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Technical standards for distributed energy resources, Consultation paper, 25 June 2020 [ERC0301]

Jemena Electricity Networks (**JEN**) thanks the Australian Energy Market Commission (**AEMC**) for providing the opportunity to comment on the rule change request from Australian Energy Market Operator (**AEMO**).

AEMO submitted the rule change request to the AEMC on 5 May 2020. The rule change request was prepared in co-operation with the ESB as requested by the COAG Energy Council. In the rule change request, AEMO stated that there are gaps in current technical standards for DER, which are increasingly driving system risks to unmanageable sizes across the NEM and without establishing minimum technical standards, NEM system operation may be suboptimal.¹

Accordingly, AEMO is seeking to create an obligation on AEMO to create a subordinate instrument for a minimum technical standard for distributed energy resources (**DER**). AEMO considers a rule change could give it authority to set minimum technical standards, capabilities, and performance of emerging DER units through a subordinate instrument. In its view, a rule change to this effect could create a capability for AEMO to monitor and control DER loads, particularly solar PV, in order to minimise system impacts to the transmission-distribution interface and maximise efficient integration.²

Key messages

- We support the creation of a subordinate instrument for the *initial* minimum technical standard for DER and the subordinate instrument be inserted in Chapters 5 and 5A the National Energy Rules, provided there is an end date specified for the initial standard. Introduction of any other technical standards of DER over time including the review of and updating of the initial standards should be undertaken under the governance of proposed DER Standards Governance Committee.³

¹ AEMC, Consultation paper, Technical standards for DER, 25 June 2020, p. 10.

² Ibid., p. 11.

³ COAG Energy Council, Energy Security Boards Governance of DER technical standards, Consultation paper, July 2020, p. i.

- Further, we do not support a rule change giving AEMO the capability to control DER loads, particularly household solar PV. If there is a need to control the DER loads at a distribution level, we will collaborate with AEMO in controlling the DER loads. For example, under the current load shedding arrangements, if load shedding is required to deal with generation short-fall, the DNSPs are directed by AEMO to shed load. It is the DNSPs which decide how the load shedding is achieved in their distribution area as they understand the impact of load shedding to its customers better than AEMO and it is they who would have to respond to customer calls on load shedding.
- AEMO has suggested that the minimum technical standard should cover three technical performance capabilities:
 - inverter performance and grid responsiveness
 - interoperability and communication interfaces
 - cyber security measures.⁴

We support AEMO setting the *initial* minimum technical standard for DER on inverter performance and grid responsiveness, however, we consider setting of DER technical standards in the areas of communication and cybersecurity is premature at this stage and should be decided by the proposed DER Standards Governance Committee.⁵

- DER includes distributed air conditioners, hot water systems, pool pumps and other large appliances, rooftop PV systems, small diesel generators and distributed batteries.⁶ We do not believe it is necessary to define DER explicitly in the NER because as technology changes, the coverage of what is considered DER is likely to expand.
- Currently there are obligations on DNSPs relating to connection of embedded generators in Chapters 5 and 5A of the NER. We support supplementing those obligations to ensure new and replaced DER meet the minimal technical standards for DER.

We have provided responses to the specific questions posed in the consultations paper. They are set out in Attachment 1.

If you require further information in relation to the submission, please contact Siva Moorthy on (03) 9173 8774 or at siva.moorthy@jemena.com.au.

Yours sincerely

[signed]

⁴ AEMC, Consultation paper, Technical standards for DER, 25 June 2020, p. 10.

⁵ COAG Energy Council, Energy Security Boards Governance of DER technical standards, Consultation paper, July 2020, p. i.

⁶ COAG Energy Council, Energy Security Boards Governance of DER technical standards, Consultation paper, July 2020, p. i.

Karl Edwards
General Manager Asset Management
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Attachment 1 – Response to questions in AEMC’s questions in the consultation paper on technical standards for distributed energy resources

Question	JEN response
1 Do you agree with the proposed assessment framework? Should the assessment framework include any additional considerations, and if so, what are they and why?	We agree with the proposed assessment framework.
2.1 Should the initial DER technical standard be set by AEMO?	We support AEMO setting the <i>initial</i> technical standard provided there is sufficient consultation with the industry in accordance with the Rules consultation procedures.
2.2 Should the minimum standards be inserted into the minimum content requirements of connection contracts, negotiation frameworks and model standing offers or terms?	We support including the minimum technical standards in the minimum content requirements of connection contracts, negotiation frameworks and model standing offers. Further, we support the AEMO’s proposed legal framework set in Box 2, except that the new rule be inserted in Chapters 5 and 5A of the NER instead of AEMO’s proposal seeking to have it inserted in Chapter 3 of the NER.
2.3 What should the standard apply to and is a DER definition needed in the NER?	<p>DER includes distributed air conditioners, hot water systems, pool pumps and other large appliances, rooftop PV systems, small diesel generators and distributed batteries.⁷ It is not necessary to define DER explicitly in the NER; as technology changes the coverage of what is considered DER is likely to expand.</p> <p>Household DER that has the capacity to export is generally connected to the grid by way of an inverter. The minimum technical standard does not have to necessarily apply to all of DER devices noted above, but rather to the device (for example, grid interactive inverters) that</p>

⁷ COAG Energy Council, Energy Security Boards Governance of DER technical standards, Consultation paper, July 2020, p. i.

Question	JEN response
	controls the various DER which interconnects to the grid. Therefore, we believe the standard should apply to the interconnecting control device of DER.
2.4 Do stakeholders agree that the standard should only apply to new and replacement devices? Will this meet the objectives of the desired policy outcome of this rule change request?	<p>We believe the standard should only apply to new and replacement interconnecting control devices of DER. The standard should not apply to existing devices including those that are repaired under manufacturer’s warranty.</p> <p>Application of the new minimum technical standard to DER connections should allow for a reasonable transition period to allow for installation of the DER products already manufactured under the current standards.</p>
3.1 Should the scope of the initial technical standard be limited by the NER?	<p>AEMO has suggested that the minimum technical standard should cover three technical performance capabilities:</p> <ul style="list-style-type: none"> • inverter performance and grid responsiveness • interoperability and communication interfaces• • cyber security measures.⁸ <p>We believe the initial technical standard should be limited by the NER to only the inverter performance and grid responsiveness.</p> <p>DER technical standards in the area of communication and cybersecurity should be decided by the proposed DER Standards Governance Committee.⁹</p>
3.2 If so, should there be arrangements to allow for a review of the scope at a future date?	Yes, this should be determined during the ESB consultation with industry into the long term governance framework for the DER minimum technical standards.

⁸ AEMC, Consultation paper, Technical standards for DER, 25 June 2020, p. 10.

⁹ COAG Energy Council, Energy Security Boards Governance of DER technical standards, Consultation paper, July 2020, p. i.

Question	JEN response
	<p>The consultation paper on Energy Security Boards Governance of DER technical standards proposes the DER Standards Governance Committee would be responsible for:</p> <ol style="list-style-type: none"> 1. setting a vision for DER technical standards; 2. developing a technical standards work program; 3. monitoring, reviewing and setting DER technical standards; 4. considering issues related to compliance and enforcement of standards in their development; and 5. providing advice on standards and undertaking related reviews.¹⁰ <p>We believe the DER Standards Governance Committee is the right body to determine the appropriate time to review of the initial standard. That being said, there should be a minimum period of time between the initial standard and a change to a revised standard due to increased testing and implementation costs faced by the industry.</p>
<p>3.3 Should the role of AEMO in setting DER minimum technical standards (the subordinate instrument) be limited in time, with the ESB's governance review outcomes to be introduced into the framework at a later date?</p>	<p>We believe the role of AEMO in setting DER minimum technical standards should cease following establishment of the DER Standards Governance Committee.</p>
<p>4.1 How can the proposed solution be applied in Western Australia, Victoria and the Northern Territory?</p>	<p>The proposed standard can be established in Victoria by including a requirement in the Chapters 5 and 5A of the NER requiring connection applicants of DER to comply with the minimum technical standards. DNSPs can then duly include these standards in the connection contracts and model standing offers..</p>
<p>4.2 Is it sufficient to specify a commencement date for the DER minimum</p>	<p>We consider it is sufficient to specify a commencement date for the DER minimum technical standard in the NER.</p>

¹⁰ COAG Energy Council, Energy Security Boards Governance of DER technical standards, Consultation paper, July 2020, p. i.

Question	JEN response
<p>technical standard only and have the implementation dates for the individual standard components set out in the standard itself?</p>	<p>The consultation paper contemplates that it is possible that the individual requirements of the initial minimum standard could have different implementation dates. Since the final contents of the technical standard is not known at this time, we support setting out the implementation dates in the standard.</p>
<p>4.3 What level of compliance monitoring is needed?</p>	<p>We have processes in place for customers to apply for the connection of micro embedded generator in accordance with the requirements of the Chapter 5A of the NER. These applications cover solar electricity generating systems, batteries and meter re-configurations that are necessary to measure the generation exports. It is in all of the DNSPs' interest to ensure compliance of technical standards of the connected DER, given rapid growth of DER is having on distribution network making it increasing complex and difficult to manage. So, we question the benefits of light-touch monitoring and compliance, as suggested by AEMO.</p> <p>Despite our compliance processes for connecting micro embedded generators, once an initial micro embedded generating system is connected, we are not always notified of modification to these DER devices.</p> <p>We understand there are existing compliance and monitoring systems under the Clean Energy Council and the Clean Energy Regulator, relating to the certification of products, and installers of electricity generating systems including solar panel and batteries. To improve compliance, we believe there a need to develop a wider compliance and monitoring of DER installers through accreditation administered by the jurisdictional safety regulatory or a new national body.</p> <p>Compliance would be achieved during the connection application process by only accepting compliant inverters and rejecting non-compliant inverters. For example, if minimum technical standards relate to inverter testing methodology/standard by the manufacturers, then we would only accept DER connection applications that proposes to install inverters tested to the correct standard such as AS4777.2. However, at an installation level, compliance should also cover proper control settings in the inverter, which is the generally the responsibility of the installers.</p>

Question	JEN response
	<p>Clear compliance requirements should be defined in the NER to ensure the level compliance is consistent across the NEM. We consider the specific details of the minimum technical standards set out in the proposed subordinate instrument will drive the level of compliance.</p>
<p>4.4 Who should monitor compliance with the technical standards?</p>	<p>As noted above, compliance should be governed at a product and installation level, and the compliance should be governed and enforced by an established body such as the Clean Energy Council or Clean Energy Regulator.</p>
<p>4.5 How can compliance be enforced?</p>	<p>As per the response in 4.4 compliance of standards should be governed and enforced by an established body such as the Clean Energy Council or Clean Energy Regulator.</p>
<p>5.1 Considering AEMO's proposed initial standard in section 5.2, Box 1, what are the expected costs and benefits of implementing the initial standard for consumers, other affected parties and DNSPs?</p>	<p>Increased minimum technical standards are likely to involve increased testing of inverters by manufacturers which will increase the price of the product to the customer. We believe the change is necessary to help maintain the power system security which will benefit all prosumers.</p> <p>Ensuring compliance with the minimum technical standards will likely increase the operating and capital expenditures of the DNSPs to manually check inverter or put in place systems to remotely read inverter settings and process the data.</p> <p>The benefits are increased system security by balancing supply and demand; and efficient management of distribution network – that is, ensuring voltages on the network remain within the technical standards and keeping customers' DER connected.</p>