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Dr Kerry Schott

Independent Chair

Energy Security Board

C/O COAG Energy Council Secretariat

GPO Box 2013

Canberra, ACT, 2601

Lodged by email info@esb.org.au

Dear Dr. Schott,

We would like to thank the Energy Security Board (ESB) for the opportunity to participate in this consultation process, which we regard as greatly important to the timely, cost-effective development of the National Electricity Market (NEM).

More specifically, we view the Post 2025 Market Design program as a vital process for the consideration and implementation of mechanisms that address the current lack of market signals to invest in the generation, storage and grid equipment that Australia will need as it transitions towards a renewable and lower emissions electricity system.

The increasingly complexity of the NEM, which has been driven by the adoption of new generation and storage technology, necessitates changes to the current market design. Many of the change being proposed in the Post 2025 Market Design program will assist in the transition of the NEM and provide greater clarity in its operation. However, care needs to be taken to avoid unnecessary complexity, that adds limited value to market participants and consumers.

Please refer below to responses to the consultation questions posed in the Options Paper, noting that we have focused on the areas of greatest relevance to our business.

Should it be possible to do so, we would welcome the opportunity to further discuss any or all the elements of our submission with the ESB team, as we see this process as an important opportunity to create the market conditions needed for the optimal evolution of the NEM.

Regards,

A handwritten signature in blue ink, appearing to read 'S. Maresh'.

Sam Maresh

Country Leader

GE Australia

Part A

Resource Adequacy Mechanisms

2 Which financial principles are most important in establishing means to integrate jurisdictional investment schemes with market arrangements as smoothly as possible?

In the past, market participants relied on the NEM to provide the signals needed for both efficient dispatch and efficient investment, however the influx of zero marginal cost technologies has undermined the ability of the market to provide investment signals. Fundamentally, the more intermittent renewables enter the market, the greater is the technical need for firming capacity, but the weaker are the price signals for investment, as the dispatch prices get pushed progressively lower.

If the role of a Resource Adequacy Mechanism (RAM) is to provide the investment signals that the dispatch prices are no longer able to provide, then several overarching principles should apply, notably:

- The RAM must be calibrated to provide sufficient revenue certainty over a sufficient timeframe that capital intensive investments can be justified and made
- The RAM should not interfere with market signals for efficient dispatch
- The RAM should be designed such that the lowest cost projects are the ones that get built

3 Are there financial principles missing, or that have been included but shouldn't be?

Among those outlined above, particular attention should be drawn to the first. Already the NEM has experienced the planned closures of coal power plants being brought forward and unplanned outages of coal plants becoming more prevalent. As wind and solar power continue to depress the prices and margins of coal operators, it is expected that their ongoing influx into the NEM will accelerate this trend. This creates a particular risk for long duration storage, as the most cost-effective technology – pumped hydro – takes a significant amount of time to develop and build. The RAM therefore must be calibrated to support investment decision as soon as possible.

6 What concerns do stakeholders have around the commercial sensitivities associated with disclosing information?

Commercially sensitive material should only be disclosed with the consent of the entity that owns such material and with appropriate safeguards to govern its subsequent use.

7 Do stakeholders perceive the disclosure of mothballing / seasonal shutdown information as limiting a participant's flexibility in operating their plant?

This depends on whether there are any penalties or consequences associated with the participant changing their mind. In the absence of any such disincentives, a participant could disclose an intent to mothball based on their expectations of market prices at the time of the disclosure and then reasonably revisit this decision should prices evolve contrary to expectations.

9 What suggestion do stakeholders have for defining mothballing?

The intent of the notice of closure requirements was to provide sufficient lead-time to closures to avoid negative price, security or reliability impacts on the grid. From the grid's perspective, whether a unit is mothballed or permanently closed, it is in both instances unavailable to the market and hence could have a negative impact on price, security or reliability. For this reason, the distinction between mothballing and closure needs to be carefully defined and 'notice of mothballing' periods may warrant consideration.

10 How can governments, market bodies and market participants better work together to be prepared for exits?

Greater alignment between governments and market bodies is needed to provide confidence for industry to build the required firming capacity in advance of the retirement of the ageing thermal generation fleet. The market bodies and government need to define the mechanisms that will allow the market participants to deliver this outcome.

11 Do stakeholders agree governments are best placed to enter into a contract with a respective participant in the event of early exit?

Prolonging the operation of assets that are no longer cost-effective, reliable, or flexible enough to meet the needs of a changing market should be avoided. Rather than artificially prolonging the operation of assets that are no longer fit for purpose, the objective of the RAM should be to bring replacement capacity into the market in advance of the exit of the retiring assets. Government support provided to retiring assets should be restricted to short-term support in situations in which the reliability standard is threatened.

Anything more than short-term, clearly defined support risks creating a perverse incentive, whereby the ability of the RAM to encourage entry of new capacity is undermined by the ongoing subsidization of the ageing thermal fleet.

16 Would one RRO option over another better suit particular types of market conditions anticipated over the course of the transition?

The RRO has thus far failed to support any notable investment in firming capacity. It needs to be either significantly amended or otherwise replaced with a mechanism that provides a more straightforward investment signal (e.g. reverse auctions for different types of firming capacity).

17 [Financial RRO option] How could you strengthen the signal? Could minimising the triggers do this? What are the unforeseen consequences or implications with this?

One of the primary concerns investors and customers highlight to us is the lack of certainty, which makes it hard to justify new investments. Removing RRO triggers tries to solve the lack of certainty for suppliers of firm capacity (investors) by increasing the uncertainty faced by those who require firm capacity (retailers and large loads). It is not clear that increasing uncertainty on one side to the equation will solve for a lack of certainty on the other side of it.

21 [Physical RRO option] How should the physical certificates be regulated?

We understand the certificate method would see firm capacity allocated certificates that could then be sold to liable entities (retailers or large loads) in much the same way that LGCs were traded under the RET/LRET program. This appears relatively straightforward and possesses the advantage of familiarity, as the RET/LRET program was well known and understood. Provided that certificate creation was restricted to newbuild capacity, this could help accelerate the transition and warrants support.

If our understanding of the proposal is correct, the regulation process could be the same as the one used for the RET program, with a central registry tracking the creation of certificates and facilitating their trading and ultimate surrender by liable entities. Rules could likewise be defined for the circumstances in which certificates could be traded and we could even consider RET-like features like allowing for 15+ years of certificates to be deemed and sold up-front to help provide a stronger investment signal.

Support for Physical RRO applies specifically and solely to newbuild capacity. The ageing thermal fleet should be addressed separately via cost effective Ageing Thermal Generation strategy and any support for prolonged operation limited to specific instances in which the reliability standard is threatened.

22 [Physical RRO option] How would a physical RRO impact contract market liquidity?

Given the contract market was able to cope adequately with the RET/LRET, it is unlikely that market liquidity would have difficulty in it coping with a similar mechanism.

Essential System Services, Scheduling and Ahead Mechanisms

25 What additional information should be considered to assess the complementarity and materiality of an operational SSM in the context of a TNSP-led solution in the investment timeframe?

Synchronous generation and storage technologies are able to provide system strength and inertia to the grid. TNSPs attempting to solve for system security in the investment timeframe should be required to follow a genuinely technology-neutral approach that allows for synchronous generation and storage technologies to equally participate. Failure to do so would result in overbuilding of transmission assets and hence increased cost to consumers.

In addition, the problem with inertia and system strength at present is that TNSPs do not fully understand their current inertia and system strength issues and cannot predict them. Effective inertia (traditional inertia from spinning assets and synthetic inertia) is being estimated by most TNSPs globally. Software (based on WAMS) is available to both meter effective inertia and with analytics, predict effective inertia 24 hours ahead. System Strength can also be “metered” using software and traditional WAMs. Without a better understanding system strength and effective inertia (including forecasting), TNSPs are likely to over capitalize on augmenting their networks with hardware to overcome these issues.

26 How do stakeholders view a ramping or operating reserve as fitting within the overall framework for essential system services?

The main outcome of ramping services or an operating reserve is to pay technologies to be present in the bid stack that would not otherwise be present. If a sufficient bid stack of capacity is present in the market, then this is not needed. As the market transitions to a generation fleet that is more responsive, the fleet will be able to respond to market needs within the dispatch horizon without the market needing to pay for reserve or ramping.

Part B

Essential System Services, Scheduling and Ahead Mechanisms

1 What are stakeholder views on the interactions between the proposed investment and operational procurement mechanisms for structured procurement?

As we understand it, the objective of structured procurement mechanisms would be to:

- define during the investment horizon a sufficient price for the associated services that investment in the technologies needed to provide them can occur – i.e. giving certainty to the investors to invest; and
- Lock-in an agreed approach to defining the price to be paid when the service is used in the operational (or dispatch) timeframe – i.e. providing certainty to the purchaser of these services.

The key is to ensure that the price set during the investment horizon:

- Is competitively set (e.g. through a tender or auction process) to minimize the expense during the operational timeframe; and
- provides a sufficient signal for investors to invest in the required capacity.

Any structured procurement of essential system services should be undertaken in a genuinely technology-neutral manner, allowing generation and storage operators and technologies to compete to provide the required service alongside grid operators and technologies. Procurement and implementation timeframes and technical requirements should be defined in a way that maximizes competition and allows for the technology providing the lowest cost long-term solution to be chosen.

2 How do stakeholders envisage contracting arrangements will work under the long-term procurement mechanism, and how may this interact with the design of the SSM or vice versa?

Refer above.

3 Do stakeholders agree that the UCS should schedule for an efficient level of the service which has been structurally procured, with the efficient level being with regards to meeting a dispatch cost minimisation objective, as defined by the terms of contract activation and pre-dispatch bids. If so, why? If not, why not?

This appears to be a reasonable approach.

4 Do stakeholders consider the potential for the UCS to centrally-commit contracted resources to be of material concern? If so, are the proposals put forward by the ESB sufficient to address this concern? If not, what should be done to mitigate this concern?

An important overarching principle is that a resource that is centrally committed by the UCS mechanism should not end up worse off as a result. For instance, the payment received for centrally committed resources should be no less than the energy market and ancillary service revenue that the resource would have earned from normal operation over the same time horizon.

5 If the UCS commits units ahead of time, how would this interact with the existing wholesale spot and frequency markets that are real-time?

The real-time markets could dispatch the residual load and ancillary services needed by the market after allowing for the services and energy being received from the units that were committed ahead of time.

6 What are stakeholder views on how the UCS schedule should be reflected in pre-dispatch and dispatch (i.e., contracted resources being required to bid into dispatch to be scheduled and/or constraints applied)? Are there any possible unintended consequences of these approaches?

If units have been scheduled under UCS and hence are certain to dispatch in a given interval, then this should be made apparent to the market.

Ideally participants would be able to see the following information in dispatch and pre-dispatch:

- The forecast overall demand; and
- the capacity that has been committed under UCS; and
- the forecast residual demand that needs to be met by the bid stack of non-UCS resources.

10 Do stakeholders agree with the ESB's proposal that TNSPs would be responsible for providing AEMO with the required contract information for the system service contracts, where these have been agreed between the TNSP and the relevant resource?

This makes sense if the services are to be subject to structured procurement by the TNSPs.

15 What challenges are envisaged in a future with higher variability and uncertainty in net demand?

A significant investment in flexible, long duration storage and fast start dispatchable generation is needed in order to manage uncertainty in both net demand and net supply.