

17 November 2022

Anna Collyer
Chair
Australian Energy Market Commission (AEMC)
PO Box A2449
SYDNEY SOUTH NSW 1235

Dear Ms Collyer

Operational Security Mechanism Draft Determination (ERC0290)

Hydro Tasmania is Australia's largest producer of renewable energy, and is an active participant and significant contributor to the energy market reform agenda. Hydro Tasmania owns Victorian based electricity and gas retailer Momentum Energy and specialist power and water professional services firm Entura. As one of the two rule change proponents being considered by the AEMC, we welcome the opportunity to respond to the AEMC's Draft Determination in relation to the Operational Security Mechanism rule change.

The Draft Determination proposes a more preferable draft rule which would establish an 'Operational Security Mechanism' (OSM) to value, procure and schedule essential system services in the NEM. Under the OSM, AEMO would define the security services and eligible participants would be able to bid into the OSM. The OSM would operate alongside the existing energy and FCAS market.

Hydro Tasmania does not support the AEMC's proposal to implement an OSM for the following reasons:

- The OSM would be less efficient than a market based approach to the management of essential system services.
- Hydro Tasmania considers that it would be more efficient for essential system services to be procured through a market approach through being co-optimised in the spot market as such an arrangement would enable the optimal trade-off between essential system services, FCAS and energy depending on their bids.
- The development of a non-market based OSM will not provide the same transparent market signals to invest in essential system services as would be the case under a market based approach. This is a significant limitation of the OSM approach given the critical need for

investment signals as the energy market continues to transition to rely on variable renewable energy resources.

- As noted in the Draft Determination, development of the OSM is raising a number of issues that are occurring as a result of progressing a non-market approach alongside a market optimised dispatch engine. These issues include arrangements to deal with market power, eligibility criteria, scheduling and rebidding processes as well as settlements process.

Unbundling services

While the AEMC have proposed adopting the OSM, the Draft Determination notes the AEMC's "preference for system security services to be dispatched in real-time, as outlined in Hydro Tasmania's proposal." **The AEMC also reiterates support for a transition to unbundled essential system services so they can be explicitly valued and priced through a market mechanism.** Hydro Tasmania appreciates the AEMC's recognition of the benefits of a market based approach and welcomes the AEMC's vision to unbundle these services. It will be important that this vision is not lost and appropriate reviews are instilled in the work programs of the AEMC and AEMO to ensure work continues on unbundling these services.

Consideration of a market based approach

The AEMC noted that a market based approach such as Hydro Tasmania's "is not feasible at this time." A market based approach is considered infeasible because the market process would not reflect the physical reality of the system. Hydro Tasmania does not agree with the AEMC's assessment and is disappointed with this conclusion.

Following the lodgement of the rule change in 2019, Hydro Tasmania refined its original proposal and provided some worked examples of how co-optimisation of synchronous services could be done in the spot market. The Draft Determination does not provide detail on why a market based approach is infeasible or publish the analysis of Hydro Tasmania's proposal. There does also not appear to be a reflection on the way Hydro Tasmania's approach could have been trialled on a modular basis whereby an initial priority set of constraints were address before being rolled-out to other parts of the system. This is particularly surprising given the continued use of inefficient market Directions since lodgement of Hydro Tasmania's rule change in 2019 and the proposed implementation of the OSM will occur in 2025; a relatively simple market based approach such as Hydro Tasmania's could have been implemented in this time while work continued to on the long term objective to unbundle essential system services.

Design of the OSM

Hydro Tasmania has appreciated the opportunity to consider the detail of the OSM through the recent deep dive industry forums. Through these forums Hydro Tasmania has gained a better understanding of what is being proposed and provides the following feedback for the AEMC's consideration.

- The OSM will use a separate integer program as a solver rather than utilising a linear program. The rationale for this appears to be because of a binary choice of on/off for OSM providers which tends to lend itself to being solved via an integer program. **However, it is unclear why the on/off unit commitment decision could not be linearised.** Hydro Tasmania has previously raised a suggested way that a non-linear function could be modelled using a piecewise linear function (see page 15 of Hydro Tasmania's October 2021 submission to the OSM process).
- **If this commitment decision could be linearised then the advantage would be that instead of recreating NEMDE pre-dispatch result in another solver you could have the solver be the NEMDE.** A linearised approach would:

- Produce more efficient outcomes for consumers (not an approximation of NEMDE constraints/outputs, but a fully co-optimised solution between OSM and Energy, akin to current energy FCAS/relationship).
 - Similarly efficiency would improve by using real time data and not having to rely on inaccurate forecasts of wind in particular (inherently inaccurate given the nature of the resource).
 - Be more secure in the long run, through increased investment driven by transparency of price and purpose, and once again decreasing cost to consumers.
 - Be more secure in the short run through removing incentives for generators with synchronous condenser ability to shut down during the low price instead of condense to prove there is a shortage of the OSM to get paid for it, making the system less secure in the interim, which would occur frequently.
 - Removing gaming potential between OSM and Energy.
 - Be easier and less costly to implement as AEMO would not need to recreate NEMDE outcomes in another solver and could be done tackled in stages, by addressing only the handful of commonly binding constraints initially.
 - Be much more likely to successfully solve on every occasion; partly because of tried and tested approach of NEMDE and partly due to speed of LP vs MIP.
- **Hydro Tasmania understands there are many examples of successful linearisation of non-linear problems in NEMDE such as where AEMO linearised Tasmanian FCAS constraints previously.** Also, it is expected that system limit advice provided by TNSPs to AEMO would be provided in a non-linear form, but this information is then linearised by AEMO for NEMDE constraint purposes.
 - Given the material influence that linearising these decisions could have on the efficiency of the OSM and overall cost to consumers, **Hydro Tasmania strongly encourages the AEMC and AEMO to explore this issue further.**
 - Furthermore, given the technical complexities of the issues being assessed in this rule change process, but also in a number of other market changes being considered before 2025, Hydro Tasmania encourages the AEMC to consistently seek independent technical advice on the feasibility of solutions in addition to those provided by the market operator. The inclusion of independent technical advice into the review process can help facilitate a more engaged, active debate from all relevant stakeholders, stress testing the suitability of options and therefore leading to more efficient outcome for consumers.

Hydro Tasmania appreciates the AEMC's proactive approach to engaging with stakeholders on the operation of the proposed OSM and looks forward to ongoing engagement. Please contact John Cooper (john.cooper@hydro.com.au) should you have any questions.

Yours sincerely



John Cooper

Manager Market Regulation