12 February 2021

Anna Collyer
Chair
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Submitted online: www.aemc.gov.au

Dear Ms Collyer

Reserve services in the national electricity market – Directions Paper

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on the Australian Energy Market Commission's (AEMC) Reserve services in the national electricity market (NEM) Directions Paper. Our general views on the Directions Paper are noted below and further discussion on the underlying case for, and design of, an operating reserve service can be found in Attachment 1.

The concept of an operating reserve was originally put forward as a tool that could achieve two potential objectives: improve short-term operational signals; and strengthen longer term investment signals by more explicitly valuing reserve capacity. In Origin's view there may be a role for an operating reserve in supporting reliability/security of supply in operational timeframes, but such a mechanism is unlikely to support new investment.

While the existing market framework has been effective in facilitating the availability of reserves, as identified by the AEMC, there is a need to consider whether increased variability in net demand will necessitate more explicit reserve pricing signals. To the extent there are concerns around the level of flexible capacity available in the NEM to respond to uncertain events, an operating reserve could theoretically be used to facilitate the provision of capacity that may have otherwise been unavailable given market price signals. However, a more detailed assessment of the underlying problem to be resolved, and the trade-offs associated with different reserve design options, will ultimately be required to fully evaluate the merits of such a mechanism.

Origin does not consider an operating reserve would materially improve longer-term investment signals. Justifying investment in marginal generation has always been challenging – these plant typically rely on a small number of periods per year when capacity is scarce to recover fixed costs. Prospective investors in flexible dispatchable resources currently face even greater uncertainty around future revenue potential, driven by changing market dynamics, the impact of government sponsored projects, accelerated new interconnection and lower grid demand. An operating reserve is unlikely to provide investors with any additional certainty around the value (i.e. the frequency and magnitude of price spikes) that could be derived from energy and reserve markets in the future.

Noting the above, Origin considers an additional period of consultation may be required ahead of the AEMC progressing to a Draft Determination, particularly if an operating reserve is likely to be pursued. This would allow market participants and the AEMC to undertake a more informed assessment of the potential role and design an operating reserve in the NEM.

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,

Steve Reid
Group Manager, Regulatory Policy

1. Evaluating the potential use case for an operating reserve

1.1 An operating reserve could potentially assist with managing reliability/security of supply in real-time

The objective of an operating reserve in real-time (as characterised by the AEMC) would be to facilitate the provision of spare MW that are potentially not being made available to the market, either in response to expected or unexpected events. In Origin's view, the existing market framework has met that objective, with scarcity pricing signals and the LOR assessment framework ensuring reserves are available when needed, particularly in response to expected ramping and peak demand events.

The adequacy of the existing framework is evidenced by the fact that historically, AEMO directions have rarely been used to manage reliability-related events. Over the last five years, 99 per cent of directions have been issued for security purposes (i.e. to manage system strength and voltage control), with no reliability-related directions issued in 2018/19.[1] The use of the RERT has also generally been limited to periods when temperature and demand are very high and all available capacity is being dispatched.[2] Further, while it is acknowledged the LOR notification process does not guarantee a corresponding price signal will emerge to support the provision of reserves, the most common reason for cancellation of forecast LOR notices in each quarter of 2018/19 was a market response.[3]

Notwithstanding the above, we recognise the need to consider whether increased variability in net demand will necessitate more explicit reserve pricing mechanisms to support reliability/security of supply over time. As identified by the AEMC, the ability of market participants to make reserves available to meet unexpected events can be more challenging, particularly where plant flexibility may be limited. The increased frequency of LOR notices driven by the forecast uncertainty measure (FUM) in 2018/19 also highlights the potential for higher levels of intervention in the future if reserves aren't available to address unexpected changes in net demand.

If the frequency and/or magnitude of unexpected events materially increases over time as expected, market signals would likely increasingly value the ability of plant to respond to uncertain forecasts, particularly following the commencement of five minute settlement in October 2021. A number of new battery projects capable of rapidly responding to short term variability in net demand are also in various stages of development across the NEM. However, to the extent there are concerns around the level of flexible capacity available in the NEM as the market transitions, an operating reserve could potentially be used to facilitate the provision of capacity that may have otherwise been unavailable given market price signals. In the event of a material change in net demand, access to that capacity may then reduce reliance on out of market interventions.

It is conceivable an operating reserve could also be designed in a way that allows capacity procured through the reserve to count toward other specified targets (e.g. for inertia and system strength). This nested, co-optimised approach was identified by FTI Consulting as an option that could assist with facilitating the efficient deployment of resources that are capable of providing multiple services.[4]

1.2 Longer-term investment signals are unlikely to be improved by an operating reserve

While the NEM has a strong track record in facilitating reliable supply, justifying investment in marginal generation has always been challenging – these plant typically rely on a small number of periods per

[1] Reliability Panel - AEMC, *2019 Annual Market Performance Review*, 12 March 2020, pg. 77.
[2] Ibid., pg. 73.
[3] Ibid., pg. 68.
[4] FTI Consulting, *Essential system services in the national electricity market – A report for the Energy Security Board (Draft)*, 12 July 2020, pg. 77.

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year when capacity is scarce to recover fixed costs. Prospective investors in flexible dispatchable resources now face even greater uncertainty around future revenue potential, driven by changing market dynamics, the impact of government sponsored projects, accelerated new interconnection and lower grid demand.

Given these challenges, there is a clear need to enhance long term investment signals for dispatchable plant in the NEM with a view to providing greater certainty to both investors and governments. However, an operating reserve is unlikely to achieve this objective. Prospective investors in flexible dispatchable resources would still face uncertainty around the value (i.e. the frequency and magnitude of price spikes) that could be derived from energy and reserve markets in the future. Unless the operating reserve could facilitate a more certain revenue stream (which seems unlikely given the nature of the issue described above), it would not provide the requisite level of certainty required to de-risk investments and materially improve long term investment signals.

As is currently the case with the market price cap (MPC), governments may also be unwilling to allow the reserve market to be designed in a way that allows for any meaningful uplift in energy/reserve prices on an ongoing basis. Where revenue potential remains materially below the true value of customer reliability (VCR) due to the need to balance market customer (and by extension consumer) exposure to high price events, market-based signals for new investment are likely to remain weak.

2. Options to address uncertainty and variability

2.1 Consideration should be given to incremental forecasting improvements

Origin is supportive of pursuing incremental reforms to the existing framework that could assist with reducing forecast uncertainty and enhancing the level of information available to market participants where relevant. As noted in the Directions Paper, AEMO is planning on progressing several initiatives to improve the accuracy of net demand forecasts over the course of 2021. There is also potential to provide additional transparency around the FUM and forecast ramping requirements over operational timeframes. These reforms would seemingly allow market participants to make more informed capacity commitment decisions, which may reduce the number of periods in which an operating reserve may provide value to market participants.

The AEMC notes there are other reform options that could assist with addressing uncertainty and variability, including multi-period optimisation (i.e. ahead markets); and/or revisiting the definition of ‘contingency’ such that the unexpected reduction of multiple GW of wind generation is not considered a credible contingency event, thus providing AEMO with additional flexibility to manage the event. Origin does not consider either of these options would provide an efficient solution given the nature of the issue identified. The merits of ahead markets and adapting system definitions to support operational resilience are also best explored through the separate consultation processes currently being undertaken on those workstreams.

2.2 An operating reserve would need to be carefully designed to achieve its intended purpose

As identified in the Directions Paper, an operating reserve could be designed in a range of ways to achieve a variety of objectives. It is difficult to comment on the relative merits of each option in the absence of a more meaningful assessment of the underlying issue(s) the reserve is intended to resolve, and the trade-offs associated with specific design choices. Key issues that would require further consideration by the AEMC in this respect should an operating reserve be pursued, are noted below.

- Objective of the reserve: Further clarity is required around the problem the operating reserve is expected to resolve (e.g. are scarcity price signals considered insufficient to support capacity commitment decisions at times of low reserve levels, or is the primary concern simply that there may not be sufficient levels of flexible capacity capable of responding to material changes in net

demand at short-notice if market conditions change). Options 1, 2 and 3 could theoretically assist with addressing the latter issue. The rationale for pursuing Option 4 is less clear, given its design is largely intended to address prolonged and predictable ramping events that should be visible to the market and reflected in energy/ancillary price signals.

Each of the options also appear to have been designed to achieve a binary purpose. As discussed above, we consider there is potential for capacity procured through the reserve to count toward other system service requirements, such as the provision of inertia and system strength. It may also be reasonable for an operating reserve to include multiple products that span different timeframes, depending on the specific reliability/security objectives to be achieved.[5]

- Procurement timeframe: The rationale for introducing a 30-minute reserve product in the NEM requires careful consideration. A key objective of moving to five minute settlement is to provide more efficient energy price signals and improve incentives for investment in flexible resources. Establishing a 30 minute reserve product appears inconsistent with that objective and may have the effect of artificially reducing energy market volatility, distorting price signals and reducing the efficiency benefits associated with rebidding capacity in response to changing market signals. It would also not align with the objective of supporting the provision of capacity to meet unexpected events, noting any scarcity event that sustains multiple trading intervals would be reflected in the energy price and therefore facilitate a response.

  The magnitude of any forecast uncertainty is also a function of the outlook period, with a longer period giving rising to higher levels of uncertainty and therefore additional reserve procurement volumes. On balance, we therefore expect the cost of a 30 minute product (i.e. as proposed under Options 2, 3 and 4) to be higher than a shorter term product (i.e. Option 1). However, the overall cost increase may be partially offset by the fact that a longer duration product could capture a larger pool of reserve providers. To the extent a 30 minute product is considered necessary, co-optimising procurement with a short-term reserve product may also assist with reducing overall costs.

- Interaction with the energy market: A key design choice is whether capacity procured through the operating reserve would be held out of market for dispatch by AEMO, or if capacity enabled through the reserve would only be remunerated for availability and therefore be required to submit corresponding bids in the energy market. It is difficult to determine the impact of these design choices on market dynamics and the efficiency of resource allocation in the absence of detailed modelling. However, productive efficiency is more likely to be negatively impacted under options that hold reserve capacity out of market (i.e. as proposed under Options 3 and 4).

- Interaction with the reliability and emergency reserve trader (RERT): It is unclear how the operating reserve would interact with the RERT framework, given the use case for the reserve is yet to be fully defined. The use of RERT capacity has generally been limited to periods when temperature and demand are very high and all available capacity is being dispatched.[6] If that continues to be the primary use case for RERT, establishing an operating reserve to value capacity during periods when energy price signals indicate the capacity is not required is unlikely to offset the use of RERT.

- Basis for procurement: The Directions Paper notes that capacity procurement volumes under each of the proposed options could be determined based on a measure of the level of forecast uncertainty. There is a risk such a framework could give rise to an overly conservative level of

[5] FTI Consulting, *Resource adequacy mechanisms in the national electricity market – A report for the Energy Security Board*, 16 July 2020, pg. 74.
[6] Ibid., pg. 73.

procurement and material costs for consumers. It would therefore be important to ensure the operating reserve is designed with a view to meeting the broader NEM reliability standard, and not some higher measure.

Experience with recent major reforms in the NEM has also demonstrated there are always unforeseen complexities that can give rise to substantial costs for both AEMO and market participants. In particular, the costs associated with implementing five minute settlement are now substantially above original estimates. The wholesale demand response mechanism was also re-designed relatively late in the AEMC's rule change process to mitigate costs/complexity concerns that weren't initially foreseen. A thorough cost-benefit analysis will therefore need to be undertaken to fully evaluate the merits of any operating reserve design options that are to be pursued.