

Your ref: REL0091

16 October 2025

Reliability Panel
Australian Energy Market Commission (**AEMC**)
Level 15, 60 Castlereagh Street
Sydney NSW 2000

Submitted online at: www.aemc.gov.au

Dear Panel

Submission: Review of the System Restart Standard (Draft Determination)

CS Energy welcomes the opportunity to provide a submission in response to the Reliability Panel's (**Panel's**) draft determination of its *Review of the System Restart Standard*.

About CS Energy

CS Energy is a Queensland-owned and based energy company that provides power to some of the State's biggest industries and employers. We generate and sell electricity in the wholesale and retail markets, and we employ almost 700 people who live and work in the regions where we operate

CS Energy owns thermal power generation assets, and we are building a more diverse portfolio. We also have a renewable energy offtakes portfolio of almost 300 megawatts, which we supply to our large commercial and industrial customers in Queensland. CS Energy is developing a 400 MW gas-fired peaking generator at Brigalow near Kogan Creek in Queensland.

Overall views

The National Electricity Market (**NEM**) is transitioning to a system with more variable renewable energy, and synchronous thermal plants that supply critical system restart ancillary services (**SRAS**) are progressively exiting the NEM. The current System Restart Standard is primarily designed around the capabilities of thermal plants and thus raises questions as to whether the standard is conducive to the development of alternative system restoration capabilities that will be required in the future.

On this basis, CS Energy considers it timely to review the current standard and associated frameworks, specifically whether they remain fit-for-purpose for emerging power system conditions and to explore measures needed to enhance system restart preparedness.



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Revisions to the System Restart Standard

CS Energy supports the Panel's proposed revisions to the System Restart Standard, including requiring the Australian Energy Market Operator (**AEMO**) to:

- Procure SRAS with the capacity and capabilities to achieve the following restoration targets for each electrical sub-network after a major supply disruption:
 - Form one or more restoration islands within 2 hours (stage 1); and
 - Use the islands to restore generation and transmission equivalent to 50% of the forecast average annual underlying demand within 8 hours (stage 2).
- Procure SRAS that meet or exceed the aggregate required reliability level of 95%.
- Clarify the operational characteristics for restoration islands, including features necessary to maintain a satisfactory operating state, to return network/load commensurate with available generation and to synchronise with other parts of the grid.
- Consult jurisdictional system security coordinators regarding the strategic location of SRAS and consideration relating to restoration of sensitive loads.

The revised target for stage 1 includes a restoration timeframe (i.e. within 2 hours) but not a target level for supply restoration. Such an approach should provide AEMO with additional flexibility around how it initiates a system restart, including via alternative technologies such as smaller restoration islands using SRAS from distributed energy resources (**DER**). The technical viability of distributed resources supplying SRAS should be further explored by AEMO using Type 2 contracts as recommended by the Panel.

The use of underlying demand (i.e. the sum of grid demand plus rooftop PV generation) as a reference value for stage 2 means that the target would more readily adapt to future power system changes and better reflect capacity needed for restoration (by incorporating demand met by rooftop PV). The 8-hour target timeframe for stage 2 also aligns with the expected availability of back-up power supplies for substations of 10 hours as advised by AEMO.

However, CS Energy considers that the restoration standard could be further enhanced by including a subsequent target after restoring 50% of supply, for example, a target of restoring 85% of supply within 10 hours. This additional target would likely provide enhanced certainty of load restoration and economic outcomes to consumers.

CS Energy agrees that a target aggregate reliability for SRAS at 95% is likely to improve the effectiveness and reliability of system restart with benefits likely outweigh the costs to electricity consumers. This is likely the case for Queensland and Tasmania in the immediate term, where historical SRAS procurement levels are expected to meet the higher 95% reliability target.

It is unclear why the aggregate required reliability for areas covering north of Sydney in New South Wales and north of Bundaberg in Queensland is substantial lower than the target reliability of SRAS in other regions (75% and 80% respectively compared to 95% for all other regions). This approach is likely to result in electricity consumers in these areas suffering from higher economic losses relative to regions with a 95% aggregate target reliability.

Requiring AEMO to clarify the operational characteristics of restoration islands in a guideline is crucial to transparently signal the nature and type of SRAS needed to deliver effective and reliable system restoration. However, CS Energy considers there should also be a requirement in the standard for AEMO to consult on the development of these operational characteristics to ensure that these characteristics are within the technical capabilities of available SRAS.

Measures to enhance system restart preparedness

CS Energy also supports the Panel's recommendations to enhance restart preparedness by proposing that AEMO:

- Proactively engages the market to identify future system restart needs/gaps and procure SRAS to meet these needs in a timely manner.
- Uses Type 2 transitional contracts to systematically trial new SRAS technologies to understand their potential future role in system restoration.
- Undertakes more transparent reporting via its Transitional Plan for System Security (TPSS), including by setting out:
 - How AEMO plans to deliver system restart capability during the energy transition;
 - Future system restart needs supported by future-focused modelling that account for the contribution of inverter-based resources (IBR) and expected coal plant closures over the three planning horizons set out in the TPSS; and
 - Engagement with the Panel on the future system restoration needs and associated modelling.

To better assess future power system conditions and restoration needs, CS Energy particularly endorses the following aspects of the future-focused modelling:

- For horizon one (0 to 2-year outlook), AEMO's modelling should set out a proactive approach for the integration of IBR in system restoration and identify SRAS gaps with a plan on how these gaps will be addressed using existing SRAS capabilities.
- For horizon two (2 to 5-year outlook), AEMO's modelling should account for a variety of evolving factors, including the exit (and reduced availability) of existing black-start capable resources, the NEM's evolving generation and network topography (such as renewable energy zones) and the integration of IBR and distributed energy resources in the system restoration process.¹
- For horizon three (5 years and beyond outlook), AEMO's modelling should focus on developing scenarios that reflect the potential 'end state' of the grid (i.e. a power system with limited coal-fired generation) before exploring future system restart pathways.

It is also our view that AEMO should be required to undertake extensive consultation when developing these future-focused modelling, not only with the Panel, but also with stakeholders more broadly.

In terms of using Type 2 contracts to trial new SRAS technologies, CS Energy considers that AEMO should investigate undertaking a systematic trial similar in structure to the Great Britain's Distributed ReStart program². This program was undertaken to explore how distributed energy resources (large-scale resources connected to the distribution network) can be used for restoration in the event of a system black. A similar trial in the NEM may be reduced slightly in complexity given the focus would likely be on transmission not distribution connected

¹ Importantly, this approach aligns with the recommendations from the International System Operator Network's (ISON's) [International System Restoration Review](#), which sets out that system operators should "develop explicit treatment strategies for distributed energy resource (DER) in restoration plans" and "establish clear performance criteria for large industrial or IBR loads used during early restoration to prevent unexpected dynamic performance from destabilising a restoration attempt". See recommendation 3.2.10.

² [Distributed ReStart program](#), accessed in October 2025.

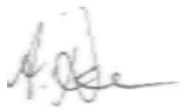
assets. Such a trial would be invaluable to inform the development of alternative low-carbon system restoration capabilities.

While technical challenges can be overcome with the above measures, it is also important that commercial challenges to SRAS provision are also addressed. Investing in system restart capability, like any investment, requires not only the transparent signalling of system need but also incentive and value proposition. On this basis, CS Energy supports the Panel's recommendations that AEMO should identify SRAS investment opportunities via the Electricity Statement of Opportunities (**ESOO**) or similar publications, focussing on:

- Forecast SRAS gaps and procurement opportunities, including the nature, type and location of services required; and
- Forecast available SRAS providers as the power system transitions to low carbon technologies.

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Yours sincerely



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