Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Minutes

Meeting title	Power System Security and Reliability Standards Working Group (PSSRSWG)
Date	10 October 2024
Time	1:00pm – 2:30pm
Location	Online, via TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair, Energy Policy WA (EPWA)	
Mena Gilchrist	AEMO	
Toby Price	AEMO	
Jean Mileto	Alinta Energy	Proxy for Hugh Ridgway
Elizabeth Walters	Economic Regulation Authority (ERA)	
Bronwyn Gunn	EPWA	
Sanna Pember	EPWA	
Luke Skinner	Expert Consumer Panel	
Geoff Glazier	Mott MacDonald	
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Alex Garces	Synergy	Proxy for Rhiannon Bedola
Daniel Cassidy	Western Power	
Sabina Roshan	Western Power	
Apologies	**From**	**Comment**
Noel Schubert	Expert Consumer Panel	

Item	Subject
1	**Welcome and Agenda** The Chair opened the meeting at 1pm with an Acknowledgement of Country and welcomed members.
2	**Meeting Apologies and Attendance** The Chair noted the attendance and the apologies as listed above.
3	**Competition and Consumer Law Statement** The Chair noted the Competition and Consumer Law Statement circulated with the meeting agenda.
4	**Updates on the Technical Working Group (TWG)** The Chair noted that the TWG has met on several occasions to discuss the proposed System Strength Framework and the User Facility Standards Framework. She clarified that the Consultation Paper will be presented at the 28 November 2024 Market Advisory Committee (MAC) meeting. She added that the outcomes of today's meeting will be presented at the 17 October MAC meeting. **Mr Skinner joined the meeting.**
5	**Stage 3 – Design proposals** **Proposed System Strength Framework** Ms Pember presented slide 2 – Purpose of today's session. She noted that today's session will review the existing system strength framework and explore the proposed evolution of this framework to "future-proof" it for meeting future system needs. She added that the slides capture the key outcomes from the discussions with the TWG, focusing on the high-level policy positions. Ms Pember presented slides 4 - 7 – System strength - Fundamentals. Ms Gunn presented slide 8 – National Electricity Market (NEM) Framework. She noted that the framework has undergone significant changes in recent years, driven by the energy transition and the increasing connection of inverter-based resources (IBR). Ms Gunn presented slide 9 – System Strength – Why does it need to be managed? Ms Gunn presented slide 10 – System Strength – What does a good framework looks like? Ms Gunn invited members to share their views, asking if anyone had thoughts on the principles discussed or if any important principles were missing. • Mr Garces asked whether any of the principles considered the ability of existing generators to transition into operating as a synchronous condenser. He noted that Generator Performance Standards (GPS) is not set up to do this. • Mr Price noted that this is an example of one of the available solutions. He explained that the framework aims to remain flexible, not limited to purely network-based responses to address these challenges and it should consider the availability of services from registered facilities, as well as network investments.

Ms Gunn emphasised that while the framework sets a standard to be met, it doesn't prescribe a specific solution, like installing a synchronous condenser. Instead, it focuses on finding the most efficient way to meet the standard, with all viable options, including the scenario mentioned, being considered.

- Mr Cassidy noted that the solution agnostic dot point covers that, meaning it's not about prescribing how it's done but rather focusing on what is being done and by whom.

Ms Gunn presented slide 11 – SWIS context – Lack of guidance and efficient investment.

Ms Gunn presented slide 12 – SWIS context – Lack of clearly defined responsibilities.

Ms Gunn presented slide 13 – SWIS context – Other Issues.

Ms Gunn presented slide 14 – System strength proposed framework – Components.

She invited members to share their input, particularly regarding centralised planning and investment, where a preferred proposal has not yet been finalised.

Ms Gunn presented slide 15 – Proposed System Strength definition.

Ms Gunn presented slide 16 – Future generation outlook.

She noted that at the last PSSR Standards Working Group meeting, the discussion focused on the need for greater collaboration between Western Power, AEMO, and EPWA on forecasting, as well as the establishment of a forecasting group codified into the ESMR, indicating that this proposal builds on that idea.

- Mr Peake emphasised that accounting for the expected location of generation is critical for identifying potential system strength issues, and this analysis should also consider transmission planning.
- He acknowledged the benefits of having a fleet outlook but questioned whether the localised impact of system strength necessitates an approved transmission plan as a foundational step before progressing further.

The Chair agreed that having a mix of generation without considering location is ineffective. She pointed out that projected generation locations depend on available network capacity and acknowledged that while this topic isn't covered in the slides, it is important.

- Mr Price noted that the future generation outlook is a critical component of a system strength framework, but can also have a broader use, for example in analysing the impact of network congestion and market outcomes.
- He clarified the level of input into the Methodology, Inputs, Scenarios and Assumptions(MISA) report and how that flows through to the Electricity Statement of Opportunities (ESOO), the Transmission System Plan (TSP), and Whole of System Plan (WOSP) processes, needs careful consideration to ensure a consistent and optimal approach.
- Mr Skinner emphasised the importance of consulting with both industry stakeholders *and consumers.*

Ms Gunn agreed with Mr Skinner and noted that this was the intent of the proposal.

Ms Gunn presented slide 17 – Requirement to forecast and maintain minimum fault levels for network protection.

The Chair emphasised the need for competitive procurement of system strength solutions to achieve the best solutions.

- Mr Peake inquired whether Western Power could provide an update on the

current “status” of system strength considering the upcoming closures of Muja Power Station and Collie Power Station, as well as the anticipated shutdown of Blue Waters Power Station.

- Mr Cassidy acknowledged that the closure of synchronous plants will lead to reductions in fault levels across the network. He noted that without a clear understanding of where future generation will connect, it's difficult to assess whether these reductions will result in system strength shortfalls at this time. However, he indicated that there will likely be challenges in the medium term, highlighting the importance of establishing the system strength framework now.
- Mr Garces asked whether the framework should capture the impact of outages of facilities providing system strength, particularly regarding maintenance windows that may be constrained by the need to deliver these services in the future.
- Mr Price agreed that it would, and stressed the importance of understanding the future connecting equipment and establishing credible dispatch scenarios related to that future fleet.
- He added that this would include recognising both forced and planned outages of plants that provide system strength services to adequately assess the risk of shortfalls. He noted the need to clarify what assumptions should be included from a network availability, contingency and fleet perspective, which should be mapped out in the MISA approach.
- Mr Garces noted that Original Equipment Manufacturer (OEM) updates may make inverters more capable of providing system strength or inertia, however the process for modifying a registered GPS is onerous. He added that it would be useful to have a more streamlined process to update systems to provide these services without going through a full re-registration or re-validation.
- Mr Price responded that this might be a broader question about the user standards and GPS framework. He noted that, as a preliminary view, a set and forget approach to controllable IBR may not be appropriate, particularly where it is a lower cost to retune plant or introduce new firmware as opposed to installing other technology or remediating elsewhere.
- Mr Price added that, as discussed earlier, the framework should be technology-agnostic, allowing it to consider the enhanced capabilities of existing IBR that can offer system strength services. However, he highlighted the challenge of ensuring certainty in quantifying the service provided and determining how it offsets or replaces services from other sources. He referenced a relevant report that explores these trajectories and how they might be integrated into future system strength frameworks. He provided a link for the working group members to review the report in more detail. https://www.transgrid.com.au/media/diyb5fng/2403-aurecon_maturity-of-grid-forming-inverter-solutions-for-system-strength.pdf

Ms Gunn clarified that the PSSR Standards project also includes a review of the user facility standards, looking at the framework as a whole as the Technical Rules are being integrated into the ESMR. She added that this work can consider whether a targeted reopening of the GPS would be beneficial.

- Ms Mileto raised the question of whether any consideration has been given to the Rate of Change of Frequency control service (RoCoF), given the importance of synchronous generators as a source of system strength, and how it might relate to providing system strength in the future.

The Chair clarified that, while this presentation focuses on system strength in relation to networks and fault level requirements, services that provide system strength under this framework could also be available in the market to support RoCoF control

services. She noted that the Coordinator of Energy has commenced a review of the Frequency Co-optimised essential system services (FCESS) requirements and will also examine the supplementary ESS mechanism (SESSM). That review aims to ensure that future RoCoF control services, possibly provided by technologies other than synchronous generators, can be properly procured and remunerated.

Ms Gunn added that when predicting the future fleet mix and determining system strength requirements, it's important to consider how the RoCoF control service might incentive new entrants to the market, and to then consider how those new entrants could also address system strength issues under this framework and the subsequent need for additional investment.

The Chair agreed, highlighting that inertia could be provided by retrofitting generators to function as synchronous condensers, which can also address fault level issues if located appropriately. She emphasised that Western Power, AEMO and EPWA must coordinate efforts, explore synergies, and align on forecasts to understand both current resources and potential gaps against market and network requirements.

- Mr Cassidy pointed out that while calculating fault levels is one aspect, determining whether those levels are insufficient is another complexity, particularly when considering different types of shortfalls. He noted that a shortfall may refer to insufficient fault levels for protection systems to operate or for IBRs to remain stable.
- He emphasised that there must be a clear distinction in the framework between shortfalls with regard to the level required for network protection to operate and the level required for IBR to remain stable.

Ms Gunn clarified that the current slide focuses specifically on shortfalls related to network protections, while the following slide will address discussion points regarding shortfalls for a projected fleet of IBR.

- Mr Price echoed Mr Cassidy's comments and emphasised the importance of inertia. He noted that:
  - the current RoCoF control service is limited to synchronous inertia - this acts as a safety net for managing system strength but doesn't take into account the locational nature of system strength.
  - introducing synthetic inertia would take the floor off synchronous generation levels, in which case the need for synchronous generation may start to bind for the purposes of this system strength framework instead.
  - any changes to the RoCoF service must be carefully managed to ensure adequate market mechanisms are in place to support this transition.

The Chair highlighted the role of the SESSM and the need to appropriately set requirements for facilities coming in through that mechanism to address both RoCoF and system strength requirements if possible.

Ms Gunn presented slide 18 – Centralised planning/investment for IBR connections.

She clarified that this slide focuses on the critical role of proactive investment in services to enhance system strength and support IBR hosting capacity. She noted that there is currently no established internal position on how proactive Western Power should be, presenting a continuum of options for the working group members to provide feedback on.

She noted that the discussion with the TWG has indicated that solutions like synchronous condensers may take 6 years from the identification of need to commissioning.

Ms Gunn invited feedback from members on the best position along this continuum.

- Mr Peake noted that community preference has driven the shift to more inverter-based resources, and one could argue that consumers should wear the associated cost of that through network charges. He added that there is a need to balance the risk of free riders, with people building in difficult places and expecting the community to pick up the tab. He clarified that, if existing facilities need to update settings or inverters to provide system strength, there must be a cost recovery mechanism for that.
- With regard to free riders, Mr Peake pointed out that if new inverter-based system proponents are required to buy additional capacity or upgrades, it would seem unfair, as those who are already connected were able to use the available system strength ‘for free’. He was uncertain how to address this discrepancy.
- Mr Garces countered Mr Peake’s comment, noting that when a proponent installs new equipment to meet system strength requirements, all participants benefit because it enhances the overall power network. He agreed that new facilities should meet technical requirements and, if necessary, install additional equipment such as static synchronous compensators (statcoms) to address this. However, he emphasised that the benefits of such installations should be shared by all participants, which could address the "free rider" issue raised earlier.

Ms Gunn clarified that the key question being addressed is whether a “connect and manage” approach should be adopted. In this approach, an initial proponent may need to invest more than required to meet a higher system fault level, benefiting future proponents who would then connect without needing additional investments. Alternatively, there could be a central requirement for all necessary investments, with each new proponent contributing a portion based on their needs. She noted that this is the core issue EPWA is trying to resolve.

The Chair highlighted that investments are currently made only when there is a clear and immediate need. She clarified that this Review must explore whether there is a case for proactive investment, despite uncertainties about what might happen in the coming years and, if so how the cost of such strategic investments should recovered (especially if anticipated connections do not materialise).

She asked whether Western Power should invest based on expectations—like coal retirements or future connections—without 100% certainty, and who would bear the cost of such "opportunistic" or strategic investments. She noted that the concern is the potential risk if those anticipated connections do not materialise.

Mr Glazier responded to Mr Peake's comment by emphasising that proponents' ability to design their facilities for future requirements depends on having a clear understanding of those requirements. He noted the importance of forecasting and publishing relevant data, and setting up the power system models that applicants can use in their design processes. While forecasts are never perfect, providing the best available information allows proponents to make informed design decisions for viability over at least a 10-year period. Mr Glazier concluded that accurate forecasting is essential for enabling cost-effective and future-proof designs.

- Ms Mileto noted that further details on costs and benefits will need to be provided.

Ms Gunn responded by acknowledging that the costs would depend on the specific solution deployed. She emphasised that the framework is intended to be solution-agnostic, meaning any cost-benefit analysis would likely be more qualitative than quantitative. However, she confirmed that when the proposal is put forward for consultation, it will need to outline the associated advantages or disadvantages of the proposed solutions.

- Mr Skinner noted that his position is toward the proactive investment side of the spectrum and provided the following key points.
    - There is a need for greater certainty regarding system strength investments over the next decade, given the transition the energy sector is undergoing.
    - On the question of who should bear the costs, such investments would effectively become public infrastructure with the cost being borne by consumers one way or another. If new facilities don't get connected as projected, Western Power would still need to recover its investment, shifting the burden onto consumers or taxpayers.
    - Conversely, consumers will pay for any emergency procurement or otherwise bear the consequences of under planning.
    - The risk of over-planning or over-investing is lower than the risk of under-planning and under-investing, especially given the potential for emergencies or shortages if insufficient action is taken.
    - Presuming that the forecasts for future generation, demand, and system strength needs are the best they can be, then it makes sense to ensure those investments proceed.

The Chair summarised that, if Western Power is guided by forecasts to make proactive investments with long lead times and cost recovery periods, then regulatory processes must be transparent to ensure confidence that requirements are set at the right level.

- Mr Price addressed the challenge of stranded assets, highlighting the need for network investments to unlock new resources, and noted that this is a similar need to support that capacity. Given the long lead times of the services needed, and being longer than the build times for the facilities that will rely on it, there is a need for proactive investment.
- He concluded that the key challenge is achieving industry-wide acceptance of the forecasted need, which requires a more transparent planning process.

Ms Gunn presented slide 19 – Summary/Analysis.

Proposed solution to Issue 3: Network ride through

Ms Gunn presented slides 21-22 – Network ride through – Issues and Proposal. She invited members to provide feedback. No feedback was provided by the working group members.

Western Power Technical Rules Review Issues list

Ms Gunn presented slide 24 - Western Power Technical Rules Review identified issues. She noted that only specific issues raised by the members today would be discussed in detail.

- Ms Roshan expressed concerns about the flow and structure of the different components in the regulatory instruments in relation to the ESMR.

Ms Gunn acknowledged the challenges in integrating the various components into the ESMR. She noted that internal discussion at EPWA is underway, but the final structure of the ESMR is yet to be decided.

She highlighted that, if there are PSSR provisions that need to align with other provisions, this will be taken into consideration during drafting. She clarified that this can be managed through commencement scheduling, specifying which provisions can start immediately and which will commence at a later date, as EPWA progresses the different workstreams.

The Chair requested Ms Roshan and Western Power to identify any PSSR related

issues within the Technical Rules that cannot be transferred to the ESMR as part of the PSSR Standards Review work (i.e. not the parts of the Technical Rules that are not included in the PSSR Standards Review).

- Ms Roshan noted that the classification of issues into “policy buckets”, established in December by EPWA and Western Power, may need to be revisited due to changes in scope within both the DER project and the PSSR project.

Ms Gunn clarified that the classification of issues has not yet been revisited but emphasised that now is the appropriate time to do so if Western Power believes there are issues. She encouraged Ms Roshan to raise any concerns or changes in classification that might arise due to the project's evolving scope or other projects. She added that, if necessary, new items can be added to the list and discussed with the PSSRSWG for inclusion in the Consultation Paper.

- Ms Roshan agreed with this approach.
- Mr Peake inquired about item number 3.5 in the spreadsheet, which relates to distribution voltage limits and the proposal to adopt revised Australian standards. He asked whether Western Power had a role in developing these standards and whether implementing them in Western Australia would result in any additional costs.
- Ms Roshan responded that a comprehensive analysis had been conducted, including engaging the University of Wollongong to assess the potential impacts and costs on customers. She confirmed that both Western Power and Horizon Power collaborated on the proposal, and there were no anticipated issues regarding additional costs.
- Ms Mileto emphasised the need for additional information during the consultation process to fully assess the proposed changes in the Technical Rules, especially regarding their implications for the network and generators.

Ms Gunn noted that the submission from Western Power to the ERA, which included proposed changes and their impacts along with a marked-up version of the Technical Rules are linked on the slide 24.

She clarified that the upcoming Consultation paper will reference these documents with some further explanations rather than replicate all of the content.

ACTION ITEMS:

- **Western Power** to review the policy classification categorisation in relation to the Technical Rules Submission and identify any PSSR related issues that cannot be transferred to the ESMR as part of the PSSR Standards Review work by the close of business on **October 24, 2024.**
- **PSSRSWG members** are requested to submit any additional feedback on the identified issues from the Western Power Technical Rules Review by the close of business on **October 24, 2024.**

6 General Business

No General business was discussed

7 Next Steps

Ms Gunn presented slide 26 – Next Steps.

The meeting closed at 2.30pm.