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Energy Security Board
Submitted by email: info@esb.org.au

11 February 2022

Dear ESB

RE: Post 2025 market design – Capacity mechanism – Project initiation paper

Thank you for the opportunity to provide feedback on the ESB's project initiation paper for the design of a capacity mechanism.

Enel X operates Australia's largest virtual power plant,[1] with over 350MW of flexible assets under management across more than 150 commercial and industrial sites. We offer this flexibility into the NEM's energy and ancillary services markets, the RERT mechanism, and to network businesses.

This submission provides Enel X's views on the options put forward in the project initiation paper. The key points are:

- We agree with the ESB that there is a need to demonstrate why new market arrangements are needed to support investment for a future net-zero emission NEM. At this stage, Enel X remains unconvinced that a capacity mechanism is necessary or desirable for the NEM.
- We support the ESB taking a step back to consider all capacity mechanism options in more detail. However, we believe that other, more targeted options should be considered as well.
- The consideration of options must include a base case. Further information on what this base case includes is needed sooner rather than later so that all options can be compared fairly.
- None of the capacity mechanism options canvassed in the paper will address the issue of unforeseen reliability shortfalls, for example generator or transmission outages driven by extreme weather events, unless the reserve margin is set very high.
- In Enel X's experience, mechanisms that reflect option 2 in the paper strike the most efficient balance between efficiency, competition and reliability. However, there is still significant room for error in the design of a centralised capacity mechanism, and their complexity should not be underestimated.

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

Regards

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[1] Bloomberg NEF, December 2019.

General comments

We agree with the ESB that there is a need to demonstrate why new market arrangements are needed to support investment for a future net-zero emissions NEM. Clear identification of the problem and proper cost / benefit analyses of all options are needed before proceeding to any recommendation. In the absence of this, Enel X remains unconvinced that a capacity mechanism is necessary or desirable for the NEM. We therefore support the ESB's decision to take a step back and consider all capacity mechanism options in more detail.

And, while demand response is mentioned in the paper, there appears to be an underlying assumption that building new plant is the only way to deliver the least cost transition. We caution against assuming that reliability can only be achieved by building more generators. The demand side – not just demand response but energy efficiency, too – has a vital role to play in 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 assets. For the same reason, investments in demand-side resources can be activated and deactivated more flexibly as system needs change.

Base case

We strongly support the development of a base case. It's important that this base case is defined and published for comment soon so that the trade-offs between all options can be explored. The base case should include all current and proposed initiatives that may affect reliability outcomes and information about capacity entry/exit, including:

- expected investment in new dispatchable capacity as a result of:
    - new market mechanisms, e.g. 5MS, the WDRM, FFR and the NSW peak demand reduction scheme
    - ongoing improvement in the economics of battery storage and decreasing costs of renewable generation
    - the accelerating uptake of distributed solar, storage and EVs, and of technologies that activate and aggregate their capabilities for market participation
    - state/territory initiatives targeting investment in new capacity, e.g. the NSW Electricity Infrastructure Roadmap
- the enhanced exit mechanisms agreed to in the ESB's final advice to Ministers
- the jurisdictional strategic reserve rule change agreed to in the ESB's final advice to Ministers
- state, territory and federal emissions and renewable supply targets.

Other options

In general, the options presented are heavy handed, costly and administratively complex ways to deal with a transitional problem that may not even arise. If the objective is to "close the gap between investor incentives and the risk appetite of governments", then we should be exploring other options that more explicitly target this objective – that is, to give governments more confidence in and control over reliability outcomes. We believe there are ways to deliver on this objective whilst preserving the existing energy-only market design. The jurisdictional strategic reserve and a scarcity price-adder are two potential options here and should be considered further.

Responses to the questions in the paper

Question 1: Considering the design principles from Energy Ministers, are there any additional assessment criteria the Board should use when assessing identified issues and possible solutions?

We support the ESB's comments with respect to technology neutrality. Any capacity mechanism must allow the certification of all capable capacity resources, including demand flexibility.

Regarding the proposed criterion that the mechanism should achieve the "level of reliability that consumers and governments value." In Enel X's understanding, the reliability standard set by the Reliability Panel is intended to reflect this level of reliability (or at least the level of reliability that consumers value). If the reliability standard is not the metric that the ESB will use to assess the options, then the ESB will need to define what it is.

Similarly, the paper argues that a capacity mechanism is needed to "close the gap between investor incentives and the risk appetite of governments". This gap must be defined before exploring solutions. Current investor incentives reflect the reliability settings, which derive from the reliability standard set by the Reliability Panel. If this standard does not reflect the "risk appetite of governments", then the standard that does should be clearly defined so that the gap can be quantified.

We propose four additional assessment criteria.

The first additional criterion should address the issues of market power and retail competition raised in section 5.5. of the paper. A concern with some of the options is that they will further entrench the market power of large, vertically integrated incumbents and put smaller, non-integrated retailers at a disadvantage when procuring capacity. Strong energy and retail market competition are intentional design features of the NEM that should not be compromised by a capacity mechanism.

The second additional criterion should address the issue of investment certainty, particularly during the transition to any new 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 puts existing investment opportunities in jeopardy – an outcome the ESB is surely seeking to avoid. This risk must be considered when assessing the various options.

The third additional criterion should address cost. As consumers will ultimately bear the cost of any new mechanism, it must be explicitly considered in the assessment criteria.

The fourth additional criterion 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 options 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 assessing options.

Question 2: Do you agree with the proposed approach to how the ESB will incorporate and address the Energy Ministers' design principles?

The design principles give jurisdictions the ability to derogate from any mechanism and to decide which technologies will be eligible to participate. However, the potential for this to occur is not discussed in the remainder of the paper. The ESB's subsequent papers should include consideration of how the exercise of these discretions would impact the efficacy of each option.

The third design principle speaks about the "needs of the NEM". Part of the challenge of this exercise is that the needs of the NEM have not yet be defined, and thus the gap has not been clearly identified. This relates to the point we make above about the mechanism achieving the "level of reliability that consumers and governments value." It will be very hard to assess any option if the problem and the goal are not clearly defined.

Question 3: Are there specific design choices from international capacity markets the ESB should explore in a NEM context?
Question 4: Are there other international examples of valuing capacity that the ESB should consider?
Question 5: What design choices do stakeholders consider would work well for the NEM?
Question 6: Are there design choices from these international examples that stakeholders consider will not work well in the context of the NEM?

We support the review of international approaches to consider the models most suited to the NEM.

However, in Enel X's view, CAISO is not a helpful comparison. CAISO is a heavily vertically integrated market that experiences significant government intervention.

Further, we don't believe that PJM properly reflects option 1b as described in the paper. In PJM, the fixed resource requirement (FRR) approach was invented to enable a neighbouring utility to join the capacity mechanism and accommodate their existing supply agreements. While the FRR option is open to any supplier in PJM, it was clearly designed to limit use to that one special case, and to our knowledge no other supplier has ever elected to use it. Instead, most suppliers participate via the central auction. However, PJM (excluding the FRR arrangement), is a good example of option 2, and is arguably the most successful market capacity in existence.

Regarding other international examples that the ESB could consider – the Belgian capacity market was approved last year and has some interesting features that may be worth looking into.

Question 7: Do you have any views on whether there are other design areas the ESB will need to consider in the design of a capacity mechanism?
Question 8: Has the ESB accurately reflected the trade-offs to be considered for each core design area?

Three key matters are not addressed in the design areas.

The first is how the costs of capacity would be recovered under each option. Consumers will ultimately bear the costs of any new capacity mechanism, and so the mechanics of cost allocation should be more explicitly addressed.

The second is the reserve margin – specifically who defines it and what it is set at. The options canvassed in the paper appear to only require liable entities / the system operator to procure sufficient capacity to meet forecast demand. If the intention of the mechanism is to "close the gap between investor incentives and the risk appetite of governments", then surely it must include a defined reserve margin.

The third matter not considered in the design areas is transitional arrangements. As noted in response to question 1, it is not possible to switch from an energy-only design to a capacity mechanism without introducing some investment uncertainty. Given it would take several years to design and implement a capacity mechanism, the ESB must set out its views on the timing for design and implementation of each option, including the base case, and the potential impact of this on new investment.

Question 9: Do stakeholders have views on the definition of reliability at risk periods?
Question 10: Which of the above derating methods would work best and why?
Question 11: Are there any other issues the ESB needs to consider when developing the approach to defining capacity?

We do not have any comments on the definition of reliability at risk periods at this point. However, it may be useful to point out that the WA Government is undertaking a review of its reserve capacity mechanism, which includes consideration of whether the existing approach to reliability at risk periods will be fit for purpose as the system changes.[2]

The complexity of capacity derating should not be understated. It is very hard to deliver a perfect derating methodology, which means a resource is likely to either be under- or over-valued. However, when done right, it should allow a capacity market to address any kind of scarcity, not just extreme peaks. The WA Government's review of the reserve capacity mechanism is also looking at the methods for assigning certified reserve capacity credits to different technologies, including demand side resources and hybrid facilities. This work may be useful for the ESB in considering derating methodologies.

In Enel X's experience globally, methods that derate 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 derated based on that incapability. For example, if a battery can only deliver 2 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 2 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.

Question 12: In the context of the NEM, what do you consider to be the main advantages and disadvantages of the three options outlined above?
Question 13: Which of the procurement approaches is best suited to the NEM and why?

[2] See: https://www.wa.gov.au/system/files/2021-11/RCM-Review-2021-Scope-of-works.PDF

As noted in our general comments at the start of this submission, we do not believe that these three options are the only ones that should be explored. In Enel X's view, we should be exploring other options that are simpler and more targeted at the specific problem.

It's also important to recognise that a capacity mechanism will not in itself guarantee 100% reliability. None of the three options canvassed in the paper will completely mitigate the risk of unforeseen reliability shortfalls, for example due to an unexpected outage at a major generator or the tripping of major transmission lines, unless the reserve margin is set very high. Very high reserve margins come at a significant cost to consumers. This is always the trade-off.

Option 1a

We agree that the French capacity mechanism is a useful reference point for Option 1a.

The major appeal of Option 1a is that the risk of over-procurement is minimised. This is because the responsibility for forecasting demand and procuring capacity lies with retailers who have an incentive to meet, and not exceed, their obligations at lowest cost.

However, as noted in section 5.5.1, the downside of decentralised approaches is that they lack transparency and create the potential for market power to go unchecked. Large, vertically integrated retailers will have ready access to physical certificates from their generation portfolio and may inflate the price they offer other liable entities for their capacity. With the bulk of the capacity obligation falling on the large players, smaller retailers may struggle to source certificates to meet their obligations. Similarly, non-integrated capacity providers may struggle to compete to offer certificates.

Significant concerns were raised about these risks in the design of the French mechanism. In response, the French regulators introduced mandatory centralised auctions, liquidity obligations on large providers, and a host of mandatory disclosure requirements. While these measures help to promote liquidity and transparency of capacity trades, the result is a very administratively heavy instrument. The trading and settlement arrangements are also highly complex, and it can take years to complete trades. It therefore cannot be said that the French mechanism is simple or low impact. If implemented in the NEM, liable entities would face significant administrative and regulatory compliance costs, which may be unsustainable for small retailers.

If market power risks are not addressed, the implementation of option 1a in the NEM would be inconsistent with Enel X's proposed criterion to support vigorous energy market and retail competition. If market power risks are addressed by forcing transparency and liquidity through regulation, as they are in the French mechanism, implementation of option 1a in the NEM would be inconsistent with the ESB's design criterion to minimise regulatory burden.

The overwhelming feedback from industry and consumer representatives in previous ESB consultations is that a capacity mechanism is not needed in the NEM. The driver for introducing a capacity mechanism therefore appears to be political. The ESB recognises this in the paper by stating that "jurisdictions' willingness to accept reliability risk or the very high scarcity pricing necessary for investment seems to be significantly lower than that of the private sector." If the objective is to give governments confidence that a highly reliable system will be delivered, it would be strange to introduce a mechanism that delegates responsibility for this to industry. Indeed, option 1a appears to largely reflect current arrangements, but with significantly more regulation and administration involved, and presumably quite large penalties to ensure compliance.

Option 1b

This model appears to combine the worst of options 1a and 2, which perhaps explains why there are no clear international comparisons.

As noted above, the advantage of option 1a is that the risk of over-procurement is minimised because retailers determine their own liability. Under option 1b, AEMO determines retailers' liability, and so this advantage is lost because AEMO is incentivised to deliver conservative demand forecasts. The quantity of capacity procured under option 1b is therefore likely to be greater than option 1a, at a greater cost to consumers. However, the risks of option 1a relating to information asymmetry and market power still exist in option 1b because retailers hold responsibility for procuring capacity. As noted above, these risks can be addressed through regulation, but the result is a very complex and administratively burdensome mechanism.

Option 2

Capacity mechanisms that reflect option 2 are the most common in international markets.

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 to decentralised approaches because they can 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 many 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:

- there is price transparency – all potential capacity prices have as good an idea about what the price might be as anybody else
- capacity costs are explicit, not hidden in bilateral contracts
- information asymmetries are minimised
- all participants play by the same rules
- there is no discriminatory pricing
- market power risks are minimised and can be monitored transparently
- transaction costs tend to be lower.

However, the risk of over-procurement and thus higher costs to consumers is higher under centralised models. Further, centralised models still require significant regulation to implement and can be complex to administer.

Question 14: Which of the options outlined above can be expected to work best in the context of the NEM?
Question 15: Are there any other issues the ESB needs to consider when developing the approach to transmission constraints and interconnectors?

We have no comments on how transmission constraints should be accounted for at this time. However, it may be worth looking at how the WEM has addressed this in its network access quantities regime.

Question 16: Are there any suggestions for other ways that market power could be mitigated?
Question 17: What kinds of market power issues are likely to be of the greatest concern?
Question 18: Are there any other issues the ESB needs to consider when developing the approach to market power mitigation?

The paper recognises the potential for exercise of market power, particularly in the decentralised approaches, and sets out several options to address it. However, as noted in our comments on each option, it's important to recognise the significant potential administrative costs and complexity of the measures needed to address market power concerns. These costs must be acknowledged when weighing up the different options.

Question 19: Which of the options for demand side incentives and compliance would work well, or not work well, and why?
Question 20: Which of the options for supply side incentives and compliance would work well, or not work well, and why?
Question 21: Are there any other issues the ESB needs to consider when developing the approach to penalties and compliance?

Regarding compliance by liable entities, we expect that penalties would need to be significant under option 1a, otherwise it's not clear how this model is that different to current arrangements. And under option 1b, it's difficult to understand how penalties could apply when compliance is assessed ex-ante.

Regarding compliance by capacity providers, it's not clear whether / how compliance penalties would apply when there is an unforeseen reliability shortfall, for example as a result of a transmission outage. Is it fair that penalties are payable for when the outage was not forecast and was entirely out of that capacity provider's control?

The purpose of a penalty regime is to give all capacity providers an incentive to deliver the capabilities they have promised, and for which they are receiving capacity payments. 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. This issue has arisen in capacity markets based on reliability options, such as the one in Ireland.

When a capacity auction takes place years ahead of delivery, the intention is to spur the investment necessary to deliver the desired level of capacity. If capacity providers take on an obligation in that auction and then fail to deliver, then they will have prevented investment by some other participant or project that they displaced in the auction. So, there needs to be some way to ensure that capacity obligations are not taken on lightly. Typically this takes the form of a financial guarantee, to cover a sum that will be forfeited if the resource is not commissioned in time for the delivery year.