



Minutes

Meeting Title:	Power System Security and Reliability Standards Working Group (PSSRSWG)
Date:	1 February 2024
Time:	9:30am to 11:00am
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair, Energy Policy WA	
Toby Price	AEMO	
Mena Gilchrist	AEMO	
Hugh Ridgway	Alinta Energy	
Aditi Varma	ERA	
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Rhiannon Bedola	Synergy	
Noel Schubert	WA Expert Consumer Panel	
Luke Skinner	WA Expert Consumer Panel	
Daniel Cassidy	Western Power	
Sabina Roshan	Western Power	Joined at 09.57am
Bronwyn Gunn	Energy Policy WA	
Sanna Pember	Energy Policy WA	
Stephanie Hemsley	Energy Policy WA	
Ashwin Maharaj	Mott MacDonald	
Analena Gilhome	Mott MacDonald	
Tyson Vaughan	Mott MacDonald	
Ed Chan	Mott MacDonald	
Jaden Williamson	Merz	
Geoff Glazier	Merz	
Apologies	From	Comment
Robert Ceic	Mott MacDonald	

Item	Subject
1	<p>Welcome and Agenda</p> <p>The Chair opened the meeting at 9:30am with an Acknowledgement of Country.</p>
2	<p>Meeting Attendance</p> <p>As noted above.</p>
3	<p>Competition and Consumer Law Statement</p>
4	<p>Minutes of the PSSRSWG meeting</p> <p>The Chair noted that the PSSRSWG minutes of the 14 December 2023 meeting were approved and published on the Coordinator's website.</p>
5	<p>Updates on the Technical Working Group</p> <p>The Chair noted that the Technical Working Group has met twice (8 December 2023 and 18 January 2024) to discuss the framework for analysis for stage 1. The Chair added that Ms Roshan has provided EPWA with an excel document detailing some of the previous PSSR work under the Energy Transformation Taskforce.</p> <p>The Chair noted that EPWA has provided the Technical Working Group with a draft spreadsheet outlining the findings from stage 1 of this review. She added that this work will be discussed at the upcoming Technical Working Group meeting on 7 February 2024.</p>
6	<p>Stage 1 Framework</p> <p>The Chair noted that EPWA is still considering whether the end product for stage 1 will take the form of a report or an excel spreadsheet. She added that the PSSRSWG members will be updated on this shortly and the findings of stage 1 will be discussed at the next PSSRSWG meeting.</p> <p>The Chair outlined the purpose (slide 2) and the agenda for the meeting (slide 3).</p> <p>Mr Glazier presented the definitions of security and reliability in the Energy Industry (Distributed Energy Resources) Amendment Bill 2023 (DER Bill) (slide 5) and noted that:</p> <ul style="list-style-type: none"> • At the last Technical Working Group meeting, members discussed the distinction between the definitions of security and reliability. • Historically security and reliability have been used interchangeably. For example, if a substation was lost, a customer's energy supply reliability would be impacted. However, this would not impact system security, i.e. the ability of the system to maintain supply through disruptions or disturbance. <p>Mr Glazier presented the interplay between the definitions of security, reliability and quality (slide 6). He noted that most of the information outlined in this slide has been taken from public information and that the appendices contain a comparison of definitions.</p> <p>The Chair clarified that the definitions in the DER Bill must take precedence once that Bill is passed by the Parliament.</p> <p>Mr Glazier presented the boundaries for the security and reliability definitions (slide 7), emphasising the importance of not crossing over to areas managed by Energy Safety that deal with personal safety or safety of equipment. He added that protection of electrical equipment would be within scope of this project if the protection applies for PSSR purposes, such as the matters in 3.6.10 of the Technical Rules.</p>

Item

Subject

Mr Glazier presented the system strength definition and system strength requirements (slide 8) and noted that this slide categorises the mechanisms in the way they are divided up in the regulatory instruments today. He added that the Technical Working Group members have discussed extending these definitions, but that this will be discussed in more detail during stage 2 of this review (gap analysis).

Mr Glazier presented a diagram illustrating different activities that are carried out to maintain security and reliability and their interactions (slide 10).

- Ms Varma stated that there are a few planning processes missing from slide 10. She gave the Transmission Network Development Plan, that Western Power submits as part of its Access Arrangement, and the Transmission System Plan as examples. She emphasised the importance of recognising all the different planning activities across the entities, given they may need to be streamlined.
- Mr Skinner suggested adding 'known and expected changes in environmental risks to critical infrastructure' to the change triggers on slide 10.

The Chair noted that slide 10 outlines the context for maintaining security and reliability, acknowledging that a level of uncertainty, albeit significantly lower, exists even within the operational horizon.

- Mr Skinner clarified that environmental impacts should be explicitly listed as a change trigger, given that an environmental objective has been introduced through the new State Electricity Objective. He provided the example of power lines to Kalgoorlie, and the impact of environmental factors on them recently.

Mr Glazier agreed with Mr Skinner's point and noted that this will be discussed in detail during stage 2 (gap analysis).

The Chair and Ms Varma also agreed with Mr Skinner's point.

Mr Glazier presented slide 11 and noted that the process of maintaining a secure and reliable power system historically has been split up into these different functions, but that this breakdown may not be the best approach going forward. Mr Glazier noted the differences in risk assessments and the nature of information each of those functions works with, giving the following examples:

- Infrastructure planning must be undertaken far in advance to ensure that the infrastructure needed is built and ready to meet future demands. The level of uncertainty is higher given technical advancements and forecasting.
- Infrastructure implementation relates to a specific and defined project (i.e. network build), and includes decisions regarding the design and operation of that build.
- Operational activities determine how to utilise existing infrastructure in a way that maintains a secure system at the most efficient cost.
- Mr Schubert asked whether EPWA should be included on slide 10, given its role of long-term forecasting through the Whole of a System Plan (WOSP) and through the SWIS Demand Assessment (SWISDA).

Mr Glazier agreed and stated that EPWA's role in these mechanisms will be included in future slides.

The Chair agreed with this and noted that this will be included in the report for stage 1.

- Ms Varma queried the accuracy of the timeframes outlined in slide 11, noting that planning can be over a timeframe of 20 years or more.

Mr Glazier clarified that there is a range of infrastructure planning projects dealing with different horizons. However, the 7 + years horizon tranche is intended to include all the

Item

Subject

planning processes, such as the 20-year WOSP planning and Western Power's network planning.

- Ms Varma emphasised the importance of discussing the boundaries around planning and operational timeframes, given it's not always clear-cut. She noted that Western Power decisions and its interaction with AEMO changes over these time horizons and used the 5-year Access Arrangement period, the 10-year ESOO period and the Medium Term (MT) PASA as examples.

Mr Glazier acknowledged Ms Varma's point and noted that the existing mechanisms outlined in the slide focus on the distinction between planning to deliver infrastructure and planning how to manage the system with existing infrastructure. Mr Glazier clarified that future discussions should focus on whether this is the right distinction.

The Chair acknowledged Ms Varma's point and added that the level of certainty increases for infrastructure planning as you approach the investment decision stage. The Chair noted that a sentence could be added to indicate that certainty increases over time.

Mr Glazier noted that whether the boundaries between these mechanisms shall remain or not will be part of the discussion going forward.

Mr Glazier presented a table detailing the different activities involved in each time horizon to maintain PSSR (slide 12).

Mr Glazier presented the existing defined security and reliability outcome requirements (slide 13) and clarified that EPWA has created an excel spreadsheet outlining all the mechanisms listed, in addition to the relevant clauses within those mechanisms. Mr Glazier clarified that the intent of this framework is to ensure this review has identified all the relevant mechanisms and gaps to guide the evaluation of options and streamlining the process for stage 3 of this review.

Mr Glazier noted that the Technical Working Group will assess all the relevant clauses for the various mechanisms to ensure nothing is left out going forward.

- Mr Schubert asked whether the term 'cyclic load shedding' has the same meaning as rotational load shedding, as this term is distinct from voluntary load shedding, in which customers are willing to have their demand curtailed as part of a Demand Side program.

Mr Glazier clarified that this term exists in the Wholesale Electricity Market (WEM) Rules and noted that the definition of reliability specifically refers to cyclic load shedding undertaken by AEMO. He suggested removing the word 'cyclic' given under frequency load shedding (UFLS) is also included.

- Mr Schubert agreed with this clarification.
- Mr Price acknowledged that slide 13 is made generic for discussion purposes but suggested also adding chapter 4 of the WEM Rules to the 'supply and implementation' box.

Mr Glazier clarified that the excel spreadsheet contains all of section 4.5 and parts of section 4.6 of the WEM Rules. He noted that the mechanisms for funding and financing infrastructure planning have been excluded. He provided the example of the pricing mechanism in the Electricity Networks Access Code 2044 (ENAC) for Western Power to fund infrastructure and the mechanisms in chapter 4 of the WEM Rules to establish the market and the procurement process.

- Ms Roshan joined the meeting.

The Chair agreed with Mr Price's suggestion and noted the importance of including chapter 4 of the WEM Rules and any relevant appendices containing rules in relation to the implementation of PSSR Standards.

Item

Subject

Mr Glazier agreed with this.

- Mr Price noted that if funding and financing mechanisms are out of scope, then the way that facilities are certified and the reserve capacity obligations may fall outside the scope.

The Chair noted that, in her view, requirements on specific capability classes should be considered a standard. She used the Availability Criteria and reserve capacity obligation intervals as examples.

Mr Glazier acknowledged the Chair's point and noted that the detailed excel spreadsheet covers a portion of these requirements. He noted that the amount of capacity to be installed will be a primary topic of discussion at the upcoming Technical Working Group meeting.

- Mr Schubert noted that slide 13 lacks references to the ENAC and the ERA's role in reliability requirements.

Mr Glazier clarified that the intent is that including Western Power's fifth Access Arrangement(AA5) on this slide is to cover that as well.

- Ms Varma returned to Mr Price's point (on slide 13) and noted that the slide is a mixture of standards and regulatory contracts. For example, service standard benchmarks, the New Facilities Investment Test (NFIT) and regulatory tests all fall under the Access Arrangement while matters in the Technical Rules, WEM Rules and NQRS Code are all regulated standards. She noted that, as the power system is evolving, it is appropriate to consider whether each 'standard' is in the right place in this context and what the compliance mechanisms are.
- Ms Varma used the Value of Customer Reliability (VCR) as an example of where there isn't a legislated value of customer reliability. She noted that if there was a legislated VCR the design and funding arrangements for the network would be significantly different.

Mr Glazier agreed with making this distinction and clarified that it will be important to consider how binding a mechanism should be during stage 3.

- Ms Varma noted that in the latest Access Arrangement determination, the ERA decided that the NQRS reliability standards should be met, while historically that had not been a case. She stated that this is a live example of the tension between a legislated standard and what can be negotiated in a regulatory contract.

Mr Glazier suggested discussing this matter later in the meeting, as this will be covered on slide 17 regarding deterministic versus probabilistic standards. He added that a risk of using a legislated deterministic standard is that it could drive costs up to a level customers are unwilling to pay for in terms of that service. He clarified that probabilistic standard processes ensure PSSR matters are considered with cost impact on customers in mind.

- Ms Varma agreed with Mr Glazier's clarification.

Ms Glazier added that there is often a desire to set prescriptive reliability standards, especially during outages, but that there is a need to ensure that this is not set up in a way that drives costs beyond customer willingness to pay.

The Chair noted that this aspect will be further elaborated on in the report.

Mr Glazier presented the existing PSSR responsibilities of the AEMO and Western Power (slide 14) and clarified that the box 'load and infrastructure planning' is about reflecting customer needs in the various planning processes.

- Mr Skinner noted that in the future more control will need to be exercised over load growth.

Item

Subject

Mr Glazier acknowledged Mr Skinner's point but noted that all the other planning mechanisms exist to meet customer need. He added that the most effective way to deliver a secure and reliable power system at a low cost is increased control, and if customers are happy with that, then that could be the right path. However, this review needs to be mindful of the implications of increasing central control.

The Chair agreed with Mr Glazier's point and noted that this review is also covering the PSSR governance framework, which includes compliance monitoring, reporting and enforcement. She added that one objective of this review is also to establish a proper governance mechanism to ensure adherence to the standards.

- Mr Peake noted that the capacity target and the reserve margin set by the AEMO (clause 4.5.9 of the WEM Rules), is another significant cost driver.

The Chair acknowledged Mr Peake's point and noted that certainty for investment is important, and that these mechanisms should not be changed quickly or frequently.

- Ms Gilchrist asked whether there is a timeframe and process for managing provisions out of scope for this review. She used the quality element of the NQRS Code as an example.

The Chair clarified that quality will largely be covered by this review.

Mr Glazier noted that reliability and quality are interconnected, and quality is therefore within scope. He added that quality is reflected in the NQRS Code, the Technical Rules and in Appendix 12 in the WEM Rules. Mr Glazier clarified that a key question going forward will be how to consolidate those quality requirements into a single mechanism.

- Ms Gilchrist clarified that she was asking about the processes and timeframes to manage the elements of the relevant instruments that are not considered to be in scope for the PSSR project.

Ms Gunn clarified that another workstream within EPWA is looking at the ENAC more broadly and the provisions out of scope for the PSSR Standards Review, but the detail of that work is yet to be decided.

- Ms Gilchrist acknowledged that Ms Gunn's response addressed her question.
- Ms Varma asked whether to consider a no worse-off principle to be applied to the design of the standards, given this could create some boundaries around the cost impact.

The Chair noted that the focus of this review is to establish a minimum security and reliability standard, which should come at an efficient cost.

- Ms Roshan noted that the transfer of the ENAC, the Metering Code, most of the NQRS Code and the Small Use Customer Code into the Electricity System and Market Rules (ESMR) should be covered by the other policy streams within EPWA.

The Chair agreed about the Metering Code, but not the NQRS Code, noting that the Small Use Customer Code is not in scope to be bought into the ESMR.

Mr Glazier progressed to the stage 2 approach (gap analysis) and presented on infrastructure planning for reliability vs security (slide 16).

Mr Glazier presented the two broad forms of analysis used in infrastructure planning for reliability (deterministic and probabilistic) (slide 17).

- Mr Schubert noted that VCR, from his point of view, is very variable from one customer to another and can change seasonally or across the day. He added that there are other solutions that can be implemented as an alternative to network investment, such as standalone power systems. He clarified that there are many aspects to the use of VCR for making deterministic decisions.

Item

Subject

The Chair agreed with Mr Schubert's point.

Mr Glazier clarified that, while the probabilistic mechanisms require generalisations, they also consider the value to customers, unlike the deterministic standards. He added that this is the distinction to be made going forward.

- Mr Cassidy raised concerns regarding the definitions on slide 17. He clarified that Western Power does not plan for reliability and a more accurate way to phrase this would be to say that Western Power calculates expected benefits for customers. He clarified that there are mechanisms in place for probabilistic planning, but that these are resource intensive and sensitive to assumptions, and using these to determine timing of investment would be quite challenging.
- Ms Varma raised concerns regarding whether slide 17 accurately reflects current practice, as it takes a network centric view of reliability. She emphasised the importance of also discussing the concept of unserved energy as it is defined through the Reserve Capacity Mechanism. She added that this concept does not align with the value of customer reliability modelled under the AA5.

Mr Glazier clarified that the intent of stage 2 (gap analysis) is to undertake some analysis to outline the extent to which these practices align or not.

- Ms Varma noted the importance of examining end-user experience in terms of reliability. She suggested working backwards from there to determine network requirements and the generation adequacy needed. She added that generation and network adequacy, in her view, are inseparable.

The Chair noted that, in her view, these are two distinct concepts, but unfortunately they are used interchangeably. She added that the next stage of this review will try to find concepts that can be homogeneously applied.

- Mr Price noted that this may be a function of how regularly deterministic standards are updated, and on what basis.

The Chair clarified that the first stage of this review is to gain a proper understanding of the current framework and that future work would include developing a common understanding of the definitions. She noted that the discussion around current network planning in practice is very important.

Mr Glazier agreed with the Chair's point and clarified the intent is not to put forward any recommendations or direction at this stage.

Mr Glazier presented the infrastructure planning for reliability (slide 18) and noted that this slide outlines the probabilistic vs deterministic definitions.

Mr Glazier presented infrastructure planning for security (slides 19 and 20) and noted the absence of any ride through requirements for networks in the same way as for generators. However, there is a requirement that the network must be designed consistent with good electricity industry practice. He clarified that, in his view, it makes sense that the network protective devices and the network remain operational during disturbances. He added that there is a financial incentive for Western Power to demonstrate ride-through in frequency events under the RoCoF market cost recovery mechanisms.

- Mr Schubert noted some ongoing discussion in energy forums on LinkedIn regarding the definition of system strength and the implementation of system strength standards in the National Energy Market (NEM). He asked whether this issue is open for debate, as the implementation of the system strength concept in the NEM may not be appropriate.

Mr Glazier responded that discussion about system strength will take place in stage 2 of this review and noted that the Technical Working Group already have touched on this topic. He added that questions about the framework for managing system strength when there is a RoCoF market and the need for system strength with current inverter

Item

Subject

technologies will be part of the discussion for stage 2. He clarified that slides 19 and 20 only outline the definition of system strength and system strength requirements in the existing rules.

The Chair clarified that system strength and resilience will be discussed in more detail at the next stage of this review, and that the NEM is evolving too. She noted that aligning the standards for the WEM and the NEM is ideal, given the increasing number of participants operating across markets, while keeping an open mind to improvements.

- Ms Varma noted that a Circuit Availability standard previously existed, which required Western Power to make transmission lines available to ensure reliability and inquired whether this standard still exists in the Technical Rules.
- Ms Roshan responded to Ms Varma's question by noting that this is outlined in Western Power's Access Arrangement and the service standard benchmarks.

The Chair clarified that this will be addressed going forward.

The Chair noted that the RoCoF example is outlined on slide 20. She added that the WEM Rules requirement also provides financial incentives to all the Market Participants, not only Western Power.

Mr Glazier agreed with the Chair and acknowledged the importance of recognising the alternative approaches to maintaining a secure system, giving the example of having network elements that can handle higher RoCoF or procuring more inertia to meet the needs of the network. He noted that consideration would need to be given in cases like this to the most economically efficient outcome.

- Mr Cassidy noted that in the recent Technical Rules Submission, Western Power had suggested clarifying how to design the network to limit the largest contingency. He noted that this has been guided by practice in Western Australia, and that other jurisdictions have been prescriptive on this.

The Chair responded to Mr Cassidy's comment by noting that Western Power's original proposal had a MW limit on generators. She noted that, in her opinion, suggesting an arbitrary fixed MW limit for new generators isn't ideal because it won't provide flexibility as the power system evolves.

- Mr Cassidy and Ms Roshan emphasised the importance of having a continued discussion around this issue.
- Ms Roshan noted that the proposal was based on the spinning reserve limit (around 300 MW), with an added reserve margin. She added that this has implications on how Western Power designs the network and noted that when a large generator connected to a busbar is lost it becomes an issue for the network as well.

The Chair clarified that proper mechanisms need to be put in place to provide the right financial incentives, rather than have absolute numbers. She added that there are already financial incentives in place and mentioned the new cost allocation causer-pays principles, in addition to the cost of connection. She added that, while there is currently no 'size standard', there are various mechanisms that provide those incentives.

Mr Glazier noted that there are pros and cons to each option – standards are simpler and clearer, while financial incentives allow room for more innovative and economic solutions.

The Chair agreed and noted that the Network Access Quantity (NAQ) framework is also meant to send a location signal about network availability and that there are economic efficiencies for larger facilities if they can be accommodated on the network. She also noted that, while the runway method currently applies to generators, there is a need to send signals to larger size connected loads.

Item

Subject

- Ms Roshan noted that the 'Circuit Availability' requirement is more for reliability rather than requiring a circuit to be available for security reasons.
- Mr Price noted that RoCoF ride-through is actually lower than 4 Hz/s (for network and other facilities) and provided the below accredited values.

Facility	Rate of Change of Frequency Ride-Through (Hz over 500ms)
WP_DX_NTWK	1.2
WP_TX_NTWK	1.2
WARRADARGE_WF1	1.5
YANDIN_WF1	1.5
ALINTA_WWF	1.5
BADGINGARRA_WF1	1.5
GREENOUGH_RIVER_PV1	1.5
TESLA_GERALDTON_G1	1.5
TESLA_KEMERTON_G1	1.5
TESLA_NORTHAM_G1	1.5
TESLA_PICTON_G1	1.5

- Ms Varma noted that, while there is a financial incentive for generators through the runway method, there isn't that incentives for the network. She added that the WEM Rules now consider network contingencies (in the planning criterion), and this is accounted for in the ESOO. However, there are no requirements or incentives in network planning to augment lines to reduce the potential contingency identified in this process.
- Mr Cassidy disagreed with Ms Varma' point and clarified that Western Power has obligations to invest if there is congestion on the network.
- Ms Varma clarified that the point she was making was in relation to particular lines and single points of failure if the failure of that line can create a larger contingency, and this is not necessarily a congestion issue
- Mr Cassidy responded that this would become a congestion issue as Western Power would not tolerate a vast amount of generation subject to a single contingency. He added that, instead, the network operator would constrain the generator on a pre-contingent basis and this would appear in the congestion information which would drive network investment.

The Chair agreed with both Ms Varma's and Mr Cassidy's points and noted that some incentives are being brought into the WEM Rules to ensure the network operator considers financial impacts of network performance (for example, in transmission system planning and NCESS procurement). However, she agreed with Ms Varma's point that there are no mechanisms that enforce these Rules in a timely manner. She noted that the standards and the compliance with these must be considered.

- Mr Cassidy agreed with the suggestion of making this more explicit.
- Mr Price noted the importance of finding the balance between providing clear guidance for design of Facilities/Interconnection and the real-time decisions relating to the credibility of a particular risk.
- Ms Varma and Mrs Bedola agreed with Mr Price's point.

Mr Vaughan recommended looking at the discussion in the Enhancing Operational Resilience in relation to Indistinct Events in the NEM Rule change when defining the single largest contingency.

The Chair and Mr Glazier agreed with Mr Vaughan's suggestion.

Item

Subject

Mr Glazier noted the lack of content in the existing mechanisms around resilience, adding that this will be discussed in detail during the gap analysis.

Mr Vaughan clarified that the Enhancing Operational Resilience in Relation to Indistinct Events NEM Rule change was primarily focused on expanding on and defining the largest credible contingency, and the powers the system operator must have to manage these events. He clarified that the main learning from this rule change is to be mindful of not constraining the system operator too much.

The Chair noted the spectrum of risk and conservatism, and emphasised the importance of evaluating whether a proposal is in fact a minimum standard.

Mr Glazier agreed with Mr Vaughan and the Chair, noting that during extremely low probability/extremely high impact events the position should be that the operator may use its discretion to manage PSSR. He noted that the Pilbara Network Rules are very clear that the Independent System Operator can do what they need to maintain PSSR in such events, but that the WEM Rules are less explicit.

Mr Vaughan clarified that the rule change in the NEM primary focused on the preparation the operator could undertake. He added that resilience can have a complex definition, and this review must assess whether resilience is actually additional to security and reliability or not.

Mr Glazier noted that the discussion regarding resilience must be centered around the ability to respond to changes in the market and the rapid advancement of technologies. He added that this feeds back into the considerations about how rigid the governance mechanism should be given the pace of change.

Mr Glazier presented slide 21 (implementation). He highlighted that the potential disconnect between the Technical Rules and the Generator Performance Standards (GPS) would be important to discuss during the gap analysis.

- Ms Roshan queried whether Mr Glazier was referring to distribution connected 'large' generators and noted that she considered this in scope.

The Chair clarified that the purpose of this review is to create an end-to-end standard that covers transmission and distribution, where practicable, noting exceptions for some matters such as distributed energy resources (DER). She added that standards for distribution and transmission connected generators must be end-to-end and homogeneous to avoid incentivising inefficient behavior. She noted the division between transmission and distribution in the SWIS is arbitrary compared to other jurisdictions.

Mr Glazier presented slide 22 (operation) and noted that this slide is high level and that this section of the excel workbook has the most detail. He noted that consideration would need to be given to whether the customer notification and the financial penalty for outages longer than 12 hours outages are within scope.

- Mr Schubert noted that the NQRS Code requires Western Power to negotiate a solution with an individual customer if the reliability standards in the NQRS Code are not met. He added that this hasn't been done in some cases.

Mr Glazier recognised that this is an important part of the operation of the system for the customers and clarified that the review will cover that.

The Chair invited members to provide any final comments or ask any additional questions, noting that the next step would be to compile this information into a report and finalise stage 1.

The meeting closed at 11:03am