



27 July 2022

Anna Collyer
Chair
Energy Security Board

Submitted online: info@esb.org.au

Dear Ms Collyer

Capacity mechanism – High-level Design Paper

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on the Energy Security Board's (ESB) High-level Design Paper.

Origin supports the development of a well-designed capacity mechanism that would allow for the application of a consistent national framework aimed at incentivising the investment needed to help safeguard reliability at least cost as the market transitions. Such a mechanism could still permit jurisdictional preferences and specifications, though a requisite degree of commonality is needed for a functional scheme. We encourage jurisdictions to work alongside stakeholders and the ESB on the design detail to achieve the desired outcome. This initiative could be an important step in resetting the policy framework and help put an end to the ad hoc interventions that have created uncertainty and impeded investment over the past few years.

The primary focus should be to facilitate the timely entry of new dispatchable resources to complement variable renewable energy (VRE). Where existing resources are also included in the scheme this must be carefully managed with the aim of ensuring a higher level of plant availability and lower cost reliability outcomes than would have otherwise been achieved. Providing new resources with access to longer term contracts, and separate auctions for existing resources could help mitigate concerns around any crowding out of new investment. Importantly, the capacity mechanism should not be viewed as a means of staving off coal closures, but work alongside a credible framework to help facilitate and manage orderly exits. While some elements such as the closure notification mechanism are already in place, thought should be given to options for managing the risk of late delivery of both new resources and transmission, which could require exiting plant to temporarily fill the gap.

It is crucial the capacity market is designed to complement the existing energy-only framework. This would reduce any disruption, complexity, and ultimately costs in adopting the scheme, by building on the strengths of the NEM's current design. Specifically, the scarcity pricing framework enabled by the market price cap (MPC) and underpinned by a robust financial contracts market must be preserved. This provides a valuable investment signal and incentivises both demand and supply side resources to be available at periods of high demand in support of their contracted positions. It is clear, however, that these signals require strengthening with the Reliability Panel advising that an almost doubling of the MPC is needed to deliver the appropriate level of investment. Sharpening the new entry signal by adopting a capacity mechanism would preclude the need for a substantial increase in the MPC that would otherwise be required.

The recent volatility across energy markets has been due to a combination of what may be growing pains from the transition (unplanned coal outages, lower than expected VRE output) and exogenous variables such as the broader geopolitical issues putting upward pressure on fuel prices. While no one

framework can resolve such multifaceted issues, a capacity mechanism could have an overall positive impact if it is successful in helping to stimulate investment in new supply.

If you wish to discuss any aspect of this submission further, please contact Shaun Cole at shaun.cole@originenergy.com.au or on 03 8665 7366.

Yours Sincerely,

A handwritten signature in blue ink, consisting of a series of connected loops and a vertical line at the end, resembling the name 'Steve Reid'.

Steve Reid
Group Manager, Regulatory Policy

Executive summary

Role of the capacity mechanism

- There is clear need to improve investment signals for flexible dispatchable resources in the NEM such as long duration storage, as evidenced by the Reliability Panel's recent finding that current settings may not be sufficient to support adequate investment in new marginal plant.
- We support the intent to develop a capacity mechanism that could help facilitate timely levels of new entry in this respect and preclude the need for a substantial increase in the MPC that may otherwise be required.
- However, it is crucial any mechanism is designed to complement the current framework. This would require the MPC to be retained around current levels to ensure participants continue to primarily rely on scarcity pricing signals to drive investment and bear the associated risks.
- Materially reducing the MPC would result in the mechanism subsuming the existing framework. This would represent a more significant and disruptive change that would weaken market-based operational and investment signals (contract and spot). Consumers would also be more reliant on the mechanism delivering the *right* mix and level of resources, rather than investors.

Scheme coverage – participation of new and existing resources

- Limiting coverage to new resources is the simplest design choice that could be adopted.
- A market-wide approach should be predicated on ensuring payments to existing resources would drive a higher-level of availability and lower cost reliability outcomes for consumers than would otherwise be achieved. This may necessitate an approach that incentivises availability outside of traditional peak demand periods.
- We agree it will be important to differentiate between new and existing resources by providing longer duration contracts to new resources and exploring auction design choices that provide separate clearing prices for new and existing capacity (as noted below).

Responsibility for forecasting and procurement

- We support adopting a centralised approach to forecasting and procurement on the basis it would provide a more direct, transparent, and certain means of facilitating timely investment, directly addressing the core objective.
- The net benefits of incorporating a procurement role for retailers under a centralised framework are unclear at this stage. Any retailer participation should be on an optional basis.

Defining 'at risk' periods and capacity obligations

- A key issue that needs to be addressed is how to define 'at risk' periods, which should then inform obligations on participating resources and derating / target setting processes.
- Basing at risk periods on expected periods of high demand would be a simple and pragmatic approach at least initially.
- An event driven approach would improve the adaptability of the mechanism but may create uncertainty for participating resources. The ESB should explore the merit of hybrid approaches that build on the time and event based options proposed. This could involve:
 - narrowing the scope of any performance obligation (e.g. limiting the obligation to events that occur within prescribed periods of a day in summer / winter / shoulder periods); and/or
 - placing differing obligations on new and existing resources respectively, with obligations on existing resources principally aimed at incentivising availability in response to events that occur outside of traditional peak periods.

Auction design

- *Frequency and timing:* Origin supports the proposal to hold two auctions for each delivery year. The timing of the main auction should balance the need to provide sufficient time for any new resources to be developed by the delivery year, while also minimising the level of forecasting uncertainty. Holding a balancing auction one year ahead of the delivery year would be prudent.
- *Format / pricing:* Consideration should be given to holding separate reverse auctions with distinct clearing prices for new and existing capacity providers. Prices could be capped at the net-cost of new entry (net-CONE) in the new only auction, and some measure of the level of missing money for existing plant in the existing capacity auction. Procurement targets for each auction could be set with a view to meeting jurisdictional emissions reduction objectives, while also balancing the need to support reliability and manage costs for consumers.
- *Form of support and eligibility:* Contracts should provide a guarantee of both price and quantity. Contract durations for new capacity should span timeframes in the order of seven years, with longer duration contracts potentially available to more capital intensive new resources like pumped hydro storage (e.g. in the order of 15 years). Single-year contracts for existing resources would be appropriate.
- *Market power mitigation:* It is not clear there are market power issues that need to be addressed. This Competition and Consumer Act (CCA) already prohibits firms with a substantial degree of market power from engaging in the type of conduct that could limit capacity provision. Measures that compel resources to make capacity available through the auction would need to be carefully designed to ensure prudent risk management practices are not impeded.
- *Payments and settlement:* It would be sensible to explore how capacity mechanism settlement could be integrated with existing NEM settlement processes.

Compliance

- A robust penalty framework for non-delivery would need to be established to ensure capacity procured through the mechanism is built and made available as required, noting some allowance would need to be provided for events that are not within a resource operators' reasonable control.
- The framework governing new build should provide flexibility to account for delivery delays and the longer development timeframes required by technologies like pumped hydro storage. The latter will be important to ensure technologies with longer build times are not disadvantaged.

Cost allocation

- We agree any allocation methodology should ensure retailers can accurately predict the costs that will be passed through to them and provide incentives for retailers to minimise their exposure to those costs, including through demand response.

Treatment of inter-regional capacity

- Accounting for the impact of expected inter-regional transmission capacity through the reliability assessment and target setting process would be the least complex approach. However, we support further consideration of options that would allow inter-regional capacity to participate in the auction process, as this could theoretically better incentivise capacity to locate in the most efficient location across regions.

1. Interaction between the capacity mechanism and energy-only framework

- [1] Origin supports the design of a capacity mechanism aimed at delivering timely entry of new dispatchable resources needed to complement growth in VRE and maintain reliability. This is important given the prospects of investors facing increasing uncertainty around future revenue potential for long-lived capital intensive dispatchable resources such as long duration storage.
- [2] A fundamental issue that should be clarified in contemplating the design of the capacity mechanism is its interaction with the energy-only market. We consider it crucial the mechanism is designed to complement the existing framework, not subsume it. Such an approach would reduce the complexity, level of disruption, and ultimately cost of implementation, by effectively building on the strengths of the NEM's energy-only design. This is consistent with the core jurisdictional principle that specifies the mechanism should '*complement existing energy-only market design and well-functioning markets for financial contracts, and other reforms in development.*'

1.1 The energy-only market framework has a range of positive attributes that should be retained

- [3] The current framework has a range of positive attributes that help promote market efficiency. The MPC and associated scarcity pricing signals have facilitated the development of a robust financial contracts market that assist retailers with efficiently managing price risk on behalf of customers. This combination of scarcity price signals and contracting also provides strong incentives for generators (and demand side participants) to be available when they are most needed, including in response to both ramping and high demand events. Specifically, generators and demand response are incentivised to operate / reduce load respectively to support their contracted position when prices are high, with uncontracted plant also motivated to supply into the market at these periods.
- [4] It should also be acknowledged that in the period prior to the current transition, the energy-only market has been instrumental in helping to facilitate the new investment needed to maintain reliable supply. This is in large part due to hedge contracts providing generators with some level of certainty around future revenue streams, which is necessary to obtain financing and underwrite new investments.
- [5] Further, energy-only price signals are crucial in signalling / valuing the type of capacity required by the system. A key objective of moving to five minute settlement was to provide more granular and efficient energy price signals to improve incentives for investment in flexible resources as the penetration of VRE increases over time. If growth in VRE changes the frequency and / or magnitude of pricing events in the NEM as expected, spot and contract market signals should increasingly value the ability of plant to respond to such events.

1.2 Supplementing the energy-only design with a capacity mechanism would better balance the need for improved investment signals and minimising risk for consumers

- [6] Notwithstanding the benefits described above, there are some inherent challenges with solely relying on the energy-only framework to drive investment in new capacity as the market transitions. The Reliability Panel's preliminary assessment of market settings over FY2026-28 indicated a relatively substantial increase to the MPC is required in the order of \$29,000/MWh to ensure adequate investment in Victoria (and by extension all other regions).¹ Raising the MPC in the order proposed would substantially increase the risk profile for retailers / market customers. This would notionally strengthen investment signals by increasing revenue potential for market

¹ Reliability Panel – AEMC, '2022 Review of the Reliability Standard and Settings (Draft Report)', 9 June 2022, pg. 82.

participants and incentivising more hedging by retailers to manage increased financial exposure. However, it may not resolve the fundamental uncertainties identified in the ESB's case for change assessment that make investment in dispatchable resources challenging, such as the adequacy of revenue to cover fixed costs (given reliance on relatively infrequent and unpredictable high price events).

- [7] Supplementing the NEM's current design by establishing a capacity mechanism to help facilitate timely levels of new entry would be beneficial in this respect, and preclude the need for a substantial increase in the MPC that may otherwise be required. It would ensure the key attributes of the existing framework are retained, whereby market participants would continue to primarily rely on energy-only market signals to drive investment in new capacity, and bear any associated risks of doing so.
- [8] Importantly, such an approach is not intended to provide resources with revenue over and above what they would expect to earn in an idealised energy-only market with an appropriately high MPC. Rather, the intent would be to provide flexible dispatchable resources with greater certainty around a proportion of their more variable / less predictable revenues that would otherwise impede timely investment decisions. As discussed further in Section 5, under a reverse auction approach our expectation is participants would factor expected spot and contract market revenue into their capacity bids, with the competitive process driving least cost outcomes.
- [9] This contrasts with an alternate approach where the mechanism is designed to largely subsume the energy-only market through a material reduction in the MPC. This would represent a more significant and disruptive change that would weaken market-based operational and investment signals (contract and spot). This is because retailer / resource exposure to scarcity pricing would be reduced, which in turn reduces the value and utility of cap contracting to manage price risk and support ongoing investment and operations. Consistent with this, it should be noted PJM recently proposed increasing its energy market price cap from \$3,750/MWh to \$12,000/MWh to improve scarcity price signals, despite having a capacity market in place to manage reliability.²
- [10] An outworking of reducing the MPC is that consumers would be more reliant on the capacity mechanism and its relevant parameters to deliver the *right* mix and level of resources, rather than investors. It would also undermine the intent of implementing five minute settlement (and the hundreds of millions of dollars spent across the sector to deliver that reform), which was to sharpen price signals to better incentivise investment in flexible dispatchable resources.

2. Scheme coverage – eligibility of new and existing resources

- [11] Origin agrees there is a need to improve investment signals for flexible dispatchable resources in the NEM such as long duration storage, which is required to complement growth in VRE. The Reliability Panel's preliminary finding that current settings may not be sufficient to support adequate investment in new marginal plant over the outlook period substantiates the need for reform in this respect, either through changes to market settings and / or the introduction of a capacity mechanism.
- [12] In general, we remain of the view that limiting coverage to new resources is the simplest design choice that could be adopted to facilitate timely entry in the NEM and complement the existing framework. It would ensure any payments are limited to supporting investment in flexible dispatchable capacity required by the system and avoid the potential shortcomings of market-wide frameworks that could potentially give rise to additional costs for no associated change in

² D'Antonio, Phil., PJM Energy Price Formation Senior Task Force, 'Reserve Price Formation Reman Order', presentation, 16 February 2022, slide 5.

incumbent plant availability and / or the timing of exits. Any potential distortion associated with only remunerating new resources could also be minimised by: limiting capacity payments to the level required to overcome new entrant hurdle; restricting contract lengths; holding competitive auctions; only triggering the mechanism where there is an identified supply gap and retaining strong energy market signals.

2.1 Participation by existing resources should be predicated on achieving some level of additionality

- [13] Having regard to the above, we acknowledge the ESB's view there may be efficiency benefits to adopting a market-wide approach. The Reliability Panel's preliminary finding on the adequacy of the MPC could also theoretically provide some justification for allowing existing resources to participate where a capacity mechanism is implemented in lieu of any increase to the MPC. This is because a higher MPC would otherwise increase spot / contract market revenue potential for both existing and new resources. However, the extent to which the Panel's findings are indicative of a 'missing money' problem for existing resources is unclear. Inclusion of existing resources should also still be predicated on this driving a higher-level of availability / reliability at lower cost than would have otherwise been achieved under a scenario where these resources are excluded from the mechanism.
- [14] This may be difficult to achieve during traditional periods of high demand where (as discussed above), the existing framework already provides strong incentives for all resources to make capacity available. It is unlikely existing plant could guarantee a higher level of availability during these periods under a capacity mechanism given prudent risk management practices typically necessitate an N-1 level of redundancy.³ We also note it has been suggested that access to capacity revenue could enable existing plant to devote more funds to plant maintenance which could help reduce unplanned outages, increasing availability. However, the extent and likelihood of this is unproven.
- [15] For the most part, achieving additionality may therefore require an approach that also incentivises availability outside of traditional summer peak demand periods.
- [16] As the recent period of market volatility has shown, there can be reliability concerns in non-traditional periods where there is a coincidence of events including planned / unplanned plant outages, low VRE output and an increase in demand driven by colder weather. During this time, gas power generation (GPG) has been called upon to significantly increase its output, underscoring its importance as a flexible source of supply. However, the increased demand on GPG (which was largely not anticipated) has led to greater operational complexity for these plant with the need to manage access to fuel and maintenance schedules. Unexpected higher gas demand (to run GPG) has also put upward pressure on gas prices. Given this, it is conceivable a capacity mechanism that links availability obligations to these type of periods on a forward basis could allow for more efficient planning, helping to smooth market operations and reduce volatility. This is because fuel procurement and any implications for maintenance requirements could be determined well in advance of the defined availability periods, rather than in operational timeframes.
- [17] It is unlikely a capacity mechanism could materially impact the timing of closure decisions. The exit of large inflexible thermal plant is principally being driven by growth in VRE (which outcompetes thermal plant for energy provision) and high fixed / operating costs. The case for plant life extension is likely to be challenging in such an environment, particularly where significant

³ WattClarity, Global-Roam, 'Generator Hedging in Australia's National Electricity Market', 19 November 2019, accessed 25 July 2022.

capital expenditure is required to prolong operations. The propensity for generators to engage with governments ahead of time on exit decisions, coupled with the robust notice of closure framework, also means the risk of disorderly exit is likely to be limited to circumstances where there is a material change in market conditions and / or capital expenditure requirements. A more targeted approach to managing the exit of large plant is therefore still likely to be required to manage any delivery risk associated with the timing of both new generation and transmission investment.

2.2 Any market-wide mechanism should differentiate between new and existing resources

[18] Where a market-wide approach is pursued, we agree it will be important to differentiate between new and existing resources through different contract tenures and auction design choices. As discussed further in Section 5, providing new resources with access to longer duration contracts would be essential to ensuring the mechanism can support timely new investment. Separate auctions for new and existing resources could also help mitigate concerns around a capacity mechanism indiscriminately rewarding all existing plant for no clear benefit.

3. Responsibility for forecasting and procurement

[19] Origin supports a centralised approach to forecasting and procurement. Consistent with the ESB’s assessment, we consider this approach would provide a more appropriate balance between risk to consumers and certainty of achieving the desired reliability outcomes.

[20] As noted by the ESB, reliance on centralised forecasting is consistent with the existing approach to assessing and managing resource adequacy in the NEM, and AEMO is likely to have the best view of aggregate system demand over the longer term. We also agree centralised procurement would provide the most transparent and direct approach to facilitating timely investment and ensuring resource adequacy. This is largely because centralised frameworks provide greater certainty around the level and timing of replacement capacity, as they can be designed to allocate longer-term contracts that are necessary to support investment in new resources, directly addressing the core objective.

[21] It is not clear there would be material efficiency benefits associated with incorporating a procurement role for retailers under the centralised framework proposed. Such a feature would increase the administrative complexity of the regime. AEMO would also still need to procure sufficient capacity to meet the prescribed reliability standard regardless of the level of retailer participation, meaning total scheme costs are unlikely to change under a hybrid approach. As per the existing framework, a retailer’s willingness to self-procure capacity over an extended forward period (e.g. four years ahead) may also be weakened by uncertainty around the nature and timing of its contracting with C&I customers.

[22] Experience with hybrid arrangements in other jurisdictions also provides limited support for their application in the NEM, as outlined below. In the event the ESB determines retailer-led procurement should be permitted, it should be on an opt-in basis to ensure the benefits of the centralised approach are not undermined.

Table 1: Hybrid capacity markets – recent observations from other jurisdictions

Market	Key observations
California Independent System	<ul style="list-style-type: none"> ▪ The California Public Utilities Commission (CPUC) undertook a review of its decentralised resource adequacy framework in 2019/20 and determined that:

Operator (CAISO)	<ul style="list-style-type: none"> - there is value in having multi-year contracts to ensure resources needed for reliability are procured in an orderly fashion;⁴ and - a central procurement system, at least for some parts of the local resource adequacy requirement, was most likely to provide cost efficiency, market certainty, reliability, administrative efficiency, and customer protection.⁵ ▪ A hybrid framework was ultimately adopted that allows a central buyer (the distributor) to procure resource adequacy needs over a three year forward period within the Pacific Gas and Electric Company (PG&E) and Southern California Edison (SCE) distribution areas.⁶ The CPUC stopped short of recommending a fully centralised market framework, in large part due to concerns that if CAISO were to serve as the central procure, such an approach would open California’s capacity market and environmental goals to federal oversight.⁷
PJM	<ul style="list-style-type: none"> ▪ PJM operate a capacity market whereby demand is centrally forecast and procured through a central auction. However, load serving entities (LSEs) have the option to opt-out of the mechanism under the Fixed Resource Requirement (FRR) and meet their own capacity obligation through separate arrangements (e.g. physical generation and contracting). The FRR option has been in place since 2007 and reportedly only been adopted by two large utilities, Duke Energy and AEP. This is seemingly due to the FRR being a five-year commitment for LSEs that choose that path, and potentially a high-cost option relative to paying a proportion of PJMs capacity charge.⁸

4. Defining capacity

4.1 Capacity payments should be linked to the provision of capacity during defined ‘at risk’ periods

[23] A fundamental issue that needs to be addressed is how to define ‘at risk’ periods in the NEM, which should then inform obligations on participating resources and derating / target setting processes. In general, we consider basing at risk periods on high demand periods would be a simple and pragmatic approach at least initially. However, growth in VRE is expected to change the risk profile of the NEM over time, and recent events have highlighted the challenges that can already occur outside of traditional peak periods under certain circumstances. It is therefore appropriate to consider an approach that can ensure sufficient investment in new capacity to support peak demand, while also incentivising more efficient mobilisation of resources outside of traditional periods.

Linking ‘at risk’ periods to defined peak periods would provide a relatively simple and transparent approach

[24] The simplest design choice that could be adopted would be for the ‘at risk’ period to be defined as the annual peak demand period (and any associated trading intervals) as reported in AEMO’s Electricity Statement of Opportunities (ESOO). Consistent with the ESOO, this would likely represent early evening trading intervals in Q1 for the mainland NEM regions. If the peak demand period changes over time, this could then be reflected in a revised definition of the at risk period in the future as required.

⁴ CPUC, ‘Decision refining the resource adequacy program – Proposed Decision’, 21 February 2019, pg. 16.

⁵ Ibid, pg. 6.

⁶ CPUC, ‘CPUC adopts central procurement framework for local resource adequacy’, press release, 17 September 2020, pg. 1.

⁷ John, St Jeff., Wood Mackenzie (formerly Greentech Media), ‘California’s Complicated Path to Changing Its Resource Adequacy Rules’, online article, 4 March 2019.

⁸ John, St Jeff., Wood Mackenzie (formerly Greentech Media), ‘How FERC’s New Ruling Is Upending the Country’s Biggest Capacity Market’, online article, 3 July 2018.

- [25] As discussed above, a potential shortcoming of this approach under a market-wide framework is that it may not facilitate any additional availability from existing resources outside of traditional peak demand periods. This issue could potentially be mitigated by defining multiple at risk periods (e.g. summer and winter). Such an approach would provide a more granular view of seasonal capacity requirements and a clearer distinction between the contributions of different resources to meeting those different periods, as noted by the ESB. Performance obligations could then be aligned with these seasonal requirements, which would address the ESB's concerns that while system stress events are predominantly still linked to summer peak periods, there is potential for both summer and winter at-risk periods to emerge over time in some regions.
- [26] A potential shortcoming of time based at risk periods / performance windows generally is that they would not strengthen performance incentives during unplanned system stress events that occur outside of the prescribed periods. However, the capacity mechanism would still indirectly support reliability during those periods by facilitating timely investment in new flexible dispatchable resources and ensuring total system capacity is sufficient to meet the reliability standard.

An event based approach would likely increase scheme complexity but improve adaptability

- [27] We recognise a benefit of this approach is that it would avoid having to prescribe specific at risk periods, thereby creating incentives for participating resources to respond to system stress events at any time and improving the adaptability of the mechanism. However, this approach would introduce uncertainty for participating resources relative to a more prescriptive time based approach. The approach would rely on modelling the expected distribution of system stress events (e.g. lack of reserve (LOR) 2 and LOR 3 events) and resource availability over those periods. These modelled events could predominantly be forecast to occur within a particular season (e.g. summer), which might not align with when they actually occur in practice (e.g. actual LOR2/3 events could occur in the winter / shoulder periods). This would create a disconnect between the capacity derating assessment and the performance obligation, potentially exposing participating resources to an availability requirement they cannot practically satisfy given different seasonal performance.
- [28] Uncertainty around the frequency and timing of events could also limit the utility of the capacity mechanism, which is to provide additional certainty around future revenue and availability requirements. As noted by the ESB, where capacity payments are largely linked to responding to LOR2/3 type events, this would effectively result in the mechanism acting like a price adder as applied in the Texas market. If capacity payments are heavily weighted toward ensuring availability during those periods, this could place an unrealistic expectation of perfect foresight on participating resources to ensure capacity is available.
- [29] Given the above factors, the ESB should explore the potential for a hybrid approach that builds on the time and event based options proposed. This could involve narrowing the scope of any performance obligation to provide additional certainty to capacity providers (e.g. resources could be required to make capacity availability in response to actual LOR2/3 events that occur within prescribed periods of a day in summer / winter / shoulder periods as required). Consideration could also be given to placing differing obligations on new and existing resources respectively, with obligations on existing resources principally aimed at incentivising availability in response to events that occur outside of traditional peak periods.
- [30] Where an events based approach is applied, we agree making a proportion of capacity payments contingent on meeting an average availability requirement throughout the year would help ensure resources are not disproportionately penalised for missing a given reliability event. More detailed consideration would need to be given to the relevant weightings applied to the two payments, particularly given there is likely to be significant uncertainty around the number of expected events.

A spot price event driven approach would represent a significant market intervention

- [31] Origin agrees it would not be appropriate to pursue an approach that would require resources to respond to 'pricing events' at any time and enter into 'Reliability Options' that would function like a cap contract between AEMO and participating resources. This approach would undermine the role of the existing contract market and effectively lead to centralisation of retailer risk management practices. FTI Consulting previously dismissed the merit of Reliability Options on that basis, suggesting that approach is best suited to energy markets that do not have liquid financial contracts markets.⁹

4.2 Derating approach

- [32] Where derating factors are to be administratively determined, Origin generally supports adopting a hybrid approach where thermal resources are assessed based on a rolling measure of historical performance over previous comparable at risk periods and VRE / storage are derated on a forward-looking basis. Derating VRE / storage on this basis would be important to ensure their potential contribution to supply during at risk periods is not underestimated as the resource mix, and potentially the timing of at risk periods, changes. Derating factors would also likely need to be determined at a facility level to account for difference in performance, which could be material.
- [33] A key challenge for derating demand response capacity will be to determine what its usage would have been during the at-risk period. In assessing capability and performance, the ESB should seek to leverage experience with existing frameworks applied under the reliability and emergency reserve trader (RERT) and wholesale demand response (WDR) mechanism to inform its approach, given these processes have been tested.
- [34] Consideration should however be given to allowing resources to determine their own derating factors. Where a robust penalty framework is in place, participants would have adequate incentives to accurately determine the level of capacity they could commit to providing for the prescribed period, and ensure it is available in real-time. Such an approach would also avoid the administrative complexity associated with AEMO having to determine derating factors for all resources, noting market participants will invariably be better placed to understand the capabilities of their respective facilities.

4.3 Forecasting the capacity requirement

- [35] We agree the overall capacity procurement requirement should be set at the level required to meet the NEM reliability standard or relevant jurisdictional standards where they apply and determined on a regional basis. The existing process applied under the Retailer Reliability Obligation (RRO) already provides a framework for quantifying the size of any reliability gap in a given region and could be extended to also determine the size of any surplus. The proposed approach to calculating a target level of capacity would also account for the fact that not all providers may be eligible to participate in the mechanism.

5. Auction design

5.1 Auction frequency and timing

- [36] Origin agrees with the proposal to hold two auctions for each delivery year. The timing of the main auction should ideally balance the need to provide sufficient time for any new resources to be

⁹ FTI Consulting, 'Resource Adequacy Mechanisms in the National Electricity Market – a report for the Energy Security Board (ESB)', 16 July 2020, pg. 83.

developed by the delivery year, while also minimising the level of forecasting uncertainty. Aligning the main auction with the current notice of closure requirement or holding it at T-4 in the event the notification period is increased beyond 42 months in the future (noting a proposed extension is currently being considered by the AEMC), would adequately balance these objectives. It would also ensure the impact of any closures is accounted for in the reliability shortfall assessment process and by extension, factored into capacity procurement targets for the main auction. This would mitigate against a scenario where the procurement targets for the main auction are set at a level that assumes no shortfall, then a large generator subsequently announces its closure and creates a material supply gap for the relevant delivery year.

- [37] Holding a balancing auction one year ahead of the delivery year would be prudent and is consistent with approaches applied internationally.¹⁰

5.2 Auction format and pricing

Differentiating between new and existing resources will be important

- [38] Single auction formats that provide a common clearing price for all eligible participants risk over-paying existing capacity, given those participants would potentially receive the new entrant price regardless of whether they required that level of revenue for service provision. We therefore agree consideration should be given to auction formats that provide for a clearer differentiation between existing and new capacity. This includes having separate auctions for new and existing capacity.
- [39] Under a split approach, separate reverse auctions could be used to determine distinct clearing prices for new and existing capacity providers, respectively. Our expectation is auction participants would factor anticipated spot and contract market revenue into their capacity bids, which would ensure resources continue to bear investment risk, reducing cost impacts for consumers.
- [40] An appropriate ceiling price would need to be determined for each of the respective auctions. For the new capacity auction this could be set based on some multiple of the net-CONE, which equates to the cost of new entry less expected revenue from energy and ancillary services markets. For the existing capacity auction, this could be based on an equivalent estimate of the level of missing money for existing plant. Consistent with the NEM's current governance frameworks, it would be appropriate to provide the Reliability Panel with oversight of energy and capacity market settings.
- [41] A further issue that would need to be explored under the split auction approach is how to determine procurement targets for each of the prospective auctions. Consistent with the overarching principle that the mechanism should '*focus on affordability, reliability, security and continued emissions reduction of electricity supply*,' this could be informed by emissions reduction and system security objectives. For example, targets for new low-emissions plant and existing capacity could be set with a view to achieving jurisdictional emissions reduction objectives (e.g. meeting a certain sectoral emissions intensity over time), while also balancing the need to support reliability and manage costs for consumers as the market transitions.

5.3 Form of support and eligibility

- [42] Providing shorter duration contracts (i.e. one year) to existing resources is appropriate. However, it is essential contracts allocated through the auction provide prospective investors with the certainty required to support new build. Consistent with this, capacity contracts should provide a

¹⁰ This includes the UK, PJM and Ireland capacity markets.

guarantee of both price and quantity and span timeframes in the order of seven years, noting short-term contracts are unlikely to provide the requisite level of certainty for investors. Consideration should also be given to providing more capital intensive resources like pumped hydro storage with access to longer duration contracts (e.g. in the order of 15 years) to ensure those resources can compete on an equivalent basis in the capacity auction. This would provide a similar framework to that applied in the UK, where contract durations for new / refurbished plant vary according to capital expenditure thresholds.¹¹

- [43] Notwithstanding the above, careful consideration would need to be given to applying capital expenditure thresholds to determine whether new resources can access multi-year contracts. An identified shortcoming of the UK framework is that demand response typically cannot meet the specified thresholds that are typically set with respect to generating resources, given its lower (relative) capital intensity.¹² While we agree with the ESB's view that some demand response providers may prefer only committing capacity on a year ahead basis through the T-1 auction, it will be important to ensure providers can participate in the main auction, with demand response capacity also eligible for multi-year contracts in some form. This will likely require more detailed consideration of what would constitute 'new' demand response, and the appropriate duration of any multi-year contracts.
- [44] As noted by the ESB, an additional issue to consider is how new resources that have obtained up front funding for their project or some other form of long-term assistance (e.g. output-related payments over the life of the plant) under a jurisdictional scheme participate in the mechanism. In general, we agree these resources should not qualify as 'new resources' and therefore not have access to longer duration contracts. However, they should be permitted to participate in the capacity auction on an equivalent basis to existing capacity (i.e. be eligible to access single year contracts).
- [45] Origin also recognises the overarching principle that jurisdictions must be able to determine which technologies are eligible to participate in the mechanism in their respective regions. This would assist with operationalising jurisdiction emissions reduction objectives and ensure the mechanism does not incentivise the proliferation of new, low capital cost, emissions intensive resources like diesel generators, as was observed in the UK.¹³

5.4 Market power mitigation

- [46] The ESB's concerns around the potential impact of market power appear to mostly relate to ensuring capacity is not withheld from the auction. The extent to which this concern needs to be addressed through explicit market power mitigation measures is unclear. This is because the CCA already prohibits firms with a substantial degree of market power from engaging in the type of conduct that could limit capacity provision. Further, a centralised auction process would ensure regulators and policy makers have full visibility of the level of resource participation and the associated impact on auction pricing outcomes.
- [47] Origin also remains wary of any measures that would compel resources to make capacity available through the auction process, potentially at the expense of prudent risk management (e.g. where a resource limits its participation in the auction to account for outage risk). Should such a measure be pursued, more detailed consideration would need to be given to the relevant

¹¹ Department for Business, Energy & Industrial Strategy, 'Capacity Market 2021 Call for Evidence: Summary of Responses – Improving delivery assurance and early action to align with net zero', July 2022, pg. 16.

¹² Ibid., pg. 26.

¹³ Institute for Public Policy research, 'Incapacitated – why the capacity market for electricity generation is not working, and how to reform it', March 2016, pg. 3.

market concentration thresholds and level of capacity provision required to ensure the measure is applied in a target and proportionate manner.

5.5 Payments and settlement

- [48] Origin generally agrees it would be prudent to explore how capacity mechanism settlement could be integrated with existing NEM settlement processes.

6. Compliance framework

6.1 General supply side incentives and compliance

- [49] Origin supports the intent to minimise the level of compliance burden for participating resources and market bodies. We generally consider a robust penalty framework for non-delivery would need to be established to ensure capacity procured through the mechanism is built and made available as required. This would overcome some of the issues observed internationally where: capacity contracts awarded through an auction have been cancelled prior to the delivery period due to a project failing to obtain financial backing; and / or capacity is not made available during contracted periods due to weak penalty rates.
- [50] Noting the above, it would also be important to ensure participating resources are provided with adequate protections to account for events that are not within their reasonable control. This could include circumstances where: capacity is unable to be made available due to a network outage; and / or for safety reasons the resource is unable to operate at the required level. Any average availability requirement would also need to ensure adequate allowance is provided to undertake required maintenance.
- [51] We agree a framework should be developed during the detailed design phase to address the risk that some new capacity providers, who are successful at auction, may not deliver the required capacity due to development, construction, or commissioning issues. Key to this will be the inclusion of a pre-qualification process that can be applied ahead of the main auction to ensure projects are at a sufficient state of maturity to participate, coupled with a process that provides visibility of project progress against defined milestones.
- [52] The framework governing new build should also provide some flexibility to account for delivery delays, and the longer development timeframes required by certain technologies like pumped hydro storage. The UK framework may provide some useful learnings in this respect, given:¹⁴
- the current framework allows new resources to activate a one year extension to their project delivery date, noting this results in a commensurate one year reduction in the length of their capacity contract and loss of any associated revenue; and
 - consideration is being given to allowing participating resources to declare a later delivery year (up to T-6) where they can demonstrate construction by the T-4 delivery year is not practically / technically achievable to ensure technologies with longer build times are not disadvantaged.
- [53] Providing scope to account for longer build times will have consequential implications for target setting to ensure reliability of supply. However, given the important role long duration storage

¹⁴ Department for Business, Energy & Industrial Strategy, 'Capacity Market 2021 Call for Evidence: Summary of Responses – Improving delivery assurance and early action to align with net zero', July 2022, pg. 19.

(including pumped hydro) is expected to play in the NEM as the market transitions, ensuring the framework does not impede participation by those resources is essential.

6.2 Treatment of demand response requires further clarification

- [54] The performance obligations and compliance approaches being considered by the ESB are largely linked to the availability of resources, as demonstrated through dispatch bids, and projected assessment of system adequacy (PASA) reporting. This seems to suggest any demand response seeking to participate in the capacity mechanism would need to be registered as a demand response service provider (DRSP) and participating directly in the spot market through the WDR mechanism, rather than through any out of market arrangements. It would be useful to clarify this to ensure the potential operational and compliance implications for demand response service providers are understood, which may inform subsequent detailed design choices.

7. Cost allocation

- [55] The proposal to recover procurement costs from market customers (i.e. retailers and other large users) through the NEM settlement process seems appropriate. We also agree that the approach to allocating costs should ensure retailers can accurately predict the costs that will be passed through to them and provide incentives for retailers to minimise their exposure to those costs. This will be important to ensure the role of demand response in efficiently managing reliability of supply is not undermined by the capacity mechanism.

8. Treatment of transmission capacity

- [56] It is clear accounting for the impact of expected inter-regional transmission capacity through the reliability assessment and target setting process would be the least complex approach. However, we agree there is merit in exploring design options that allow for explicit procurement of inter-regional resources. Such an approach could theoretically better incentivise capacity to locate in the most efficient location, as it may not always be efficient for capacity to locate in the region where a reliability gap has been identified. To the extent this approach is considered too administratively complex (at least initially) given the target implementation date of July 2025, a phased approach could be pursued where procurement of inter-regional capacity is incorporated into the scheme design at a later date.