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Australian Energy Market Commission
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Primary frequency response incentive arrangements Draft rule determination

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Draft rule determination from the Australian Energy Market Commission (the Commission) on the Primary frequency response incentive arrangements.

Snowy Hydro understands that the frequency performance under normal operating conditions has been declining in recent times with the growth of variable renewable energy and the retirement of thermal capacity increasing the need for essential system services such as primary frequency control. The need for such services is a physical reality and the market must provide sufficient incentives to ensure they are adequately supplied as we have highlighted from the beginning of this consultation. The Commission should not be tempted by 'solutions' whereby system services are procured by regulatory fiat, a key concern throughout the Post 2025 Market Design process.

It is for this reason we are disappointed that such an approach has been adopted in the case of mandatory primary frequency response (PFR). Mandating PFR is more likely to result in a random effect on frequency performance. In addition, the increase in the provision of PFR from generators will represent a cost in terms of wear and tear and efficiency with the mandatory proposal increasing the 'workload' on the remaining generators providing this service which in turn encourages these generators to stop providing the service. A cost on industry that will only appear through years of operating under this mandated approach and not in the short term as assessed through the consultant reports.

The double-sided causer pays arrangements supported by the Commission presents a welcome temporary approach in rewarding generators for positive contributions to correct any cumulative frequency error incurred during normal system operation. However the need for market arrangements in the longer term to incentivise the provision of sufficient PFR is required. While Snowy Hydro is hopeful that rule change will ameliorate impact of mandatory primary frequency response requirements, the process leading up to the current point in time - a forced, uncompensated acquisition of system services - followed by a later assessment of consideration for service providers, has been unsatisfactory and should not be repeated.

The independent advice received from GHD identifies a need for market arrangements in the longer term noting that beyond 2030 with expected technological changes in the power system it will make the effectiveness of the mandatory PFR arrangement challenging. This clearly highlights that the current arrangements both on mandating PFR and providing double-causer pays are not long term efficient arrangements for the NEM. The proposed arrangements 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 continuation of the mandatory arrangements

Snowy Hydro does not support abandonment of the sunset. It is clear that the mandatory approach 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 considers 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 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.

The Draft Rule Determination claims that another factor supporting the mandatory requirement is *"that the costs and challenges associated with the plant and system changes required to comply with the mandatory PFR capability for different technologies has already been incurred through the current mandatory PFR arrangements due to sunset on 4 June 2023"* and that *"this means there is no additional cost to maintaining these arrangements"*. While the incentives will assist existing providers to provide PFR the Commission should not lose sight of the long-term impacts this will have on the market.

There are generators which can provide primary frequency control at little cost while there are other generators, such as new technologies, not well set up to provide primary frequency control that would require the installation of specific technology making the projects unviable thus stalling the development of new capacity. This in the long term would affect the economic recovery of assets that would impact investment.

The system operator can't continue to rely on existing stock of synchronous generation as a way to procure system services. The requirement that it be supplied by generators as part of their technical requirements merely disguises its cost and does not provide a sustainable basis for future supply.

The Commission has taken the first step in recognising the role of incentives however a consideration for market based approach for primary frequency control needs to be assessed and formed now. The GHD advice has already clearly flagged *"beyond 2030 with expected technological changes in the power system"* it will be *"challenging the effectiveness of the mandatory PFR arrangement."* Waiting to form a market post 2030 is too late.

PFR Market needed prior to 2030

Evidence from the NEM is that security and reliability of supply is increasingly challenging but responses to these challenges through recent rule changes, such as the Mandatory Primary Frequency Control Ancillary Services (FCAS) rule change incentive



arrangements are inadequate for the long term efficient operation of the NEM. Given the transformation underway, not all services required for the efficient, secure and reliable operation of the changing system are being valued or appropriately procured, a key theme of the Post 2025 Market Design.

We welcome the Commission's view that has acknowledged that primary frequency control requires incentives to ensure the adequate supply of primary frequency response following the sunset date. Under the Primary frequency response incentive arrangements rule change request, the focus should therefore continue to remain on 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.

As a general principle, Snowy Hydro has always advocated that a market-based approach enables a technically sound solution through the most efficient allocation of resources in the long term. This has also been highlighted by the GHD advice. The development of an efficient and effective policy mechanism requires a performance-based and incentivised approach consistent with the value these mechanisms offer the system. This will assist AEMO and market participants through enhanced transparency.


Existing frequency control arrangements were designed around the generation mix at the time, which was around the late 1990s and early 2000s, that included predominantly coal, gas and hydro. The markets have worked well however the arrangements may not reflect the reality of the evolving power system and the increased ability of new technologies to assist in frequency control. It is for this reason Snowy Hydro believes that the market and incentives can provide AEMO's desired tighter governor control of frequency. This could be done initially by "causer pays" for regulation and then appropriately compensating generators via a spot market to provide Primary Frequency Control.

Appropriate incentives that align with existing market structures is the most cost effective and efficient means of supporting the provision of primary regulating response and addressing current concerns with frequency performance. The NEM has successfully acquired frequency control services from spot markets for twenty years and for this reason should continue to be pursued. Spot markets take time to form and for the Commission and the market operator to ensure the market is in place in time to incentivise new technologies and improvements in PFR work should commence now and not left until it is too late for the NEM.

Snowy Hydro highlights the concern by GHD which considers it possible that insufficient headroom will be made available to provide PFR which could see a return to the level of performance experienced prior to the mandatory PFR rule change. This highlights what we have been saying to the market operator and the Commission from the beginning of the consultation, which is that the Mandatory PFR rule change is not sufficient for the long term.

Post 2025 Market Design - focus on markets

The Energy Security Board (ESB) as part of the Post 2025 Market Design clearly highlighted the glaring omission in the current NEM design, being an absence of an



explicit reward for several essential system services. The need for energy services such as Frequency Control Ancillary Services (FCAS), reactive power and inertia will continue to increase as the generation mix continues to change.

The continued use of the mandatory PFR requirement however is likely to distort other FCAS markets if they are undervalued. AEMO had highlighted in their primary frequency control update that the changes in frequency control settings are *“expected to result in changes in power system frequency performance, including reducing the contribution to the need for regulation FCAS from larger generating systems.”*¹ This highlights that the mandatory primary frequency control change is essentially substituting the paid-for service with one provided by regulatory fiat, distorting investment and the proposed essential system services markets.

The mandatory requirement for primary frequency control is not a complete solution, as the Commission has highlighted, to sufficiently meet the operational needs of the power system now and into the future. The mandatory approach needs to be replaced by a market arrangement for primary frequency control. The incentive based solution is a short term solution however the Commission should align their work with markets proposed in the post 2025 market design.

The NEM has successfully acquired frequency control services from spot markets for twenty years and this is the long-term solution.

Double causer pays

The double sided causer pays (DSCP) alternative (or complement) will move the FCAS payments from availability payments (e.g., Regulation FCAS) to a performance-based payment. Snowy Hydro welcomes generators who are currently mandated to provide PFR under the DSCP approach to be rewarded according to their performance.

Whilst Snowy Hydro is supportive of a mechanism that rewards PFR, this proposal appears limited to a form of compensation for performing a PFR obligation rather than incentivising to encourage investment in its delivery or quality. Not the long term objective the Commission should be pursuing.

DSCP remains complicated and lacks transparency in the revenue outcomes. As the DSCP proposal currently stands the dual causer pays only has an effect when AEMO has underestimated the PFR 'requirement', which

- 'Enabled' PFR is being treated the same as enabled FCAS with a defined volume and payments to participants for holding the reserve.
- When the PFR 'requirement' is larger than the enabled volume then the dual causer pays mechanism is activated.

Snowy Hydro is unclear what criteria determines a 'requirement' larger than the enabled value. By extracting more service under PFR it could reduce the Regulation service requirement. The Commission should continue to assess the proposal so as it is able to provide the optimum outcome for the market.

¹ AEMO Communications, 24 September 2020, *“Primary Frequency Response implementation update”*



This approach is appealing in theory through a real-time signal which avoids some of the problems of efficiently allocating costs through Causer Pays however there are still problems associated with the approach, which include:

- This approach will only encourage existing participants to provide PFR and is unlikely to financially encourage new technologies.
- DSCP provides no certainty that sufficient resources to maintain a narrow frequency distribution will be available.
- The pricing function would also need to be linked to the energy price to ensure that frequency performance does not deteriorate whenever energy prices are high
- Smaller or less sophisticated participants would have less ability to forecast revenues in the market, and revenues would be significantly more volatile. AEMO would need to develop forecasts for predispach - a complex task.
- How DSCP performance and compliance would be measured is unclear.

It is for this reason that we do not support the Commission delegating the development of the mechanism at this time to AEMO and to instead extend the completion time of this rule change with additional consultation stages. This consultation stage should provide a detailed development of the DSCP concept.

Transparency

Snowy Hydro agrees with the Commission that the regulatory arrangements for frequency control should promote transparency and be predictable, so that market participants can make informed and efficient investment and operational decisions. We support new reporting obligations for AEMO and the AER in relation to the levels of aggregate frequency responsiveness in the power system.

It is important that Market participants are able to understand and estimate whether their intended behaviour will be seen to contribute positively or negatively to inform operational decisions, and potentially investment decisions. To understand double causer pay methods it requires market participants are across the method and have access to the data required to estimate their performance.

Further to this Snowy Hydro supports the publishing of a list of exemptions, whether it is the mandated solution or a future appropriate market solution, as there needs to be significant performance reporting from AEMO. We would support a number of live reports that should be presented as part of the obligation. If the Commission and AEMO believe the mandated solution is critical then the market needs transparency on applied frequency deadbands, droop settings, response times, stored energy headroom at all locations so as to display the support delivered.

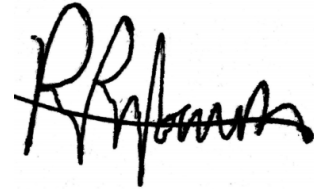
About Snowy Hydro

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 Commission on the Draft rule determination on Primary frequency response incentive arrangements and any questions about this submission should be addressed to panos.priftakis@snowyhydro.com.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'P. Priftakis', with a stylized flourish at the end.

Panos Priftakis
Head of Wholesale Regulation
Snowy Hydro

