Ausgrid Submission

AEMO consultation paper on Initial DER Minimum Technical Standards

September 2020

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29 September 2020

Attn: Ms Aubrey Zibelman
Chief Executive Officer and Managing Director
Australian Energy Market Operator
20 Bond Street
SYDNEY NSW 2000

By email: DERProgram@aemo.com.au

Dear Ms Zibelman,

Ausgrid is pleased to provide this submission to the Australian Energy Market Operator's (AEMO's) consultation paper on *Initial Distributed Energy Resource (DER) Minimum Technical Standards*.

Ausgrid owns and operates an electricity distribution grid that is shared by approximately 4 million Australians living and working across an area stretching from southern Sydney to the Upper Hunter Valley, including the Sydney CBD. Increasingly our customers expect the distribution network to be an open platform that supports a vibrant ecosystem of new technologies and access to services that they value. We welcome rule changes that support the safe, efficient and effective operation of the power system as we work towards better customer outcomes and the transition to a low carbon future.

Ausgrid understands AEMO's concerns about managing system security in a high variable renewable energy world and the challenges already posed by high solar PV penetration. We also appreciate the need for a number of immediate short-term actions to address urgent system security issues in jurisdictions such as South Australia through mechanisms such as voltage disturbance ride-through capability.

Whilst the importance of these issues is recognised, Ausgrid is not supportive of the proposed rule change to which this consultation relates which seeks to give AEMO the power to set DER minimum technical standards. We set out the reasons for this view in our July 2020 submission to the Australian Energy Market Commission's (AEMC's) rule change process. We are, however, supportive of the rule change proposal just submitted by the Energy Security Board's to have DER technical standards set by a DER Standards Governance Committee convened by AEMC under the National Electricity Rules.

Notwithstanding the concerns we raised in our submission to AEMC, we broadly support AEMO's suggested approach of setting DER technical standards through the adoption of Australian Standards, in this case AS4777.2, as updated from time to time. This will avoid the risk of inconsistencies or duplication of effort from those set in the standard.

In terms of AEMO's other key recommendations we agree that:

- the minimum standards should include an inverter undervoltage disturbance ride-through conformance test procedure but are of the view that this is best achieved through the adoption of the updated version of AS4777.2, which includes an appropriate test, and
- the initial standards should not incorporate DER data, communications and interoperability provisions.

Our support for AS4777.2 being set as the minimum standard for DER is predicated on Ausgrid and other distribution network service providers (DNSPs) being able to:

1. continue to set additional requirements over and above the minimum standards, and
2. accept a proposed connection that complies with the objective of the standard but achieves this through an alternative pathway.

There may also be circumstances where we need to modify the minimum standards due to the current requirements of the network, as an interim measure until we are in a position to accept full compliance.

In addition to the comments above, our submission provides views on the questions raised in AEMO's consultation paper, noting these responses have been provided on the assumption AEMO is given the obligation of determining the minimum standards. Should AEMO have any questions in relation to this submission, please contact Nathan Laird, Planning Policies and Procedure Manager, Asset Management on 02 9160 6853 or nathan.laird@ausgrid.com.au.

Yours sincerely

Junayd Hollis
General Manager – Asset Management

Consultation Paper Questions

1. What are the costs and benefits of implementing enhanced testing for short duration undervoltage disturbance ride-through in the initial standard? (Noting that these would likely be superseded upon the publication of the AS/NZS 4777.2).

The testing procedure, as proposed in the revised AS 4777.2, is likely to be a cost-effective solution and its 12-month phase in time appropriate, given that South Australia has already introduced a testing requirement. Any contradiction or replication of this would be inefficient and the customer/system benefits would need to be carefully considered.

2. What are the implications of mandating in the initial standard for additional testing to confirm that inverters can meet the short duration voltage ride-through test procedure, including in relation to DNSP obligations to manage their network safety, power quality and reliability?

While we acknowledge we currently require that new connections comply with AS4777.2, this may broaden the scope of DNSP's compliance role and place additional risks and operational burden on us. DNSPs may not be best placed to undertake compliance in relation to such requirements and it is worthwhile considering, to the extent that minimum standards are to be set, how best these standards should be enforced. This might be better overseen through a State (NSW Fair Trading) or Federal (Clean Energy Regulator) regulatory agency.

3. To operate the power system securely, a level of certainty is required to ensure new installs can satisfactorily withstand a transmission level fault of this nature. Are there other cost-efficient solutions available that provide a high level of certainty in achieving this objective? What considerations need to be made for small DER businesses, manufacturers and consumers?

We note our response to question 1. We note that AS4777.2:2020 is also currently proposed to include multiple disturbance ride through, which, if this is part of the revised standard, will further enhance the ability of the inverters to support the system in these situations.

4. Should this or a future version of the DER minimum technical standard incorporate AS/NZS4777.2 and/or the revised version, following its publication (expected to be in early 2021)? What are the benefits and risks in doing this?

Ausgrid strongly supports alignment with Australian Standards. Until we understand the governance under which these proposed AEMO standards operate, we do not support minimum standards that deviate from the Australian Standards as this is likely to result in either contradictions or duplication of effort.

5. What are the technical challenges faced by each industry sector in integrating DER?

For DNSPs like Ausgrid the primary challenge is ensuring that expenditure to facilitate DER integration is to the benefit of the entire customer base and comes at a cost that customers are willing to pay. Technical challenges include maintaining grid reliability, minimising voltage fluctuation, facilitating equitable access to exports, enabling new solutions like batteries and virtual power plants to be used for network support and system services, including system strength.

6. What interoperability functions are needed to help address the challenges and realise the value of DER?

To ensure the efficient and effective aggregation and orchestration of DER, interoperability functions including internet connectivity will be required. In addition to allowing DER to be aggregated, this would assist with enabling remote setting management and confirming of inverter settings. There also needs to be fit for purpose and secure communication protocols. These protocols should include a minimum level of encryption and be a proven and recognised industry standard protocol (e.g. DNP3); the more that vendors are allowed to create their own bespoke protocols, the harder integration and ongoing management of DER will become. In addition, there needs to be discovery and self-registration of DER, appropriate levels of visibility and active management capabilities, as well as consideration of the need for trust sharing and device authentication methodology. Finally, as part of successfully integrating these functions or capabilities, there will need to be a framework developed around the roles and responsibilities in relation to these functions or capabilities in either specific or general circumstances.

7. What interoperability capabilities are available now for consideration in DER minimum technical standards? What capabilities will be required in the future?

Ausgrid is of the view that AEMO has not made the case from a system security perspective that there is a requirement for minimum standards in this space.

However, to the extent such a case were made, we refer to our response to question 6 in relation to what capabilities are required for consideration. We also note that, given the current fluidity and rate of change around interoperability, it is important to ensure that any minimum standards proposed are technology agnostic and do not prevent development of capabilities to enable and maximise the integration of DER. Interoperability must maximise the potential of new, emerging and future uses for DER including network support and system strength services from batteries and virtual power plants.

Ausgrid is aware that internationally there has been a range of work done to establish appropriate communication protocols standards, including IEEE 2030.5 Smart Energy Profile Application Protocol, and the MQTT protocol. However, any adoption of standards should be cognisant of and/or leverage the existing Australian Standards process where possible.

8. What are the priority interoperability capabilities to be taken forward in minimum standards over the next 2 years?

Ausgrid has no additional comments on this question; please refer to our answers to questions 6 and 7.

9. Should the DER Visibility and Monitoring Best Practice Guide developed by a sector of industry participants be utilised as a basis for review and inclusion in future minimum DER technical standards, and if not what other options should be considered?

As referred to above, Ausgrid supports alignment with Australian Standards and generally believes this is the best vehicle for updating minimum technical standards in this space as it already facilitates involvement from all stakeholders and participants in the sector. Where no such standards exist

consideration can be given to other national or international standards, guidelines or best practice guides but any adoption of standards should be cognisant of and/or leverage the existing Australian Standards process where possible, including ensuring appropriate consideration of the view of all stakeholders and not just a sector of industry participants.

10. What developments exist in communications, data and interoperability systems, for consideration in future DER minimum technical standards?

No additional comments. Refer to our answers to questions 6 and 7.

11. Should the Australian Implementation Guide for IEEE 2030.5 currently under development by a sector of industry participants be utilised as a basis for review and inclusion in future minimum DER technical standards, and if not what other options should be considered?

As set out in our response to question 9, Ausgrid's view is that the best process for the review and update of any minimum standard would be through the general process for review and update of Australian standards, which facilititates involvement from all stakeholders and participants in the sector as opposed to a document prepared by a subset of these. However where no such standards exist consideration can be given to other national or international standards, guidelines or best practice guides but any adoption of such standards should be cognisant of and/or leverage the existing Australian Standards process where possible, including ensuring appropriate consideration of the view of all stakeholders and not just a sector of industry participants.

12. If an implementation date were to be set in the initial standard, what is an appropriate implementation date for the short duration voltage disturbance ride through requirements?

We do not think there is a need for an implementation date other than that which is proposed to be set by the revised AS4777.2:2020 of 12 months to comply with the new requirements.

13. What are the benefits and risks/costs of staging implementation of the initial standard across jurisdictions?

Staged implementation is warranted if any aspect of AS4777.2:2020 is sought to be commenced ahead of the suggested 12 month implementation phase. Ausgrid's view is that this would only be justified in South Australia but query whether it is necessary given the changes South Australia has already adopted which appear to have addressed the immediate issues.

14. Do you suggest any changes to the proposed test procedure? What and why

We recommend the following changes:

a) clause 7.1 should include an extract of clause 7.4 and table 13 from 4777.2:2015 instead of just referencing the standard.

b) clause 7.3.3 should include the actual data from Energy Networks Australia (ENA) tables 4a, 4b & 4c, to avoid issues if these tables are updated by ENA.

We also raise the following queries for consideration:

c) clause 7.4.4.(3) and 7.4.3(i) appear to refer to a non-existent energy measurement in clause 7.4.2 (e)

d) clause 7.4.5 refers to clauses A1.5.2 and A1.5.3, however it appears these may be an error and the references should be to clauses 7.4.2 and 7.4.3.


Thank you
Ausgrid