

2 February 2023

Australian Energy Market Commission (AEMC) Reliability Panel  
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Sydney South NSW 1235

Submitted by email to [aemc@aemc.gov.au](mailto:aemc@aemc.gov.au)

Project number: REL0084

### **Review of the Frequency operating standard Draft Determination**

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Draft Determination from the Reliability Panel (Panel) on Review of the Frequency Operating Standard.

Snowy Hydro supports the decision that has found there is no case for changing the requirement in the Frequency Operating Standard (FOS) to specify the allowable range for frequency during normal operation and that the current settings are fit for purpose.

Tightening the FOS would not have been the correct solution to the challenge of maintaining frequency stability. It remains concerning that the Draft Determination and the GHD Advice attempt to justify the apparent success of mandatory primary frequency response (PFR) for not changing the FOS. Rather than being an unqualified success, mandatory PFR has masked the deeper challenge of maintaining a sustainable level of frequency control. The Draft Determination notes that *"there have been zero exceedances of the FOS for the mainland from Q4-2020 to Q3-2022."*<sup>1</sup> which is a clear sign of over provision of the PFR service while ignoring future issues to investment the mandatory proposal will cause.

The Panel sensibly took on feedback from stakeholders that the primary frequency control band (PFCB) and normal operating frequency band (NOFB) be supported by independent economic analysis. Snowy Hydro believes the work undertaken by GHD provided an important starting point to consider the implications for system security and resilience as well as the costs of providing PFR by responsive plant; however the work included some critical omissions and inaccurate assumptions.

The GHD advice for the 2022 Frequency Operating Standard review focused heavily on the benefits to consumers through controlling frequency close to 50Hz without using future proposals currently in the pipeline to proceed. The paper by GHD does little to assess the PFR incentive purely focusing on the mandatory aspect of PFR as though it will never be removed and there will be little or no future incentives for new technologies to provide the service.

The work undertaken by GHD has locked the market into the mandatory PFR proposal. This work needs to be reviewed with the incentive arrangement in place, which was recently passed by the AEMC. The Panel should therefore review this work and seek to include an incentive arrangement in place in the modeling, looking past 2027, so that the Panel can understand the consequence of this approach.

The GHD report reaches the unremarkable conclusion that system resilience decreases under a wider primary frequency control band. It goes on to say that there is no compelling reason to move away from the current PFCB, as no substantial reductions in costs to consumers have been identified, and a significant reduction in power system resilience is observed as the PFCB is widened. However, this analysis relies on historical pricing data to determine the likely payments under the PFR incentives arrangements scheme.<sup>1</sup>

This conclusion, supported by the Reliability Panel, elides the critical point raised by the providers of mandatory PFR. The combination of a narrow deadband and inadequate incentive arrangements amounts to an attempt to suppress the true costs of PFR by forcing generators to

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<sup>1</sup> AEMO, Frequency and time error monitoring - Quarter 3 2022, p.10.

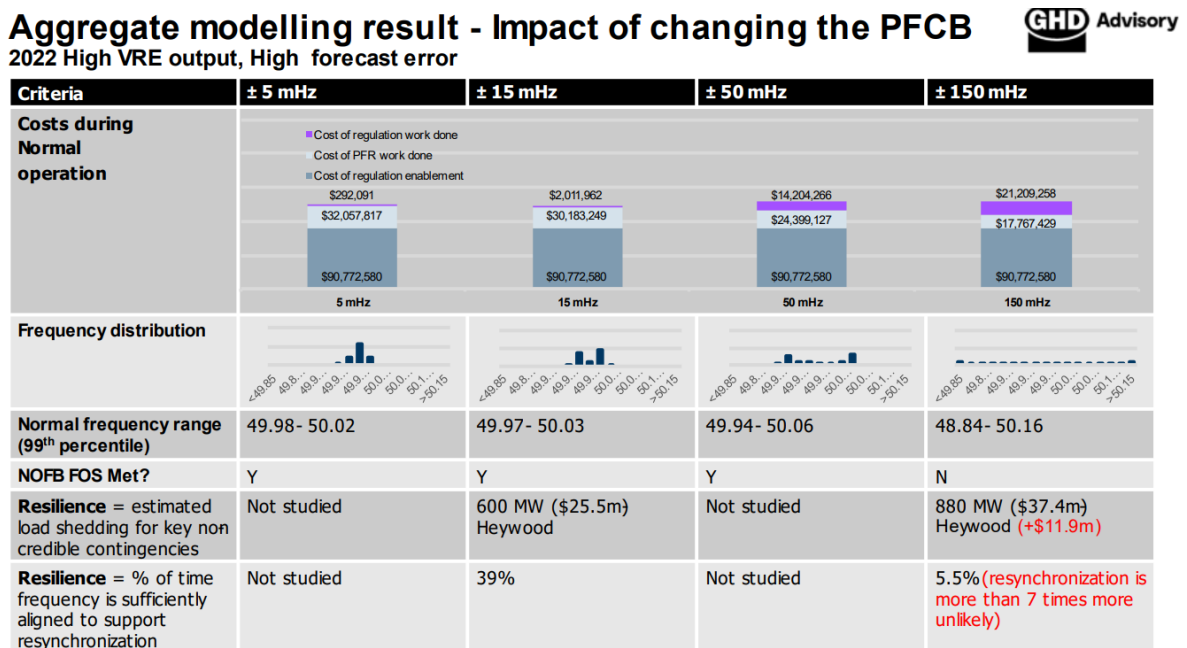
provide it for 'free' or below is true cost. This is supported by GHD on the basis it is good for consumers, who enjoy the benefits of a narrow deadband at low cost.

This approach may work in the short term as the existing stock of synchronous generation is run down. However, it is simply disguising the actual costs being incurred by generators. As ageing thermal assets retire, the strategy of deliberately undercompensating the provision of mandatory PFR will cause underinvestment in assets capable of its supply to the market and degrade system performance. That is the key risk that has been raised by generators since the commencement of mandatory PFR, and this decision does little to address it.

### Use of Historic Assumptions

The assumptions made by GHD below in Figure 1 (shown below) has simply used historic FCAS prices which will give inaccurate forecasts. For example, it's unclear how a higher band, which would require lower PFR and higher FCAS, cost significantly higher. This is making the assumption that markets would not work to incentivise new technologies providing services and assumes that all services provided will be for free but somehow incentivise new technologies. The example is therefore assuming that the primary incentive arrangement is broken before it even starts.

The assumption is made that costs remain low when there are no incentives provided and a mandatory approach remains, taking a very short sighted and one sided approach.



Source: GHD, Advice for the 2022 Frequency Operating Standard review - Power system and economic impacts due to variation of the vPFCB, 21 November 2022, p.iii

Snowy Hydro is concerned by the takeouts GHD takes on 2033 without undertaking any proper modeling. The GHD modeling assumes, in the 2033 scenarios that

- "2033 results were similar to 2022 for frequency control under normal operating conditions, with greater reliance on inverter connected generating systems and Battery Energy Storage Systems (BESS) to provide PFR.
- Higher RoCoF was observed in 2033 during non-credible contingency events due to lower power system inertia.
- For some 2033 contingency events studied, less load shedding was observed compared to a 2022 incident due to the faster acting C-FCAS response from new technologies such as BESS."<sup>2</sup>

<sup>2</sup> GHD, Advice for the 2022 Frequency Operating Standard review - Power system and economic impacts due to variation of the PFCB, 21 November 2022

These conclusions have been made without considering distribution of FCAS prices and consideration of incentives for participants which makes it extremely difficult how in 2033 there is a reliance on BESS to provide PFR without incentives.

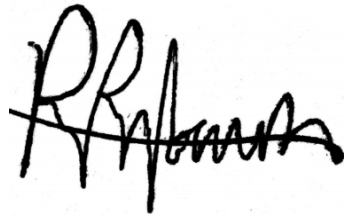
As noted in our previous submission to the AEMC on the primary frequency control incentive arrangement, the GHD advice for that consultation clearly flagged *"beyond 2030 with expected technological changes in the power system"*<sup>3</sup> it will be *"challenging the effectiveness of the mandatory PFR arrangement."*<sup>4</sup> Waiting to form a market post 2030 is too late and this needs to be modeled by GHD. 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. 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.

### **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 Draft Determination and any questions about this submission should be addressed to me by email to [panos.priftakis@snowyhydro.com.au](mailto:panos.priftakis@snowyhydro.com.au).

Yours sincerely,

A handwritten signature in black ink, appearing to read 'P. Priftakis', written over a horizontal line.

Panos Priftakis  
Head of Wholesale Regulation  
Snowy Hydro

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<sup>3</sup>GHD, 2021, Enduring Primary Frequency Response  
[https://www.aemc.gov.au/sites/default/files/2021-09/GHD\\_Enduring%20Primary%20Frequency%20Response%20Final%20Report%20Final.pdf](https://www.aemc.gov.au/sites/default/files/2021-09/GHD_Enduring%20Primary%20Frequency%20Response%20Final%20Report%20Final.pdf)

<sup>4</sup>GHD, 2021, Enduring Primary Frequency Response  
[https://www.aemc.gov.au/sites/default/files/2021-09/GHD\\_Enduring%20Primary%20Frequency%20Response%20Final%20Report%20Final.pdf](https://www.aemc.gov.au/sites/default/files/2021-09/GHD_Enduring%20Primary%20Frequency%20Response%20Final%20Report%20Final.pdf)