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Kate Wild
Director, Capacity mechanism detailed design team
Energy Security Board
Submitted by email: info@esb.org.au

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Dear Ms Wild

**RE: Capacity mechanism – High-level Design Paper**

Thank you for the opportunity to provide feedback on High Level Design paper on the Capacity Mechanism.

Enel X operates Australia's largest virtual power plant[1] with over 350 MW of flexible assets under management across more than 150 commercial and industrial sites. We were the first registered Demand Response Service Provider (DRSP) and work with commercial and industrial energy users to develop demand-side flexibility. This flexibility is offered it into the NEM's energy and ancillary services markets, the RERT mechanism, and to network businesses.

This submission sets out our responses to the High Level Design paper on the Capacity Mechanism. It focuses on the ways that a capacity mechanism can incentivise strong demand-side participation, should it be implemented. Participation is ultimately determined by the design of the mechanism. Our intention is to assist the ESB maximise the benefits to the system and minimise cost for consumers.

Enel X notes the following for ESB's consideration during the detailed design phase:

- Enel X is supportive of mechanisms looking to assist new capacity into the NEM. We welcome the ESB undertaking further analysis to determine if a capacity mechanism as proposed is the right regulatory reform to bring this new capacity to the NEM.
- We agree with ESB's analysis that demand-side resources will have an important role to play in a decarbonised grid. As such, the ESB must have a strong focus on how to maximise demand-side participation in any potential capacity mechanism during the detailed design phase.
- Spot market settings alongside any capacity mechanism must include a relatively high market price cap – e.g. above $5,000/MWh – to ensure resources continue to be used in merit order.
- De-rating of demand-side assets must be done carefully to ensure it allows DR to be competitive alongside supply-side options. Evidence that demand-side resources are

[1] Bloomberg NEF, December 2019.

a good quality resource and a useful case study for de-rating is DR's use in RERT – e.g. long run times of 2–4-hour + with high reliability.

- More work is required to understand the proposed compliance periods but Enel X currently sees no issues with the use of annual availability combined with availability during LOR 2 and 3 notices.

We welcome further engagement by the ESB regarding the detailed design of a NEM capacity mechanism or any questions on our submission – please do not hesitate to contact me.

Regards

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## General comments

Enel X is supportive of reform mechanisms that provide for new lowest-cost capacity to enter the NEM. This is because the current volatile market conditions which are making investment viability difficult to assess. We consider the detailed design phase will provide more information on which we can better analysis the merits of whether a capacity mechanism as proposed is the right regulatory answer to this issue. In an effort to assist the ESB in the detailed design phase and if a capacity market is to be implemented then we consider the following points should be front of mind.

### *DR resources importance in a capacity mechanism*

While demand response is mentioned in the paper, there appears to be a bias in the underlying assumption that building new plants is the main way to deliver the least cost transition. We caution against this as the demand side – not just demand response and other behind-the-meter assets, but energy efficiency, too – has a vital role to play in cost-effectively meeting the reliability needs of a net-zero emissions NEM.

Demand side capacity is generally much cheaper to deliver than supply-side capacity as it doesn't rely on large capital investments in long-term, single-use assets. For the same reason, demand-side resources can be activated and deactivated more flexibly as system needs change, without creating stranded assets.

To put it simply, a capacity mechanism that does not make good use of demand-side resources will be much more expensive than one that does.

### *Evidence of DR resource benefits in a capacity mechanism*

How DR resources create more competition in the wholesale capacity auctions and lead to significant savings for customers has been demonstrated in international capacity auction experience.

Analysis by the PJM Market Monitor highlights one such example. In 2013, demand-side participation[2] in the PJM capacity market saved electricity customers $197 per person. The Monitor's analysis also noted that "based on actual auction clearing prices and quantities and the make-whole MW, total Reliability Pricing Model (RPM) market revenues for the 2013/ 2014 delivery year were $6,708,567,045. If no [demand response or energy efficiency] had been offered into the auction, total RPM market revenues for the 2013 / 2014 delivery year would have been $18,535,847,876."[3] This is a cost saving of $11,827,280,831 or more than 63 per cent due to demand-side participation in the PJM auction. This is a strong indication of the potential value to NEM consumers from robust DR's participation in a capacity mechanism and the need to get the design right.

### *Eligibility – reducing barriers to demand-side assets participation*

Sensible steps should be taken to ensure the capacity market is developed with the idea that all demand-side assets are able to participate. Otherwise, the capacity market will be

[2] Please note demand-side participation refers to both DR and energy efficiency measures.
[3] PJM Market Monitor, Analysis of the 2013/2014 RPM Base Residual Auction Revised and Updated, September 2010.

needlessly expensive. This thinking will maximise demand-side participation and starts by acknowledging the different ways DR can interact with the market. The Wholesale Demand Response Mechanism (WDRM), Scheduled Lite, Flexible Trading Arrangements, Integrating Energy Storage Systems are all positive regulatory changes allowing DR to play a greater role in the wholesale market through various interactions.

However, Enel X also stresses the different roles that scheduling optionality plays in engaging the variety of flexible demand-side assets. A one-size-fits-all approach as suggested by AEMO in its paper will only limit participation in any future capacity market. An example of this is the concepts of SCADA for DER and Scheduled Lite as the main avenue for DR assets to interact with the capacity mechanism. These concepts are severely under-developed for a 1 July 2025 (and the first potential auction in 2024) implementation timeframe. Requiring all demand-side assets to comply with these concepts, as suggested in the Scheduled Lite High Level Design paper,[4] may present a barrier to aggregated DR resources from being competitive in any capacity market.

While Scheduled Lite will be well placed to assist DR assets that will be dispatched frequently in the energy market, it is not suitable in such cases. This is supported by the need for constant consumption/generation data provision to AEMO make sense for assets regularly dispatched. But the WDRM plays an important role for loads in the NEM by allowing consumers:

- that are rarely dispatched, and as such where baseline methodologies work well and constant provision of consumption forecasts are impractical and uneconomic, to participate in the wholesale market.
- to choose a third-party aggregator to offer their flexibility in the market, whereas Scheduled Lite will require the involvement of the retailer.

Considering other capacity markets around the world, it's notable that most demand-side participation has both of these characteristics. To design a capacity market that would effectively exclude the forms demand-side participation that are known to work well in capacity markets would be perverse.

Enel X sees a complementary role for WDRM, Scheduled Lite and other regulatory changes to increase DR's participation in the wholesale market to the benefit of all consumers. In turn, this optionality works to bring all the different types of flexible DR assets into any future capacity market and is critical to maximising demand-side participation.

### *Centralised approach to a capacity mechanism*

Enel X is supportive of the centralised approach to a capacity mechanism, as determined in this paper. The key benefits of centralised approaches are that they reduce information asymmetry and frustrate the exercise of market power, and thus create a more level playing field for all capacity providers. In Enel X's view, centralised capacity markets are preferred

[4] https://aemo.com.au/-/media/files/initiatives/scheduled-lite/consultation-paper-draft-high-level-design-for-scheduled-lite.pdf?la=en

to decentralised approaches because they allow a market operator to run a transparent, technology-neutral market that buys the lowest cost resources.

Ultimately however, a centralised mechanism must be well designed. There are some examples of centralised capacity mechanisms that are poorly designed and do not deliver these outcomes. Well-designed centralised approaches tend to see higher levels of participation by demand-side resources because of price transparency: capacity costs are explicit and there is no discriminatory pricing. These are important factors for the ESB to be minded of during the detailed design phase and our commentary aims to assist in providing our insights to these areas.

### At-risk periods and de-rating of demand-side assets (input on questions 3-10)

In Enel X's experience globally, methods that de-rate based on availability and capabilities tend to be the fairest and most accurate. A mistake that some markets have made is to penalise a resource for not meeting a particular performance parameter in a real dispatch when that resource has already been de-rated based on that incapability. For example, if a battery can only deliver two hours of storage in a 4-hour at risk period, it should be derated accordingly, but it should not also be penalised for only delivering two hours of storage in a real dispatch. Doing so will significantly reduce incentives to offer capacity. The job of a performance penalty regime is to penalise resources that do not deliver on their expected capabilities.

Additionally, we caution against de-rating flexible DR assets due to a perceived short dispatch duration. At-risk windows tend to be around the 2-4 hours internationally and demand response can typically do that when necessary. Evidence of this can be found in RERT dispatches over the last five years where flexible DR assets have played a critical role.

We also consider RERT dispatches to be good evidence of DR resources' high reliability. The experience from these previous dispatches should be able to help shape any methodology discussions on how DR resources can, or should, be de-rated in a capacity mechanism.

### Capacity auction design (input on questions 13-24)

The capacity auctions will need to provide the market with some forward visibility of what is going on in the energy market to assist with investment. As such, we are supportive of the multiple auctions over a longer horizon as proposed in the paper. Further analysis on the suitability on whether four years and one year ahead is optimal would be worthwhile in the detailed phase. While we see them as sensible on face value, we think more analysis is needed to determine the best amount of auctions and timeline for them. This may be a feature of the market that can adapt to changing market conditions, such as delivery of new assets or construction timelines.

Further, no limits should be placed on the role any technology can play in the mechanism, noting some technologies may not be eligible at all pending ministerial discretion. If a technology can participate in the auction then it should be able to compete for all the available capacity in that auction. Limiting a resource, such as DR resources, only increases costs for consumers. Each asset's capacity is already de-rated and been assessed as to how it

can contribute to at-risk periods. To further limit participation is unnecessarily discriminatory and should be avoided – regardless of whether it is done due to prejudices against a technology, a preference for supply side options, or a desire to favour a particular technology instead.

### Capacity providers' obligation (input on questions 25-36)

Capacity providers are already incentivised by the spot price; this is a separate incentive to meet their specific capacity obligations. If a provider's capacity obligation is to make at least its contracted quantity of MW available for dispatch during reliability at risk periods, then it should be penalised if it does not make that quantity available at such a time, or if it is dispatched but underdelivers. In both cases the capacity provider has failed to deliver on its obligation.

However, it is important to allocate risks appropriately: if providers can be exposed to large penalties for reasons outside their control, despite having their resources fully available and reliable, then this becomes an unhedgeable risk that provides no useful incentive and instead undermines the capacity market's objective of reducing investment costs.

Enel X are comfortable with the proposed use of percentage annual availability throughout the year, provided that percentage is sensible for that type of asset, and with using LOR 2 and 3 notices for the basis of compliance periods. We look forward to the detailed design of compliance periods as these will determine the types of assets that access the capacity mechanism.

### Market settings in the spot market and the capacity mechanism (input on question 39)

To best answer this question, a clear energy-only base case market to which the capacity market will be compared will be required. We note the Reliability Panel's current Reliability standard and settings review draft report notes a potential MPC of between $21,000-$29,000/MWh.[5] In the next report, we ask the ESB to clarify if this work be used as the ESB's base case or is another methodology/piece of analysis will be undertaken.

Regardless, the downside of imposing a low price cap would that there would be no differentiation between high SRMC and higher SMRC resources. So some higher cost resources could be forced to deliver, even when this would be an inefficient outcome. Additionally, demand-side resources can have quite variable SRMCs, so something that's low cost under some circumstances may be higher cost under others.

As such, Enel X agrees with the ESB the MPC must be set at a level to maintain incentivises for real-time generation, and the provision of all other kinds of flexibility, through the wholesale market. This means with a capacity mechanism in place, we consider there will still need an MPC of at least $5,000/MWh to maintain incentives for DR resources. This is required to incentivise the operation of those assets that provide energy at crucial times but might not be able to provide capacity or participate in capacity mechanisms.

[5] https://www.aemc.gov.au/market-reviews-advice/2022-reliability-standard-and-settings-review

Further, Enel X again stresses that the capacity mechanism's design should address potential impacts on energy market signals, and the flow on effects of that, particularly regarding participation by the demand side. It is reasonable to expect that spot market prices would be depressed under the capacity mechanism design being explored. If small DER capacity cannot be certified, and wholesale prices are depressed by the introduction of a capacity mechanism, DER will have little incentive to participate in the energy and ancillary services markets. This outcome is inconsistent with the ESB's objectives to support the integration of DER and flexible demand, and so should be considered when designing the mechanism and setting the MPC.

## Implementation and transitional arrangements

The introduction of a capacity mechanism would fundamentally alter the basis on which current investment decisions are being made. It is not possible to switch from an energy-only market to a capacity mechanism without introducing significant uncertainty for investors. This is because businesses have no clarity about future energy prices, no understanding of the expected price for capacity, and no certainty of access to that price. This uncertainty may put existing investment opportunities in jeopardy – an outcome the ESB is surely seeking to avoid. This risk must be considered when designing the capacity mechanism but should also inform some of the ESB's analysis. We note some additional areas for analysis during the next phase for ESB consideration.

### *Interaction and visibility of thermal plant exit contracts not clear*

The ability for Ministerial discretion to allow certain technologies to be excluded from the mechanism is set in the framework the ESB is designing this capacity mechanism within. The mechanism's design must include transparency measures for these exit contracts struck with those excluded thermal plants such that their impact on the capacity mechanism is clear to all participants. This will reduce the uncertainty for potential capacity providers and hence decrease costs to consumers.