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## Submission on the Proposed Technical Standards for Distributed Energy Resources

### Introduction

1. This is Vector Limited's (Vector) submission on the Australian Energy Market Commission's (AEMC) consultation paper, dated 25 June 2020, on the *National Electricity Amendment (Technical Standards for Distributed Energy Resources) Rule 2020* and the *National Energy Retail Amendment (Technical Standards for Distributed Energy Resources) Rule 2020*. The consultation paper is based on a rule change request submitted by the Australian Energy Market Operator (AEMO) to the AEMC, seeking the creation of a subordinate instrument under the *National Electricity Rules (NER)* that would allow AEMO to establish minimum technical standards for new distributed energy resources (DER) and a definition of DER in the NER.
2. As a Metering Coordinator, Metering Provider, and Metering Data Provider in the National Electricity Market (NEM), Vector welcomes the recognition in AEMO's rule change request of the enabling role of smart (advanced) meters in ensuring the security and reliability of the grid while optimising the benefits of DER investments for all Australians. A key aspect of addressing issues related to DER is accurate and timely measurement of a customer's consumption and generation. We note that jurisdictions in the NEM that have a high penetration of smart meters already have the tools to better manage the challenges associated with the increasing uptake of solar PV and batteries without placing additional costs or limitations upon the consumer. Therefore, in parallel to ongoing work directly related to DER such as this consultation, the accelerated deployment of smart meters must be encouraged.
3. In our view, the creation of a subordinate instrument for minimum technical standards for DER is highly prescriptive and is incongruent with an environment of increasingly shorter technology lifecycles and rapidly changing markets. It is not consistent with good regulatory practice, would increase costs for industry participants, and stifle innovation that benefits consumers. We discuss our views below as part of our responses to the consultation questions.
4. We do, however, support a high-level definition of DER based on service standards or service levels, similar to the "minimum services specification" for metering in the AEMC's *Expanding Competition in Metering and Related Services Rule*, rather than on minimum technical standards or technical specifications.
5. We also have concerns around the impacts of the introduction of new DER technical standards that will potentially curtail customers' generation and how this would be communicated to existing and potential customers. Insufficient consumer engagement will result in negative sentiment towards the industry - a topic of increasing interest to mainstream media. We believe the industry needs to take consumers along in the transition to new technologies.

6. We encourage the AEMC to cast a wider lens and consider more flexible approaches and solutions beyond a purely technical and engineering view of DER issues in the context of a rapidly evolving electricity sector. We make a few suggestions in this submission.

## Responses to consultation questions

### QUESTION 1: ASSESSMENT FRAMEWORK

Do you agree with the proposed assessment framework? Should the assessment framework include any additional considerations, and if so, what are they and why?

7. Vector agrees with the considerations set out in the proposed assessment framework which relate to:
  - a. the efficient operation of the electricity system;
  - b. efficient risk allocation;
  - c. regulatory burden; and
  - d. governance.
8. Given the wide-ranging impacts of AEMO's rule change request on industry participants and consumers, and its highly prescriptive nature, it would be consistent with good regulatory practice for AEMO's proposal to be subject to a cost-benefit analysis. We suggest what such a cost-benefit analysis could consider in our response to Question 5.
9. We also suggest that the AEMC consider whether all reasonably practicable options, including non-regulatory options, for achieving the objective of AEMO's rule change request have been canvassed.
10. As the proposed rule relates to the transition to new technologies, we further suggest that the AEMC consider whether making this rule would continue to incentivise innovation that benefits consumers over time (i.e. promote dynamic efficiency), rather than stifle it.

### QUESTION 2: SETTING THE INITIAL STANDARD AND DEFINITION OF DER

1. Should the initial DER technical standard be set by AEMO?
  2. Should the minimum standards be inserted into the minimum content requirements of connection contracts, negotiation frameworks and model standing offers or terms?
  3. What should the standard apply to and is a DER definition needed in the NEM?
  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?
11. Vector does not consider the creation of a subordinate instrument for mandating minimum technical standards to be the most efficient and effective way of managing DER installations in the NEM. A highly prescriptive approach is 'fragile by design' and could, in fact, result in unintended consequences.
  12. A mandated approach to technical standards imposes the following limits and costs:
    - a. Market competition is limited by locking out existing and potential market participants who are not currently using the required technical standards or who believe that better standards/approaches are available or could become available. This effectively becomes a barrier to market entry, stifling market competition and innovation.

- b. Where barriers to entry are created, consumers will not benefit from lower cost service provision or the choice of better services that meet their specific needs.
  - c. Mandated technical standards do not provide strong incentives for market participants to rapidly introduce new technologies that enable the delivery of innovative services to consumers. It makes service providers regulator/regulation-focused instead of becoming effective competitors and innovators that strive to meet rising consumer expectations.
  - d. Mandating specific technical standards before they are used (or widely used) creates the risk of 'gold-plating' services. This generates unnecessary costs for consumers who do not want or need some of the mandated functionalities.
  - e. In the near future, new functionalities may not be able to be delivered using today's technology. It would not benefit consumers if market participants do not have ample flexibility to upgrade or alter technical specifications in a timely manner. This could lead to outcomes where the delivery of services is not keeping pace with technological changes or what consumers value.
  - f. Introducing a new subordinate instrument adds unnecessary complexity to an already complex regulatory environment. Mandating technical standards is likely to increase the regulatory burden, increase costs for consumers, and requires substantial resources and takes time (usually years). In addition, the role of regulators in monitoring compliance with any new requirements and addressing industry disputes, some of which could have previously been resolved through contractual means, is expected to expand.
13. Should the AEMC approve the creation of a subordinate instrument, we suggest that the existing principles guiding Standards Australia's development of standards be adhered to:
- Our standards development process is based on the key principles of transparency, consensus and balanced expert committee representation. This process is regarded as one of the most rigorous in the world.*
- Before a project to develop a new Australian Standard or revise an existing Australian Standard commences, there needs to be demonstrable evidence that the standard will deliver a net benefit to the Australian community. Stakeholders also need to demonstrate there is sufficient industry and stakeholder support for the development of the standard.*
- Our policy is to base the development of Australian Standards on current international standards, avoiding unnecessary duplication, and allowing us to meet the requirements of the World Trade Organisation's Agreement on Technical Barriers to Trade.<sup>1</sup>*
14. We support the above principles and would expect any alternative process of establishing standards to subscribe to the same principles. We therefore question the need to create a new instrument for establishing standards where one already exists. We are concerned that giving AEMO the instrument to mandate technical specifications purely to expedite the adoption of standards would compromise the above principles of good standards development and result in poor outcomes for energy consumers.
15. We consider the issues outlined in the rule change request to be complex and multi-faceted, the solutions to which require a holistic approach. It requires understanding: 1) exactly how a technical service is to be used, 2) under what circumstances and timeframes can it operate, and 3) what processes are required to support the service. For instance, consumers may need to be compensated should their DER consumption or generation be curtailed. This is

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<sup>1</sup> <https://www.standards.org.au/StandardAU/Media/SA-Archive/OurOrganisation/Documents/Developing-Australian-Standards.pdf>, page 4

expected to take some time to design and implement beyond publishing a set of technical standards or technical services.

16. We therefore encourage the AEMC to consider more flexible approaches, options, or solutions that overcome the above limitations and complexities. Flexibility can be promoted, for example, by adopting common design principles, rather than technical specifications, so existing service providers and new entrants can benefit from interoperability and efficiency gains without stifling innovation.
17. We suggest a few more flexible approaches below, which are not necessarily mutually exclusive.
  - a. Apply minimum service standards or service levels to the DER installation instead of applying minimum technical standards to DER devices – rather than specifying technical standards, we suggest that AEMO focus on defining the outcomes required and specifying a set of minimum services or service levels that must be supported. For example, minimum services could require that DER installations need to support:
    - 1) metering of the customer’s consumption and generation;
    - 2) the ability for DER devices within the installation to be controlled on or off where appropriate, or limited to a percentage of their capacity;
    - 3) randomisation of response to control events;
    - 4) integration with the required B2B APIs for access to authorised parties such as AEMO, distribution network service providers (DNSPs), or retailers, as required;
    - 5) etc.

We note that the *Power of Choice* reforms in the NEM refrained from prescribing minimum technical standards/specifications for metering. Instead, the AEMC adopted a “minimum services specification” (i.e. focusing on outputs rather than inputs) so as not to stifle innovation. This also ensures that consumers across jurisdictions in the NEM experience similar levels of service when they switch to a smart meter. Metering service providers have now well exceeded the minimum services specification where it has been applied.

However, should timeliness become an issue, interim arrangements could be considered, e.g. an AEMO interim guideline could be quickly consulted on. The AEMC’s expedited consultation processes could be used if time is of the essence.

- b. Consider an “interim Guidelines phase” – this is a suggestion from the Energy Security Board’s (ESB) consultation paper on the *Governance of DER Technical Standards*. We support an interim Guidelines phase that “could be used to trial new standards and prevent lock-in of existing approaches as technologies develop”.<sup>2</sup> We agree with the ESB that this approach is “particularly important in an emerging area like DER, where many products are competing to establish their protocols as the industry standard”.<sup>3</sup> The Guidelines could be based on the principles and minimum services set out above and could include examples of best practice in the industry.

A Guidelines approach would avoid AEMO duplicating some of the functions of existing standards bodies. Should guidelines be adopted (instead of a subordinate instrument), we encourage AEMO to coordinate more closely with Australian standards bodies, which have the relationships with international standards organisations, and use the AEMC’s expedited consultation processes for matters of urgency.

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<sup>2</sup> [http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/ESB%20-%20Governance%20of%20DER%20Standards%20-%20Consultation%20Paper\\_0.pdf](http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/ESB%20-%20Governance%20of%20DER%20Standards%20-%20Consultation%20Paper_0.pdf), page 10

<sup>3</sup> *Ibid.*

A Guidelines approach would also avoid the need to unwind an established instrument under the NER (which is not costless) if the long-term governance framework the ESB is developing for DER standards does not include such instrument.

- c. Use more targeted approaches – it is reasonable to expect that the functioning of DER systems would be geographically based. For example, solar systems would be switched off in areas that are experiencing grid constraints while other customers remain unaffected, in which case locations of solar systems will need to be mapped against network infrastructure. AEMO could target these ‘hot spots’ rather than adopt a blanket solution that may impact customers who are not affected in the first place.

Another way of targeting is for AEMO to focus on inverters at this stage, e.g. by developing guidelines for inverters and communicating with importers, manufacturers, and installers. We note that some of the communications capabilities that make DER systems/devices ‘pluggable’ are some way off and may not need to be considered in the same timeframe as inverters.

- d. Facilitate ongoing market reforms – greater flexibility can also be promoted by ensuring that ongoing market reforms intended to promote greater transparency around demand and pricing are not delayed. These include, among other reforms, Five-Minute Settlement, demand response initiatives, and the promotion of innovative tariffs. Some service providers are already responding to changing demand patterns, for example, by offering huge discounts on electricity prices during the middle of the day,<sup>4</sup> targeting the ‘duck curve’ problem described in the consultation paper.
- e. Address emerging barriers to the accelerated deployment of advanced meters – smart meters underpin ongoing market reforms and play a key role in the efficient integration of DER to the grid. By providing greater network visibility, smart meters help ensure grid security and reliability. It is our observation as a metering service provider that regions that have a high penetration of smart meters already have better tools to manage the challenges of increasing uptake of solar PV and batteries without placing additional costs or limitations upon the consumer.

The value of DER can be optimised where there is widespread uptake of smart meters. In our view, this can best be achieved by large-scale retailer-led deployments of smart meters in a timely manner and in a competitive market.

Our advanced metering business, Vector Metering, is concerned with the emergence of barriers to the accelerated deployment of smart meters. These include, among others:

- 1) lower forecast meter installations driven by lower releases of failed meter families by DNSPs;
- 2) the setting of retailer Default Market Offers not reflecting more realistic costs of smart metering;
- 3) the sharp economic downturn due to COVID-19, resulting in significant reductions in the volume of metering installations, increasing per unit cost; and
- 4) jurisdictions not adopting the NEM competitive metering framework, e.g. Victoria and Western Australia.

We describe these emerging barriers in a recent submission – on the Federal Government’s *Technology Investment Roadmap – Discussion Paper*, where we also proffer some solutions.<sup>5</sup>

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<sup>4</sup> <https://www.afr.com/companies/energy/sa-solar-overload-sparks-huge-power-discounts-20200714-p55bsy>

<sup>5</sup> <http://vectorams.com.au/documents/597574/1813953/Vector+Submission+Technology+Investment+%0bRoadmap+Discussion+Paper/9248abca-8f0d-401f-aa93-d61915059c56>

We note the AEMC's intention to review the metering market in Q4 2020, three years into the introduction of competition in metering services in the NEM. We encourage the AEMC to consider the above barriers as part of this review and in recommending improvements to the competitive metering framework in the NEM.

18. On the proposed high-level definition of DER, we agree with its development and with Farrier Swier's proposed approach that focuses more on the nature of the service rather than the devices.<sup>6</sup> Our reasons for this view are stated above (section 17.a).
19. We are also of the view that any definition of DER should recognise that smart meters are first and foremost a measurement and control device. While a smart meter plays an important role in delivering DER services, it should not be seen solely as a DER device. It has other uses aside from delivering DER services, such as remote reads, more accurate billing, load control, real-time detection of faults on the network, etc.
20. Should AEMO's proposed rule change be approved, we believe it should not be applied retrospectively on DER devices that have been deployed. Otherwise, customers with installed DER devices will incur the additional cost of upgrading their system. Those who fail to upgrade their system could end up getting penalised and would be unable to recover the full cost of their 'stranded asset'. Forcing customers to upgrade their DER installation will generate negative sentiment towards the industry and could result in 'consumer backlash'. We strongly encourage the AEMC to ensure that an adequate communication program is carried out to inform consumers of any changes in the rules regarding DER.

### **QUESTION 3: CONTENT AND DURATION OF THE INITIAL MINIMUM TECHNICAL STANDARD**

1. Should the scope of the initial technical standard be limited by the NER?
2. If so, should there be arrangements to allow for a review of the scope at a future date?
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?

21. As stated above, we do not support the creation of a subordinate instrument for mandating initial technical standards for DER. We prefer the adoption of minimum service levels and do not have issues with service levels being embedded in the NER.
22. Should AEMO's proposal be approved, any technical standard needs to clearly describe the circumstances it would apply to.
23. We believe any proposed standard – technical or service based – should at least be subject to review after a specified period. We also believe that an appropriate transition period for compliance is required and should be part of any approved rule change.
24. In anticipation of the governance framework for DER standards that the ESB is developing, we suggest that any approved rule change also provide a transition period to ensure a smooth transition to the ESB framework that will apply for the longer term.

### **QUESTION 4: APPLYING THE STANDARD AND MONITORING COMPLIANCE**

1. How can the proposed solution be applied in Western Australia, Victoria and the Northern Territory?

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<sup>6</sup> Page 20 of the consultation paper



2. Is it sufficient to specify a commencement date for the DER minimum technical standard only and have the implementation dates for the individual standard components set out in the standard itself?
3. What level of compliance monitoring is needed?
4. Who should monitor compliance with the technical standards?
5. How can compliance be enforced?

25. One of the emerging barriers to the accelerated deployment of smart meters identified in our response to Question 2 is the competitive metering framework in the NEM not being applied in Victoria and Western Australia. Opening the metering markets in these jurisdictions to competition would be a good first step to incentivise the deployment of smart or smarter meters in these states. This would facilitate the deployment of smart DER systems and the introduction of innovative services that benefit consumers. We suggest that the AEMC include this as a key issue in its Metering Market Review later this year.
26. For reasons indicated in our response to Question 2, we do not support mandating minimum technical standards for DER via a subordinate instrument. Should the AEMC decide to approve AEMO's proposal, we prefer that only the commencement date for the minimum technical standard be specified, with the implementation dates or indicative timeframes for the individual standard components set out in the standard.
27. Should AEMO's proposed subordinate instrument be created, we would support a 'light-touch' monitoring and compliance framework primarily for transparency purposes, as proposed in the consultation paper.

#### **QUESTION 5: COST OF THE INITIAL STANDARD**

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?

28. Mandating minimum technical standards for DER would have wide-ranging impacts on the energy sector and the electrical industry (including electricians and installers). Given this, it would be consistent with good regulatory practice for a cost-benefit analysis to be undertaken or commissioned to identify which DER services deliver benefits that outweigh the costs, and what parameters matter to optimise the value of DER investment. AEMO's rule change request assumes that imposing technical solutions at a customer's premise would deliver outcomes that cost lower than other solutions, e.g. network augmentation. This should not be assumed.
29. The above cost-benefit analysis could also assess whether the advantage of a subordinate document is significant where timeliness is concerned compared to getting rule change requests considered and approved through the AEMC's expedited consultation processes. It could also consider the implications of industry/stakeholder input potentially being bypassed under a subordinate document, particularly on those who will be directly affected by the decision.
30. A broad view is required to capture all costs related to any mandated technical standards or specifications. Consideration of costs beyond those directly associated with the DER device or installation is required to determine the full cost of any proposed requirements. For example, requiring DER devices to be switched on or off also requires the establishment of a back office and business-to-business ecosystem to achieve the desired outcomes. Failure

to identify these other requirements will understate the real costs of the proposed rule change.

31. The cost-benefit analysis could also consider the impact of the ensuing economic downturn due to COVID-19 on electricity demand patterns and uptake of DER in the next few years.
32. In our view, the bigger cost of a mandated approach is the stifling or disruption of continued innovation that benefits consumers. In addition, consumers could disengage from innovative programmes that could benefit them if they find the cost of owning and operating DER installations to be onerous.

### Concluding comments

33. As a technology solutions company, Vector supports the transition to newer technologies and more advanced standards, including for DER installations, that deliver greater efficiencies and better consumer outcomes. As indicated in this submission, we believe this transition can be done more efficiently and effectively where the process of adopting new technologies and standards is not stifled by highly prescriptive regulation.
34. We are happy to provide further information to support this submission or discuss any aspects of it with the AEMC. Please contact Paul Greenwood (Industry Development Australia – Vector Metering) in the first instance at [Paul.Greenwood@vectorams.com.au](mailto:Paul.Greenwood@vectorams.com.au) or 0404 046 613.
35. No part of this submission is confidential, and we are happy for the AEMC to publish it in its entirety.

Yours sincerely



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