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Australian Energy Market Commission
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Review of the Frequency Operating Standard Issues paper

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Issues Paper from the Australian Energy Market Commission (the Commission) on Review of the Frequency Operating Standard.

With more variable renewable energy (VRE) entering the market, and thermal sources exiting as they reach the end of their operational life, the need for Essential System Services (ESS) will form an important feature of the NEM. The Panel's review of the Frequency Operating Standard (FOS) is another key part of the ESS work that is progressing through the Energy Security Board's (ESB) recommendations in the post-2025 work.

Despite the stable network frequency performance observed in recent periods, AEMO has used the opportunity presented by the FOS review to request a tightening of the standard. While Snowy Hydro understands that the NEM must have the right standard in place, a tightening of the standard however will mean that the only way this standard is maintained is by having every unit continuously contributing. This makes a bad situation worse, compounding the long-term difficulties created by Mandatory Primary Frequency Response (PFR). AEMO, focused as it is on the operating environment, has not considered the impact cost increases this proposal will have on market participants or the disincentive it creates for future investment in the NEM. Frequency performance has been stable and AEMO has not established the case for change.

Tightening the FOS is not the correct solution to the challenge of maintaining frequency stability. While AEMO seeks to justify its proposal by reference to the apparent success of mandatory PFR, and the increasing penetration of inverter-based generation, neither are legitimate grounds for this change. Rather than being an unqualified success, Snowy Hydro believes mandatory PFR has masked the deeper challenge of maintaining a sustainable level of frequency control.

It is unsurprising that mandatory PFR has given a short-term boost to frequency stability, since it free-rides on existing asset capability; unfortunately it has created an ongoing disincentive for long-term investment in frequency services. The solution to these problems is not 'more of the same', but rather the creation of a fair value compensation mechanism. The fact that PFR incentive arrangements are being considered under a separate consultation does not address the issue. As with mandatory PFR itself, tightening the FOS would likely be implemented in the near future, with compensation arrangements subject to an unclear timetable. Frequency stability is not simply a technical parameter of generation assets, it is a service and will only be provided by the market if sustainable compensation arrangements exist.

It is for this reason Snowy Hydro is concerned that the advice on changing the FOS and the key concerns associated with frequency throughout the paper appears to come directly from AEMO and there appears to be little advice taken by market participants, those who will be required to make the changes. While the submissions are likely to provide the Panel with feedback, we consider that for the independence of the Panel, independent advice must be obtained. Snowy Hydro continues to have concerns regarding AEMO considering what is the most cost efficient and cost effective outcomes for the NEM. Simply requiring generators to provide services at no cost is not a solution to network challenges. There should be a place for independent advice on this paper regarding the current settings for performance during normal operation.

The key issues for consideration that the Panel has outlined in the issues paper on the FOS must accurately consider the risks and costs associated with the power system operations. The work undertaken by the ESB to specify and value essential system services so that they are efficiently

procured through market-based procurement in the long term should not be derailed by mandatory reforms and tightening of frequency, which involves, in essence, running critical assets to the ground causing long term issues in the NEM both on cost and supply of generators.

The Issues Paper notes that AEMO acknowledges during future operating conditions the level of Primary Frequency Response (PFR) provided by generating resources under the mandatory arrangements may reduce and that additional arrangements may be required to deliver sufficient levels of frequency responsiveness to control power system frequency.

The proposed arrangements, of tight control of frequency and mandatory PFR, will only lead to the market relying on existing capacity with no investment in new technologies to provide PFR or for existing capacity to provide more on that what is required on the current mandatory PFR settings. A diminishing share of the generation fleet will be required to shoulder an increasing burden of frequency stability without adequate compensation. The suggestion that the generation plant suffers wear and tear due to excessive movement caused by governor response to frequency deviations should not be considered as the only cost on generators, it is only part of the cost that generators are faced with. The current arrangements both on mandating PFR and providing double-causer pays are not long term efficient arrangements for the NEM.

While the Issues Paper observes that a separate consultation is being undertaken on incentives for PFR, this remains the only solution to solving the risks and costs associated with the power system operating more often at a tighter control of frequency. If the market is not effectively remunerating providers of primary frequency response through a market and maintaining the sunset date for Mandatory primary frequency response in the future, as initially proposed by market operator, then the right investment will not be in place in the future for the NEM.

The current process leading up to the current point in time, continues to run, is a forced, uncompensated acquisition of system services followed by a later assessment of consideration for service providers. The risks and costs raised below by the Issues paper could also be solved by an effective market, which we demonstrate how

- Larger pool of providers are incentivised to participate in PFR.
- New technologies are encouraged to take part that hadn't been considered previously.
- The larger pool of providers taking part in the market, relieves the stress off the existing generators allowing them to provide the service longer.
- Existing generators are appropriately incentivised allowing them to keep investing in technologies to provide PFR.
- The increased variability of system frequency is reduced as there is a greater range of technologies in different areas encouraged to take part.
- Possibility of fewer withdrawals of PFR due to the lighter burden on market participants.

There is a misled belief that markets can be formed just in time. This is not the case and AEMO and the NEM do not want to rely until existing assets' wear and tear impacts become significant that they are seeking to find more short term fixes.

The requirements for frequency performance during normal operation

Snowy Hydro has assessed AEMO's four different options to amend the FOS to better specify frequency performance requirements during normal operation and support Option 1. We consider Option 2, AEMO's preferred option, to have long term detrimental impacts to the NEM.

It is clear that with the mandatory PFR approach still in place, with the now consideration of a tighter FOS, will lead to more issues in the long-term, especially as the number of synchronised conventional plants diminishes. It is therefore disappointing that the Commission and AEMO reviews consider that there is sufficient justification for the continuation of the mandatory requirement for narrow band frequency response noting that generally wear and tear costs have been negligible to date. There are serious costs which have not been properly acknowledged by the Commission or AEMO and will need to be considered as they will accrue in the future through the mandatory requirement for narrow band frequency. The mandatory proposal will overtime increase the workload on the remaining generators providing this service and we would be cautious about statements that any mandatory mechanism would actually reduce costs and benefit the system in the long term. .



The costs associated with tightening elements of the FOS, as noted by the Panel, are the reasons why Snowy Hydro does not support Option 2. These include from the Issues Paper that " *the potential that a more stringent FOS could create a barrier to the use of all possible technologies in the NEM, if certain technologies are unable comply with the technical standards that are dependent on the FOS. This could preclude the use of the lowest cost technologies to meet consumer demand, reducing the efficiency of dispatch and potentially placing upwards pressure on wholesale market costs.* "

While a more stringent FOS could deliver improved power quality through supporting a more uniform and stable power system frequency with the Mandatory PFR we still will not have the appropriate risk allocation, efficient investment in, and operation of, energy resources to promote secure supply and flexibility for certain market participants. This is something that should be considered by the Panel.

The potential inclusion of standards for RoCoF in the FOS

The Issues Paper correctly notes that as the system inertia decreases, there is an expectation that the rate of change of frequency (RoCoF) following contingency events will increase. As the FOS does not include any standard or limits with respect to system RoCoF we think it is sensible that a system standard for RoCoF would help define the requirements for the secure operation of the power system, in the context of declining levels of power system inertia.

AEMO's draft 2022 Integrated System Plan (ISP) displays the declining inertia levels in the national electricity system over the period 2022 through 2037 and that the proportional increases in RoCoF will become more widespread.

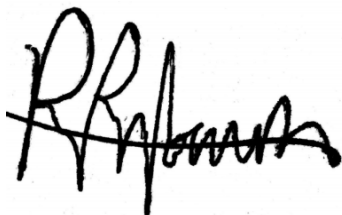
The AEMC's assessment of the Efficient provision of inertia rule change, submitted by the Australian Energy Council, will also form a critical part of solving any concerns with inertia in the future through an inertia market.

About Snowy Hydro

Snowy Hydro Limited is a producer, supplier, trader and retailer of energy in the National Electricity Market ('NEM') and a leading provider of risk management financial hedge contracts. We are an integrated energy company with more than 5,500 megawatts (MW) of generating capacity. We are one of Australia's largest renewable generators, the third largest generator by capacity and the fourth largest retailer in the NEM through our award-winning retail energy companies - Red Energy and Lumo Energy.

Snowy Hydro appreciates the opportunity to respond to the Issues Paper and any questions about this submission should be addressed to me by email to panos.priftakis@snowyhydro.com.au.

Yours sincerely,



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