



Your Ref: Consultation under National Electricity Rules - Rule 11.112.2

11 May 2020

Mr James Lindley
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Level 22, 530 Collins Street
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Submitted by email to: PFR@aemo.com.au

Dear James

Submission: Interim Primary Frequency Response Requirements Document Consultation

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

About CS Energy

CS Energy is a Queensland energy company that generates and sells electricity in the National Electricity Market (**NEM**). CS Energy owns and operates the Kogan Creek and Callide coal-fired power stations. CS Energy sells electricity into the NEM from these power stations, as well as electricity generated by other power stations that CS Energy holds the trading rights to.

CS Energy also operates a retail business, offering retail contracts to large commercial and industrial users in Queensland, and is part of the South-East Queensland retail market through our joint venture with Alinta Energy.

CS Energy is 100 percent owned by the Queensland government.

General comments

While CS Energy generally accepts the draft Interim PFRR, CS Energy remains of the opinion, as expressed in our submission on the Mandatory Primary Frequency Response Draft Determination, that the Interim PFRR does not appear to make provision for unforeseen outcomes and learnings arising from the early implementation of the proposed $\pm 0.015\text{Hz}$ deadband for mandatory primary frequency response.

CS Energy would have preferred AEMO to adopt a holistic approach to the development of the Interim PFRR to ensure consistency with Market Ancillary Service Specifications (**MASS**), Frequency Control Ancillary Services (**FCAS**), Frequency Operating Standards

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(**FOS**), Generator Performance Standards (**GPS**), wide band frequency response and associated Rules.

CS Energy recognises the challenge faced by AEMO in delivering a technical engineering concept that is coupled with a market mechanism and then overlaid with legalese. Unfortunately, what arguably should have been a relatively straightforward process has, in CS Energy's view, turned into an unnecessarily complex bureaucratic process.

Our detailed comments on the draft Interim PFRR document are set out in the Attachment.

Please contact us if you would like to discuss this submission further.

Yours sincerely



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ATTACHMENT

CS Energy offers the following comments on several requirements in the draft Interim PFRR document as applicable to an affected generating system (**Affected GS**).

1. Section 2. Requirement to provide PFR

Section 2 of the draft Interim PFRR provides:

“Unless exempted by AEMO, or the PFRP are varied, under section 7, Affected Generators must commence providing PFR every time they receive a dispatch instruction in the spot market of >0MW in respect of an Affected GS”

CS Energy recommends AEMO provide further detail on what constitutes ‘>0MW’ and how it applies to different generation technologies. CS Energy considers the detail should specify the following:

- (a) that it excludes a PFRR when in shutdown and start-up mode, when operating at the minimum safe operating level (**MSOL**) or at the Self Dispatch Level; and
- (b) expected PFRR when enabled for and delivering FCAS Regulation and Contingency Services or during the provision of wide band frequency response.

2. Section 3. Primary Frequency Response Parameters

2.1. Maximum allowable deadband

Section 3.2 of the draft Interim PFRR provides:

“Each Affected GS must provide PFR outside the Affected GS’ Deadband, which must be no wider than the [primary frequency control band (**PFCB**)].”

CS Energy notes that Rule 4.4.2A(b)(1)(i) as inserted by the final Rule¹ specifies that the PFCB is the lower bound that AEMO may require the governor deadband setting for an Affected GS rather than the maximum allowable setting. Given that such a narrow deadband is unprecedented in the NEM, CS Energy is disappointed that from implementation AEMO has chosen to set the PFCB at this lower boundary rather than a staged narrowing of the PFCB.

CS Energy also considers the requirements in section 3.2 of the draft Interim PFRR are ambiguous when read in the context of the balance of the document. This is because the Affected GS can seek a variation or exemption from AEMO for the actual governor deadband setting reflecting the Affected GS technical capabilities as specified by the original equipment manufacturer (**OEM**). Consequently, the Affected GS’s Deadband² may be wider than the PFCB.

CS Energy proposes that the wording in section 3.2 be modified to read as follows:

“Each Affected GS must provide PFR outside the Affected GS’ Deadband, which must not be narrower than the PFCB.”

¹ National Electricity Amendment (Mandatory primary frequency response) Rule 2020 No. 5,

² ie The deadband at which the Affected GS will be operated in accordance with AEMO’s approval in accordance with section 6.3, Draft Interim PFRR, section 1.2.1.

2.2. Droop

CS Energy notes the absence of any reference to a fixed droop (no deadband) governor setting in the Rules or in the AEMO Interim PFRR consultation. CS Energy also notes that recently during NEM systems failure, AEMO has required nominated Registered Participants to provide frequency control using their generating system(s) with this fixed droop characteristic. If the nominated generating system(s) can provide frequency control and utilising this fixed droop characteristic, this potential outcome would conflict with the Rule and the AEMO Interim PFRR document specifications as currently written.

2.3. Other response characteristics

CS Energy notes the Final Determination of the Mandatory primary frequency response Rule change³ specified that:

“As part of meeting the requirements of the PFRR, generators will be required to provide a frequency response to a deadband no narrower than the primary frequency control band. However, other response characteristics such as droop and response time will only be specified by AEMO as part of the requirements if practical to do so.”

AEMO has set out several other response characteristics in the Interim PFRR document. As specified in the final Rule, AEMO is required to develop and publish the Interim PFRR document in consultation with Participants. CS Energy considers AEMO should have provided an indicative framework of response characteristics and noted that through further consultation AEMO would determine and specify the final other response characteristics to deliver the PFRR. CS Energy agrees that response time is technology specific as inferred by AEMO in the Interim PFRR document. This further reinforces the CS Energy position that the final other response requirements should be captured in the AEMO consultation rather than having the characteristics determined by AEMO prior to the commencement of the consultation. The consultation process will enable AEMO to justify the parameters and characteristics for the proposed other response requirements.

Further examples of parameters linked to the other response characteristics that need to be considered include but are not limited to:

- (a) Rule s 5.2.5.11 Frequency control may have no reference to the PFRR parameter(s) as applicable to a Registered Participants Affected GS(s) GPS or conversely has a reference that conflicts with the specifications in the Interim PFRR document that will require resolution of the conflict;
- (b) Affected GS(s) experiencing short term stability issues may result in a control system switch to ‘desensitised mode’ providing 50% of normal gain;
- (c) P_{MAX} Maximum Operating Level is referenced to Rule s 5.2.5.11 (a) and combined with no requirement for the provision of ‘headroom’ and any potential conflict with the provisions in the Registered Participants Affected GS(s) GPS, AEMO will need to specify ‘ P_{MAX} ’ in the context of the Interim PFRR. CS Energy understands

³ Page iv Final Determination - Mandatory primary frequency response rule change

that AEMO intends to allow the Registered Participant to nominate the P_{MAX} for each of the Participants Affected GS(s) in their portfolio; and

- (d) CS Energy considers factors such as overload operation, impact of coal (fuel) quality, mills in service need to be taken in consideration in the finalisation of the other response characteristics as applicable to individual Affected GS(s).

In the interests of consolidating the 'response time' requirements specified in section 3 and cross referenced to section 4.2, CS Energy suggests AEMO combines the response time, range of response and any other associated performance criteria into one section.

3. Section 4. Additional performance requirements

CS Energy suggests references in section 4.2 of the draft Interim PFRR document to maintenance of operation between the Affected GS' Maximum Operating Level and Minimum Operating Level requires recognition of conditions such as ambient temperature de-ratings, stability issues and other intermittent operational issues.

CS Energy would also like further clarity on section 4.2 Range of Response, relevantly the expectations for the Affected GS to provide PFR outside the normal operating frequency band (**NOFB**) as defined in the FOS. This is important as the NOFB represents the interface and domain of the FCAS contingency market. The final Rule expressly provides that the PFRR must not require the Affected GS(s) to provide headroom or footroom for the purpose of providing PFR.⁴ CS Energy does not view the PFRR as displacing the FCAS market or the provision of mandated wide band frequency response.

4. Section 5. Initiation of application

CS Energy recommends AEMO considers an extension to the time frames detailed in section 5, Table 2 to acknowledge the impact of COVID-19. COVID-19 is already and will continue to impact availability of technical expertise and mobilisation of internal engineering services to enable the required assessment, commissioning and testing to implement the PFRR on the Affected GSs in the CS Energy portfolio.

CS Energy understands AEMO's approach to any delay of the implementation of mandatory PFR is to address this in its response to each Affected GSs application. However, this does not consider the impact that COVID-19 may have on a generator's ability to undertake the assessment. This self-assessment is due by the date specified in section 5, Table 2. While a generator can apply for an extension of this date, this is an unnecessary diversion of resources at a critical time when Participants are seeking to otherwise manage the impact of COVID-19 on their operations.

5. Section 6. AEMO Assessment

CS Energy notes that in section 6.3.1, the reference to Appendix B should be Appendix C.

⁴ Rule 4.4.2A(c)(1) as inserted by the National Electricity Amendment (Mandatory primary frequency response) Rule 2020 No. 5.

6. Section 7. Exemptions and variations

In section 7.1.1, CS Energy would like AEMO to acknowledge that an Affected GS cannot be required to or will be operated outside the technical capability approved by the OEM.

In section 7.1.5, AEMO details a list of eligible examples that an Affected GS(s) can utilise in an application for exemption from or variation to, any of the primary frequency response parameters. CS Energy notes that the list reflects existing market processes and operational outcomes that may occur on occasions that are managed and accommodated in the Rules and procedures. CS Energy does not agree with the list and would expect an exemption to reflect the inability to provide PFRR and a variation as a permanent restriction or inability to meet aspects of the PFRR.

AEMO have advised that they will initially not be monitoring the Affected GS(s) PFR status. CS Energy strongly encourages AEMO to monitor Affected GS(s) PFR status to provide the visibility when the PFR is enabled or disabled during the intermittent periods of PFR unavailability.

7. Section 8. Stability tests

In the absence of AEMO's justification for a frequency step response stability test, CS Energy views the proposed requirement for the test as a duplication of tests already conducted by the Affected GS(s) for its GPS. A change to the deadband setting does not affect the governor response for a frequency deviation outside the deadband. Participants will have already submitted models and data as required for GPS R1 and R2 tests and will have demonstrated both stability and capability to reduce load more than 5% in 10 seconds. The current requirement for a frequency step response stability test does not appear to be justified and will impose unnecessary costs on Participants.

Section 8.2.2 of the draft Interim PFRR provides:

“Values are to be provided to AEMO at a sample rate of no less than one sample per cycle, unless agreed by AEMO that a different rate is acceptable.”

CS Energy would like AEMO to clarify in the final version of the Interim PFRR that the parties must consult to reach the agreement if a different rate is proposed.

8. Section 9. Compliance

CS Energy considers it essential for compliance with any regulatory requirements that the requirements can be clearly interpreted. CS Energy would encourage AEMO to address in the final Interim PFRR the inconsistencies between section 4.1 (No withdrawal of response), section 7.1.5 (Physical characteristics) and section 9.1 (Ability to operate in frequency mode and sustain PFR).

The need for an Affected GS to operate in a mode where it is unable to comply with a dispatch instruction predominantly occurs in real time or during planned work that may involve testing or process safety. The requirement for a generator to request a variation or exemption from AEMO in accordance with subsection 9.2 is already covered in existing market processes.

Further, the Rules are clear and substantive as to when an Affected GS may submit a dispatch inflexibility dispatch bid or offer and that a generator may only submit a dispatch inflexible dispatch bid or offer where the Affected GS is unable to follow dispatch instructions.

This position is consistent with CS Energy's comments in section 6 of this submission.