AUSTRALIAN ENERGY COUNCIL

Anna Collyer
Chair
Energy Security Board

10th February 2022

Submitted by email to: info@esb.org.au

Dear Ms Collier

**AEC Response to Project Initiation Paper on Capacity Mechanism**

The Australian Energy Council (the "**AEC**") welcomes the opportunity to make a submission in response to the Paper.

The AEC is the industry body representing 20 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia, sell gas and electricity to over ten million homes and businesses, and are major investors in renewable energy generation.

Industry has a range of views about the case for change. The Paper is not presenting that question, but is instead asking how to approach such a change. The AEC has engaged on that basis. The AEC's engagement in the process, and its identification of many challenging issues, should not be taken as either an endorsement or rejection of the case for change.

As per our usual practice, this submission was developed independently by the AEC secretariat in consultation with its membership, drawing from its long-term principles favouring competitive, technology-neutral national markets. Unsurprisingly 20 diverse members are not all of one mind with respect to how large reforms match those principles. That diversity will emerge through members' own submissions rather than the AEC's.

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

The AEC recognises that Ministers Design principles were developed in a difficult multi-jurisdictional political environment and are not simultaneously feasible. For example, principle (7) supporting inter-regional contracting is incompatible with principles (11a), (13) and (14) which empower jurisdictions to opt in or out and determine eligibilities.

The AEC therefore supports the Energy Security Board's ("**ESB**") applying a coherent interpretation of these principles by developing its own Assessment Criteria. The ESB's detailed work can then be guided by the latter.

With respect to the Ministers' principles (11a), (13) and (14), the AEC is unsure if a capacity mechanism is operable where a large interconnected jurisdiction unilaterally opts out or excludes a suite of technologies. As such, the Victorian Government's position[1] requires resolution before progressing the project. Whilst this remains in place, the project seems condemned as a futile diversion of critical market design attention.

[1] https://www.smh.com.au/environment/climate-change/drawing-a-line-victoria-to-oppose-special-payments-for-coal-plants-20210916-p58s4q.html

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The ESB's criterion 1 introduces a new concept in "the level of reliability that governments value". Reliability is understandably of great interest to governments and some of their interventions are justified by a desire to achieve a more conservative outcome than could be justified by a purely economic reliability valuation. However attempting to estimate and include that conservatism in these design principles seems impractical and undesirable. Ultimately the design should only target the long-term interest of customers, assessed empirically through the Value of Customer Reliability[2]. The AEC encourages the ESB to explain to governments the merits of using the Value of Customer Reliability as a guide to market design.

The AEC notes the Energy Ministers' principle (4) "complement existing energy only market design and well-functioning markets for financial contracts, and other reforms in development". To the AEC's mind "complement" implies that the fundamental existing market design should be retained, and that the purpose of any mechanism is to provide additional confidence to stakeholders in respect of the National Electricity Market's ("**NEM**") investment incentives, rather than to replace it. Indeed this interpretation was presented as an outcome of the Post-2025 Review and is supported by the AEC. The AEC considers that this theme of complementarity should be reproduced in an assessment criterion.

With respect to Assessment Criterion (5) Emission Reduction, the AEC understands this is intended to guide the ESB to ensure the mechanism's *compatibility* with jurisdictional environmental objectives, rather than seeing the mechanism *delivering* these objectives. This interpretation is supported.

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

All market designs are heavily influenced by the circumstances and history of the relevant countries' energy system and contextual policy environments. Whilst international study will be useful, caution should be exercised in assuming that an overseas design is optimum with respect to the NEM's circumstances. Overseas examples should also be considered from a critical perspective, and the ESB should not be afraid to call out examples where outcomes seem sub-optimal.

The AEC membership is experienced with the Wholesale Market of Western Australia (WEM)'s Reserve Capacity Mechanism ("**RCM**"). The membership has found the RCM mostly satisfactory in achieving its objectives, however its relevance may be limited given the very different physical and ownership circumstances of the WEM when compared to the NEM.

Having said that, WA based AEC members are concerned about the RCM's revenue adequacy with respect to investment in the forms of firm supply that will be necessary through the transition such as deep storage. Salutary lessons for the ESB could be drawn from that. To that extent AEC has engaged work into this issue which it intends to share with the ESB in the near future.

For example, many designs (including the WEM) apply extremely low price caps and/or oppressive bidding controls in their energy spot markets, influenced by a historical concern about a future abuse of market power in the absence of these controls. Despite similar initial concerns being raised in Eastern Australia, the NEM was fortunate to avoid most of these burdens. After 25 years of successfully operating a liberal NEM spot market, there is evidently no need to revisit such controls.

[2] https://www.aer.gov.au/communication/values-of-customer-reliability-adjusted-for-2021

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The AEC considers that the NEM's relatively liberal market settings and controls were critical to its success to date. This has underpinned both the level of capacity investment and also its success in operating a day to day decentralised dispatch process[3]. Whilst the ESB is contemplating a capacity support mechanism to sit alongside the energy-only market, the AEC considers that the philosophy behind these settings should remain. In that regard, the ESB should approach the work on the assumption that the existing energy-only spot market incentives and risks continue.

The AEC supports the contemporaneous work by the Reliability Panel's four-yearly Reliability Standards and Settings Review which will assume an on-going energy-only market. If the ESB takes the view that the objective of the capacity mechanism is to provide some additional confidence to the NEM's existing investment mechanism without replacing it (Energy Ministers' principle 4) then there is no need to revisit the Panel's recommendation. Revisiting it could counter-productively reduce reliability confidence.

> *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?*
> *8. Has the ESB accurately reflected the trade-offs to be considered for each core design area?*

As noted in section A14 of the AEC's Post-2025 final submission[4], the key challenge in designing any mechanism is to ensure it is compatible with tomorrow's power system rather than yesterday's. The most critical problem being experienced in all capacity markets, including the WEM, is that they were designed to resolve the traditional power system's critical condition: having sufficient conventional capacity to meet an instantaneous peak of passive demand. This can be adequately described with deterministic interpretations of capacity and demand which can then be commoditised into capacity certificates and simple annual surrender obligations. The future power system critical condition will however be subject to many stochastic and energy-limited variables that cannot be described deterministically.

This explains the AEC's view that existing energy-only market risks expressed through its settings must not be weakened regardless of the development of a capacity mechanism. The power system's most critical stresses are likely to change. For example, the present stress point of brief extreme summer demand peaks are likely to ease with the investments in shallow storages. Instead new stresses will arise during extended winter energy droughts that do not coincide with peaks in consumer demand. It is unlikely that a deterministic mechanism matched to demand peaks can address these events. However, if high price caps[5] are retained, such droughts will be result in high spot prices which underpin the existing contracting and investment mechanisms.

In such a scenario, an external capacity mechanism built around the summer peak may in fact be of less significance to investment than the strong energy-market signals arising from the existing market design in winter. Such an outcome would not be undesirable.

A sense that comes across in the overseas capacity mechanisms described in table 1, and the approach proposed for the ESB in figure 2, is that the designs are approached with supply side thinking. This approach tends to relegate demand-side incentives to an added on detail rather than a core part of the design.

> *9. Do stakeholders have views on the definition of reliability at risk periods?*
> *10. Which of the above derating methods would work best and why?*

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[3] In respect of the role of the market settings supporting an effective decentralised dispatch process, the AEC engaged detailed advice in 2020 that can be found here: https://www.energycouncil.com.au/analysis/scheduling-and-ahead-markets/
[4] https://www.energycouncil.com.au/media/ynoighw5/aec-response-to-p2025-market-design-consultation-paper.pdf
[5] The existing cumulative price cap may potentially interfere with necessary sustained high prices in these events, however the AEC notes this will be considered by the Reliability Panel's review.

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*11. Are there any other issues the ESB needs to consider when developing the approach to defining capacity?*

The discussion in 5.1.1 about defining "at risk periods" leads to a fundamental question: *what condition defines the scope of the capacity mechanism?* It is important to resolve what problem the mechanism seeks to solve before designing it. The Paper describes four potential critical system conditions:

(a) Total installed firm capacity versus annual peak instantaneous demand;
(b) Rate of change to manage expected changes in supply/demand;
(c) Ability to respond to unforecasted changes in supply/demand; and,
(d) Energy limitations.

Conventional capacity mechanisms such as the WEM's were designed only to explicitly resolve (a). As discussed above, the future market is more likely to be affected by (d) and the Paper recognises this and suggests ways of capturing energy limitations through discounted deterministic accreditations. Unfortunately this simplification will imply major losses of accuracy.

(b) and (c) are not normally seen as a function of a capacity mechanism. In the NEM, these have historically been resolved through the natural incentives of the spot market and its very high price cap. The Australian Energy Market Commission is contemporaneously considering whether an operating reserve or ramp mechanism is necessary to support those incentives. Attempting to address (b) and (c) within the capacity mechanism seems likely to confuse the work.

The AEC's consultancy on the WEM's RCM is investigating the challenges of capturing the energy-limited storage within a capacity mechanism. On top of the rule-based de-rating approach described in this paper, there is also the large issue on when and how the resource is to be charged. In the WEM's case, this requires the Australian Energy Market Operator to pre-define time blocks, for which storage will be penalised if it is not fully charged to support. As the AEC's consultant puts it, this design "effectively delegates dispatch timing decisions from the asset owner to the market operator".

Should the design retain the existing market's high spot price caps with its natural incentives to operate storage conservatively, such timing definitions may not be necessary and dispatch decision can be left with the owner.

The definition of "at risk" periods opens challenging issues with respect to active demand-side operations. Retailers presently develop arrangements with customers that act to reduce consumption at times of high price and rely on the present decentralised dispatch process to forecast and activate it. The recognition of demand-side action through reduction in retailers' peak load liabilities during the "at risk" periods will change retailers' approach to its activation. Like storage, this could have the effect of delegating the scheduling of demand-side response from the retailer to the market operator.

*12. In the context of the NEM, what do you consider to be the main advantages and disadvantages of the three options outlined above?*

During the Post-2025 Review, the ESB preferred to focus work on a decentralised design that built off the existing Retail Reliability Obligation (RRO). This design is expressed in the Paper as option 1a. This is presented as the most "decentralised" option.

Since that time there has been evident progression in the thinking of the ESB, much of industry and the AEC. Firstly it should be noted that all three of the listed options imply considerable centralisation of decision making compared to the status quo. In particular the following decisions - the most fundamental planning decisions of any power system – will be equally centralised in all options:

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- The determination of the "quality" of all assets in terms of their ability to support the power system, and,
- The determination of how much of, and when, those assets must be procured.

Having made the decision to depart from an energy-only market, the different levels of centralisation/decentralisation between 1a, 1b and 2 are relatively second order and discussed below.

The AEC naturally prefers to leave long-term contracting as a matter between market participants as would happen for capacity certificates in both options 1a and 1b. The AEC also sees theoretical advantages in keeping retailers responsible for forecasting their own peak load through the ex-post compliance of option 1a.

However it should be noted that the long-term contracting arrangements of 1a and 1b, by being decentralised, are less obvious to external stakeholders compared to centralised contracting under option 2. In options 1, information about investment and disinvestment would be through the same media as occurs currently, for example the Electricity Statement of Opportunities potentially augmented by a new certificate registry or trading platform. This leaves a question as to whether 1a/1b could sate the concerns about the NEM's present decentralised investment regime that has triggered this exercise. It is possible the concerns would persist, and harmful interventions continue.

Option 1a was presented in the Post-2025 Review as a physical replacement of the existing RRO. Should the ESB implement one of the other options, the AEC retains its firm view that the RRO will have been superseded and should be retired. This expectation should be clarified by the ESB against all options.

*13. Which of the procurement approaches is best suited to the NEM and why?*

With respect to the procurement method itself, the AEC points to another salutary lesson from the WEM with respect to auctions. The WEM's capacity mechanism payments were historically provided from an administratively determined fund shared across all accredited capacity. This provided recipients with a relatively stable income, but also resulted in inefficient over supply. As proposed in the ESB's Paper, the scheme was reformed in favour of an auction arrangement with a centrally determined demand curve. This was the correct signal with respect to new-entry, however if applied upon existing assets would have created a tremendous financial impairment. Thus for a transitional period existing assets have been granted an administratively set floor price which the AEC supported.

Whilst not disagreeing with the attractions of auctions in finding an efficient clearing price for new entry, the ESB needs to consider whether an auction and floating price is appropriate for existing assets. The AEC also notes the UK experience where the first auctions produced surprises with respect to existing assets. Relatively young and efficient plants bid higher than older plants and were not cleared and subsequently closed as stranded assets.

*15. Are there any other issues the ESB needs to consider when developing the approach to transmission constraints and interconnectors?*

With respect to transmission congestion, this is particularly complex as the NEM's existing design does not ration access until the moment of dispatch. Therefore, when recognising assets' ability to deliver capacity to customers, there is no readily available mechanism to ration access. In the case of the WEM, this was more straightforward because the RCM is linked to an existing firm-access regime.

A holistic access regime such as those used in North America would provide a mechanism for rationing capacity access. However the ESB's proposed Congestion Management Model does not


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seem to provide one, because for non-firm generators access will remain unknown until the moment of dispatch. For the NEM, it would seem necessary therefore to develop a new tool to attempt to determine access ex-ante.

With respect to interconnectors, the AEC would support the purchase of inter-regional settlement residues as an acceptable capacity instrument, to the extent it could be judged as firm, potentially using a process similar to that used by the AER for the RRO. Market Network Service Providers ("**MNSP**s") should be recognised similarly to firm generators, presuming there is supply/demand diversity between the two regions and reasonable network access to regional reference nodes. These approaches would go to meeting Ministers' design principle (7).

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

The AEC does not understand why this section has arisen in the Paper as it was not mentioned by Ministers and seems inconsistent with the highly competitive market conditions that have created the concerns about incentives to invest in new firm supply. Indeed, a market affected by generator market power is typically characterised by an inefficient over-supply economically withheld from customers. If that were the case in the NEM, it would not be having this discussion.

Concerns about market power in electricity markets is very much a legacy issue of historical conditions characterised by large fossil fuelled power stations with scale efficiencies, long build times and many physical barriers to entry. Today's power system has none of these elements. This topic of the declining importance of market power in the transitioning power system been deeply investigated in a consultancy sponsored by the AEC[6].

The market power mitigation mechanisms observed in other markets were creations of a different era. Despite the NEM's energy-only market being also designed in that era, it took the courageous step at the time in trusting competitive processes and instituted a high price cap and only relatively light constraints on producers' freedom to self-value their product. After 25 years, the NEM's courage has been rewarded with a widely acknowledged favourable view of this design.

To the extent that market power over sources of dispatchable capacity purportedly exist, then this would be evident in the NEM's existing contract markets, and the AEC is unaware of such evidence, and, as discussed in the above report, competitive circumstances are naturally improving not deteriorating. A well designed capacity mechanism should be no more exposed to market power than the existing market.

Furthermore, a market design should never deviate from the optimum in order to intrinsically manage a perception of an uncompetitive structure. Circumstances of market power, should they exist, should be dealt with ideally through competitive new entry, and, as a last resort, by regulatory action external to the design.

Thus the AEC does not consider this area to be a priority for the project.

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

[6] https://www.energycouncil.com.au/media/ar0leqfx/20181213-final-report-advice-on-nem-structure-in-light-of-technology-change-stc.pdf

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As the AEC has submitted previously, the existing energy-only market with its high price cap and floor permits it to self-resolve many issues that markets without this feature would need to be administratively resolved. Regardless of whether and what capacity mechanism is introduced, the AEC strongly supports retaining these incentives through retaining at least the current level of risk implied by these market settings.

Whilst these market settings will continue to have many benefits, one advantage in the presence of a capacity mechanism is that its reliance on an administratively determined compliance regime is lessened: the spot market naturally strongly incentivises performance by both generators and the demand-side to avoid load-shedding. All capacity market compliance regimes have short-comings, but retention of the energy-only market settings will lessen their consequences.

With respect to the questions 19-21, these are difficult to engage with at this time. They will depend on whether there are changes to the existing spot market settings, and the way in which accreditation will be determined, particularly those issues in 5.1 and 5.2.

A critical question with respect to compliance regime that will have to be engaged with is that of *force majeure*. Will events that are outside the asset owner's direct control result in an administrative penalty? This goes to questions as to whether the owner should be held responsible for transmission disruption, transmission congestion, fuel supply limitations, drought, etc.

Regardless of the best efforts of participants, non-compliances are a normal and expected feature of any capacity mechanism. These can occur for such bona-fide reasons as an ill-timed forced outage, or a customer who became unexpectedly unavailable to exercise a demand response. Such non-compliances are not moral evils deserving of harsh penalties.

The AEC notes the existing RRO was developed in an unfortunately politicised environment which resulted in retailers being subject to an uncertain, and potentially excessively punitive penalty regime. In contrast, a more sensible regime exists for example in the Renewable Energy Target. Its known and a limited shortfall penalty provides enough incentive to encourage the industry to deliver the policy's intent without at the same time placing extreme risks on players who may on occasion fall short.

**Conclusion**

The ESB is clearly taking on an extremely challenging task. Governments have subjected the ESB to an unreasonably challenging timeframe and several unreasonable and conflicting constraints. To have any chance of delivering on this task, the ESB should point these out and request clarification.

Whilst capacity mechanisms exist in many places, they each have many challenging issues, arguments and repeated adjustments. Introducing one into a 25 year old energy-only market will be anything but straightforward.

The ESB should take more seriously Ministerial Principle (4) that described the capacity mechanism as "complementary" to existing arrangements. To the AEC's mind, this implies the existing energy-only market does not require adjustment in light of a separate capacity mechanism. The AEC considers this particularly pertinent to the question of market settings and bidding freedoms.

The greatest challenge being experienced by capacity mechanisms elsewhere are the same as that facing energy-only markets: how they will handle the technology transition. The AEC is unsure whether a certificate based mechanism built around peak summer demand will address the most severe challenges that a future market will face. This is the most important of many reasons to leave the existing market incentives and risks in place.

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The AEC looks forward to collaborating with the ESB's challenging 2022 project. Any questions about this submission should be addressed to the writer, by e-mail to Ben.Skinner@energycouncil.com.au or by telephone on (03) 9205 3116.

Yours sincerely,

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