10 February 2022

Anna Collyer
Chair
Energy Security Board

Dear Ms Collyer

RE: Capacity Mechanism Project Initiation Paper

Shell Energy Australia Pty Ltd (Shell Energy) welcomes the opportunity to respond to the Energy Security Board's (ESB) Capacity Mechanism Project Initiation Paper.

About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia, helping its customers to decarbonise and reduce their environmental footprint.

Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers, while our residential energy retailing business Powershop, acquired in 2022, serves more than 185,000 households and small business customers in Australia.

As the second largest electricity provider to commercial and industrial businesses in Australia[1], Shell Energy offers integrated solutions and market-leading[2] customer satisfaction, built on industry expertise and personalised relationships. The company's generation assets include 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and the 120 megawatt Gangarri solar energy development in Queensland.

Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy, while Powershop Australia Pty Ltd trades as Powershop. Further information about Shell Energy and our operations can be found on our website here.

General comments

Shell Energy has engaged extensively with the ESB over the course of the post-2025 review of the National Electricity Market (NEM). We have appreciated the ESB's approach with respect to the resource adequacy mechanism workstream and the development of a capacity mechanism. Over this time, we have proposed several concepts that could be used as a basis for a capacity mechanism and provided comments on design choices that were likely to enhance risks to the market as well as increase costs to consumers for little benefit. In particular, Shell Energy is pleased the ESB has now ruled out progressing a mechanism based on physically-linked contracts under the RRO. That model was first raised and rejected in 2018 as part of the design of the

[1] By load, based on Shell Energy analysis of publicly available data.
[2] Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2021.

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National Energy Guarantee. The three broad models the ESB has now set out – decentralised, centralised or a hybrid – represent more appropriate mechanisms to value capacity in the NEM.

While in general Shell Energy supports decentralised models underpinned by deep and liquid markets, we consider there is a strong case to implement a centralised model based on the Irish capacity mechanism's reliability options. As a whole, we consider a mechanism similar to the Irish reliability options approach offers real benefits to the NEM. At a basic level, we contend that an appropriately designed Irish-style capacity mechanism:

- Should be lower cost relative to other options
- Returns funds to consumers when wholesale prices are high
- Allocates the risks of non-delivery onto recipients of reliability option contracts
- Does not explicitly favour particular technologies
- Can allow jurisdictions to tailor the mechanism for their preferences in terms of reliability levels or emissions targets
- Minimises the regulatory burden on market participants

Under our proposed model, a central body would procure cap contracts via auction to the level required to maintain reliability. We see the level of cap contracts would be akin to the 'gap' under the current Retailer Reliability Obligation: the volume of new capacity needed to bring the forecast unserved energy back to the reliability standard. This could be for new capacity only in order to encourage new investment or include provisions for how existing capacity is to be treated.

While we recognise that such a model would need rules such as eligibility, market power and auction timing, as well as the mechanism for cost recovery, there is little need to determine other rules around derating, at-risk periods, transmission constraints, or penalties. Generators receiving reliability options would be exposed to the spot price if they are unable to deliver the volume of reliability options sold in the same way that cap contracts work at present. Nor would this model interfere with existing market settings such as the market price cap.

The key advantage of our proposal is that it maximises the use of existing market features and minimises system, regulatory and market change. This minimises the risk of unintended consequences and the transitional costs which ultimately must be borne by consumers.

The submission that follows outlines our responses to the design questions on which the ESB is seeking comment as well as providing more detail on the reliability options model that we argue can safeguard reliability at a low cost to consumers.

We look forward to continuing to engage with the ESB as it develops a design for a capacity mechanism. For more detail on this submission, please contact Ben Pryor (0437 305 547 or ben.pryor@shellenergy.com.au).

Yours sincerely

[signed]

Libby Hawker
GM Regulatory & Compliance

Approach to design

Of the three concepts proposed by the ESB, Shell Energy prefers a decentralised model in line with option 1a. A decentralised model where retailers (or generators) are responsible for determining their liability or capacity availability means that the risks sit directly with the liable entity. To the extent that an entity over- or under-forecasts its requirements, the impacts of penalties or higher costs can only be passed onto consumers to the extent that competition allows. A poor performing retailer (or generator) could face penalties and therefore have less competitive offers to consumers. Crucially, this remains under the entity's control rather than being dependent on a target set by a central body.

Under option 1b, where centralised forecasts set the target a retailer must meet (and potentially the capacity that generators can make available), there is a risk of inaccurate or conservative forecasts creating a scenario where retailers must procure an inefficiently high level of capacity or where existing and committed capacity is derated to such an extent that an inefficiently high volume of additional capacity must be built. While this may provide a degree of certainty or security to the system operator, it is likely to lead to higher costs for consumers.

Despite our support for a decentralised model in principle, when considering international examples of capacity mechanisms, Shell Energy sees advantages in a model based on the Irish capacity mechanism. We consider that the Irish model, with its use of reliability options, offers an intriguing design that could be leveraged to function smoothly within the NEM. Our understanding of the Irish reliability options is that it closely mirrors cap contracts as recipients of reliability options repay funds when the electricity spot price is above the strike price (€500 in Ireland). Indeed, Shell Energy proposed a similar model to the ESB in our October 2020 submission (as ERM Power) on the post-2025 Market Design consultation paper.[3]

While our support for such a model appears to run counter to our preference for a decentralised approach, there are several advantages to a reliability options model. Firstly, although a central body determines the volume of capacity options required and procures the contracts, when the spot price exceeds the strike price, funds are returned to consumers meaning that the overall cost of the mechanism can be kept low relative to other models. In other capacity mechanisms where generators are paid for their capacity and retailers are required to procure capacity in some way, there is a transfer from retailers to generators, which is likely to be passed on via higher retail energy costs to consumers absent a change to the current market price cap.

Under the model we previously proposed, a central body – which could be AEMO, a state government or another body – would procure cap contracts via auction to the level the body considers is required to maintain reliability. We see the level of cap contracts procured would be akin to the forecast 'gap' under the current RRO – the volume of new capacity needed to bring unserved energy back to the reliability standard.

There is also flexibility to use different options for auctions. Auctions could take place several years in advance of any forecast 'gap' in order to provide bankable finance for new projects and to allow projects to be committed ahead of time. Multi-year contracts could also be an option given that contracts for a single year may be insufficient to promote investment commitment. Alternatively, auctions could be held in a staggered fashion, allowing for flexibility to adjust the volume of capacity procured to take into account updated forecasts.

Shell Energy recognises that our approach, like any market intervention, is not risk-free. The level of required capacity would still be determined by a centralised body where the risk of over investment is borne by consumers. There are also wider implications to consider, such as potential distortions to the spot and contracts markets, and how those distortions may impact market liquidity, the economic viability of existing generators, and the unintended creation of perverse incentives to either withhold or mothball. We recognise there are provisions against such behaviour in the *Treasury Laws Amendment (Prohibiting Energy Market Misconduct) Act 2019*.

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[3] ERM Power, Submission to ESB post-2025 Market Design Consultation Paper, October 2020, p 6.

However, this Act may not fully cover the full range of behaviour that could occur under a reliability options mechanism design.

This is not an issue exclusive to reliability options. As the project initiation paper sets out, there are a range of factors that must also be determined under a capacity mechanism including how to define capacity, at-risk periods, compliance and market power issues and addressing the impact of transmission constraints. One of the key advantages of our proposed model is these issues can largely be solved by participants themselves who take on the risks of not providing their cap volume at times of high prices. Box A illustrates the financial impact of a generator failing to deliver its contracted volume of cap contracts.

Box A – Financial impacts reliability options

Generator A succeeds in received 100 MW of reliability options at auction.

Due to transmission constraints and weather derating Generator A may not be able to dispatch the full 100 MW at certain times.

During one price spike event, Generator A is only able to dispatch 80 MW. As a consequence, Generator A must repay: (*spot price – strike price) x 20 MW x hours*

For each 5-minute trading interval that Generator A can only dispatch 80 MW, they must repay:

($15,100 - $300) x 20 x 1/12 = $24,666.67

Given the severity of the financial impact of failing to dispatch to the required volume, those bidding for reliability options are therefore likely to bid to a level they are confident they can deliver.

The last key advantage of our proposal is it maximises use of existing market constructs and minimises change. This minimises the risk of unintended consequences and transitional costs which ultimately must be borne by consumers.

As our discussion on design choices should show, there are risks involved in having to set the various parameters on which the ESB seeks views. Incorrectly chosen market design settings could lead to inefficient and higher cost solutions.

Defining capacity

In assessing how to define capacity, both in terms of when capacity must be available to be rewarded (at-risk period) and how much of a generator's nameplate capacity should be recognised (derating), Shell Energy considers it important to recognise that the electricity system is in a state of flux as more variable renewable energy comes online. Peak demand in the summer months is shifting into the evening as solar output drops off in the evening and there may be periods during the year when VRE output is low and the need for dispatchable energy is high. Future demand changes (e.g., increasing battery storage, hydrogen electrolysers, large-scale pump storage, electric vehicles etc.) may change the at-risk times further and increase the need for energy as opposed to capacity injection. In addition, the existing generator fleet must be provided sufficient time for maintenance outages further reducing capacity outside the historical high demand periods. Targeting specific at-risk periods means some capacity provided for during an at-risk period may not necessarily be available to meet reliability needs outside the defined period. It is therefore challenging to design a scheme that can accurately model and define the true at-risk periods both now and into the future.

Setting a longer timeframe, such as several months or specific times over several months, risks imposing a stronger obligation on generator than may be necessary. This may result in a need for higher volumes of capacity than may be necessary, and centralised planning of generator outages, which will in turn likely lead to higher overall costs and a 'gold-plated' generation system from a reliability perspective.

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In contrast, using existing triggers in the market such as Lack of Reserve (LOR) notifications or Low Reserve Conditions (LRC) provides short-term guidance on the size and timing of potential reliability shortfalls, but this does not provide the kind of certainty and forward timing that generators may want ahead of time, and retailers require to procure capacity.

In attempting to define a future "at-risk period" now, there is a distinct risk that the mechanism may under-reward some capacity leading to a higher cost mechanism as more capacity must be paid for to meet the defined "at risk period" than is strictly necessary. This may provide some certainty to governments and the market operator, but it is uncertain whether consumers would be accepting of these increased costs.

In relation to battery storage, Shell Energy cautions the ESB against derating approaches like the Wholesale Electricity Market's (WEM) linear approach cited in the paper. The risk with a linear approach like Western Australia's is that it locks in the at-risk period, regardless of whether this changes over time. While the at-risk period in the NEM could be four hours at present, this may change over time to two hours or to different times of the year than when at-risk periods are set. In contrast, our preferred approach, similar to the Irish model is responsive to dynamic changes in the market – if there is a shortfall in capacity regardless of time, the risks are on recipients of reliability options to dispatch electricity when prices are high.

For this reason, we see that a reliability option model, where the generators who succeed in receiving reliability auctions take on the risks of not delivering when spot market prices are high (a proxy for low reserve levels) is preferable.

Certificate trading and procurement

As recognised in the ESB's paper, the choice of procurement approaches is largely dependent on the kind of capacity mechanism. A decentralised mechanism can function with all three of the procurement methods listed – auctions, trading exchanges and bilateral trading. A centralised model lends itself more towards an auction-based system like the reliability options model we have proposed.

Notwithstanding the design of our preferred model, Shell Energy considers that in general, deep and liquid markets will help deliver the most efficient prices for consumers. Currently, deep and liquid contract markets underpin efficient pricing and competition in electricity retail markets and to date have delivered a high level of reliability in the NEM with little and only short-lived unserved energy events. As such, a capacity mechanism that allows for various trading options including exchanges and bilateral trading is more likely to meet the National Electricity Objective (NEO) and deliver improved outcomes to consumers, compared to a mechanism design where trading may be limited.

Further to this, any capacity mechanism should serve to support existing contracting markets in the electricity market. A capacity mechanism that reduces the volumes or kinds of contracts that are traded in the market would not be in the long-term interests of consumers. This was one of our key arguments against a 'contracts-for-physical' model that the ESB has now explicitly ruled out.

Transmission constraints

The project initiation paper includes discussion of both inter-regional and intra-regional transmission constraints. The inclusion of the latter is a departure from the RRO where only inter-regional transmission constraints are considered, and risks associated with these are managed via Settlement Residue Auctions (SRA).

Shell Energy considers it premature at this stage to be considering a locational pricing approach given that an approach to transmission reform has yet to be decided. We would be concerned if the ESB resolved to use a capacity mechanism requiring a locational pricing approach before an approach to transmission access reform has been decided. There is a risk of a taking a 'self-reinforcing' approach where it is decided the congestion management model (CMM) is necessary because a capacity mechanism requires one, and a capacity mechanism is chosen because it suits the use of the CMM.

Yet again, a reliability options approach where generators take on the risks of being unable to dispatch at times of high prices would avoid the need for a decision on how to treat transmission constraints within a capacity mechanism.

Market power mitigation

On market power there are a range of issues that need to be considered. Under the existing Retailer Reliability Obligation (RRO), the risk of retailers not being able to access sufficient contracts is somewhat addressed by the Market Liquidity Obligation (MLO). The MLO requires generators with a sufficiently large market share to make a relatively small volume of contracts available to the market. There is no obligation to buy or sell, but rather, only to post bids and offers in contract markets. Offers can be withdrawn when a sold contracting threshold is reached. A similar obligation could be needed under a capacity mechanism depending on the design.

Under different capacity mechanism models, there is also the potential for market power to be exercised in other way, such as by a retailer over-procuring capacity in order to create an artificial scarcity in the market. This runs the risk of pushing some entities into non-compliance through no fault of their own. Unlike other compliance markets, like energy efficiency schemes, where banking and borrowing are a normal part of design, such options do not readily fit a capacity mechanism. Compliance risk to a degree could be mitigated by the selection of when compliance would be measured. Measurement based on a simple demand threshold trigger such as the RRO could increase market power risk, but measurement based on a meaningful actual low reserve shortfall, (LOR2, LOR3 event) could reduce this risk as a retailer over procuring to create a shortfall could result in lower probability of a capacity shortfall event.

There is also the potential for generators with market power in the form of an ability to bind constraints on transmission lines via their generation output decisions, to constrain off generation competitors who may then face penalties under a capacity mechanism for not delivering at key times. Again, this can be mitigated to a degree by the choice of when compliance is measured and how capacity certificates or credits can be created.

Incentives and compliance

A capacity mechanism, depending on the structure, will require incentives on both the supply and demand side to ensure that those paid for capacity meet any requirements to deliver, and that retailers secure sufficient capacity. A balance must be struck between penalties or incentives that drive compliance but are not so severe that they create such risk averse behaviour that it drives inefficiencies in the market. For example, an extremely high penalty on retailers who do not secure enough capacity is likely to result in retailers procuring capacity to higher levels to ensure compliance rather than risk a penalty. This is likely to lead to higher costs and no measurable benefit to reliability.

Shell Energy sees that an advantage of the reliability options model is that retailers would bear the risks as far as they deem it acceptable. The nature of cap contracts means that if a generator does not generate when prices are high, they are exposed to the spot price (an effectively penalty of almost $15,000/MWh). Further, where prices in the spot market are high, consumers would receive a benefit as funds would be paid back through the central body to offset the costs of these cap contracts. Many generators are used to defending cap contracts and as such understand their ability to manage the risk of non-delivery far better than a central body. Further, as charges could be smeared across energy consumers based on consumption or demand, there is no need for a compliance regime on retailers. This creates an administratively simpler mechanism.