

Capacity mechanism high-level design stakeholder webinar 1 July 2022 – Response to stakeholder questions

The below table provides responses to the questions raised during the stakeholder webinar on 1 July 2022 on the high-level design of a capacity mechanism for the NEM. Questions have been grouped by topic area. The ESB looks forward to stakeholder submissions on the issues raised.

Stakeholder question	ESB response
Case for change	
<p>Core question remains, what problem does the ESB think the problem is to which the Capacity Mechanism is the designed solution? The 'case for change' is made for the first time in the Design Paper, and I think I am not alone in thinking the case for change has not been made.</p>	<p>A capacity mechanism provides a more direct and certain method to procure the capacity required to maintain reliability. Under the current arrangements, the necessary investment may not be forthcoming from market participants during periods of high uncertainty (which creates an elevated cost of capital). Limited availability of long-term contracts means investors are not able to hedge long-term price uncertainty, which increases risk and costs.</p>
<p>Isn't the only way to manage a non-disorderly exit is to centrally plan the whole show? Doesn't the capacity mechanism just create an incentive to delay exit of coal, and hence work against the decarbonisation objective?</p>	<p>The ESB has sought guidance from Energy Ministers on their emissions reduction objectives, so that these can be operationalised by the ESB in the capacity mechanism in eligibility criteria and auction design.</p> <p>A capacity mechanism can help coordinate entry and exit decisions by ensuring new capacity will be in place as existing capacity is phased out.</p>
<p>Isn't the biggest uncertainty in the market (a) ongoing policy uncertainty such as a possible capacity mechanism and (b) the storage overhang created by Snowy 2.0?</p>	<p>There are many sources of uncertainty in the market. Other sources of uncertainty for investors include: the rate of technological development, which could impact the long-term viability of today's new and existing projects; thermal fuel costs, which have an impact on long-term price outcomes and operational costs; long-term system demand and intra-day demand profiles, dependent on the rate of electrification of transport and other industry.</p> <p>The point of the capacity mechanism is to ensure we have a direct means of securing the capacity we need through this period of uncertainty and transition.</p>

<p>How will you manage political and public aversion to high wholesale (Spot) prices in the capacity market? Price signals are needed to incentivize capacity (just like in any other market), and it seems we will have the same problem that everyone panics once prices go up and there will be interventions into the market</p> <p>Sorry, typo - *high prices in the capacity market (not in the energy spot market)</p>	<p>The key objective of the capacity market is to ensure reliability will be maintained, at lowest cost. Price outcomes in the capacity market would likely be driven by many external factors (development costs, for one). The costs and benefits of a capacity mechanism relative to the status quo will be outlined in the detailed design.</p>
<p>Complementing the NEM's energy only market by compensating essential system services makes more sense than adding capacity market to pay capacities which may not be able to generate energy when are needed?</p>	<p>The ESB's Post-2025 Final Report made several recommendations regarding enhancements to existing compensations arrangements for essential system services. These recommendations are being progressed by the AEMC.</p> <p>The design of the capacity market is intended to pay for capacity that is available when needed.</p>
<p>GAMING the capacity market => Are you considering limits (total or partial) on an individual generator's opportunity to participate in both markets -- pool and capacity. That is, are you concerned about generators gaming across the two markets or are you relying on competition to nullify the opportunity for gaming.</p>	<p>Under the ESB's proposal, the wholesale energy market would continue, with a portion of each generators' revenues coming from the energy market and a portion from the capacity market. The ESB will consider the potential for the exercise of market power in the capacity mechanism in detailed design.</p>
<p>Could you please comment on the notice of closure obligations (3.5yrs) and the T-4 auction? Does the ESB consider they will need to be more aligned?</p>	<p>Auction timing will be considered further in detailed design. The ESB has not yet made a final decision on T-3, T-4 or other timing. Interaction with notice of closure provisions, as well as capacity development timeframes will be key considerations.</p>
<p>Consumer impacts</p>	
<p>How does this design ensure that the total cost of energy for the end user is around the same as a market without the capacity mechanism?</p>	<p>The ESB is guided by the National Energy Objective and has developed assessment criteria to ensure that the design of the mechanism is in the long-term interests of consumers.</p>

Once again ESB continues to push a solution looking for a problem. In an environment where wholesale electricity prices are at an all high and consumers are being slugged with costs and high prices, how can this be a solution that considers consumers? Based on the WA market indicative costs to consumers \$2.9b to \$6.9 billion, that is up to \$430 per household. UK has had the same issues. How is the ESB looking to consider these impacts on consumers without considering other options?

As part of the development of its detailed design proposal, the ESB will focus on the role that the market price cap would play in the presence of a capacity mechanism and assess the scope for any reductions in its level to ensure customers pay no more than is necessary. It will also give careful thought to auction design and the scope for different rules and support arrangements for existing and new participants.

Will the ESB do a cost benefit on the ESB option proposed vs other options that are just as valid to address the issues Ministers are concerned about?

The ESB's intent is to design a mechanism that balances the income that capacity providers would earn between capacity and energy sources to promote lower cost investment while at the same time ensuring payments are only made where benefits to consumers can be demonstrated.

Procurement and auction design

How can this market design help avoid the concentration of power by "big ones" as we believe they don't do it as efficiently as small developers, which eventually is to the benefit of the consumers.

Issues faced by smaller participants including possible regulatory burden and barriers to competitive finance were key considerations in decisions taken in the High Level Design. A centralised procurement approach is likely to have a lower compliance burden on smaller retailers than a fully decentralised approach. Long-term contracting for new capacity, awarded through a competitive auction, is also expected to reduce barriers to entry for smaller, non-vertically integrated project developers. The impact of further design choices on market power and mitigation measures (as needed) will be considered in the detailed design process and outlined in the final report.

UK mechanism had transitional auctions for DSR & storage (since quicker to deliver new). Is this likely in NEM model?

The need for additional auctions as a transitional arrangement (e.g. T-1, T-2, T-3 and/or T-4 in the first years of operation) will be considered as part of the detailed design process.

Cost allocation

In recovering the capacity costs from retailers, how will the costs be apportioned between retailers? Some retailer's usage shapes may contribute more to an underlying

We are seeking stakeholder views, but the intention is that load shapes that contribute to the need for capacity bear a higher share of the costs to provide a signal to reduce or shift load. This objective needs to be balanced against ensuring the mechanism is simple to administer and there is some level of

capacity issue that was addressed; will they receive a higher proportion cost pass through?	certainty for retailers of what the costs will be so they can recover costs through their tariffs.
will there be any transparency how the cost is divided among the retailers and how usage of these retailers in every region is considered?	The methodology will be transparent and will be applied consistently with other AEMO cost recovery processes.
Retailers would prefer to have this cost included into the pricing models for the various jurisdictions and their price setting mechanisms, rather than a post event cost recovery process. Surely an ongoing regular charge could be established and collected by AEMO and then adjusted each year based on future requirements and the actual events of the year. This would allow for the capacity costs to be smoothed to retailers and their customers.	The intention is to avoid unexpected post event recoveries and to ensure the costs can be predicted and recovered in advance. Keeping the size of wash ups down is also important.
De-rating	
for performance measure of capacity, how the availability year-around is measured? with significant number of forced outages, how can we ensure that reliable capacity is available?	AEMO's ESOO modelling already addresses forced outage rates and when combined with extreme weather these are the key driver of reliability events. We are interested in views on how to factor in potential increases in outage rates which may not be supported by historical data.
Will the performance obligations include a testing mechanism whereby the capacity is physically tested to see if it is able to perform as required, and penalised for non-performance?	Yes, we envisage a testing regime may be required particularly for new capacity or capacity which is harder to measure like demand response.
when determining derating factors, we should also consider what is charging the storage. Storage is not much use without generation to charge them.	Agreed this needs to be considered.
How does capacity remuneration for a long duration pumped hydro (12 hours +) differ to a battery operator	There are a range of methods for determining de-rating factors and we are interested in views on this. A long duration storage is likely to have a de-rating factor near 100% whereas a short 2-hour battery may only have 50% or less.

<p>providing (2-4 hours of storage)? I note the derating mechanism, but paper is not very clear on storage duration.</p>	<p>The WEM model uses a ratio of storage hours to length of a typical event e.g., 4 hours.</p>
<p>Can you clarify on the types of at-risk periods the capacity mechanism is aiming to address?</p> <p>Paper mentions at risk periods as peak periods or LoR2/3 periods however also mentions consideration of 'renewable droughts'. Appear like it may require different incentives/mechanisms for different types of capacity in operational timeframes.</p> <p>This is an underrated question - I hope it gets addressed by the panel! It gets to the heart of what do we really need in a high VRE future? Renewable droughts of days to weeks is fundamentally a "short energy" problem, not a "short capacity" problem - does a traditional \$/MW capacity market really address this?</p>	<p>At-risk periods are the periods when de-rating is applied and can be time based (e.g., summer peak hours) or event based e.g., LOR2/3. Over time we expect the nature of the reliability events will change and renewable droughts will become an issue. You are right to highlight that this is a short energy problem, but it can be addressed by long duration storage. The capacity mechanism will reward long duration storage more over time as its de-rating factor will be higher than short duration storage so this will provide the commercial incentive for investment.</p>
<p>The high-level design appears to assume that sites will be single technology. Increasingly, sites (including Quinbrook's) are hybrid: solar+storage, industrial demand response+BTM renewables, etc.</p> <p>Will the scheme account for hybrid projects sites with respect to derating, particularly hybrid sites combining variable renewables and storage?</p>	<p>We are interested in views on determining de-rating factors for hybrid sites whilst keeping the scheme simple and manageable. One approach would be for the site to be classified as a storage facility with a longer duration (due to topping up from VRE) then a standalone storage facility.</p>
<p>If compliance is based on availability year-round as well as during LOR events, would it make sense to also look at year-round availability when calculating derating factors? Can AEMO use its discretion as to the methodology around calculating derating factors, or will the methodology that they use be specified?</p>	<p>The capacity requirement will be driven by the specified events, and these will be forecast in determining the de-rating factors. The de-rating methodology will be consulted on and once agreed AEMO will follow that process.</p>

Eligibility	
<p>If we need more renewable generation and the storage to make it dispatchable, why not have targets and/or incentives to underpin investment?</p>	<p>The ESB intends to design a capacity mechanism that is capable of supporting investment in new capacity when it is needed. To do this, the ESB will consider in the detailed design the challenges faced by new capacity so the mechanism can provide it with additional and appropriate support. This could include offering longer term contracts to new entrants, which would provide a more certain revenue stream, improving the financeability of the asset. While the ESB has not settled on the length of any long-term support that would be offered through the mechanism, contracts of 7, 10 or 15 years have been deployed in other jurisdictions for the same purpose.</p>
<p>Can you please describe how this option differs from the PRRO (besides that it's a centralised model via AEMO) option proposed last year and how this option will incentivise new generation investments?</p>	<p>The ESB expects that the capacity mechanism will become a primary driver for new investments in storage, across multiple durations. The capacity mechanism would also support a broader range of capacity providers, including demand response.</p>
<p>issue certificates+ long-term commitment? can you explain the long-term commitment part and how long?</p>	<p>Regarding the comparison to the PRRO, as noted in the question, the critical difference is that this design is based on a centralised approach. This changes several the fundamental design choices from what was proposed in the PRRO, including forecasting, the role of any central auction and the compliance regime.</p>
<p>seen some reference in the paper for the new entry with longer capacity contract for financiability- why is it 7 years not sure about this 7 year? it basis</p>	<p>All Australian jurisdictions have adopted the goal of achieving net zero carbon emissions by 2050 if not sooner. A key factor that would influence issues of eligibility and auction design will be the operationalisation of the Ministerial principle that the mechanism should 'focus on affordability, reliability, security and continued emissions reduction of electricity supply.' To this point, the ESB has sought guidance from Energy Ministers on sectoral emissions reduction in the context of net zero, which the ESB will then operationalise in terms of eligibility settings and auction design.</p>
<p>How will the design of any capacity market ensure that climate mitigation targets are meet? E.g. recent UK T-4 for delivery post-2025 did not allow coal capacity to participate.</p>	<p>The ESB's agrees that this is a critical issue for detailed design.</p>
<p>Re eligibility, it's fine to be technology neutral but I think we need to have eligibility criteria that select for the characteristics that we need in a high-renewable</p>	<p>The design of the capacity auctions will require further consideration of the eligibility of (and obligations on) market participants to participate in the</p>

penetration, carbon constrained world, for example:

1. We need capacity that can meet minimum ramping thresholds of X MW/min
2. We need capacity that can meet maximum emissions intensity thresholds of Y kgCO₂e/MWh
3. Not all MWs are created equal. Some can't ramp, some aren't low emissions, some aren't sufficiently long-duration, etc. Will the ESB consider these kinds of characteristics in the eligibility criteria?

Can there be different payment for different capacity type?

re: concerns about new versus existing technologies, worth clarifying how existing generators could provide more or incremental capacity and what they get paid for if AEMO is just procuring for capacity shortfalls

why would I pay for ageing thermal capacity that is unreliable?

capacity auction, any conditions to be placed on their participation, and the clearing process for the auctions. As part of this we will consider the differences you have outlined in this question. Including different payments for different capacity types or what market segmentation may be required to incentivise different types of storage length.

Subject to any eligibility requirements set by jurisdictions, and subject to the constraints of the emissions reduction guidance that the ESB has requested from Ministers, the ESB considers all capacity (both new and existing) rather than just new capacity should participate in the capacity mechanism. This is because all resources that participate in the market contribute to reliability, and a mechanism where all capacity is eligible to participate should encourage a more efficient mix and utilisation of resources. Where different arrangements apply to new capacity (eg different contract lengths), a definition of new capacity will need to be developed that deals with the issue of incremental capacity additions to existing plant.

In the ESB's proposed design, AEMO does not just procure the capacity "gap", but all capacity. This ensures that all capacity providers have an incentive through the mechanism to be available when needed or risk a penalty or loss of revenue. A mechanism that focuses only on new capacity would not provide an increased level of confidence that all required capacity providers will be available at times of system stress.

The ESB intends that all capacity would compete on their ability to provide reliable supply when needed. This is achieved by applying a "de-rating factor"

	<p>to each generator that reflects its expected contribution. The past performance of existing generators will be a factor in determining their de-rating factor in the capacity mechanism.</p> <p>The design of the compliance and enforcement regime will focus on making sure payments are not being made for capacity that is not in fact made available.</p>
<p>When considering the issues, will the ESB be open to considering other options that Industry has proposed that may be more suitable to address the problems and be cheaper for consumers? How will the ESB be presenting these options against the option that was put to Ministers so that there is transparency?</p>	<p>The ESB considered the models put forward by industry in developing its high-level design. The ESB's high level design is informed by some of the elements of these models. This includes providing specific and additional support for investment in new capacity and doing so through longer term contracts. The ESB will assess its final design against the status quo.</p>
<p>Would demand side management provider be eligible to participate?</p> <p>And getting the same payment as other types of capacity?</p>	<p>The ESB proposes that all resources contributing to capacity requirements be eligible to participate in the capacity mechanism. This would include demand-side resources, which will have an important role to play in a decarbonised grid. The ESB will consider the participation of demand-side and distributed resources in the capacity mechanism during detailed design and welcomes stakeholder input on this topic.</p>
<p>Regarding eligibility, does the ESB have a position on Transmission connected generation vs Embedded (distribution network connected) generation?</p>	<p>The ESB's broader work program is also addressing a range of issues to unlock the potential benefits of integrating demand-side resources into the market and this will extend to the capacity mechanism.</p>
<p>Should DER batteries in the distribution network become a part of this mechanism through an aggregated manner or individually, then there may need to be rule changes for DNSP's to enable the connection of these assets in a more efficient manner and consistent across the states.</p>	
<p>per AEMO ISP, ~75% of new storage capacity will be DER. How will the capacity mechanism ensure/reward DER participation? (Not clear if any existing CMs elsewhere do this effectively...)</p>	

<p>The demand side and the flexibility that it can provide as a service is woefully under-developed in the NEM & woefully overlooked as "too hard".</p>	
<p>Keen to understand the market participant roles that will be able to provide services to the capacity market, for example the SGA, MASS or Market Customer</p>	<p>The ESB is designing a capacity mechanism to address the issue of resource adequacy. As per the ESB's final advice to Ministers on the Post-2025 market reforms, the ESB's view is that a mechanism to value capacity is required to manage resource adequacy. The ESB's Post 2025 recommendations also identified a way forward for essential system services. The work of the market bodies is largely progressing these recommendations through rule changes and subsequent implementation programs.</p>
<p>The flexible trading services could be aggregated to provide a response here. This proposal may need to consider the flexible trading services</p>	
<p>If we need system services of a particular type, then presumably the ESS work will underpin a market that will provide an income stream for the providers?</p>	<p>The ESB's program is addressing a range of issues to unlock the potential benefits of integrating demand-side resources into the market and this will extend to the capacity mechanism. There are options as to how that integration could be achieved, which could both provide efficient resources to the capacity mechanism and benefit customers. This will include looking at the role of different market participant types, as well as how the work underway on flexible trading arrangements can be utilised in the mechanism.</p>
<p>My take is there is no way to build new capacity by Private sector - given the background how since inheritance of over build by Govt before NEM and then each govt promoting new build at taxpayers cost but unfortunately less efficiently.</p>	<p>Noted.</p>
<p>Incentives, compliance and penalties</p>	
<p>Very unusual to have a mechanism without meaningful penalties. UK mechanism uses penalties received to reward provision of capacity beyond obligation.</p> <p>If there is no meaningful penalty for non-delivery, obviously you'll bid & not fret too much about non-delivery of your obligation. Perhaps penalty payments could be applied to reduce the ultimate costs passed through to customers.</p>	<p>The ESB is considering the role of the link between payments, performance and penalties in the detailed design. The pursuit of civil penalties cannot be passed to consumers (as it goes to consolidated revenue). However, avoided payments (due to non-performance) would offset consumer bills.</p>

What are the penalties for actual and pledged capacity provisions variation?

In relation to the option proposed for detailed design - non-performance against responding to trigger events (LORs) or availability throughout the delivery year would result in these capacity providers not being paid. The ESB may consider clawback greater than the value of the capacity payment but are working through this in detailed design.

If a capacity provider's offers are false or misleading, then existing provisions within the NER may be applied and the AER take enforcement action for these.

Interconnectors

Has the associated issue of "firm transmission rights" for generators and capacity providers been included in your scope of review?

The transmission network impacts the ability of capacity providers in one part of the grid to meet demand in another location. The ESB is separately considering how inter- and intra-regional transmission capacity could be reflected in the capacity mechanism design. This high-level design focusses primarily on the proposed treatment of inter-regional transmission capacity. This is because the approach to intra-regional constraints will need to be aligned with the congestion management mechanism, for which a variety of design options are still being considered.

Should there be locational signal in the capacity market?

Jurisdictional principles

Are we really a 'national' energy market if each state can decide eligible technologies that participate in the capacity market?

The ESB will design a capacity mechanism that meets the design principles set and agreed to by Energy Ministers.

If a jurisdiction says no fossil fuel generator may participate in the capacity market for their area, but does not have sufficient renewable capacity, isn't this a classical 'free-rider' arrangement? That jurisdiction would benefit from other jurisdictions that have excess capacity and potentially drive up interconnector costs (that should also be considered). What is the justification for this principle?

The ESB will consider how to accommodate jurisdictional decisions to exclude technologies from participation in their jurisdiction during detailed design. For example, after identifying a quantum of demand for an identified risk period, AEMO could then:

- net out the anticipated contribution of ineligible capacity providers to meeting that demand, and tender for the remaining gap in capacity
- - apply a de-rating that takes account of emissions intensity.

<p>In reality is the proposed capacity mechanism a firming capacity market. Interconnectors enable sharing of pain/gain - how do you manage States that have introduced exclusions or conditions regarding the management of firming capacity in their States under such conditions.</p>	<p>It should be noted that technologies that have been excluded from the capacity mechanism will still be able to participate in the energy market.</p>
<p>The capacity mechanism is dependent on COAG Energy Council acting in a collaborative manner, otherwise a jurisdiction with sufficient dispatchable generation for their own needs may have to suffer load shedding to assist other states in the NEM. Without a re-signed AEMA jurisdictions are operating on "trust". Is the Australian Energy Market Agreement going to be re-signed as per Dr Finkel's recommendation in his 2017 Blueprint?</p>	<p>It is a decision for Energy Ministers whether a new AEMA needs to be signed. It is not required to design and implement a capacity mechanism in the NEM.</p>
<p>Typing this as a question but it is actually a comment - we are where we are which is that the ESB (the collective wisdom of engineering and economic expertise) is now designing a mechanism to meet principles issued by Ministers. But those principles weren't developed by Ministers - they were almost certainly developed by the 'shadowy' Senior Committee of Officials which is a collective that has no expertise. Go figure.</p>	<p>Noted</p>
<p>Market impacts</p>	
<p>Does the capacity mechanism remove the need for caps as a financial instrument in the electricity market?</p>	<p>This will be a matter for the market to decide, but the ESB's high level design has taken the contract market into account, with a view to minimising impacts.</p>
<p>Regarding the point that capacity mechanism would reduce price volatility, how would this mechanism affect retailer hedging strategy which is intended to reduce price volatility in an energy only market?</p>	<p>The ESB is considering whether and how a hybrid procurement model may work in a capacity mechanism which may influence retailer hedging strategies.</p>

<p>The paper doesn't state whether the ESB expects the capacity mechanism would result in a decline in the high MPC. It also doesn't mention that Australia's high MPC is one reason why we don't need a capacity mechanism. The question is, does the ESB understand that the incentive for storage investors is the existence of significant temporal price spreads?</p>	<p>The ESB is considering the criteria that should be used to determine the price settings with a capacity mechanism. The current price settings are determined to include investment incentives and some of this need may be ameliorated with a capacity payment.</p>
<p>Should "changes to the energy spot market" be a design element too?</p>	<p>the ESB is considering broader market impacts. Design principles from ministers stated that the capacity mechanism must complement the energy market - currently the ESB anticipates the criteria used by the reliability panel to determine the price settings is the key element of the energy market that is likely to change.</p>
<p>If there is a major change in the market that affect the energy spot prices, I assume it will have implications on the long-term hedge contracts. Has this been considered?</p>	<p>the ESB will consider an appropriate implementation lead time to accommodate for the potential impact on energy spot prices. By way of example, the AEMC had an implementation lead time of at least 36mths to account for the ASX contract horizon time. However, longer-term contract arrangements will need to be considered in detailed design.</p>
<p>Other issues</p>	
<p>Have we considered Portugal and Spain as an example?</p>	<p>We did not consider these specifically.</p>
<p>Does the paper tell which instruments will be impacted?</p>	<p>It is not clear which instruments the question is referring to; therefore, we are unable to provide a meaningful response.</p>
<p>The ISP is based on the Step Change Scenario, how does the Capacity Mechanism change if the Hydrogen Superpower scenario becomes the dominant scenario?</p>	<p>In the H2 superpower scenario there will be a much greater requirement for capacity in the NEM and the times when the capacity is required will be correlated with low VRE and low H2 production. A capacity mechanism will be able to work with whatever level of capacity is required but the key policy decision will come down to whether the NEM is procuring capacity to support H2 exports or whether the production of H2 will be reduced at these times.</p>
<p>Why not consider a regime regarding firming capacity availability similar to System Restart Ancillary Services</p>	<p>It is envisaged that some resources will require testing to receive their de-rating factor. However, unlike SRAS most capacity is regularly used so</p>

<p>(SRAS) where regular tests are conducted to confirm availability and required performance where non-performance results in the triggering of financial penalties?</p>	<p>historical data can provide the required evidence. The performance regime will be an incentive regime such that failure to perform will lead to non-payment rather than a penalty in most cases.</p>
<p>Can you stop talking of transparency to industry and instead say transparency for stakeholders - consumers matter! .</p>	<p>The ESB agrees and notes this was an oversight in the discussion. As noted in the paper the anchor point of the work we are doing is that the design should be in the long-term interests of consumers.</p>
<p>Comment - hydrogen could all be exported and support domestic gas powered generation. "not" support domestic gas power generation.</p>	<p>Noted</p>