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Benn Barr
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Australian Energy Market Commission

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Subject: Directions Paper – Reserve Services in the National Electricity Market
Ref: ERC0295

Dear Benn,

We would firstly like to thank you and your team for the considerable effort expended on activities such as this one. As the process by which the theory of the Post 2025 Market Design program is translated into practical reality, this work could not be more important nor more urgent.

As such, we are pleased to share our response to the Directions Paper released 5 January 2021 in relation to rule change requests lodged by Infigen Energy and Delta Electricity (Ref: ERC0295). In responding to the questions posed in the Directions Paper, we have focused our attention on the topics of greatest relevance to us and our areas of expertise.

Question 1:

1. *What are stakeholder views on the issues identified, in particular, on whether the primary issue is appropriately characterised as an increased risk of insufficient in-market reserves being available to meet net demand, due principally to forecast uncertainty and net demand variability as the penetration of VRE generation increases?*

As the penetration of VRE increases, the amount of generation output 'at risk' at any given moment also increases, due to the inherent intermittency of these technologies, offset to some degree by the geographic diversification of VRE across the NEM. To manage this risk, a reserve of dispatchable capacity must be on hand to start quickly and fill any gap in output and/or address any shortfall in system services.

If this need could be met by storage technologies capable of playing the opposing role – i.e. storing excess VRE output when generation exceeds demand, this will enable a cheaper long-term outcome for consumers. This is because the marginal cost of that excess VRE output is zero – less than the fuel cost for any conventional generation technology.

The question then becomes how to best encourage investment in these sorts of technologies, it being our view that a market for reserve services could be a vital part of the solution. For this to be the case, such a market would need to be designed with the investment horizon in mind as much as the dispatch horizon, with financiers and developers consulted to ensure the resulting market would send bankable signals to invest, sufficiently in advance of the market need, to allow time for construction to occur.

2. *What are stakeholder views on the materiality of these issues? For example, are the issues material enough to warrant the further development of a reserve service market?*

Our view – supported by recent experience of increased market interventions by AEMO – is that the current framework is not sending the right signals. Coal fired generators still represent the majority of current installed capacity, however they are increasingly unreliable and inherently inflexible, limiting their ability to respond at short notice to changes in VRE output.

At the same time, the growing penetration of VRE – which typically dispatches at zero or even negative marginal cost – is reducing volume weighted average prices. This creates a dysfunctional dynamic in which the greater the VRE penetration in the system, the higher is the technical need for dispatchable technologies to support it, but the weaker is the investment signal to build this capacity.

Explicitly valuing the reserve services this dispatchable capacity provides offers a mechanism to address this issue and provide investors and developers with a market-based investment signal that allows projects to get banked and get built.

Question 2:

1. *To what extent could any or all of the incremental improvements to current arrangements set out in section 6.1 address the issues sufficiently to negate the need to implement a new reserve service market? Are there any other incremental improvements that should be considered?*

Improving the accuracy of net demand forecasts would be useful but will not solve the problem. The coal generation fleet is inherently technically limited in its ability to provide reserve services and there are insufficient investment signals to build alternative technologies that do have this ability. Improving forecast accuracy will not address this. Likewise, the second incremental proposal to develop and publish more information will not – in our view – address the underlying challenge, which we believe is an absence of long-term investment signals for long-duration storage.

While enhancements to AEMO's dispatch and pre-dispatch systems could allow for the ramping limitations of the coal generation fleet by optimising dispatch over multiple periods, this would ultimately lead to lower cost VRE being curtailed in order for higher cost coal to run, increasing cost to consumers. It also runs counter to the intent of the transition to 5-minute settlement. Given that the cost and complexity of this option are indicated by the AEMC to be high, it doesn't appear to be worth pursuing further.

While we support the introduction of 5-minute settlement and recognise the benefits it brings, we also note feedback from our customers that this change in and of itself is not sufficient to unlock the investment needed in dispatchable capacity such as long-duration storage.

2. *Which of the reserve service market options set out in section 6.2 is the most preferable to address the issues raised in Chapter 5, taking into account the way different technologies may operate under each option and the trade-offs between the options?*

Based on the information provided in the Discussion Paper, it appears that the first option – a co-optimised market for operating reserve – would provide the best approach to managing uncertainty in the dispatch horizon. Now that the energy market is transitioning to a 5-minute settlement approach, it is not clear why operating reserve should be procured over a 30-minute horizon. A 30-minute horizon would also seem to provide less flexibility to manage variations in VRE output that occur within that 30-minute period (which could be substantial).

While the complexity and cost of implementing a co-optimised approach may be higher initially, the benefits of having an inherently more optimised dispatch engine over the future life of the NEM would surely outweigh any difference in up-front cost. In basic conceptual terms: why optimise the parts when we can optimise the whole?

3. *Are there any other reserve service market options not presented here (or variations on the options, such as the variation discussed in section 6.2.3) that would be preferable? If so, why?*

We are curious to see how the development of the potential reserve services market will interact with the other activities being undertaken by the ESB and AEMC, most notably the Post 2025 Market Design program.

As noted above, it is vital that the collective impact of this program is to establish a framework that delivers timely signals for investment in dispatchable technologies such as long-duration storage, noting that the bankable signal to invest must arrive several years before the technical need is expected to emerge in the dispatch horizon, to allow time for projects to complete development and construction activities.

We are happy to further discuss any element of the above as useful and look forward to working together in future on this and the various other initiatives needed to set the framework for the NEM of the future.

With best regards,

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