Western Power's Submission

Power System Security and Reliability (PSSR) Standards Review Consultation Paper

7 August 2025

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1. Western Power's Submission

The following submission is provided by Western Power to the proposals put forward in Energy Policy WA's Power System Security and Reliability Standards (**PSSR**) Review Consultation Paper, released on 19 June 2025.

This Submission responds to the Proposals put forward in ***Section 3*** of the Consultation Paper.

1.1 Section 3.1 - Network Planning Standards for PSSR

1.1.1 Proposal 1 – Network Planning Standards for PSSR

Proposal 1 – Network Planning Standards for PSSR
The planning standard for the Network Operator to include both customer outcome standards and deterministic standards such that: • The customer outcome standards be implemented as obligatory standards in the ESM Rules • Rules, with effective incentive mechanisms determined as part of the access arrangement process, and the deterministic standards be included to continue to provide guidance to the network design process. • The customer outcome standards to be set on a locational basis. • Specific measures for customer outcome standards will be consulted on a later date. • The customer outcome standards will be reviewed by government on a regular basis (3-5 yearly).
Western Power response
Consultation questions: **Do stakeholders agree with the proposed framework?** **Western Power supports the principle** of integrating both customer outcome standards and technical planning standards within a unified framework. However, we recommend that deterministic planning standards be retained as mandatory requirements, rather than non-binding guidance. Mandatory deterministic standards provide a consistent and robust foundation for network design and investment decisions. They are a primary contributing factor in ensuring network reliability - directly impacting achievement of customer outcome standards. Probabilistic planning methods should supplement, rather than replace, deterministic standards in cases where they offer a more efficient or flexible approach. **Do stakeholders consider that the deterministic standards should be mandatory, requiring an exemption from the ERA to deviate from them, or implemented as a guide for the Network Operator?** Western Power supports maintaining deterministic standards as mandatory obligations within the **Electricity System and Market Rules (ESM Rules).** These standards provide a transparent and consistent baseline for network planning, ensuring safe, reliable, and cost-effective investment decisions across the lifecycle of major infrastructure. Where appropriate, we support the use of probabilistic planning principles as a justified exception, particularly in instances where deterministic standards may not be efficient, prudent, or timely. Western Power recommends that the conditions under which probabilistic planning can be applied be codified in a clear guideline under the ESM Rules.

What indicators do stakeholders consider should be used for the customer outcome standards?

Western Power recommends a dual-measurement approach for customer outcome standards, subject to further considerations:

- **At the average network performance level**, the Service Standard Benchmarks (**SSBs**) should continue to be used as follows:
  - For the distribution network, this includes the System Average Interruption Duration Index (**SAIDI**) and System Average Interruption Frequency Index (**SAIFI**), applied across the CBD, Urban, Rural Short and Rural Long distribution network categories, and
  - For the transmission network, the benchmarks should continue to include the Average Outage Duration (**AOD**) and Loss of Supply Event Frequency (**LOSEF**).

  These average network customer outcome standards should be consistently set based on historic performance and will continue to be monitored annually and reviewed every five years through Western Power's Access Arrangement Submission and the Regulator's decision.

  Further consideration is needed to ensure Western Power has a reasonable opportunity to comply with outcome standards while avoiding unnecessary network investments. For example, annual performance will naturally fluctuate above and below the SSBs, which are set based on average historical values. Under the Access Code, SSBs also serve to provide indication of service value to customers and the operation of Service Standard Adjustment Mechanism. The interactions with these Access Code provision yet to be fully explored.

- **At the customer level**, Western Power recommends introducing **Customer Service Levels (CSLs) for Rural Long customers**.

  The CSLs would provide regional customers with clarity on the level of service that they should be able to reasonably expect from the network and would be structured to capture the maximum thresholds for cumulative frequency and duration of supply interruptions, within a financial year - similar to the approach used by DNSPs in the NEM and other jurisdictions.

  Western Power recommends that CSLs are introduced initially for regional customers on the Rural Long network only, as this is reflective of the differences in network design and topology for regional areas and acknowledges where the majority of reliability challenges have been experienced by customers. The introduction of Rural Long CSLs would enable Western Power identify reliability challenges by customer location and enable Western Power to continue to target efficient investment to improve reliability in these locations. The CSL thresholds and the affordability of targeted investments would be agreed through consultation with customers and stakeholders in late 2025, during Western Power's Access Arrangement Community Engagement. Western Power proposes setting the SSBs, and Rural Long CSLs through its Access Arrangement Submission and forecasting the targeted investment expenditure in its Access Arrangement Submission. Annual reporting of performance against the CSLs would be included in Western Power's Annual Service Standards Report and periodic review of the CSLs would be undertaken through subsequent Access Arrangement Submissions.

Further considerations:

- Western Power recommends that an appropriate mechanism is introduced into regulation to ensure that Western Power is enabled to continue to target investment to resolve regional reliability challenges. The mechanism should consider the required benefit and prudency and efficiency assessment criteria for these investments and enable Western Power to include the relevant expenditure forecasts in its Access Arrangement Submissions for consideration by the Regulator.
- Western Power proposes the removal of outdated reliability measures currently specified in the Electricity Industry (Network Quality and Reliability of Supply) Code 2005 (**NQRS Code**). The key changes include:

  - Removal of Section 12: This section, which outlines reliability standards for individual small-use customers, is proposed to be removed. In its place, Western Power recommends introducing CSLs specifically targeting regional rural long customers, who experience significantly lower reliability.
  - Removal of Section 13: This section relates to the average duration of network performance. Western Power proposes its removal, with performance now to be referenced through the Service Standard Benchmarks (SSBs) outlined in the Access Arrangement.
- These changes aim to:
  - Eliminate duplication between the NQRS Code and the Access Arrangement.
  - Reduce confusion for stakeholders by consolidating reliability measures under a single, modern framework.
  - Replace outdated metrics with the proposed Customer Outcome Standards, which better reflect current customer expectations and network performance realities.

Western Power's Position on Making Outcomes Standards Mandatory

Western Power supports the application of Outcomes Standards on a **"so far as is reasonably practicable"**. This approach aligns with the existing provisions under the **NQRS Code**, which already applies this principle to reliability requirements.

It is important to recognise that Outcomes Standards are influenced not only by network infrastructure but also by **external and often uncontrollable factors**, such as:

- Severe weather events
- Flora and fauna interference
- Emergency situations (e.g., bushfires, floods)

Restoration activities limited due to the safety of Western Power personnel and assets.

Given these variables, Western Power can only **endeavour** to meet the standards. Despite best efforts, there may be instances of non-compliance due to circumstances beyond our control.

Furthermore, triggering capital investments based on one or more years of non-compliance may not represent the most efficient or prudent expenditure. This is because:

- The external factors causing non-compliance may not persist.
- Network performance may naturally recover without intervention.

Additionally, unlike deterministic standards, Outcomes Standards are subject to periodic review and revision. However, network investments typically involve long lead times. This creates a risk that by the time an investment is completed, the CSL thresholds or standards may have changed, potentially rendering the investment misaligned with the updated requirements.

1.2 Section 3.2 – The User Facility Standards Framework

1.2.1 Proposal 2 - User categorisation framework

Proposal 2 - User categorisation framework
A revised facility categorisation framework will be implemented in the ESM Rules, comprised of: • Large User Technical Standards: (Energy Producing Systems (incl. Electric Storage Resources (**ESR**) >10MVA, Synchronous Condensers). • Medium User Technical Standards (Energy Producing Systems (incl. ESR) <10MVA). • Loads (other than ESR); and • Small User Technical Standards (equipment connected to the low voltage network).
Western Power response
Consultation question: Do stakeholders agree with the proposed categorisation framework? **Western Power supports the proposed** user categorisation framework as it provides a clearer and more practical basis for applying technical standards to facilities based on their size, technology type, and potential impact on the power system. The introduction of distinct categories—such as Large, Medium, and Small User Technical Standards, and specific treatment for Loads—will enhance consistency in compliance obligations, simplify the connection process, and support more targeted network planning and operational outcomes.

1.2.2 Proposal 3 – Application of standards to each category

Proposal 3 – Application of standards to each category
The Ideal Generator Performance Standard will be renamed the "Automatic User Performance Standard". The Common Requirements for all users will be based on the section 3.2 of the 2023 proposed Technical Rules. The following user facility standards will apply to each category of user: • **Large User Facility Standards**: Current ESM Rules Appendix 12 standards will apply (subject to proposals 6-12), with a framework to negotiate between Automatic Standards and Minimum Standards, as per the current Chapter 3A and Appendix 12 negotiation framework. • **Medium User Facility Standards**: Common Requirements and Minimum Standards (as per the 2023 proposed Technical Rules) would apply with no ability to negotiate below these standards. • **Loads**: requirements aligned with section 3.4 of the 2023 proposed Technical Rules would apply with no ability to negotiate below these standards; and • **Small User Facility Standards**: requirements aligned with section 3.7 and 3.8 of the 2023 proposed Technical Rules will apply.
Western Power response
Consultation question: Do stakeholders support the adoption of the proposed User Facility categorisation and User Facility Standards? **Western Power supports this proposal**, and the adoption of the proposed User Facility categorisation and User Facility Standards. Western Power notes that further work will be required to identify and fill in any gaps in detailed technical requirements where the scope of the User categorisation framework has been extended beyond what is contemplated under the existing ESM Rules and Technical Rules. For example, Western Power notes that the existing Generator Performance Standards Technical Requirements will need to be extended to contemplate Electric Storage Resources. For example, there are no existing Technical Requirements under **Appendix 12 of ESM Rules** pertaining to battery charging.

1.2.3 Proposal 4 – Point of compliance with user facility standards

Proposal 4 – Point of compliance with user facility standards
The Network Operator will be required to document in a WEM Procedure, in accordance with principles set out in the ESM Rules, the circumstances in which compliance at a point other than the connection point will be required. Compliance will only be permitted to be assessed at either the connection point(s) or the alternative point(s) for facility i.e. not at both. Hybrid facilities that have the control and protection systems in place at all times to ensure their operation will not have a PSSR impact on the rest of the system will be treated as Loads under the new User Facility Standards categorisation framework.
Western Power response
Consultation question: Do stakeholders support the proposal to continue to allow compliance to be assessed at individual components behind the connection point if guidance is provided on when this requirement will be imposed? **Western Power supports the intent of Proposal 4** to improve transparency and consistency regarding compliance assessment for User Facility Standards — particularly for hybrid and non-traditional facility configurations. We acknowledge the increasing complexity of facility types connecting to the SWIS, and agree that clearer guidance can support proponents, reduce assessment delays, and promote system security. However, Western Power recommends clarifying the language of the proposal to reflect how compliance is currently assessed under both the ESM Rules and Technical Rules. Compliance is not typically determined by reference to a fixed physical point (such as the Connection Point), but rather assessed per Technical Requirement, applied to the Generating Unit or Transmission Connected Generating System. Where a specific Measurement Location is needed, it is chosen based on the nature of the requirement and system configuration — which may include the connection point, generator terminals, or inverter terminals for IBRs. The current rules provide important flexibility that allows compliance to be measured where most appropriate for technical accuracy and risk assessment. A rigid requirement to assess all performance at the Connection Point could reduce that effectiveness. Western Power would support the development of a Market Procedure or guideline, which outlines how measurement locations are selected and documented in practice, ensuring both transparency and flexibility. If this relates to the recent capability to register multiple facilities behind a single connection point (ESM Rule 2.31), we believe AEMO is best placed to publish such a guideline, as it relates to registration and performance standard setting. Western Power agrees that for large and medium User facilities, under specific conditions, a hybrid facility may be appropriately treated as a **load** within the User Facility Standards framework. This applies where the facility: 1. Has a **revenue meter** at its own connection point, 2. Maintains **control or protection systems** at all times to ensure it does **not have a Power System Security and Reliability (PSSR) impact**, and 3. Is designed such that it will **never inject** into the grid. In such cases, classification as a load may be appropriate. However, it is important to note that these hybrid facilities are still required to: • Meet **Generator Performance Standard (GPS)** registration requirements, enabling AEMO and Western Power to assess the adequacy of their control and protection systems, and • Comply with the **Generator Performance Monitoring Program**, ensuring ongoing visibility and accountability. This approach supports system integrity while recognising the operational characteristics of certain hybrid configurations. Western Power also notes that there is no definition for a 'Hybrid facility' in the ESMR or the Technical Rules.

1.2.4 Proposal 5 – Governance of the user facility standards framework

Proposal 5 – Governance of the user facility standards framework
The existing governance framework will remain primarily the same, some modifications will be made to: • ensure guidance on which facilities ≤10MVA are captured by the Large User Technical Standards framework; • ensure AEMO is consulted on the performance standards for such facilities in the way it is currently consulted under Chapter 3A of the ESM Rules for Transmission Connected Generating Systems; • require AEMO to engage directly with proponents to resolve issues if the Network Operator agrees to a negotiated position but AEMO does not, and the Network Operator requests that AEMO do so; and • expand the number of facilities who are required to have a monitoring plan registered with AEMO to include facilities that: - are not currently captured by the ESM Rules GPS framework; and - will be captured by the Large User Technical Standards under the revised framework. • For future connections, where connection standards are negotiated between participants and the Network Operator, these negotiated standards will be made public. Consultation question • Do stakeholders support the proposed governance framework?
Western Power response
Consultation question **Do stakeholders support the proposed governance framework?** **Western Power supports the intent of Proposal 5** to clarify and strengthen the governance of the User Facility Standards framework. We agree that the Network Operator should retain responsibility for assessing initial compliance, with AEMO involvement for large facilities >10 MVA or for medium energy producing systems facilities where justified by published criteria. This approach balances technical oversight with clear process roles. We acknowledge the proposed process changes where AEMO may engage directly with proponents. While this introduces additional coordination, we believe any timing impacts can be managed through clear guidance and communication protocols. Western Power supports the publication of high-level summaries of negotiated user standards to aid transparency, but it is not feasible to publish in detail for every clause and subclause under ESM Rule Appendix 12, which would be publishing the full GPS register. Western Power also supports the proposed compliance, monitoring, and enforcement arrangements, including documentation in the Generator Register and ERA-led enforcement. A harmonised dispute resolution process under the ESM Rules is also welcomed. Western Power recommends that, as part of the governance of the User Facility Standards framework, clear guidance be provided on the commencement of the new requirements. For example, include direction on how the framework will apply to new entrants who may have progressed to an advanced stage in the connection application process but have not yet commissioned their facilities.

1.3 Section 3.3 – Suitability of access standards for new technologies

1.3.1 Proposal 6 - Withstand SCR

Proposal 6 - Withstand SCR
Include the following in the ESM Rules with regard to withstand SCR • A Minimum User Performance Standard for withstand SCR of 2.0 (grid-forming IBR) and 3.0 (grid-following IBR) • An Automatic User Performance Standard for withstand SCR of 1.2 for grid-forming IBR. No Automatic User Performance Standard for grid-following inverters. • A provision for grid-following inverters that allows for a facility that is not capable of meeting the Minimum User Performance standard to connect if there are legally binding commitments to make additional investment in the facility or for the supply to it of services to remedy, at the proponent's cost, the shortfall in capability, either on connection or in agreed circumstances, together with operational arrangements agreed with the Network Operator that apply when the investment or services have not yet been made or are not available. • A requirement that settings used must not be different to the setting required for compliance with other Technical Requirements unless otherwise agreed with AEMO and the Network Operator. • Clarification that continuous uninterrupted operation is not required when the SCR falls below the withstand SCR.
Western Power response
Consultation questions: **Do stakeholders agree with the above proposed provisions/standards?** **Western Power supports the adoption of Proposal 6** and the inclusion of withstand SCR requirements in the ESM Rules**.** Defining both Minimum and Automatic User Performance Standards for grid-forming and grid-following inverters establishes clear expectations that are aligned with current technical understanding and system needs. We particularly support the flexibility provided for grid-following inverters to connect under managed arrangements where shortfalls in capability can be remedied, as this allows for a more efficient and tailored approach to integration. Clarifying that continuous uninterrupted operation is not required below the withstand SCR threshold is also appropriate and aligns with good electricity industry practice. These provisions will help maintain system stability while supporting innovation and diverse technology connection. **Should corresponding changes be made to the equivalent provisions, which will apply to Medium Energy Producing Systems (inc. ESR) ≤10MVA connected to high voltage and medium voltage network?** Western Power supports applying the proposed provisions/standards to Medium Energy Producing Systems (inc. ESR) ≤10MVA connected to high voltage and medium voltage network.

1.3.2 Proposal 7 - Voltage phase angle jump

Proposal 7 - Voltage phase angle jump
Require: • Grid-following inverters to withstand an angle jump of less than 25 degrees • A Minimum User Performance Standard for grid-forming inverters to withstand an angle jump of less than 60 degrees and supress the phase angle jump with a response time of 20ms or lower • All inverter-based Generating Systems and each of their Asynchronous Generating units to remain in operation for any change in the phase angle of individual phases caused by occurrence and clearance of balanced and unbalanced faults, provided that the positive sequence angle change does not exceed the Minimum User Performance Standard.
Western Power response
Western Power supports the adoption of Proposal 7.

1.3.3 Proposal 8 – Active and reactive current response during and after contingencies

Proposal 8 – Active and reactive current response during and after contingencies

Introduce new definitions for:

- Sustainment Time;
- Adequately Controlled; and
- Commencement Time

Behaviour at current limitation: Specify the behaviour of grid-forming IBR when operating above its maximum continuous current.

Injection ratio: Revise Minimum User Performance Standard for IBR from 2% to 0%.

Speed of response: Amend clauses A12.9.2.7 and A12.9.3.7 to remove the term 'Settling Time' and replace with 'Commencement Time' and specify new values for Commencement Time and Rise Time in each clause.

Total current: replace the current term 'reactive current' in clause A12.9.1.6(a) and introduce a new requirement on 'total current' contribution for both grid-following and grid-forming IBR.

Negative Sequence Current Control: Remove sub-clause A12.9.1.6(c) and add new criteria to the Minimum and Automatic User Performance Standards requiring grid-following and grid-forming IBR to inject negative sequence current during unbalanced faults leading the negative sequence voltage by at least 90° and specify prioritisation between positive and negative sequence currents during faults.

Frequency of current injection: Amend clause A12.9.1.6 to add a new requirement under the Minimum and Automatic Performance Standards requiring that, during the fault, injection of active and reactive current from the Generating System and each of its Asynchronous Generating Units must have a fundamental frequency component same as the fundamental frequency of the terminal voltage.

Fault ride through activation threshold

- Amend clauses A12.9.2.5 (Automatic User Performance Standard) and A12.9.3.5 (Minimum User Performance Standard) to use voltage activation thresholds of 85% and 115% for Automatic User Performance Standard as opposed to 80% and 120% for the Minimum User Performance Standards.
- Amend clauses A12.9.2.5 and A12.9.3.5 to replace the term 'voltage at the Connection Point' with 'positive sequence voltage at the Connection Point.'

Long duration faults

- Amend clause A12.9.3.7 to lower the fault duration for which the response must be sustained and held near constant from 2 seconds to 450 ms.
- Replace the term 'adequately damped' with 'adequately controlled' in clauses A12.9.3.7 and A12.9.3.8.

Active Current Response During and After Contingencies

- Replace the term '' after clearance of the fault'' with '' after the end of the disturbance'' in subclauses A12.9.2.5(b) and A12.9.3.5(b) for both grid-following and grid-forming inverters.
- Amend subclause A12.9.2.5(b) for grid-forming inverters to specify a different level of active power that must be supplied to or absorbed from the network from 100 ms after the end of the disturbance (see consultation questions below).

Oppose fast changes in voltage magnitude: Amend clause A12.9.2.5(a) for grid-forming IBR to add a requirement for equipment covered in that clause to be capable of reducing the sensitivity of voltage magnitude to a given change in current within 20ms after the disturbance, as compared to when the facility was not connected.

Western Power response

Consultation questions:

• Do stakeholders agree with the above proposed provisions/standards?

Western Power agrees with the above proposed provisions/standards under Proposal 8.

- **What is an appropriate rise time for the Minimum User Performance Standard for grid-forming IBRs?**
- **With regard to the Fault Ride Through Activation Threshold for reactive current response during contingencies: is the use of voltage as an activation threshold appropriate for grid-forming IBR? If so, can the same numerical values used for grid following IBR be applied?**
- **Are there any additional performance metrics that should only apply to grid-forming IBR?**
- **What is an appropriate level of active power to specify in A12.9.2.5(b) for grid forming inverters?**
- **Should corresponding changes be made to the equivalent provisions, which will apply to Medium Energy Producing Systems (inc. ESR) ≤10MVA connected to high voltage and medium voltage network?**

Western Power supports the intent of Proposal 8 to improve consistency and transparency regarding inverter control capabilities, particularly for grid-forming IBRs. We acknowledge that this proposal is primarily directed at inverter manufacturers and developers, and we welcome their input on technical feasibility and implementation pathways. Western Power will continue to assess these capabilities during the connection process to ensure they align with performance standards and system strength requirements.

1.3.4 Proposal 9 – Disturbance ride through for multiple disturbances

Proposal 9 – Disturbance ride through for multiple disturbances
Amend the following clauses to improve clarity on disturbance ride through for multiple disturbances as follows: • Amend clause A12.9.1.4 to include a definition of when individual deviations end for use in assessing multiple disturbances. • Amend clauses A12.9.2.3 and A12.9.3.3 (the Automatic and Minimum User Performance Standards) to provide more clarity on the circumstances in which a facility must remain in continuous uninterrupted operation; • Introduce a new clause A12.9.4.2, that allows for a negotiated access standard to include the required response of a Generating System for each combination of power system disturbances or conditions specified in Appendix 12 (which should be as close to continuous uninterrupted operation as is reasonably practicable); and • Add a definition for 'end of the disturbance.'
Western Power response
• **Do stakeholders agree with the above proposed provisions/standards?** • **Should corresponding changes be made to the equivalent provisions, which will apply to Medium Energy Producing Systems (inc. ESR) ≤10MVA connected to high voltage and medium voltage network?** **Western Power supports the proposed amendments** to clarify disturbance ride-through obligations for multiple disturbances. These changes will improve the transparency and consistency of generator connection requirements, helping to align the ESM Rules more closely with industry practice and the NER. We support the inclusion of definitions and boundary conditions that acknowledge equipment limitations while maintaining power system resilience. We also support extending corresponding provisions to Medium Energy Producing Systems (including ESR ≤10 MVA), with appropriate scaling to reflect their capabilities and impact on system security.

1.3.5 Proposal 10 – Damping of power system oscillations

Proposal 10 – Damping of power system oscillations

With regard to grid-forming inverters, add a new clause A12.4.3.8 which states that the Minimum User Performance Standard is as follows:

The Generating System must have Equipment capabilities and Control Systems, including, if necessary, a power system stabiliser, sufficient to ensure that:

- operation of the Generating System does not degrade the damping of power system oscillations; and
- operation of the Generating System does not cause instability or poorly damped oscillations that would adversely impact the SWIS power system or other Equipment connected to the SWIS.

AEMO and the Network Operator will specify a frequency range of oscillations consistent with the bandwidth of control systems for which the above requirements will apply. An upper frequency limit of 300 Hz will be applied unless sufficient evidence is provided to AEMO and the Network Operator regarding the actual bandwidth of the converter control.

Western Power response

Consultation question

- **Do stakeholders agree with the above proposed provisions/standards?**
- **Should corresponding changes be made to the equivalent provisions, which will apply to Medium Energy Producing Systems (inc. ESR) ≤10MVA connected to high voltage and medium voltage network?**

Western Power supports Proposal 10, with the aim of the introduction of a Minimum User Performance Standard for damping of power system oscillations, specifically for grid-forming inverters. As the SWIS transitions to a higher penetration of inverter-based resources, it is critical that new technologies do not compromise system stability or exacerbate oscillatory conditions, particularly in low system strength environments.

We agree that this standard appropriately reflects the inherent capabilities of grid-forming inverters and provides clarity around expectations for control system performance. The proposed upper frequency limit of 300 Hz is pragmatic and aligned with industry practice, and we support the provision for developers to propose an alternative based on demonstrated technical evidence. Western Power also supports the application of equivalent provisions to Medium Energy Producing Systems, where appropriate, to maintain consistency across technology types and connection levels.

1.3.6 Proposal 11 – Partial load rejection

Proposal 11 – Partial load rejection
Adopt changes to the definition of continuous uninterrupted operation and clause A12.6.1.5 to recognise potential beneficial responses, such as active power response opposing phase angle jumps and primary frequency response, including inertial response opposing frequency changes.
Western Power response
Consultation questions: **Do stakeholders agree with the above proposed provisions/standards?** **Should corresponding changes be made to the equivalent provisions, which will apply to Medium Energy Producing Systems (inc. ESR) ≤10MVA connected to high voltage and medium voltage network?** **Western Power supports the proposed amendments** to the definition of continuous uninterrupted operation and clause A12.6.1.5. These changes appropriately recognise the value of beneficial responses from modern technologies—such as inertial response and active power modulation—during system disturbances, including partial load rejection events. We agree that aligning with the AEMC's approach will help accelerate grid-forming inverter integration, reduce barriers to connection, and enhance overall system resilience. Western Power also supports extending these provisions to relevant Medium Energy Producing Systems where appropriate, ensuring consistency and clarity across connection types.

1.4 Section 3.4 – SWIS System Strength Framework

1.4.1 Proposal 12 – Revised system strength definition

Proposal 12 – Revised system strength definition
The following definition of system strength will be implemented in the ESM Rules: System Strength: Relates to the ability of the power system to resist changes to the voltage waveform in a particular location, both during steady state operation and following a disturbance, including, but not limited to, a sudden change in a Load or an Energy Producing System, the switching of a Network element, tapping of transformers and faults.
Western Power response
Consultation question: Do stakeholders agree with the proposed System Strength definition? **Western Power supports the proposed definition** and acknowledges that it leaves scope to define more precise measures under specific Technical Requirements. Energy Policy WA may wish to consider the following minor amendments to the definition as noted below: ***System Strength:*** *The ability of the power system to resist changes to the voltage waveform in a particular location, both during system normal operation and following a disturbance, including, but not limited to, a sudden change in a Load or an Energy Producing System, the switching of a Network element, tapping of transformers and faults.*

1.4.2 Proposal 13 – A future generation outlook for use in fault level assessments

Proposal 13 – A future fleet outlook for use in fault level assessments
AEMO, EPWA and the Network Operator to align on a forecasting approach, in consultation with interested stakeholders through public consultation. This approach should include the methodology, inputs, assumptions, and scenarios necessary for the determination of an expected 10-year generation and ESR capacity outlook on an annual basis. This fleet mix should reflect capacity (i.e. MW), technologies (e.g. gas/wind/solar) and broad locations (e.g. regions).
Western Power response
Consultation question: Do stakeholders agree with the proposed forecasting approach? **Western Power supports Proposal 13** and agrees that developing a coordinated 10-year fleet outlook is critical for forecasting fault levels and anticipating system strength challenges across the SWIS. We recommend that a general obligation to develop the system strength forecasting methodology be assigned to the party with overarching accountability for system security—rather than prescribing discrete responsibilities in the ESM Rules. This would enable flexibility in adapting to evolving forecasting needs while ensuring clear accountability for delivery. Western Power supports AEMO assuming this lead role, given its experience and capabilities in long-term forecasting and system security planning across the NEM. We also recognise that Western Power, as the Network Operator, has a critical role in contributing to the co-design and timely delivery of these forecasts, particularly around network-specific insights, locational constraints, and commissioning timelines. Assigning clear leadership with collaborative development between AEMO and Western Power will ensure robust and practical forecasting outcomes. We note that forecast certainty diminishes beyond five years and recommend that any longer-term assumptions are managed appropriately within scenario-based planning.

1.4.3 Proposal 14 – Maintaining minimum fault levels required for network protection

Proposal 14 – Maintaining minimum fault levels required for network protection
The Network Operator will be required to: • develop and publish a methodology for calculating minimum fault level requirements at each transmission node; • Compare the minimum fault level requirements with the expected fault level at each node as part of the TSP each year, using the fleet outlook and the demand forecast, as part of the System Strength calculation; and • resolve any forecast shortfalls through network reinforcement or non-network solutions (e.g. competitive NCESS procurement), as necessary.
Western Power response
Consultation question: Do stakeholders agree with the proposed approach to managing minimum fault levels for network protection? **Western Power supports the proposal** of ensuring minimum fault levels are maintained across the SWIS to safeguard network protection and the stable operation of inverter-based resources (IBRs). We agree that transparent forecasting of shortfalls is essential; however, we recommend that accountability for forecasting and declaring minimum fault level (to ensure stable operation of IBRs) shortfalls be assigned to AEMO, while Western Power will continue to be responsible in providing the required minimum fault levels for the proper operation of network protection systems to AEMO as needed. Also to support AEMO with this responsibility, Independent Power Producers (IPPs) are to have an obligation under ESMR to notify AEMO of their required minimum fault levels for proper operations of their protection equipment. This arrangement would align with AEMO's broader system strength responsibilities under the WEM Reform Program and promote consistency with national practice. Western Power would continue to support AEMO by providing network data and modelling inputs, ensuring coordination without compromising independence. While Western Power supports the use of fault levels as one of the key inputs to system strength assessments, we recommend power system stability requirements and impact of major planned outages be taken into consideration also, as done in the NEM. Further, we recommend that the regulatory framework provide flexibility to evolve beyond fixed minimum fault level metrics. Future technologies may enable alternative protection schemes or grid-forming capabilities that don't rely solely on fault current. As such, we support embedding high-level principles in regulation, while delegating the development of detailed methodologies to AEMO through a consultative and transparent process. We also support the resolution of shortfalls through a mix of network and non-network solutions but highlight that there is a challenge in responding nimbly to address urgent needs arising from rapid IBR growth.

1.4.4 Proposal 15 – A centralised planning/investment function for system strength to facilitate new connections

Proposal 15 – A centralised planning/investment function for system strength to facilitate new connections
The Network Operator will be required to forecast shortfalls in system strength required to host the expected portfolio of inverter-based resources on the system, and to take steps to procure services that can address these shortfalls through competitive mechanisms (using the NCESS framework). Provisions will be incorporated into the ESM Rules to determine whether generator settings continue to meet a test for ongoing suitability and allow the Network Operator and/or AEMO to request that settings are retuned as appropriate through a streamlined process.
Western Power response
Consultation question: Do stakeholders agree that the Network Operator should be obliged to make proactive investments to maintain system strength sufficient to host the expected fleet in a region? **Western Power supports the rules to reflect the ability to make proactive investments in order to preserve system strength. However, the Proposal outlines the introduction of a centralised planning and investment framework** to ensure sufficient system strength is available to meet the expected growth of inverter-based resources (IBRs) across the SWIS. We agree that the current reactive 'connect and manage' approach is unlikely to provide adequate support for the energy transition, particularly given the long lead times associated with system strength solutions such as synchronous condensers or emerging grid-forming technologies. We acknowledge the value of a centralised approach in providing planning certainty for proponents and enabling lowest-cost, system-wide outcomes. We also support the principle that system strength should be addressed holistically — through both network and non-network solutions, including the ability to retune or upgrade existing facilities where cost-effective and technically feasible. To enable effective implementation of this framework, Western Power highlights the need for **clear delineation of accountabilities** between forecasting, investment triggering, and delivery. Western Power recommends that AEMO assumes the role of central planner for system strength, as this would ensure independence, consistency with broader system strength responsibilities, and alignment with NEM arrangements. Western Power will continue to be responsible for conducting system strength impact assessments triggered by customer connection processes and assist in the facilitation of the mitigations due to the connection of new participants and their facilities to the SWIS. Ultimately, it is essential that roles are clearly defined to support timely and efficient investment decisions and to avoid duplication or gaps. In addition, cost recovery for investments made should be considered and clearly articulated so all parties are clear on how key triggers will result in how investments are made. Additional elements to the rules mandating existing market participants in providing critical modelling information to Western Power should be introduced to enable the SWIS model to be accurate at all times.

1.5 Section 3.5 – Coordinating assumptions and inputs for forecasting

1.5.1 Proposal 16 – Coordinated approach to forecasting inputs and assumptions

1.1.1 Proposal 16 – Coordinated approach to forecasting inputs and assumptions
To achieve a coordinated approach to forecasting inputs and assumptions, a collaborative process between the parties responsible for forecasting (EPWA, AEMO and the Network Operator) should be established, with general rules included in the ESM Rules to guide the parties towards effective collaboration.
Western Power response
Consultation question: Do stakeholders consider a collaborative approach will bring about the necessary consistency in forecasting? **Western Power supports Proposal 16** and agrees that a collaborative approach to coordinating forecasting inputs and assumptions is essential for ensuring consistent, efficient, and credible planning across the SWIS. Alignment between forecasting processes—such as the TSP, WOSP, and PASA—will reduce ambiguity in the application of PSSR Standards and help maintain system strength by ensuring that critical system security decisions are based on coherent and transparent assumptions. Embedding general rules into the ESM Rules to guide this collaboration will strike the right balance between flexibility and accountability.

1.6 Section 3.6 – Ride through requirements for network elements

1.6.1 Proposal 17 – Ride through requirements for network elements

Proposal 17 – Ride through requirements for network elements

Apply the facility ride through requirements, for the definitions relating to disturbances of the current ESM Rules Appendix 12.7- 12.9, on network elements with appropriate supporting text to clarify that this standard does not apply to:

- Faulted primary equipment disconnected under the requirements of the current Technical Rule section 2.9.
- The operation of the Load Shedding requirements of the current Technical Rule clause 2.3.2 and section 2.4.
- elements of the network that are designed to trip as part of a scheme (e.g. protection scheme or generation runback scheme).

Western Power response

Consultation question: Do stakeholders support the proposal to require network elements to ride through disturbances?

Western Power does not support this additional requirement to require network elements to ride through disturbances.

Western Power acknowledges the intent of the proposal to align ride-through expectations across all classes of facilities — including network elements — as part of a consistent and integrated framework for power system security. We support the principle that the design and operation of the network should not compromise generator and load ride-through performance.

However, Western Power does not support the introduction of a broad and uniform ride-through obligation for all network elements. The transmission and distribution networks are designed with multiple layers of redundancy, such that the failure of a single element to ride through a disturbance typically does not result in a Power System Security and Reliability (PSSR) impact or loss of supply. In many cases, **protection systems are intentionally designed to operate — not ride through — to isolate faults safely and protect both equipment and personnel**.

Imposing a general ride-through requirement across all network components would create an administrative and compliance burden without materially improving system outcomes. More importantly, it could introduce unintended safety or operational risks by discouraging legitimate protection actions.

Western Power recommends a more **targeted approach**, where ride-through obligations are considered only for **specialised network-connected plant** (e.g. Static Var Compensators, synchronous condensers, or grid-supporting inverters). These facilities are more analogous to generators in their function and are already governed by active control schemes. A tailored obligation for these assets under the ESM Rules — similar to generator obligations in Appendix 12 — would be meaningful, measurable, and aligned with the broader system strength framework.

1.7 Section 3.7 – Customers' ability to negotiate or change their PSSR Outcome Standards

1.7.1 Proposal 18 – Customers' ability to negotiate or change their PSSR outcome standards

Proposal 18 – Customers' ability to negotiate or change their PSSR outcome standards
The ESM Rules will provide clarity on which customer outcome standards can be modified as part of a non-reference service, and any agreed modifications will be published. Should conditions change such that the customer can be provided the reference level of reliability as per the customer outcome standards, the register will be adjusted to reflect this.
Western Power response
Western Power supports Proposal 18 in principle, recognising the value of providing clarity to all Users the technical standard that can be negotiated under the ESMR. A more transparent and fit-for-purpose framework that allows for alternate reliability or technical standards — where agreed with customers — will provide the flexibility required to support a diverse set of service needs and network contexts. Western Power supports the continuation of a negotiation mechanism for **technical standards**, consistent with the existing Technical Rules exemption process. In the ESM Rules context, we agree that customers should be able to negotiate alternative standards under defined conditions, and we support the **publication of those negotiated technical outcomes** — in the interest of transparency and regulatory accountability — similar to the ERA's current role. Regarding **non-reference services** under the **Electricity Networks Access Code 2004**, Western Power notes that these involve **individualised contractual terms**, which may include negotiated service levels (e.g., higher, or lower reliability), service curtailment arrangements, or bespoke investment contributions. While Western Power supports **publication of the existence of such non-reference services**, we recommend that **detailed commercial terms and operational specifics not be published**, as these may reveal commercially sensitive information and breach confidentiality clauses in access contracts. Western Power recommends that the ESM Rules clearly distinguish between: • The **technical standard negotiation framework** (which should be public), and • **Commercially negotiated non-reference service terms** (which should be confidential except for high-level classification). This distinction will preserve transparency where it is most valuable while protecting the integrity of bilateral customer arrangements and contractual confidentiality.

1.8 Section 3.8 – Governance

1.8.1 Proposal 19 – Governance

Proposal 19 – Governance

Governance arrangements that reflect the relevant recommendations in the Energy Transformation Taskforce PSSR Standards Framework Information Paper will be implemented.

Table 14: Proposed governance framework for PSSR Standards in the ESM Rules

Governance Activity		Responsible Party	Advisor[18]	Compliance body	Appeals	Enforcement
Rule changes		Minister for Energy/ Coordinator of Energy	Reliability Panel	NA	Electricity Review Board	N/A
Confirming Initial Compliance with User Standards		Network Operator	AEMO (for Large User Facilities)	NA	N/A	ERA
Monitoring ongoing compliance with user standards	**Large User Facilities**	AEMO	None	AEMO	N/A	ERA
	Medium User Facilities	Network Operator	None	Network Operator	N/A	ERA
AEMO compliance with ESM Rules obligations, including system standards		AEMO	-	ERA		ERA
Network Operator compliance with ESM Rules, including network standards		Network Operator	-	ERA		ERA
Dispute resolution mechanism on Application of Standards[19]		Arbitrator	Technical Experts	NA	NA	

[18] This refers a formal advisory role within the ESM Rules

[19] Available to existing facilities as at July 2021 captured by the current ESM Rules GPS framework

Western Power response

Consultation question: Do stakeholders have any specific concerns with the allocation of roles and responsibilities in the proposed governance framework for PSSR?

Western Power supports the proposed governance framework for PSSR Standards as it provides greater clarity, accountability, and coordination across parties responsible for planning, compliance, and enforcement. The alignment with the Energy Transformation Taskforce's governance principles is welcomed, as is the establishment of the Reliability and Security Advisory Working Group under the MAC.

To further strengthen the framework, **Western Power recommends the following refinements**:

1. **Dispute Resolution Scope**: Extend the *"Dispute resolution mechanism on Application of the Standards"* beyond facilities connected as of July 2021, which was limited to Existing Transmission Connected Generating Systems. This will allow the mechanism to cover disputes involving new large and medium user facility connections both transmission and distribution and transitional issues (e.g. grandfathering) arising from future rule changes between versions of the ESM Rules.
2. **Small User Compliance Monitoring**: Clarify the governance responsibilities for *ongoing compliance monitoring of Small User (low voltage) facilities*. If this will be addressed under the Distributed Energy Resources (DER) workstream, a statement to that effect in the final framework would be beneficial.
3. **Power Quality Oversight**: Under *"Monitoring ongoing compliance with user standards – Large User Facilities"*,,",",", include **Western Power as the responsible party for monitoring power quality requirements**. This reflects current practice and ensures continued oversight of a key aspect of network performance.

Western Power remains committed to working collaboratively with EPWA, AEMO, and stakeholders to implement a robust and transparent governance model that supports system reliability, customer outcomes, and efficient market operation.

1.9 Section 3.9 – Adopting Western Power September 2023 Proposed Technical Rules Amendments

1.9.1 Proposal 20 – Adopting Western Power September 2023 proposed Technical Rules amendments

Proposal 20 – Adopting Western Power September 2023 proposed Technical Rules amendments
Adopt the Western Power proposed solutions from the September 2023 Submission to the ERA for PSSR related matters not already considered under other proposals in this Review.
Western Power response
Consultation question: Do stakeholders support the proposal to accept the subset of the Western Power proposed amendments to the relevant Technical Rules requirements? **Western Power supports this proposal**. Noting that the network has continued to evolve since the 2023 submission, Western Power requests the opportunity to revisit specific aspects of the Transmission Planning Criteria. Western Power notes that there will be significant work required to adapt the content of the September 2023 submission into the ESM Rules. Western Power would appreciate the opportunity to provide a detailed review of the ESM Rules drafting when it is available.