses, as well as a range of stakeholders in the National Electricity Market (NEM), to further the development of clean energy in Australia. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

The CEC recognises the importance of this work, and the necessity of clear technical requirements for assets at all levels. We also fully support the intent of AEMO to remove any inconsistencies in current distribution network system provider (DNSP) connection frameworks for 200kW – 5MW assets. Notwithstanding this, introducing new technical requirements – particularly new product standards – is not a policy reform that should be taken lightly.

The CEC has consolidated member feedback in respect of if new standards are required, and if so what standards. There are varied opinions on this, which indicates that AEMO would benefit from undertaking more targeted consultation with original equipment manufacturers (OEMs) to determine the most appropriate pathway forward. Industry can work with directly with AEMO on the design and implementation of the most appropriate technical requirements including if, and what, a new product standard should look like.

In addition to the technical product standard itself, the CEC would also recommend that power limits are applied to net export capacity rather than generation capacity and these

requirements are relaxed where DNSPs already require supervisory control and data acquisition (SCADA) for the size range being considered.

We would also highlight that there are a series of reforms currently underway related to DER connections of varying sizes, all being undertaken by different bodies. This includes:

- Australian Energy Market Commission's (AEMC) – “Electricity pricing for a consumer driven future” which considers tariff arrangements for consumer choice and the role of distribution networks, retailers and energy service providers.
- The Federal Department of Climate Change, Energy, the Environment and Water's – “Streamlining network connection processes for consumer energy resources (CER) and electric vehicle supply equipment (EVSE).”
- A variety of National Reform Priorities arising from the National CER Roadmap – “Powering Decarbonised Homes & Communities.”
- Other state-based priorities like the recently released New South Wales “Consumer Energy Strategy.”

While these pieces of work will not directly impact on the recommendations being made by AEMO, it is important that all these pieces are coordinated. There will be work for manufacturers and installers arising from every one of these priorities, and it will be critical that the right prioritisation is achieved, and that any new technical standards are considered in parallel with these other reforms.

We offer the following considerations to improve clarity and understanding of consistent and appropriate specifications to assist in the effective management of the NEM bulk power system.

The Clean Energy Council is interested in ongoing consultation around the development of technical standards and has several OEM working groups that would be available for consultation and the provision of additional feedback to AEMO.

If you have any queries or would like to discuss the submission in more detail, please contact Emma Fagan ([efagan@cleanenergycouncil.org.au](mailto:efagan@cleanenergycouncil.org.au))

Kind Regards,

Emma Fagan  
Acting Director of Distributed Energy  
Clean Energy Council

## Feedback on proposed technical standards

### Proposed technical requirements

The CEC has consolidated feedback from a number of OEMs regarding the suitability of the proposed technical standards, as well as alternative options. As noted above, the introduction of new product standards is not a topic that should be considered lightly, and there are differing views from CEC members on the most appropriate technical solution.

- Consider the development of an Australian Guideline based on the EN 50549-2 technical requirements instead of IEC TS 62786-1. A Guideline based on EN 50549-2 will have all the benefits required, without the disadvantages of using IEC TS 62786, which is a proposed technical specification and is not yet fully approved.
- Consider whether there are any changes to the AS4777 framework that could be made that expands coverage to HV connected systems (or whether this is already implied given the inverter would still be connecting to the normal supply within the scope of 4777)

Note we also understand that other OEMs are currently still considering feedback to AEMO on the best approach forward.

There is support for establishing a consistent approach to setting new technical requirements for systems of all sizes, and the CEC agrees that this should be used to make it easier for assets to connect at the distribution level. However, given the lack of consensus on the most appropriate technical requirements, the CEC suggests that AEMO would benefit from doing some targeted engagement and development work with OEMs to determine the best pathway forward.

### AEMO requirements are not clear

Notwithstanding the comments above, the CEC also does not believe that AEMO is clear on exact technical requirements that systems between 200kW and 5MW proposed within the Consultation Paper. From what is recommended in the AEMO Consultation Paper it appears as though AEMO is recommending the following:

- IEC TS 62786-1 should be considered as a new technical standard for assets within the size class considered by AEMO, however:
  - The actual standard itself is not being required, rather AEMO will introduce their own technical specification which extracts a number of technical requirements from IEC TS 62786-1.
  - This will not apply to all systems – for instance pg. 5 of the Executive Summary notes that these requirements would not apply to 230/400V AC IES with less than 1.5MW aggregate rated capacity connected to the HV distribution network with LV load.
- IEC TS 62786-1 will ultimately be turned into an Australian standard.

The CEC highlights key concerns with this dual process in more detail below. We also see that there is a risk of having only some parts of a standard as a requirement and only some asset types captured. This makes compliance very unclear and may result in a raft of issues when it comes to assets trying to go through distribution network service provider (DNSP) connections without knowing officially if they're a captured system.

The AEMO Consultation Paper also notes an expanded application of the AS4777 technical requirements. Again, the actual requirements are not particularly clear in the Consultation Paper.

| Section                             | Key AS4777 Content   |
|-------------------------------------|--|
| Executive Summary (page 5)          | <p>This refers only to AS4777.1.</p> <p>It notes a proposal to broaden the scope of the Standard and make it applicable to <b>all</b> 230/400V AC inverters connected to the LV distribution system, capturing all systems 200kW – 5MW. However, AEMO then draws out specific requirements from AS4777.1 making it unclear whether it will just be these requirements that need to be complied with or the whole technical standard.</p>   |
| Executive Summary (recommendations) | No reference to AS4777.2 is made in the Executive Summary recommendations.   |
| Section 1.5 (page 18)               | AEMO mentions a consideration of AS4777.2 technical requirements for assets in the 200kW – 5MW range.  |
| Table 3 (page 31)                   | When AEMO considers the technical options available, they note an extension of AS4777.2 to all sub-5MW assets.   |
| Section 4.3 (page 46)               | <p>AEMO notes that “For requirements not covered by those described in Appendix A1, AEMO proposes to allow DNSPs to establish their own technical requirements for DER connections connected at HV level, as they currently do now.</p> <p>For 230/400 V ac IES connected at HV level, this may be at the DNSP’s discretion, including the application of the requirements of AS/NZS 4777.2 as applicable”. It then suggests AS4777 (no specification of both AS4777.1 and AS4777.2) applying to</p> |

“connections that will have a net impact on the power system of less than 1.5 MW.”

Section 4.5  
(page 47)

This discusses specific technical requirements from AS4777.2. This section is headed “Application of proposed AS/NZS 4777.2-2020 to LV IBR larger than 200 kVA”, however the text in the section does not make it clear whether these requirements are being recommended, or if it is a pure compare of the AS4777.2 technical requirements against the AEMO recommendations in Appendix A1.

This section also then ends with noting specific requirements from AS4777.1 which would apply to inverter-based systems larger than 200kVA and smaller than 1.5MW.

These requirements are different to those extracted in the Executive Summary, which also implies that these requirements would apply to all systems <5MW.

Section 5.1.1  
(page 53)

This notes that “the guideline would detail... any additional settings for plant 200 kW to 5MW for which AS4777.1 would apply”.

Yet, there is no mention of AS4777.2 and no mention of the proposed 1.5MW threshold discussed in other sections.

Section 6  
(Consultation questions)

This asks stakeholders “What are stakeholder perspectives on the application of AS/NZS 4777.1 and AS/NZS 4777.2 region-based requirements, for 230/400 V ac IES, less than 1.5 MW aggregate rated capacity, connected to the HV distribution network with LV load?”

Based on the Consultation Paper, it is very hard to determine:

1. Whether AEMO is asking for both AS4777.1 and AS4777.2 to be expanded to assets within the 200kW – 5MW range.
2. Whether AEMO is suggesting that the full standard be made applicable to those asset classes or just some cherry-picked requirements.
3. Whether AEMO is suggesting that these standards just be expanded to apply to all assets <5MW or just assets <1.5MW (in aggregate or single asset nameplate capacity).

AEMO’s stated goals with this piece of work is to provide increased clarity to industry, however if the proposed technical requirements were to be introduced as they currently stand it may result in increased confusion. The CEC would recommend:

- Using an entire standard rather than extracting specific sections of a standard into an AEMO technical specification.
- Not creating any more asset sub-classifications than is needed. AEMO has highlighted the gap between 200kVA assets and 5MW assets as being those systems that are not currently captured under the NER (as >5MW assets are) or clearly captured in the AS4777 series of standards. Creating additional asset sub-classifications for <1.5MW assets (without proper clarity on aggregation vs single name-plate assets) only creates more confusion.

The approach proposed by AEMO also creates a risk of OEMs being required to be certified and then recertified within close proximity. The CEC would recommend that AEMO first works with OEMs to align on the best technical standard, we would recommend that either certification against the standard is required in full, as a single process (with no future Australian Standard), or that AEMO works with Standards Australia to fast-track an Australian Standard, and there is no interim AEMO Guidance released. Or alternatively that certification is just required to an AEMO Guidance note, with no future Australian standard then developed. AEMO should also work with OEMs on suitable certification timelines.

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## Other practical concerns

### **Risk of developing temporary technical requirements as well as developing a new Australian standard**

Based on the recommendations from AEMO, it appears as though new technical requirements may be temporarily required through the proposed AEMO technical specification, based on IEC TS 62786-1, while at the same time Standards Australia will be tasked with developing an Australian version of the Standard.

We would caution against this approach as it will likely result in a double up of work for industry. AEMO does not specify how product technical compliance will be verified, but the most likely outcome is that all product types will need to be tested and certified to IEC 62786-1 to confirm compliance. If an Australian Standard then differs from the original IEC TS 62786-1 then products will need to be reconfigured, retested and recertified. On top of this, there are products in market that will be used for both <200kVA installations, and >200kVA installations, which means that OEMs will need to be selling two different variants in Australia certified to different standards.

As noted above, the CEC believes that the first step is for AEMO to work with OEMs to align on a suitable product standard, and then determine a single process forward that requires only one product certification.

## **Product certification and compliance**

Another practical consideration that needs to be factored into the process, is the body responsible for verifying compliance. The CEC currently provides the product certification for all <200kVA assets against AS4777.2. This is a derogated responsibility from the Clean Energy Regulator (CER) specifically for products that are eligible for claiming SRES certificates and would not apply to the asset types considered in this Consultation Paper.

To fully streamline the process AEMO needs to consider how product compliance will be managed. Ideally you need a single product list, and a body that can confirm compliance against the required standards. If this is proposed to be done by AEMO, then AEMO will need full agreement from all DNSPs that a centralised product list is considered appropriate.

## **DNSP interaction**

A stated goal of AEMO in doing this work is to reduce some of the jurisdictional inconsistencies with the DNSPs in terms of their connection requirements and technical specifications for systems 200kVA – 5MW. The CEC is very supportive of this. However, we do think that there is still a lot of uncertainty both in the technical requirements being proposed by AEMO, and in the way they will be implemented. All of these points need to be fully worked through and agreed with all DNSPs.

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