Western Power Submission: Power System Security and Reliability Standards Review – Proposal 20 - Adopting Western Power September 2023 Proposed Technical Rules Amendments Consultation

Submission date: 11th November 2025

Purpose and context

Western Power's Technical Rules (**Technical Rules**) commenced on 1 July 2007, except for a mandatory review in 2011 under section 12.56 of the Access Code, changes and updates to the Technical Rules have been infrequent and relatively minor, with the last update in 2016. The Technical Rules were developed for a different energy landscape - one characterised by large synchronous machines and one-way energy flow to customers. Recognising the need for modernisation, Western Power conducted a comprehensive review of the Technical Rules in 2021 and 2023. With input from industry stakeholders, the review identified key updates required to ensure the continued safe, reliable, and efficient delivery of electricity, alignment with the State Electricity Objective (**SEO**) and support of the energy market transition. The outcomes of this review are detailed in the Technical Rules Submission 2023.

Western Power acknowledges that as the energy market transition progresses and the Electricity System and Market Rules (**ESM Rules**) continue to evolve, further opportunities for modernisation will emerge. Western Power appreciates Energy Policy WA's open and consultative approach to ensuring that the proposed changes remain aligned with broader policy objectives and looks forward to receiving feedback from all stakeholders through this consultation process.

Through this consultation, Western Power is also taking the opportunity to reflect on the intended outcomes of its 2023 Submission and review the drafting to ensure alignment with the industry and regulatory updates.

Why change is needed

A new generation mix: Renewable energy - both large scale Inverter Based Resources (**IBR**) and Distributed Energy Resources (**DER**) -and energy storage resources are progressively playing a larger role within energy landscape, something that the 2016 Technical Rules did not fully anticipate. The proposed drafting aims to support a more efficient, agile, and technology-agnostic connection process that aligns with current industry best practices.

System Resilience: The proposed Technical Rules strengthen the network's capacity to withstand disturbances and recover swiftly, through clearer voltage-recovery limits, technology-neutral stability standards, and explicit redundancy and restoration requirements that ensure stable voltage, faster recovery to stable system conditions, and greater continuity of supply for customers.

Efficient investment: The updated network planning criteria provides a more modern planning standards that uses risk and economic based analysis to target improvements where they deliver the greatest benefit—balancing the cost to serve with meeting key network outcomes of reliability, power quality performance and system security.

Alignment to national standards and industry best practices: Updating voltage and power-quality limits to Australian Standards ensures compatibility and clarity for customers and developers alike. The proposed updates also reflect contemporary industry best practices, ensuring the Technical Rules remain relevant and supportive of User connection needs.

Key changes and benefits

Western Power's 2023 submission focused on the following key themes, changes, and outcomes:

Theme	What's Changing	Benefits for Customers and the System
Modern voltage performance	• Separate transmission and distribution voltage standards. • Align low voltage limits to Australian Standard 61000.3.100. • Define clear voltage envelopes for normal and post-fault conditions.	• More consistent, standard-compliant voltage. • Fewer flicker or trip issues. • Smarter, targeted investment in power quality improvements.
Modern User facility	• The move to a three-tiered compliance framework—ideal, negotiated, and minimum standards—replaces the rigid exemption process, allowing tailored performance outcomes. This aligns with the ESMR Rules for transmission-connected generators, promoting consistency, flexibility and supports PSSR. • Shift from generator-type tests compliance only to having consideration for system-wide performance. • Establishes clear requirements for distribution-connected storage systems, while operating in generator (discharging) and load (charging) modes. • Includes provisions for Western Power to publish guidelines that offer clarity for different user classes or various technical matters (e.g. model guideline)	• Clearer expectations for the market participant, AEMO and Western Power on performance outcomes for new renewable and battery connections. • Greater overall system stability.
Demand-based planning	• Replaces the current fixed 'N-x' planning criteria—which only considers the loss of up to two network elements—with a 'Demand-group'-based reliability framework. This approach considers both the size of the load and potential network element failures, while also incorporating economic analysis of investment decisions and restoration targets. It enables more tailored and efficient planning for network stability and reliability. • Introduction of explicit busbar security for large substations.	• Reliability scaled to customer impact. • Larger centres receive stronger protection; regional areas avoid over-spend. • Maintains or improves current reliability levels.
Network Planning Criteria - Economic flexibility & market alignment	• Introduction of "system security" and "system economy" planning backgrounds. • Allow operational or market solutions where standards are still met.	• Best-value mix of solutions while maintaining reliability and power quality standards. • Supports efficient investment and affordability.

Theme	What's Changing	Benefits for Customers and the System
Modernisation & clarity	• Update definitions, references, and testing methods. • Remove legacy inconsistencies.	• Simpler, faster compliance and clearer connection processes. • Greater transparency and consistency for developers.

Closing Summary

The intended adoption of the updated Technical Rules would be phased and carefully managed to ensure a smooth transition across the network.

For example: Existing substations designed under earlier criteria will continue to remain compliant, while all new projects will progressively adopt the revised standards, with the aim that over a period of time, these assets will be progressively transitioned to the new rules.

Western Power will issue clear guidance materials, provide technical support as needed, and work closely with Government, industry, and customers to ensure a smooth transition with no adverse impact on connection timeframes, reliability, or power quality.

These reforms bring Western Australia's network standards in line with modern practice—clearer, fit for purpose, and future-ready.

They will:

- **Strengthen reliability and resilience** through smarter, demand-based planning and improved redundancy;
- **Enhance voltage quality and consistency** for all customers;
- **Simplify and accelerate renewable integration**, supporting the State's clean-energy transition; and
- **Deliver better value** by directing investment where it delivers the greatest benefit.

We believe that **greater collaboration and engagement across industry, government, and customers** is essential toward working together to power a cleaner energy future for Western Australia.

Western Power remains fully committed to safely providing a reliable supply, whilst keeping costs low and strongly working towards enabling decarbonisation for our community and for generations to come.

Following the consultation period and consideration of stakeholder feedback, Western Power recommends that the revised Technical Rules be finalised and formally incorporated into the ESM Rules, ensuring regulatory alignment, transparency, and consistency across the broader market framework.