



21 March 2023

Australian Energy Market Operator
Submitted via email: pfr@aemo.com.au

Dear Sir/Madam

Submission: Primary Frequency Response Requirements

CS Energy welcomes the opportunity to provide a submission to the Australian Energy Market Operator's (AEMO's) consultation on the Draft **Primary Frequency Response Requirements (PFRR)**.

About CS Energy

CS Energy is a proudly Queensland-owned and based energy company that provides power to some of our state's biggest industries and employers. We employ almost 500 people who live and work in the Queensland communities where we operate. CS Energy owns and operates the Kogan Creek and Callide B coal-fired power stations and has a 50% share in the Callide C station (which it also operates). CS Energy sells electricity into the National Electricity Market (NEM) from these power stations, as well as electricity generated by Gladstone Power Station for which CS Energy holds the trading rights.

CS Energy also provides retail electricity services to large commercial and industrial customers throughout Queensland and has a retail joint venture with Alinta Energy to support household and small business customers in South-East Queensland.

CS Energy is creating a more diverse portfolio of energy sources as we transition to a new energy future and is committed to supporting regional Queensland through the development of clean energy hubs at our existing power system sites as part of the Queensland Energy and Jobs Plan (QEJP).

Key views and feedback

The NEM is changing and will continue to do so as it transitions to a market with increasing Variable Renewable Energy (VRE) and an overall lower carbon footprint. This transition will bring changes in how the NEM is managed including frequency control. Maintaining the

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NEM system frequency control close to 50 Hz is a desirable operating attribute under normal operating conditions. However, CS Energy does not support the achievement of this objective at any cost where observed and undesirable outcomes are currently not being addressed by AEMO. Key concerns will be included in this submission.

CS Energy notes that AEMO has made material changes to the draft PFRR arising from the submissions in the first stage of its consultation on the proposal as detailed in the Draft Report¹.

However, CS Energy has identified the following matters that require further attention and clarification to remove any potential ambiguity arising from the current wording in the draft PFRR.

Observed unexplained oscillations and asymmetry in the NEM's frequency characteristic

CS Energy is concerned with AEMO's response to the Delta Electricity submission in Section 4.5 Testing and demonstration of stability detailed on page 15 in the PFRR Draft Report¹,

Regarding the issue raised by Delta Electricity on erratic movements in power system frequency, if material power system security issues are identified, AEMO will work with industry to determine the underlying causes and implement appropriate remedial actions.

This observation, its impact and potential remediation has been raised with AEMO on numerous occasions in PFR forums and submissions to consultations on this subject including the recent Reliability Panel (**RP**) consultation on the Review of the Frequency operating standard 2022². CS Energy highlighted its concerns in its submission³ on page 3. AEMO has publicly stated that it notes the phenomena but at this stage does not propose any action that is inconsistent with its response to the Delta Electricity submission detailed above.

Furthermore, the Australian Energy Council (**AEC**) submitted an expert advice paper⁴ on the same consultation to the Reliability Panel postulating that the present universal very narrow governor dead bands may be contributing to some unexplained oscillations and asymmetry in the NEM's frequency characteristic.

CS Energy would be disappointed and concerned if AEMO did not address the observed unexplained oscillations and asymmetry in the NEM's frequency characteristic. The National Electricity Rules (**Rules**) enables AEMO to implement wider (but not narrower) dead bands on plant rather than just adhere to the current Primary Frequency Control Band (**PFCB**). The PFRR should anticipate AEMO doing this in its response to the observed unexplained oscillations and asymmetry in the NEM's frequency characteristic and incorporate a mechanism to address the phenomena.

¹ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2022/primary-frequency-response-requirements/draft-report.pdf?la=en

² <https://www.aemc.gov.au/market-reviews-advice/review-frequency-operating-standard-2022>

³ https://www.aemc.gov.au/sites/default/files/2023-02/CS%20Energy%20Limited%20-%20Submission%20to%20Frequency%20Operating%20Standard%20Review_1.pdf

⁴ <https://www.aemc.gov.au/sites/default/files/2023-02/AEC%20attachment%20%E2%80%93%20Provecta%20technical%20report.pdf>

Interaction between dispatch instructions and PFR settings

Further clarity is sought on the Draft PFRR⁵ section 2.3 (b). CS Energy was of the understanding that the Rules required delivery of PFR where an Affected Generator receives a dispatch instruction in respect of an Affected GS to generate a quantity of energy greater than 0 MW.

CS Energy was not aware that the delivery of PFR would extend to where an Affected Generator receives a dispatch instruction in respect of an Affected Generating System (**GS**) for a quantity of Regulation Frequency Control Ancillary Service (**FCAS**) greater than 0 MW coincident with a dispatch instruction in respect of an Affected GS to generate a quantity of energy **not** greater than 0 MW, the Affected GS' desired output should be the summation of the AGC setpoint and the PFR Settings as required by section 10.3 of the MASS.

The wording of section 2.3 is clear but it does not reflect the requirements as specified in the Rules.

The ambiguity is further exacerbated when read in conjunction with section 4.3. Clarification is required for energy storage systems including Battery Energy Storage Systems (**BESS**) that continue to provide regulation FCAS when in charging mode do not require the provision of PFR.

Continuity of response

While AEMO has responded to concerns raised in submissions regarding the implication in the initial Draft PFRR that BESS in a charging mode are obligated to provide PFR. The Draft PFRR⁵ states in section 4.3 that,

Although Affected GSs comprising battery energy storage systems are not required by NER 4.4.2(c1) to provide PFR while they are consuming energy, for power system operation purposes AEMO prefers that their PFR Settings do not change by reference to the direction of energy flows for which they are dispatched.

CS Energy views it as ambiguous and inappropriate to state a preference that the does not reflect the obligations specified in Rules 4.4.2(c1).

If you would like to discuss this submission, please contact Henry Gorniak on 0418 380 432 or hgorniak@csenergy.com.au.

Yours sincerely


Signature

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⁵ https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2022/primary-frequency-response-requirements/final-pfr-requirements--draft-determination-clean.pdf?la=en