Future Energy team
AEMO

Submitted via email: futureenergy@aemo.com.au

30 October 2024

Dear Future Energy team

RE: Technical Requirements for 200 kW to 5 MW DER connections, public consultation report

Thank you for the opportunity to provide feedback on the '*Technical Requirements for 200 kW to 5 MW DER connections'* public consultation report.

Enel X operates Australia's largest dispatchable virtual power plant.[1] We work with commercial and industrial energy users to activate demand-side flexibility and offer it into the National Electricity Market (NEM) energy and ancillary services markets, the Wholesale Demand Response Mechanism (WDRM), the Reliability and Emergency Reserve Trader (RERT) mechanism, and to network businesses. Enel X is the first Demand Response Service Provider (DRSP) registered for wholesale demand response.

Enel X appreciates AEMO's time and effort in examining the potential for greater guidance to Distribution Network Service Providers (DNSPs) on technical requirements for 200kW to 5MW Distributed Energy Resource (DER) connections. Enel X is deeply committed to promoting a vibrant market for demand side response and has invested considerable resources in building a portfolio to support reliability and security in the NEM. Enel X encourage AEMO to approach the development of guidelines as an opportunity to lower barriers for DER participation, with the mindset of enabling the deployment of DER at scale and at pace.

The rapid transition to renewables-based energy sources has created an acute need for rapidly deployable firming capacity and improved 'in-market' resource visibility to support security and reliability needs of the NEM. DER that has been enabled to provide Frequency Control Ancillary Services (FCAS), enrolled in the Wholesale Demand Response Mechanism (WDRM), or contracted to provide services to the Reliability and Reserve Trader (RERT) and Interim Reliability Reserves (IRR) mechanisms make a significant contribution to managing security and reliability risks.

Enel X's response is informed by our experience as a National Electricity Market (NEM) WDRM and FCAS participant, demand response provider in Western Australia and in multiple international markets. In Enel X's experience, large energy users are more likely to deploy DER and incorporate mechanisms that orchestrate output if the process of interaction with DNSP's is 'frictionless' as possible.

The current DER connections framework potentially leads to both load and aggregator investing significant resources in feasibility activities with the risk of not being successful in finding an economic path for behind-the-meter DER deployment. Consequently, many C&I businesses do not have the appetite to invest time and resources to explore orchestrated behind-the-meter DER as an option. It's important to engage with industry within their comfort zone and level of sophistication and provide pathways to encourage DER participation.

Enel X have provided detailed responses to relevant consultation questions in the attached appendix to this letter. Enel X would like to draw specific attention to:

[1] Per AEMO Registrations

1. **Scoping the development of technical guidelines:**
   - Investment in legacy resources should not be stranded by the application of new requirements. The activation of legacy resources into market responsive activities should not be a trigger for the application of new technical requirements.

   - Enel X suggest that the 'time to market' focused behaviour of agile price responsive resources and associated fast ramp rates is a question of market design rather than a technical performance characteristic. Small resources do not receive the benefits of price setting in the dispatch process, co-optimisation of energy and FCAS, and access to Automatic Generation Control (AGC). They adopt strategies shaped by the risks and limitations of operating at the periphery of the market outside of the dispatch process. Seeking to address perceived market design shortcoming via sector specific technical performance characteristics risks unintended consequences that potentially compound the concern and distort investment signals.

2. **Proposed performance requirements:**
   - Enel X recommend that AEMO's guidelines acknowledge that agile DER maybe acting behind the meter to manage risks such as network peak demand charges and load exposure to spot prices. These businesses have chosen to manage risk this way as an economically favourable option ('getting the right risks into the right hands'). The economics of these activities may depend on access to fast ramp rates to address load fluctuations which would otherwise need to be met via regulation FCAS in front of the meter. Where load is combined with generation, expressing technical performance characteristics at the connection point may be preferrable. Alternatively, exemptions for managing load variability may be simpler to implement.

   - Enel X request that when formulating guidelines AEMO remain mindful of the potential for DER owners to participate in value stacking of services and those activities may change over time. Exemption guidelines should support agile and rapidly deployable DER contributions to grid security.

   - Enel X does not support remote monitoring as part of a guidelines package. Based on our experience it's difficult to absorb the cost of remote monitoring for DER projects with less than 1MW capacity.

3. **Implementation approach**
   - Enel X recommend that guidelines are reviewed and harmonised with outcomes from other policy (for example CER Integration Roadmap) and Rule changes as they arise.

If AEMO have any questions or would like to discuss this submission further, please do not hesitate to contact me.

Kind Regards,

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Appendix – Enel X consultation question responses to the 'Technical Requirements for 200 kW to 5 MW DER connections' consultation report

Scope of technical requirements

Has the scope of prospective requirements for sub-5 MW DER been clearly defined?

Enel X endorse the following principles and considerations from the consultation report:

- The technical requirements should support the secure and reliable operation of the power system and not hinder greater participation of DER in the market
- Enabling overall functionality to be consistent across the NEM distribution network landscape
- Minimise the need for negotiation
- Minimise the complexity of connections, avoiding requirements for modelling, which reduces cost and time for connection.
- Avoiding technology-specific requirements that could stifle innovation or limit competition, and that would otherwise increase the cost of connection or even result in sub-optimum performance outcomes.

Enel X recommend the following additional principles and considerations are adopted for guideline development:

- The guidelines are implemented within a low-cost compliance framework with clear roles and responsibilities aligned with National Electricity Law/National Electricity Rules regulatory compliance framework.
- Scope creep is minimised by limiting the scope of recommendations to technical parameters essential for addressing bulk power system needs only.
- Investment in legacy resources should not be stranded by the application of new requirements. The activation of legacy resources into market responsive activities should not be a trigger for the application of new technical requirements.
- Value stacking by providing multiple benefits, both in front of and behind the meter, should not be hindered by new guidelines.
- Exemption frameworks need to be clear, unambiguous, and continuously harmonized with evolving DER policy/regulations/Rules.

Is the reasoning behind including those focus areas for AEMO to consider specifying technical requirements (summarised in Section 2.4) clear and reasonable?

- *Prospective performance requirements* – Enel X encourage AEMO to present quantitative evidence of the cost versus benefit balance to support the application of technical standards to treat perceived impacts on the bulk powers system from sub-5MW DER installations.
- *Frequency Responsiveness* – Enel X acknowledge the potential benefit of an automatic active power response to a severe power system event, however we remain wary of the risk of a poorly co-ordinated frequency response unless a large deadband is applied (>0.5Hz).

Resources providing contingency FCAS responses operate within a robust framework of requirements (Market Ancillary Services Specification) and undergo compliance testing that provides assurance that a co-ordinated active power droop response is provided. Large resources with sophisticated control and monitoring systems provide narrow deadband Primary Frequency Response (PFR). The selection of dead band should only trigger a response from less dependable resources when the power system is exposed to abnormal risks.

- *Alternative frequency response settings* – Enel X specialise in activating demand side resources to provide market and network services. The ability to deliver co-ordinated high ramp rate responses from DER is necessary for the most valuable grid support services. Technical guidelines should not impede the activation of DER to provide 'in-market' and 'visible' services. DNSP's should be encouraged to pass through exemptions without additional endorsement. Processes that rely on endorsement by the DNSP have the potential to add unnecessarily delay the onboarding of assets into a market aggregation. As DNSP's have no specific incentive/requirement to prioritise market participation and minimise delays it is difficult to envisage DNSP's actively investing in streamlined approval processing.
- *Ramp rate limits* - Enel X is concerned that AEMO are promoting technical parameter constraints affecting a small class of market participants to treat market design consequences arising from a broad base of increasingly price response DER. Enel X recommend that this issue is better addressed by the Australian Energy Market Commission (AEMC) with their market design policy mandate. Enel X acknowledge that AEMO has identified examples of beneficial activities that rely on higher ramp rates, however in a rapidly transforming power system this list may not be exhaustive and structuring an exemption framework that is adaptable to emerging needs/opportunities is challenging.
- *Remote Monitoring* – Enel X does not support remote monitoring as part of a guidelines package. Based on our experience it's difficult to absorb the cost of remote monitoring for DER projects with less than 1MW capacity. AEMO's preference for additional monitoring is not well supported in the consultation paper. Information required by the DNSP to connect and operationalise a new asset is network location and technology specific, and not suited to broad based guidelines. There's no provision for data to be transmitted from the DNSP to AEMO, and AEMO have not demonstrated the ability to cost effectively process monitoring data to reliable and actionable insights that reduce the cost of energy to consumers.

Should AEMO also consider any or all of the requirements outlined in Section 2.5 (identified by AEMO as being of interest to DNSPs only)?

- Enel X recommend restricting technical requirements to those identified in Section 2.4.

Should AEMO consider other requirements not outlined here?

- Enel X has not identified additional requirements relevant to supporting bulk power system security needs.

Proposed performance requirements

Have the proposed performance requirements for sub-5MW DER been clearly outlined?

- Enel X have no comments in response to this question.

What are stakeholder perspectives on the application of the proposed settings within the framework of IEC TS 62786-1 technical specification for sub-5MW HV connected DER?

- Enel X have no comments in response to this question.

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?

- Enel X have no comments in response to this question.

Should AEMO consider other references for its technical performance settings? For example, EN 50549-2:2019, which specifies the technical requirements for the protection functions and the operational capabilities for generating plant intended to operate in parallel with MV distribution networks.

- Enel X have no comments in response to this question.

Implementation approach

Is initially introducing the proposed recommended settings via a guideline with DNSPs the most effective approach?

- Enel X agrees that the introduction of recommended settings via a guideline facilitates flexibility for DNSP's, and would not hinder policy and rules development related to furthering DER integration in the NEM
- Enel X recommend the guidelines include exemptions accommodating DER assets delivering multiple services, such as:
    - FCAS
    - Network support services (e.g. fast run back)
    - Behind the meter load management

Should the recommended settings be established as an Australian Standard?

- Enel X have no comments in response to this question.