



Smart Energy Council Submission for the PSSR Standards Review Consultation

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To: Energy Policy WA via energymarkets@deed.wa.gov.au

Re: Feedback on the Power System Security and Reliability (PSSR) Standards Review

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Overview

The Smart Energy Council (SEC) welcomes the opportunity to provide feedback on the proposed updates to the PSSR Standards. As the national peak body representing Australia's clean energy industry, including multiple battery and hybrid project developers operating in the SWIS, we are committed to ensuring the proposed reforms both strengthen system reliability and enable investment in grid-forming inverter-based resources (GFM IBRs) critical to WA's energy transition.

While we support the intent behind improving technical standards, we have concerns that the current proposal risks creating unintended barriers to investment and deployment of grid-forming battery energy storage systems (BESS), particularly in weak grid areas. The SEC recommends a number of high-level amendments to improve clarity, alignment with national frameworks, and ensure practical, technology-inclusive implementation.

Key Recommendations

1. Introduce Financial Incentives for GFM IBRs

Grid-forming capabilities offer significant system security benefits, particularly in low-inertia and weak grid regions. However, these capabilities come with higher costs and complexity. Unlike the NEM, which has seen widespread voluntary adoption of GFM due to clear value signals and market access, the SWIS lacks mechanisms to reward early movers.

Recommendation: Introduce targeted financial incentives or procurement mechanisms to support GFM deployment in line with system needs, including in weak network areas.

2. Align Technical Standards with National Precedents and OEM Capabilities

The proposed performance standards are in many cases **prescriptive, overly onerous, or out of step** with actual technology capabilities, especially for:

- Withstand SCR thresholds
- Phase angle jump response times
- Current injection frequency and sequencing
- Oscillation damping frequency bands

Some of our members have highlighted that:

- Grid-forming plants are often tuned for specific site conditions; blanket requirements (e.g. SCR of 2.0 or 3.0) may not reflect real-world grid conditions.
- A 20ms phase angle suppression response is too stringent and may force plants to compromise inertia delivery.
- GFM inverters are inherently designed to manage negative sequence currents—prescriptive hierarchies or tuning mandates may undermine performance.

Recommendation: Explore calibrating technical requirements based on demonstrated real-world GFM behaviour and allow performance-based, rather than prescriptive, compliance pathways. Where possible, align with NER S5.2 standards and consult with OEMs.

3. Ensure Hybrid Systems Are Assessed Fairly

SEC members have also raised valid concerns regarding the treatment of hybrid systems—particularly when the grid-forming capacity is provided by the BESS, but the primary generator (e.g. wind) defines project behaviour.

Recommendation: Clarify that hybrid performance requirements should reflect the characteristics of the primary generator, and maintain flexibility on the point of compliance.

4. Streamline the GPS and Technical Rules Processes

There is growing concern that the interaction between GPS registration and the evolving technical rules framework is inefficient and duplicative. Members have shared their experience of multi-year registration delays, which have been echoed across the industry.

Recommendation: Harmonise GPS and PSSR requirements to avoid double-handling and enable streamlined re-registration processes when upgrading existing plant capability (e.g. moving from grid-following to grid-forming).

5. Enable Flexibility in Control Tuning for Real Grid Conditions

Requiring control systems to be tuned for artificially low SCR scenarios (e.g. SCR 1.2) risks degrading plant performance under actual conditions (often SCR >5). One member have proposed using actual site conditions to set tuning parameters, supported by either:

- A defined threshold for “significant SCR difference,” or
- An alternate demonstration pathway via islanding tests or model simulations.

Recommendation: Allow for control system tuning to reflect actual fault levels unless strong justification exists to test for worst-case scenarios. Consider simulation-based testing frameworks.

6. Avoid Counterproductive Outcomes on Oscillation Damping

Members have noted that grid-forming inverters provide **active damping up to ~10 Hz** and passive damping above that. Imposing universal damping obligations up to 300 Hz misunderstands the fundamental operating mode of inverters.

Recommendation: Consider removing prescriptive damping frequency range obligations and instead require demonstration of adequate system stability under realistic conditions.

7. Support Future-Proofing and Centralised Planning

The SEC strongly supports EPWA's intent to:

- Establish a **centralised system strength procurement and investment planning function** (via NCESS)
- Allow for **synthetic inertia providers** to participate in RoCoF and system strength frameworks
- Streamline GPS re-registration to support **OEM software upgrades**

Recommendation: Prioritise flexibility and modularity in the future system strength framework to reduce reliance on synchronous condensers and enable BESS-led services.

Conclusion

The SEC urges Energy Policy WA to:

- Calibrate PSSR Standards to reflect real-world operational data and project experience,
- Embed flexibility and performance-based assessment options,
- Ensure clear, non-duplicative regulatory processes, and
- Introduce financial signals to accelerate grid-forming inverter deployment in weak grid areas.

We remain available to facilitate member input and workshop priority issues in partnership with EPWA and the PSSR Working Group.
