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Reliability Panel
c/o AEMC
Submitted online at: www.aemc.gov.au

Dear Panel

Submission: Review of the System Restart Standard Issues Paper

CS Energy welcomes the opportunity to provide a submission to the Reliability Panel's (**Panel's**) *Review of the System Restart Standard Issues Paper* (**Issues Paper**).

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 that includes renewable energy, battery storage, hydrogen-ready gas fired generation and pumped hydro.

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's vision is to lead Queensland's energy transformation to create a better future.

General comments

CS Energy considers it timely to review the current System Restart Standard (**SRS**) and associated frameworks and whether they remain appropriate for the emerging power system conditions and explore what actions may be necessary to support future restart preparedness.

CS Energy recognises the importance and value provided by the SRS whose primary purpose is to provide guidance and set a benchmark to assist the Australian Energy Market Operator (**AEMO**) in procuring sufficient system restart ancillary services (**SRAS**) to meet the requirements of the National Electricity Market (**NEM**).

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The current standard and frameworks are designed around traditional technologies which are largely exiting the market, and thus new ways of considering SRAS are necessary. Given the long lead times for investment in the technological capability, action needs to be undertaken now to ensure the future resilience of the power system. In this Issues Paper, the Panel is interested in:

- how system restart planning may need to evolve to support a transitioning system;
- the technical and commercial challenges for the development of new system restart capability; and
- improving reporting arrangements to drive further investment in system restart capability.

The SRS must evolve with the power system

CS Energy recognises that a tension exists between the SRS acting to drive investment in new SRAS capability and SRS settings reflecting existing power system capabilities. The current reliance on large power stations and interconnectors for system restoration places the future resilience of the system at risk as it fails to lay the necessary groundwork to develop the capabilities and structures that may be required in future. It should also be noted that a continued reliance on traditional generators will likely see the cost of SRAS provision increasing. CS Energy considers the SRS needs to evolve with the power system.

Under AEMO's Integrated System Plan, the future NEM will have a drastically different transmission and generation topology with the establishment of Renewable Energy Zones (**REZs**) and the proliferation of low carbon resources. New options must be developed which may involve a radically different approach to system restoration, albeit admittedly more complicated.

CS Energy considers that the SRS and associated frameworks will need to be more regionally focussed and may need to be centred around procurement of a larger number of small sites offering varying levels of technical capability, with this flexibility accommodated. This will invariably change the roles and responsibilities in system restoration and rely on a greater degree of coordination as would be captured in local black start plans.

CS Energy recognises that this changed approach will present technical, commercial, regulatory and operational complexities for AEMO and transmission network service providers, however there may also be opportunities. It is important for AEMO to be able to provide technical advice on how SRAS could or will be provided if and when traditional providers exit. This will help inform service definitions to enable the SRS to remain flexible to new approaches to system restoration while resolving the tension of ensuring current needs are met.

Technical and commercial challenges for new capability

The challenges and opportunities with utilising non-traditional technologies in system restart have been explored by the UK power system operator National Grid through its three-year Distributed ReStart program[1]. This program was undertaken to explore how distributed energy resources (large-scale resources connected to the distribution network) can be used to restore power in the event of a black system. The program constituted a *"combination of*

[1] https://www.neso.energy/about/our-projects/distributed-restart Like all good trials, reports on all aspects of the program are available.

detailed off-line analysis, stakeholder engagement and industry consultation, desktop exercises and real-life trials of the re-energisation process."

The program had four key workstreams:

- **Power Engineering and Trials** which:
    - defined the technical capabilities required to enable a feasible distribution restoration zone (**DRZ**)[2]; and
    - performed live trials that demonstrated the use of different technology types to prove successful energisation.
- **Organisation, Systems and Telecommunications** which:
    - In partnership with the power engineering team defined, developed and factory-tested a prototype Distribution Restoration Zone Controller (**DRZC**) that allows for automation (with control room engineer direction) of the creation and stabilisation of a local power island. The DRZC was then tested in a live trial in as close to BAU implementation as possible;
    - confirmed the new organisational design, roles, and responsibilities;
    - demonstrated how the restoration process and joint action would work in practice between the electricity system operator (**ESO**), transmission owners (**TOs**), distribution network operators (**DNOs**), and distributed energy resources (**DERs**)
- **Procurement and Compliance** which:
    - defined the approach and process to best procure services from providers, and demonstrated this via a procurement test event;
    - facilitated distribution restoration through ongoing industry code changes; and
    - created business as usual procurement contracts.
- **Knowledge and Dissemination** which held regular Stakeholder Advisory Panel meetings and undertook extensive industry engagement through all project activities and deliverables.

Overall, the program found that the significant technical, organisational, and commercial challenges were surmountable, and that:

- System restoration is technically viable from a range of distributed energy resources;
- the technical barriers which exist only require appropriate commercial and regulatory support to ensure these can be addressed;
- Greater diversity in electricity system restoration provision will improve resilience and increase competition, leading to reductions in both cost and carbon emissions;

[2] See for example, Black Start from Non-traditional Generation Technologies, June 2019

- Each DRZ had unique technical capabilities and thus associated requirements needed to cater for these individual characteristics; and

- A cost-benefit analysis showed a net present value of £130m by 2050[3].

New technologies could participate in the 2022 tender process for service commencement around 2025.

The program also coincided with a change in the Electricity System Restoration Standard which gives impetus to the stronger focus on regional restoration.

The Distributed ReStart program highlighted innovative approaches to addressing the complexity of future system restoration. A similar trial in the NEM would be welcome and may be reduced slightly in complexity given the focus would likely be on transmission not distribution connected assets. Through its System Restart Working Group, a subgroup of the Power System Security Working Group, AEMO already has the processes in place to coordinate such a trial. Such a trial would assist the Panel in determining the appropriate SRS.

While the technical challenges may be able to be addressed, it's important that the current commercial challenges to SRAS provision in the NEM are also addressed. Investing in black start capability, like any investment, requires the consideration of the value proposition. Appropriate signals of the *future* value of SRAS need to be clearly communicated as well as the consideration of the compliance impost. If the latter is too onerous, participants won't invest in the necessary capability. This is the current perspective of the market.

Transparency is key

Signals and incentives for investment in new system restart capability relies on transparency on the need and value. The current reporting arrangements focus on the operational practicalities and not the strategic opportunities. It is also important that the reporting does not conflate operational and investment timeframes, with investment signals required for ten plus year periods. While the Issues Paper alludes to work AEMO is undertaking as part of the Engineering Roadmap, participants have little to no transparency of this work. Furthermore, CS Energy is concerned that AEMO's proposed strategic approach to managing SRAS when traditional providers retire has only been given a cursory mention in its Transition Plan for System Security.

If you would like to discuss this submission, please contact myself at either ademaria@csenergy.com.au or 0407 548 627.

Yours sincerely

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[3] Distributed ReStart *Closedown Report*, October 2023, p.25