



Your Ref: Draft 2023 General Power System Risk Review report consultation  
<https://aemo.com.au/consultations/current-and-closed-consultations/draft-2023-gpsrr-report-consultation>

8 June 2023

Australian Energy Market Operator  
Submitted via email: [gpsrr@aemo.com.au](mailto:gpsrr@aemo.com.au)

Dear Madam/Sir

### Submission: Draft 2023 General Power System Risk Review report

CS Energy welcomes the opportunity to provide a submission to the Australian Energy Market Operator (**AEMO**) consultation on the Draft 2023 General Power System Risk Review report (**Draft 2023 GPSRR report**).

#### 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 more Variable Renewable Energy (**VRE**) and an overall lower carbon footprint. This transition will bring changes in how power system security is managed, and CS Energy thus strongly

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supports the development of the Draft 2023 GPSRR report and considers that it reflects good electricity industry practice.

AEMO is to be commended in committing to undertake the comprehensive approach and suite of studies detailed in the Draft 2023 GPSRR report.

Responses to the consultation questions:

1. There are twelve (12) references in the Draft 2023 GPSRR report<sup>1</sup> to the AEMO procedure SO\_OP 3715 Power System Security Guidelines (**SO\_OP\_3715**)<sup>2</sup>. CS Energy views SO\_OP\_3715 as a critically important document as it specifies power system security principles and guidelines that give operational effect to the analysis and recommendations in the Draft 2023 GPSRR report. Following an initial review of the Draft or Final 2023 GPSRR report, it is likely that Participants will defer to SO\_OP\_3715 when seeking to understand or reconcile outcomes arising from AEMO's operational management of power system security in the NEM. While AEMO have endeavoured to increase Participant exposure to both the Draft 2023 GPSRR report and SO\_OP\_3715 through industry Q&A sessions, it has unfortunately resulted in limited success. It is proposed that any major updates or changes to SO\_OP\_3715 are formally tabled at the AEMO Fortnightly Operational Industry Update meetings.
2. In its submission to the AEMO GPSRR Approach Consultation,<sup>3</sup> CS Energy supported the application of the 2022 Integrated System Plan (**ISP**) Step Change scenario to assess future power system risks. It noted that while this approach would arguably overstate the potential risk to the power system, the benefits should result in AEMO being at a high level of situational awareness and preparedness with a resultant level of confidence in delivering power system security in the event of an onerous major supply disruption event(s) in the NEM. CS Energy has revised its view following the release of the AEMO 2022 ISP<sup>4</sup> and considers the application of the 2022 ISP Progressive Change scenario as appropriate to assess future power system risks as it is driven by modelling plausible outcomes in the Australian economy.
3. AEMO responded to the CS Energy request to provide public details on the status of recommendations and action items arising from recent major incidents and previous Power System Frequency Risk Review (**PSFRR**) recommendations. CS Energy commends AEMO for the comprehensive and detailed information in the Draft 2023 GPSRR report<sup>5</sup>, *Appendix A1. Status of actions arising from recent major incidents* and *Appendix A2. Status of previous PSFRR recommendations*.

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<sup>1</sup> [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2023/draft-2023-general-power-system-risk-review/draft-2023-gpsrr-report.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2023-general-power-system-risk-review/draft-2023-gpsrr-report.pdf?la=en)

<sup>2</sup> [https://aemo.com.au/-/media/files/electricity/nem/security\\_and\\_reliability/power\\_system\\_ops/procedures/so\\_op\\_3715-power-system-security-guidelines.pdf?la=en](https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/procedures/so_op_3715-power-system-security-guidelines.pdf?la=en)

<sup>3</sup> [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2022/general-power-system-risk-review-approach-consultation/cs-energy.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2022/general-power-system-risk-review-approach-consultation/cs-energy.pdf?la=en)

<sup>4</sup> [2022-integrated-system-plan-isp.pdf \(aemo.com.au\)](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2022/integrated-system-plan-isp.pdf)

<sup>5</sup> [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2023/draft-2023-general-power-system-risk-review/draft-2023-gpsrr-report-appendices.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2023-general-power-system-risk-review/draft-2023-gpsrr-report-appendices.pdf?la=en)

## Recommendations 1 – 9

1. CS Energy agrees with the recommendation.
2. CS Energy agrees with the recommendation.
3. CS Energy agrees with the recommendation. We note the coordination challenge of multiple Remedial Action Schemes (**RAS**) required to respond to the Moorabool contingency events resulting in the potential separation of the mainland NEM into four islanded areas.
4. CS Energy agrees with the recommendation. We reiterate the importance of including and detailing any state jurisdiction emergency reserve and/or system security contingency plans arising from this recommendation.
5. CS Energy agrees with the recommendation. We would request that AEMO and the Network Service Providers (**NSP**) provide an opportunity for Participants to understand any required changes in operational capability and systems in appropriate forums.
6. CS Energy agrees with the recommendation. CS Energy encourages AEMO to confirm regular integrity testing and a compliance regime for the increasing number and sophistication of RAS in the NEM.
7. CS Energy agrees with the recommendation. We note the connection to the potential Eraring Power Station closure.
8. This recommendation relates to AEMO finalising the development of an updated strategy for the overall coordination of generator frequency protection settings. CS Energy has previously expressed its disappointment in AEMO not progressing consideration of the benefits provided by wide band frequency response (**WBFR**) including its submission to the AEMO PSFRR stage 1 consultation<sup>6</sup>. The following extract from the submission highlights the potential benefits that are arguably immediately deliverable and may reduce the amount of time AEMO need to allocate for the development of over-frequency generator shedding schemes.

*“CS Energy has previously championed the benefits provided by wide deadband frequency response (response to the system frequency moving outside the 49.5 – 50.5Hz range). CS Energy remains concerned that this area continues to receive levels of attention that do not reflect the importance of the service (to provide system resilience to non-credible events) and the need to remove the current ambiguity on this subject.*

*CS Energy continues to be concerned that several generators in the NEM turn off their Partial Load Rejection capability specified in s5.2.5.7.*

*The “frequency response” capability specified in s5.2.5.11 can be turned off if the unit is not participating in the FCAS market, although AEMO has the power to direct generators to enable the capability in the event of a market failure. However, there are issues that remain unclear in respect of the exercise of this power: Is it assumed*

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<sup>6</sup> [https://aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2020/psfrr/stage-1/cs-energy-submission-on-draft-report.pdf?la=en](https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/psfrr/stage-1/cs-energy-submission-on-draft-report.pdf?la=en)

*that unit operators can switch the frequency response influence back on at short notice through a selection switch on an operator's control system screen?*

*Is it assumed that waiting hours for a call out technician to re-enable the frequency influence would not be satisfactory? Are generators that have switched off Partial Load Rejection capability, required to provide their operators with the ability to switch the wide range governor frequency response influence back on at short notice if directed by AEMO? s5.2.5.7 "Partial Load Rejection" does not include a statement like that in s5.2.5.11(i)(4) "Frequency Response", that generators are only required to operate in frequency response mode when enabled for a relevant market ancillary service. Hence the interpretation of s5.2.5.7 is ambiguous. Partial Load Rejection capability falls outside the scope of the FCAS market, as some generators have automatically limited the contingency governor response to the amount of 0.5 Hz deviation response dispatched, and the response measurement methodology in the MASS does not cover deviations beyond 0.5 Hz. An FCAS market for Partial Load Rejection capability would be impractical because the frequency band needs to be set inside individual generator's maximum continuous operating frequency, creating fairness and co-ordination difficulties. A Partial Load Rejection capability market would also need to be distributed into regions covering potential islands. It would also be inefficient, because it would be rarely needed. Hence there appears to be a clear need for AEMO to direct enablement of Partial Load Rejection capability to maintain system security until the issue is resolved.*

*AEMO have previously advised CS Energy that it believed it would not be allowed to direct enablement of Partial Load Rejection capability at present, even after the separation event on 25 August 2018. CS Energy considers the Rules should clarify the circumstances in which AEMO can direct re-enablement of Partial Load Rejection capabilities e.g. would threats to an inter-connector as reflected in constraints due to lightning near the line, be enough cause? If not, AEMO is unlikely to be able to direct enablement before incidents occur, because system separation events are by nature rare and unexpected, as the result of a "noncredible contingency". In which case, specifying a Partial Load Rejection capability would appear to be of no benefit to AEMO in managing system security.*

*CS Energy questions how AEMO can realistically determine system stability constraints when the system response to large disturbances is dependent on how many generators have their Partial Load Rejection capability enabled. There has been a lot of criticism of poor narrow range frequency control compromising system stability constraint calculations, because a disturbance could start with frequency already near the edge of the NOFB. However, a lack of Partial Load Rejection capability is much more serious, and it is wrong to conflate this with the raise/lower regulation FCAS problem within the NOFB. While both require increased fast proportional governor response to provide adequate control, they apply to different frequency bands with very different needs. Partial Load Rejection capability is rarely needed but needs to be distributed throughout the NEM, while raise/lower regulation FCAS is continuously required, and can be sourced anywhere in the NEM.*

*Given a high percentage of new solar and wind inverters are providing high frequency response, as required under revised Australian Standards and NEM rules, it is incongruous to allow large thermal generators to disable Partial Load Rejection capability. Generators that have disabled Partial Load Rejection capability are free-loading on others who provide the fast re-balancing of generation with load after separation events; this protects the freeloader's plant from stresses and risks associated with fast load reductions, and further avoids a reduction of generation into*

*the energy market, while exacerbating these conditions for the others who delivered the load rejection. However, if the system collapses as a result, every-one is much worse off, hence it is a common good, and it would be appropriate for Partial Load Rejection capability to be mandatory under the NEM rules.*

*CS Energy considers that the evidence is overwhelming in support of mandating a wide deadband frequency response performance. As stated in our submission on the Consultation Paper, CS Energy does not consider mandating a wideband response is likely to impose an economic cost as, in this case, the incentive is already present (with the cost of responding to major deviations likely to be less than the cost of failing to do so)."*

*CS Energy strongly encourages AEMO to address, where possible, the issues raised on the provision of WBFR particularly for benefits provided by WBFR in response to the occurrence of low probability high consequence non-credible contingency events.*

*Furthermore, AEMO makes numerous references to the lack of Over Frequency Generator Schemes (OFGS) in several NEM regions including Queensland. A NEM wide application of mandated WBFR as proposed in the above would provide AEMO with the equivalent of an OFGS but without the need for intricate coordination challenges in anticipation of where the power system may breakup in response to a noncredible contingency event(s).*

9. CS Energy reserves its position on this recommendation pending further details on the proposed AEMO rule change to enhance the protected event framework and refers AEMO to its position on protected events in its submission to the PSFRR stage 1 consultation<sup>7</sup>.

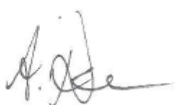
CS Energy assumes that the matters raised in this submission will be captured in the proposed AEMO rule change, and seeks the appropriate balance in the level of scrutiny and transparency in the management of power system security under the reclassification framework.

## **Conclusion**

CS Energy commends AEMO on the quality and detail of its work in both preparing the Draft 2023 GPSRR report and engaging with stakeholders in the 2023 GPSRR draft report industry Q&A session on 1 July 2023.

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

Yours sincerely



**Dr Alison Demaria**  
Head of Policy and Regulation

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<sup>7</sup> ibid