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Dear Commissioners

Technical standards for distributed energy resources

EnergyAustralia is one of Australia's largest energy companies with around 2.5 million electricity and gas accounts in NSW, Victoria, Queensland, South Australia, and the Australian Capital Territory. We also own and operate energy generation portfolio across Australia, including coal, gas, and wind assets with control of over 4,500MW of generation in the National Electricity Market (NEM).

We appreciate the opportunity to comment on the technical standards for distributed energy resources rule change. EnergyAustralia is supportive of measures taken to ensure the stability and efficient operation of the energy system, and we acknowledge the AEMC's intent to achieve by requiring a technical standard for new Demand Energy Resources (DER).

Setting technical standards will provide assurance for the DER supply chain; with developers and manufacturers producing to the same standards enabling assurance on how they Demand Response participants can operate; however, we are concerned that the proposal to allow the AEMO to establish Technical Standards may limit innovation and adoption of DER technology (with increased barriers to entry), will not adequately achieve the desired grid stability benefits, and could be superseded; thereby representing an inefficient investment of time and money.

Prescription limiting innovation and adoption

Imposing technical standards for new DER technology will create barriers to entry for manufacturers and developers, particularly where the standards are overly prescriptive. This is a disincentive for DER market participants to introduce new products that can achieve improved energy efficiency and reduced costs to customers. Requiring compliance with the technical standards will create additional costs for customers from changes to DER technology that developers and manufacturers will need to accommodate.

The widespread adoption of solar has seen significant reductions in the total purchase cost of solar systems, the same reductions are anticipated for the purchase of household battery storage technology. Any additional costs in the production of batteries will result in higher prices, thereby reducing the speed in which customers adopt this technology;

this would contradict the intent of the AEMC's rule change, as battery technology has the capacity to address the grid stability issues created by excess solar.

EnergyAustralia has developed products for customers that optimise the benefit of their connected DER; including plans that compensate customers for their demand response action, or providing solar systems free of charge to customers enabling our participation in further demand response. The proposed rule would remove the value in providing these offers to customers.

Grid stability benefits not adequately achieved

The consultation paper removes the application of the technical standards to existing DER, this will remove any significant benefit the technical standards could achieve on grid stability. Across the NEM - on average - renewables contribute more than 30% of the total supply in the middle of the day (currently wind and solar has a combined 17 gigawatts generation capacity¹), applying the technical standards to new DER entrants will not address this underlying issue.

It is reasonable to expect that the benefits to grid stability will be significantly delayed, as it will take time for developers and manufacturers to meet the technical standards, and an extended period for the saturation required from the new DER. Notably, the initial customers that adopt the new technology will be unfairly targeted for AEMO's curtailment desires; unfair, as these customers will pay an increased price for the technology and will have it disabled more frequently than other DER customers.

EnergyAustralia understand that minimum technical standards for DER will only partly enable AEMO to conduct curtailment action, as AEMO does not currently have visibility of the Low Voltage networks, and full control of the DER is limited by the customer's metering.

Risk of inefficient investment of time and money

There is significant movement by government and regulators in the management of DER to ensure the energy system can operate in a secure manner, this creates the risk of inefficient investment of time and money by market participants. The ESB is overseeing the development of DER technical standards², this work will potentially supersede the technical standards established by AEMO through AEMC's proposed regulation. EnergyAustralia suggests the AEMC delay the rule change until the ESB has finalised its recommendations into the development of technical standards.

Alternative option to address identified risks

The AEMC must consider how minimum technical standards for DER will impact the NEO objectives of '*promoting efficient investment*' in the electricity system. EnergyAustralia believe the AEMC's proposal will have the adverse impact of reducing efficient investment in the electricity system; as such, we suggest the AEMC strongly consider an alternative option for achieving the desired benefit.

EnergyAustralia agree that manufacturers of DER should be required to enable some access to their products. They have already shown an intent to be accommodating of the requirements of the market, with manufacturers establishing flexible settings to allow for

¹ <https://aemo.com.au/en/news/renewable-integration-study>

² <http://coagenergycouncil.gov.au/publications/governance-distributed-energy-resources-consultation>

the varying jurisdictional requirements of networks. However, we believe that the best option for the control of DER is through the customer's meter.

In most instances the connection of DER at a customer's premise will require a new 'advanced/smart' meter to be installed, or for additional capabilities to be set in an existing smart meter. EnergyAustralia propose that metering providers (network owned or contestable) are required to update their infrastructure to enable access for curtailment purposes and to meet cyber security specifications; this would enable existing DER to be controlled, and provide the curtailment capacity to retailers, networks (where it is a network meter), demand response entrants, and/or AEMO.

The customer's meter is the most accurate and timely method for identifying energy flows, can help provide an overview of network constraints, and has the capability of functionality that will enable participants to enable or disable DER technology. Requiring metering to be responsible for DER interaction will address the risk of prescribing technical standards on DER manufacturers:

- Limits any additional costs to DER developers, manufacturers, and new customers. Costs for metering providers technology and physical metering updates are reduced due to their volume and capacity to absorb or evenly spread these charges (network metering charges are considered in the AER approved network determinations);
- New DER customers will not be unfairly constrained, as curtailment will be available to all DER, and with better visibility of where the curtailment is required;
- Greater and more timely benefits to improved grid stability, with all DER being capable of curtailment and a significant reduction in the timeframe required for the changes to be adopted;
- AEMO has oversight that metering providers have accommodated these changes, as it will be able to identify when meters are updated. Therefore, it will not encounter the oversight limitations of ensuring compliance by DER manufacturers;
- AEMO capacity to maintain system security is not limited by jurisdiction, as would exist by establishing requirements for AEMO to maintain technical standards in the NER.

Progressing this option would require further consideration for the actual interaction between AEMO and curtailing DER. It is conceivable that if AEMO were to require curtailment on a forecast basis (day ahead), it could use existing communication methods:

1. AEMO forecast grid stability issues;
2. AEMO advises these concerns to networks;
3. Networks identify connected DER in the targeted area (at the feeder/transformer level);
4. Networks communicates via B2B with retailers or metering providers that a curtailment event will occur;
5. Retailers can communicate with customers; and,
6. Metering providers conduct the curtailment.

If AEMO were to require more immediate curtailment access, then additional processes/interaction would need to be designed. It is worth noting, consideration for how AEMO will operate curtailment has not been addressed by the AEMC proposal.

Establishing these standards for metering would ideally coincide with an increase in the roll-out of smart meters; either by increased requirements set by government/AEMO, or through adoption of metering technology to accommodate DER. This will provide customers with greater access to cost reflective tariffs and better oversight of their electricity consumption.

Response to specific questions from the Consultation Paper are attached.

If you would like to discuss this submission, please contact me on 03 8628 1704 or Travis.Worsteling@energyaustralia.com.au.

Regards

Travis Worsteling

Industry Regulation Lead

Question 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?

EnergyAustralia accepts the AEMC's assessment framework; however, we highlight that there are also impacts that might hinder the NEO and NERO. Specifically, increased cost to customers for DER and additional limitations to entry, may result in the opposite of 'promote efficient investment in' electricity services.

This concern - discussed through the submission - can be summarised as:

- Conforming with new technical standards will result in DER manufacturers/developers increasing their costs, this will be passed through to customers;
- The increase cost of DER and the likelihood of curtailment may limit new customers considering investing in the technology; and,
- The risk that the technical standards established by AEMO may be superseded by the ESB's review of the governance of DER technical standards.

Question 2: Should the initial DER technical standard be set by AEMO?

AEMO is best placed to maintain the technical standards of DER; however, AEMO should only have consideration of its curtailing and system security capabilities. Ultimately, there are risks if AEMO is to impose technical standards that it will have adverse impacts on innovation and the roll out of DER. EnergyAustralia suggests the AEMC consider if there are more suitable avenues to achieving grid stability; such as, additions to metering technology (allowing interaction with DER and other high load appliances), as this would reduce the risk to innovation and enable existing DER to be included.

Question 3: Should the minimum standards be inserted into the minimum content requirements of connection contracts, negotiations frameworks and model standing offers or terms?

Yes, if minimum technical standards are established it would be suitable for DNSP's to maintain the obligation for connection of DER on their networks. It is vital that consistency between jurisdictions is achieved (where possible), to reduce compliance costs of DER developers/manufacturers.

Question 4: What should the standard apply to and is a DER definition needed in the NER?

The definition should not be included in the NER, as having it in this will limit the speed the market/network can accommodate new and evolving DER.

Allowing AEMO to curtail loads through greater access via connected metering technology, would remove any need for DER to be outlined in the NER; instead of limiting the grid stability to a DER technical standard. The capacity for AEMO to curtail is not something that is limited to jurisdictions covered by the NER, therefore it is not necessary to specify in the NER, especially if the curtailment is enabled by metering and doesn't require changes to connected DER.

Question 5: 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?

No, the grid stability issues that are currently being experienced are due to the existing DER technology that is connected. To impose the technical standards on only new DER, would result in new entrants receiving higher costs from manufacturers (increased costs to produce the products), DNSPS (increased costs for connection to the network), and less benefit from their DER (AEMO curtailing the new entrants).

EnergyAustralia do not consider imposing the technical standards on existing DER is a suitable way of addressing this concern (as this would be far more costly), our proposal is for metering technology to have the required system security functionality enabled; allowing curtailment of all DER (including existing).

Question 6: Should the scope of the initial technical standard be limited by the NER?

EnergyAustralia do not support the technical standards for DER as the optimum option to achieve improved grid stability. If technical standards are established, they should be limited by the NER, putting guidance on how the AEMO can operate its technical standards will limit the risk to the DER industry.

To further reduce inefficient investment risks, the AEMC must consider postponing its decision until the ESB review of governance of DER technical standards is finalised; as there is a risk that any decision made on the application and location of technical standards may become redundant.

Questions 7: If so, should there be arrangements to allow for a review of the scope at a future date?

EnergyAustralia do not support the technical standards for DER as the optimum option to achieve improved grid stability. If technical standards are established, they should be open to review at a future date. The technology and the grid are ever evolving; therefore, flexibility is required to accommodate the potential change.

Question 8: 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?

The AEMC would be inconsiderate to the costs that retailers, MC/MP, DNSP, AEMO, and most importantly DER manufacturers, would incur for complying with technical standards, if it did not consider postponing any decision on DER minimum technical standards until it becomes clear what the ESB governance review establishes.

Question 9: How can the proposed solution be applied in Western Australia, Victoria, and the Northern Territory?

It is outside of the remit of the NER for any proposed solution to work throughout Australia, this obviously creates significant limitations on any benefit a rule change would enable. EnergyAustralia suggest the AEMC delay progressing the rule change until the

ESB governance review has completed, as the ESB have the capacity to assess the market and its requirements holistically.

Additionally, if the AEMC was to require AEMO to establish technical standards or an alternative option (such as requiring metering coordinators/providers to enable access for curtailment) then it would be encompassing where AEMO operates.

Question 10: Is it sufficient to specify a commencement date for the DER minimum technical standard only and have the implementation date for the individual standard components set out in the standard itself?

EnergyAustralia do not support the technical standards for DER as the optimum option to achieve improved grid stability. If the technical standard is progressed, it is sufficient to specify a commencement date for the DER minimum technical standard only, and have the implementation date for the individual standard components set out in the standard itself.

Question 11: What level of compliance monitoring is needed?

Full compliance monitoring is required to ensure that AEMO has the capacity to enact its curtailment powers and minimise cyber security risks; in the interest of grid stability. The alternative proposal to require metering coordinators/providers to allow AEMO to access metering (and connected DER) for curtailment, would be an easier option for compliance due to the existing relationship between the parties.

Question 12: Who should monitor compliance with the technical standards?

If the technical standards are set under AEMO's subordinate instrument it would create inefficiencies in compliance monitoring, as the compliance is something that will need to be conducted by DNSPs in the first instance, with AEMO having limited capacity to verify physical assets.

The alternative proposal can be policed more effectively by AEMO, as it will be able to identify all the meters that have been modified to provide the required access; this could be achieved through updating a NMI's Standing Data.

Question 13: How can compliance be enforced?

EnergyAustralia's proposal is for customer's metering to have the capacity for AEMO's curtailment requirements. Where metering providers are not accommodating the requirement established by AEMO, it will have the power to take enforcement action where this compliance is not adhered to.

Question 14: 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?

EnergyAustralia has not completed a cost benefit analysis for implementing the technical standards, as we are not best placed to discuss the impacts on developers and DER customers (what they are willing to accept). Any cost benefit analysis by respondents will be based on significant speculation; however, we appreciate the AEMC's

consideration of cost and benefit in its rule change process. We would request that the AEMC consider that less cost and greater benefit might be achieved by considering EnergyAustralia's proposal (as detailed in the response).