

11 February 2021

Ms Anna Collyer
Chair
Australian Energy Market Commission

Dear Ms Collyer

Reserve Services in the National Electricity Market – Directions Paper (ERC0295/ERC0307)

Hydro Tasmania welcomes the opportunity to respond to the Australian Energy Market Commission's (AEMC) Directions Paper on Reserve Services in the National Electricity Market (NEM).

Hydro Tasmania is Australia's largest generator of renewable energy and is committed to contributing to the decarbonisation of the electricity sector and the broader economy. As an active participant, and contributor to the energy market reform agenda, we support changes to the National Electricity Rules (NER) which assist with setting a pathway for future investment and ensures the long-term security and reliability of the NEM.

Fit for purpose reform

A modern, efficient, affordable and low-emissions electricity sector is a clear priority for Australia.

Hydro Tasmania recognises that maintaining system security and reliability in the NEM has, and will continue to become more challenging due to the change in generation mix seen through the rapid growth in variable renewable energy (VRE) and the retirement of ageing thermal generation. Given the changing nature of energy supply in the NEM, we strongly support robust and strategic adjustments to the policy and regulatory settings that ensure regulatory and market frameworks remain fit for purpose to support the transition to a low emissions future.

Reforming reserve services in the NEM

The transformation of the NEM currently underway will be accompanied by increased ramping requirements, increased uncertainty of net demand, and new challenges for maintaining system security. In this context, we consider it both inefficient and unsustainable to continue addressing

reserve shortfalls through existing mechanisms such as AEMO interventions and the Reliability and Emergency Reserve Trader (RERT).

Under these circumstances, Hydro Tasmania agrees that there is a case for the introduction of a new market-based operating reserve service that accommodates the challenges above. Hydro Tasmania is strongly aligned with the Energy Security Board's (ESB) observations on such a service in its January 2021 Directions paper:

'... Any product should support the provision of flexible reserves, even when the energy price is low or negative and recognise dynamic changes to the reserve needed according to system conditions. The product should provide transparent value with both short- and long-term incentives for flexibility and dispatchability, allowing 'as needed' capacity to be explicitly valued separately from 'as available' capacity. In essence, any product should aim to bring co-optimised in-market reserve response to unexpected changes, avoiding the need for AEMO intervention (including RERT procurement).'

The ESB also noted that:

'Stakeholders were also wary as to whether the short-term signal will be sufficient on its own to bring on investment in new capacity. This is because an operating reserve (like frequency control ancillary services (FCAS) markets) is unlikely to have a forward price due to a lack of a derivative market, or the operating reserve market price may be too uncertain to build a business case around, or both.'

Hydro Tasmania agrees with these observations and concerns as highlighted by the ESB. While we consider there is merit in further investigating operating reserves mechanisms in the NEM, we also encourage assessment of parallel measures that can strengthen and lengthen investment signals for new flexible and dispatchable capacity. This could include:

- options to increase the visibility, transparency and liquidity of the future price curve (beyond the current 3 to 4 years); and/or
- incentives to ensure a portfolio of flexible energy resources are supported by an Operating Reserves mechanism. This would avoid the risk that 'Operating Reserves' are procured predominantly from a single resource type (e.g. demand side response) which would not lead to an efficient technology mix over the medium or longer-term."

Whilst beneficial in addressing some aspects of modern power system security, operating reserves alone may not achieve the goal of reducing instances of AEMO directions, as these are often caused by inadequate synchronous generators online, independent of the capacity shortfall. Operating reserves could however work in tandem with Hydro Tasmania's proposed *Synchronous Services Market* rule change proposal which would assist in minimising AEMO's ongoing reliance on market interventions. We look forward to ongoing consultation with AEMC on this proposal.

Design Principles

Hydro Tasmania's over-arching principles for assessing future system services in the NEM are included below. We believe items 3, 5 and 6 are particularly important when considering the design of an operating reserve service.

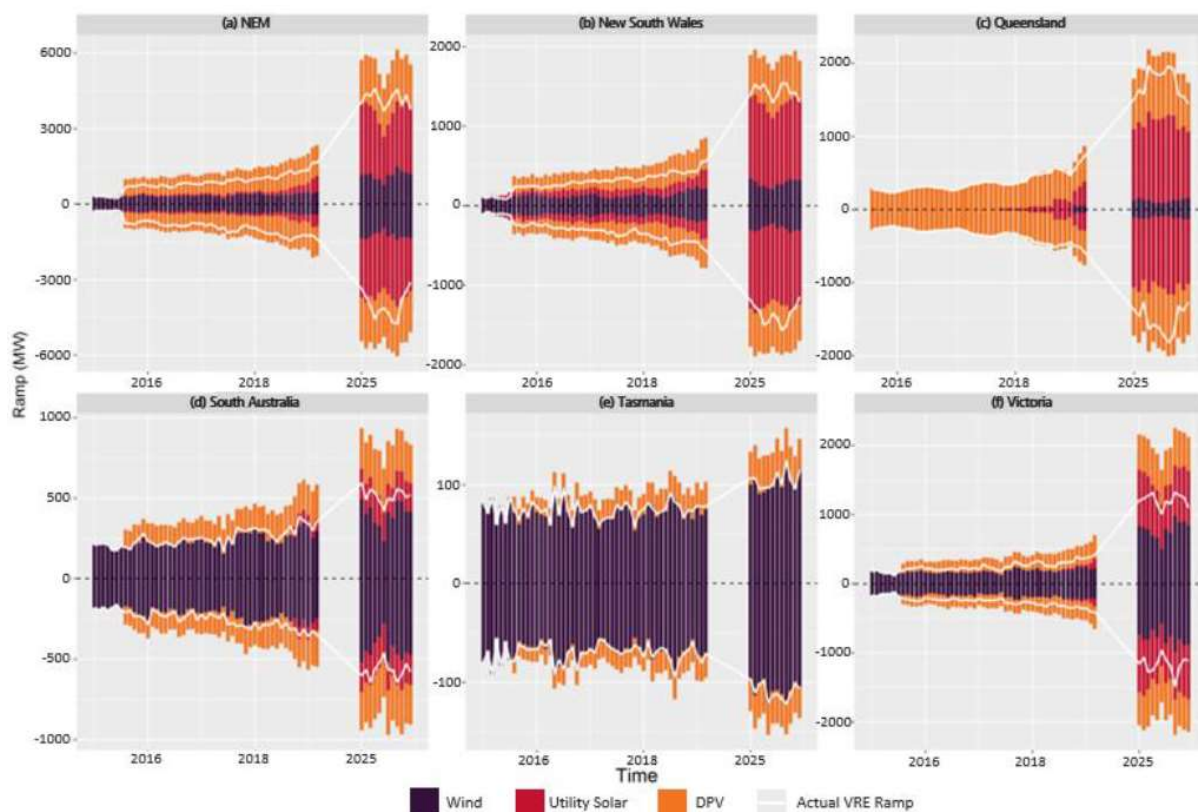
Any future approach to system services in the NEM should:

1. Support the efficient transition of the electricity market to lower-emissions technologies;
2. Remove barriers to entry for new generation assets;
3. Deliver efficient, least-cost outcomes across the dispatch, commitment, and investment periods;
4. Favour simplicity wherever possible, noting that the regulatory and market frameworks are already complex, and incremental changes to existing frameworks may be the most efficient way to resolve certain issues;
5. Provide price signals that are sufficient to incentivise investment in new flexible dispatchable assets as required;
6. Maximise the utility of existing assets to deliver system services (including where their continued operation benefits the NEM to transition to a lower-emissions future);
7. Assign risk to parties best placed to manage that risk; and
8. Ensure regulatory frameworks are technology neutral.

AEMC's assessment of the issues

Hydro Tasmania agrees that that 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*'. Further, we are in general agreement with the AEMC's characterisation of expected and unexpected events, and the potential relevance of a reserve service to address these emerging challenges.

To inform the most appropriate reserve services arrangement, we encourage further communication of the particular problem(s) that such a mechanism is seeking to address. For instance, one key challenge demonstrated in AEMO's Renewables Integration Study: Stage 1 report (from page 57, see graph below) was that by 2025 the largest hourly ramps in VRE output will likely be up to +/- 6,000MW.



It is unclear that the current frameworks and market behaviours will provide an efficient mix of technologies that can respond to this challenge. On this basis, we consider that this risk, alongside others identified by the AEMC, are material enough to warrant the further investigation of a potential reserve services market to incentivise ‘as needed’ flexible dispatchable supply.

Options to Address Uncertainty and Variability

Incremental improvements

Hydro Tasmania agrees that there is merit in progressing incremental improvements such as improving the accuracy of net demand forecasts, publishing more information to support better decision-making by market participants, and facilitating a better integration of DERs.

However, other options suggested – e.g., multi-period optimisation for the pre-dispatch and real time markets and adapting system definitions, while potentially significant, are more complex and will require careful consideration.

Reserve services design options

Hydro Tasmania recognises there is significant detail yet to be provided regarding product design including: eligibility requirements; basis for setting reserve targets; bidding and co-optimisation processes; pricing arrangements (e.g. payment for enablement versus dispatch); compliance management; cost allocation approach, amongst others. Developing each of these design elements

will be a significant task, and we look forward to ongoing engagement and consultation with the AEMC to identify the most suitable solution.

Bearing this in mind, Hydro Tasmania considers that any solution should:

- Co-optimize offers for energy, FCAS and reserves for every 5 minute dispatch interval. This is widely recognised as being feasible and desirable in the case of operating reserves – for example, FTI Consulting has noted *‘The provision of reserves could be co-optimised with energy and FCAS, which is likely to lead to lower overall system costs to consumers. More generally, optimisation decisions coordinated in the market are likely to allow more efficient choices by the SO than if the resolution of these issues is left to ad-hoc operator actions.’* (Essential System Services in the National Electricity Market, Report to the ESB, 14 August 2020);
- Aim to provide an activation lead time that is as close to real time as feasible, taking into consideration interactions with contingency FCAS markets. This will enhance the integrity of co-optimisation and therefore the efficacy of the real time pricing signal;
- Ensure the reserves market is consistent with NEM reliability settings to support the ongoing achievement of the reliability standard, noting that the reliability settings may also need amendment dependent on a reserves market design;
- Subject to technical performance, not disadvantage the provision of reserves over interconnectors;
- Ensure compliance is transparent, and non-compliance is addressed in an effective manner; and
- Ensure cost recovery arrangements are equitable, and designed to facilitate an orderly transition of the NEM to a low-carbon future, while enhancing resource adequacy outcomes for customers at least cost.

Additionally, given anticipated interactions with Energy and FCAS markets, the AEMC will need to carry out assessment of the nature and magnitude of impacts on these markets, and test these expected interactions through game theory and participant policy development.

Hydro Tasmania welcomes continued engagement and discussion with the AEMC on the design of an operating reserve service. If you would like further information on any aspect of this submission, please contact Colin Wain ((03) 8612 6443 or colin.wain@hydro.com.au).

Yours sincerely,



Colin Wain
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