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Dear DCCEEW

RE: Review into the Long Duration Storage requirements of NSW

Thank you for the opportunity to provide feedback on the Review into the Long Duration Storage requirements of NSW (LDS).

Enel X operates Australia's largest virtual power plant.¹ We work with commercial and industrial energy to develop demand-side flexibility and offer it into the NEM's energy and ancillary services markets, the RERT mechanism, to network businesses, and the WEM's reserve capacity mechanism. In November 2023, Enel X was awarded a contract to supply 95 MW of demand response firming capacity under the NSW firming infrastructure tender.

This submission sets out Enel X's views on the consultation questions put forward. The key points are:

- We strongly support a 4 hour minimum duration for dispatchable capacity to be included as LDS infrastructure in NSW as it will allow for demand response to participate and create greater market and price competition which has flow on benefits to the consumer. Reducing this minimum duration requirement for LDS and providing greater demand flexibility in the system will result in the need for less upfront financial investment in larger grid infrastructure.
- We strongly support the introduction of amendments to the LDS definition to clarify that it can include aggregated LDS infrastructure across multiple sites. We also support the registration of these resources on AEMO's NEM registration and participate in central dispatch to allow for greater transparency of flexible capacity and grid resilience.

Regards

Susannah Jefferys
Manager, Market Development and Regulatory Affairs ANZ

¹ Based on MW registered in the market. See: <https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/registration>

General comments

Enel X strongly supports the position to reduce the definition of long-duration storage to 4 hours and to allow aggregated LDS infrastructure across multiple sites to be included. We support these recommendations as they will allow for demand response to participate and create greater market and price competition which has flow on benefits to the consumer.

Demand response is a valuable reliability resource that is key to achieving the objectives of the LDS, for the following reasons:

- **Perfectly suited to providing 4 hour firming services.** The objective of the LDS is to help bring new capacity into the market that can support and balance the supply of variable renewable energy as we transition from coal fired energy generation. Demand response resources are perfectly suited to providing this kind of dispatchable capacity, and are arguably the best-suited type of resource. Demand response resources have a track record of providing dispatchable capacity both in Australia (e.g. through the RERT, NCESS and SRC mechanisms, and in response to high pricing events through the WDRM) and internationally. Firming capacity has a 2 hour response requirement, with Demand Response having the potential to provide 4 hour firming services as well.
- **The lower minimum duration of 4 hour for firming services in LDS provides greater competition and lower costs to consumers.** It will do so by providing a larger pool of eligible projects, which will drive competition for LDS tender capacity. It will also allow providers to bid capacity into the tender at a lower price, which will again drive competition and reduce the overall cost of capacity support through the LDS. It will also open participation to commercial and industrial energy users who will have access to strong economic incentives to bring their demand response capability into the market, thus increasing overall levels of demand side participation reducing the need for infrastructure spending.
- **Cost effective.** Demand response is a lower cost resource than supply-side capacity because it utilises the capability of existing assets. The CAPEX required to activate 1 MW of demand response capacity is a fraction of what is required to build 1 MW of supply-side capacity.
- **Can be built very quickly.** Demand response can be brought to market very quickly, again because it makes use of existing assets.
- **Reduces requirement for new grid infrastructure.** The utilisation of demand response resources reduces the need to build and pay for new generation and network infrastructure that only gets used for a small number of hours in the year. AEMO's 2023 ESOO noted that "with a high level of consumer participation and coordination of consumer energy assets and demand to help meet power system needs, the need for utility-scale solutions would be much lower."
- **No social licence concerns.** No new grid infrastructure is required to enable a demand response resource, and participation is voluntary.
- **Financial benefits go back into the community.** The financial benefits of providing demand response accrue to those who provide it, i.e. Australia's commercial and industrial businesses.

- **Aggregation delivers reliability.** Aggregation of demand response resources across different locations / transmission nodes delivers a highly reliable source of capacity, as there is no single point of failure.
- **Valuable grid resource.** Demand response resources are capable of delivering more than emergency reserves. Once in the market, they can provide other valuable grid services, such as frequency control and network support services.
- **Supports transition to net zero.** Demand response is generally dispatched in critical peak periods when the majority of the fossil fuel fleet is in operation. Reducing demand on the grid at these times therefore reduces the requirement for these emissions-intensive resources.
- **Alleviates grid congestion.** Activation of demand response responses helps to alleviate network congestion in peak periods by reducing the amount of electricity drawn from the grid, in contrast to supply-side resources, which can exacerbate grid congestion.

Demand Response is a suitable technology for LDS once the definition is reduced to a 4 hour duration as it requires little, if any, infrastructure investment. As we have highlighted, this amendment would introduce more competition into the mix and therefore better consumer outcomes, including lower prices.

Response to specific consultation questions

Consultation question: *What is an appropriate minimum duration for long duration storage (LDS) infrastructure in NSW? Please outline why.*

Enel X strongly supports AEMO Services' recommendation to reduce the definition of LDS to a 4 hour minimum duration for dispatchable capacity and allow for shorter duration storage and demand response resources to be included. This minimum duration will allow for demand response to participate and create greater market and price competition which has flow on benefits to the consumer. Enel X agrees that this proposal will provide the lowest cost way to reduce USE in meeting the reliability standard (IRM) in 2030 (2 GW of capacity and 16 GWh storage by 2030).

Enel X has proven this capability across all mainland NEM regions (South Australia, New South Wales, Queensland and Victoria) and the WEM with its portfolio of customer loads, for example:

- Western Australia: over the summer of 2023-2024 we were called on to provide Demand Response for between 4-5 hours on 14 occasions with a 114% performance against the required target.
- New South Wales: on 8 May 2024 – we were called on and successfully dispatched our portfolio for 4-5 hour in response to LOR 2 and 3 events.
- South Australia: on 11 August 2023 we successfully dispatched our portfolio of price-responsive load for five hours during a grid event in which prices were at sustained high levels.
- New South Wales: during the RERT events of 15 June and 17 June 2022, we successfully dispatched our portfolio for 3.5 hours in accordance with AEMO's instruction. The portfolio could have been dispatched for longer had this been required by AEMO for these RERT events.

- Queensland: during the RERT event of 15 June 2022, we successfully dispatched our portfolio for 5.5 hours in accordance with AEMO’s instruction.
- Victoria: during the RERT event of 25 January 2019, we successfully dispatched our portfolio for 4 hours in accordance with AEMO’s instruction.

Allowing a lower minimum duration of 4 hours to the LDS tender, and specifically including demand response providers, means that:

- there will be a larger pool of eligible projects, which will drive competition for tender capacity
- providers will be able to bid capacity into the tender at a lower price, which will again drive competition and reduce the overall cost of capacity support through the LDS
- commercial and industrial energy users will have access to strong economic incentives to bring their demand response capability into the market, thus increasing overall levels of demand side participation reducing the need for infrastructure spending.

Enel X agrees with AEMO Services’ finding that a more flexible definition of what constitutes LDS with a minimum duration of 4 hours has the potential to increase participation in tenders and so expand AEMO Services’ visibility to a wider range of storage projects, de-risking the delivery of substantial energy storage capacity at lower cost to consumers.

We believe this flexibility is essential rather than just helpful, as the addition of 4 hour duration minimum for LDS not only addresses the more immediate reliability needs but also augments longer-duration storage (8 hours), which will provide benefit to the system over time but will require greater time and investment to develop.

Consultation question: *Should the Minister have regulation making powers to change the minimum duration of long duration storage infrastructure over time? Please outline why or why not.*

Enel X has no response on this question.

Consultation question: *How can the infrastructure objectives and LDS tenders be improved to support a diverse range of long duration storage projects? Are new measures required such as:*

- a. *Requiring the Consumer Trustee to explicitly consider the benefits of duration in calculating financial value to consumers*
- b. *Requiring the Consumer Trustee to discount the capacity of projects with duration less than 8 hours (if allowed) as though the duration is 8 hours when calculating financial value to consumers*
- c. *Establishing a minimum LDS objective for 2035 to provide more certainty for proponents with long lead time projects*

Enel X agrees with AEMO Services’ finding that a more flexible definition of what constitutes LDS with a minimum duration of 4 hours has the potential to increase participation in tenders and so expand AEMO Services’ visibility to a wider range of storage projects, de-risking the delivery of substantial energy storage capacity at lower cost to consumers. This would allow for a more strategic approach to policies to encourage 8 hour LDS and the investment in the infrastructure to support this.

Consultation question: *Should the NSW Government introduce amendments to the LDS definition to clarify it can include aggregated LDS infrastructure across multiple sites? Should aggregated LDS infrastructure need to register on AEMO's NEM registration and Exemption list and participate in central dispatch? Please outline who or why not.*

Enel X strongly encourages DCCEEW to introduce amendments to the LDS definition to include aggregated LDS infrastructure across multiple sites. Enel X also encourages LDS infrastructure to register on AEMO's NEM registration and participate in central dispatch to allow for greater transparency of flexible capacity and grid resilience.

Enel X supports the inclusion of small storage units aggregated to form >5MW aggregated capacity as it could potentially meet the scope of the LDS in a shorter timeframe and with less financial and infrastructure investment. Addressing the existing regulatory barriers which inhibit the ability for current existing and available flexible capacity to be aggregated and utilised for grid stability and storage could avoid the need to address broader policy considerations in retaining the 8 hour definition, which would require significant financial investment by NSW Government to stimulate industry development and better address tail-risk.