Energy Transformation Implementation Unit

Transformation Design and Operation Working Group Meeting 34

23 March 2021

Ground rules and virtual meeting protocols

- Please place your microphone on mute, unless you are asking a question or making a comment.
- Please keep questions relevant to the agenda item being discussed.
- If there is not a break in discussion and you would like to say something, you can 'raise your hand' by typing 'question' or 'comment' in the meeting chat. Questions and comments can also be emailed to TDOWG@energy.wa.gov.au after the meeting.
- The meeting will be recorded for minute-taking purposes. Please do not make your own recording of the meeting.
- Please state your name and organisation when you ask a question to assist with meeting minutes.
- If there are multiple people dialling in through a single profile, please email TDOWG@energy.wa.gov.au with the names of the attendees to be recorded in the minutes.
- If you are having connection/bandwidth issues, you may want to disable the incoming and/or outgoing video.

Agenda

9:30 — **ESS Accreditation**
- RoCoF Ride-Through Capability
- Mandatory accreditation for existing AS capable providers

10:00 — **PSSR Standards Framework**

10:30 — **Review of UFLS scheme**

10:50 — **Forward schedule for papers, draft rules and commencement notices**

ESS Accreditation

- Section 2.34A was gazetted in December 2020, available in Companion Version Rulebook

- Amendments are being drafted to include:
  - Obligations for AEMO and Rule Participants to determine RoCoF Ride-Through Capability (additions to section 2.34A)
  - Transitional provisions to require existing AS capable facilities to seek FCESS accreditation (new section 2.34B)

- ETIU will release revised draft rules for feedback by 26 March

RoCoF Ride-Through Capability

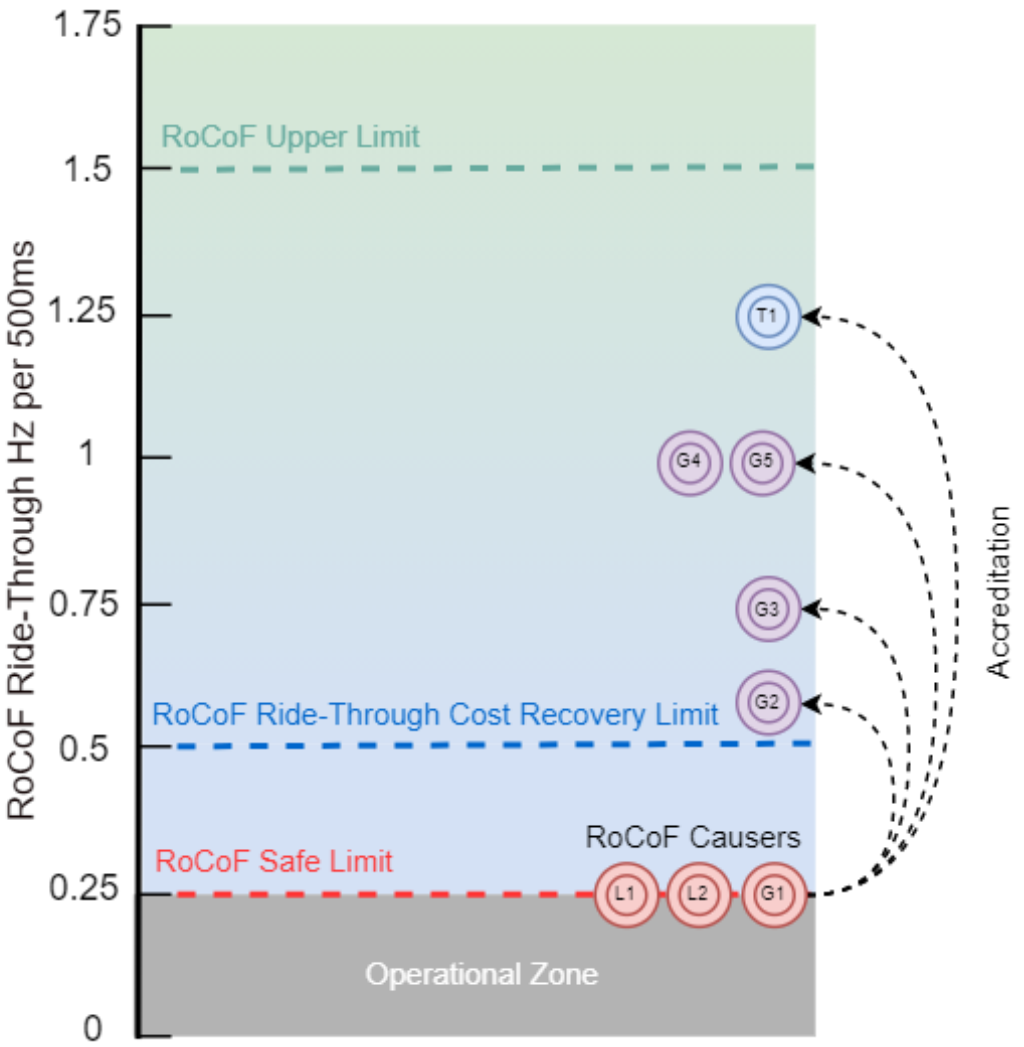
Defined Terms

RoCoF Safe Limit: Set by the FOS, the upper limit on operation of the system

RoCoF Ride-Through Capability is the highest RoCoF Limit at which the Facility can operate safely and reliably, expressed over the same timeframe specified in the RoCoF Safe Limit.

RoCoF Ride-Through Cost Recovery Limit is a boundary above the RoCoF Safe Limit which will determine who must pay for the RoCoF Control Service. Expected to be 0.25hz per 500ms above the Safe Limit at market start.

RoCoF Upper Limit will be a static value published by annually, represents the uppermost boundary of RoCoF for the SWIS. If all Facilities had a Ride Through Capability above this value, the RoCoF Control Service would never be required.



Obligations

2.34A.12A – 2.34A.12J

- Generators (incl storage), and loads may apply to accredit their ride-through
- Network Operator must apply to accredit its ride-through
- AEMO may deem the RoCoF R-T at the RoCoF Safe Limit

- AEMO may process applications from energy producing systems ahead of loads
- AEMO will engage with industry on discovering R-T Capability for Loads, and does not need to process applications from loads for 12 months after market start

Discovery of ride-through will help establish who is a RoCoF Causer and therefore pays for the RoCoF Control Service. Where a Facility's ride-through is lower than the Cost Recovery Limit the Facility will be captured as a RoCoF Causer for RoCoF Control Service cost recovery

Transitional provisions for mandatory ESS accreditation

Mandatory FCESS accreditation

Transitional provisions in new section 2.34B

- **All facilities with AS accreditation in 2020 Capacity Year are required to undertake a FCESS accreditation process with AEMO**
  - Must get accredited for the equivalent FCESS
  - May get accredited for other FCESS capability
- **Synergy is required to accredit all capable facilities in the Balancing Portfolio for FCESS, and consult with AEMO to determine the facilities**
- **Obligation to start the accreditation process with AEMO begins 1 October 2021, recognising long lead time nature of the process**
- **Obligation to offer at least the maximum accredited quantity in FCESS market at market start – for 6 months**

Accreditation for Regulation

- LFAS Up/Down equivalent to Regulation Raise/Lower
- Accreditation for all currently accredited Facilities
- Current limitation 0.2 MW/min for each MW of accredited capability
  - Consideration of AGC minimum effective quantity to identify minimum offerable quantity
- Accreditation will be to maximum capability
  - Considering fuel/configuration
  - Capped at ramp-rate over 5-minutes
- Accreditation inputs to be taken from Standing Data (max/min/ramp) or AGC setpoints where required

Accreditation for Contingency Reserve

- Spinning Reserve/Load Rejection equivalent to Contingency Raise/Lower
- Accreditation for all current contracted SR Facilities
- Accredited Quantity based on (in order of preference):
  - Event Data
  - Testing
- Accreditation based on configuration/fuel and managed through offers.
- Accreditation can be reassessed
  - Re-accreditation possible following observed response
  - Participant 2.34A.8 / AEMO 2.34A.11

Accreditation for RoCoF Control Service

- Automatic accreditation for existing Facilities
- MWs assigned for each discrete generating unit
  - Based on the values assigned in the Dynamic Frequency Model (informed by power system modelling data)
- Values based on observed performance, where available, and modelling data adjusted to allow for generally observed performance otherwise

New Facilities

- New Facilities (existing/proposed) will be able to accredit ahead of Market Start for the new FCESS services, after demonstrating performance through observation:
- Regulation Raise/Lower
  - **New Facilities to demonstrate ability to meet AGC requirements and Quantities**
- Contingency Raise/Lower
  - **Observe/Test/Infer**
  - **Capability to sustain output in addition to droop up to 15 minutes**
  - **Control system verification (AGC interface/data-logging)**
- RoCoF
  - **Base on "class" of Facility, whether existing in WEM or leveraging data from other jurisdictions**
  - **Refine Accreditation following observed response**

Next Steps

- Draft rules released for feedback 26 March – 8 April
- Rules will be gazetted and commenced by early May
- Processes for accreditation to be discussed through WRIG

Energy Transformation
Implementation Unit

PSSR Standards Framework

Why a Framework is needed

- Absence of a set of technical standards for power system security and reliability established for a common objective balancing customer requirements, economic cost and state development needs, etc
- Duplication and ambiguity in the roles of different entities responsible for the governance and operation of PSSR standards
- No central body to govern and change the standards as needed
- Absence of guidance on how standards can be operationalised across investment planning and operational time frames;
- No requirements or avenues for customer consultation
- Lack of coherent reliability standards

Project Scope

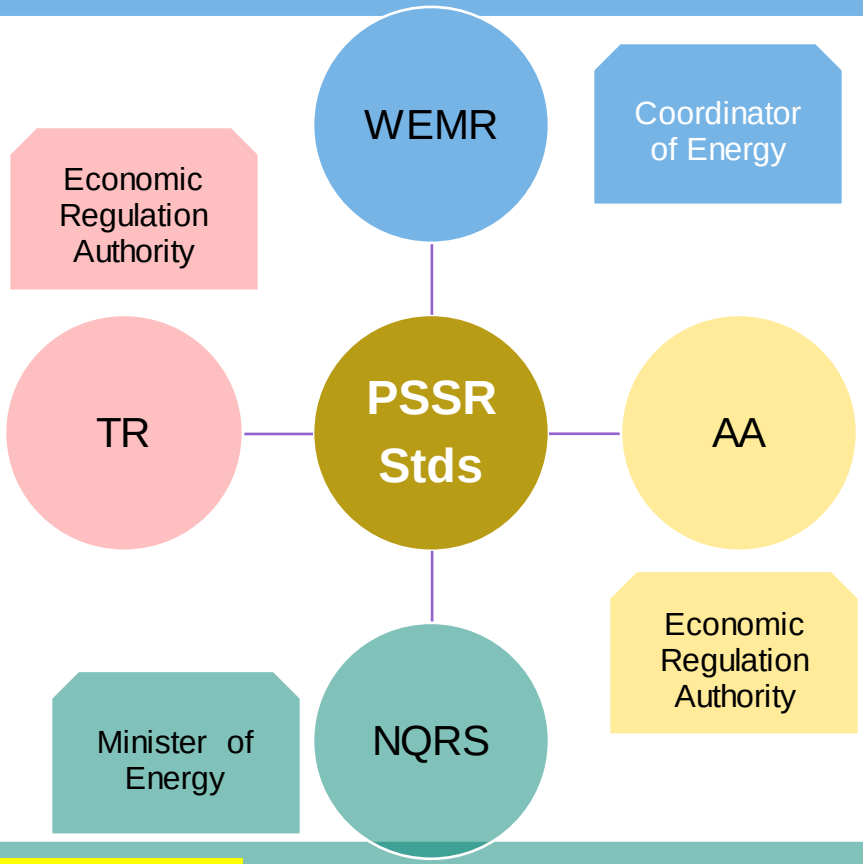
The scope includes:

- **Identify & resolve gaps and overlaps in PSSR standards**
- **Refine Roles and Responsibilities of WP, AEMO and ERA**
- **Determine a suitable end-to-end governance process**
- **Identify legal impediments for implementing the proposed framework**
- **Develop interim improvements to help maintain security and reliability**

PSSR Standards under the Current Framework

Frequency Operating Standards, Under Frequency Load Shedding, Credible contingency event, Projected Assessment of System Adequacy (PASA), GPS for Transmission generators, System restart, Principles for Operating states, Essential System Services (ESS) & Outage planning

Voltage stds, Transient & oscillatory rotor angle stability, Transmission & Distribution Planning criteria,, UFLS, Power transfer limits, Credible contingencies, GPS for Distribution Generators, Harmonics, Flicker, EMT interference, Network outage planning. Reliability requirements



Service Standard Benchmarks and Targets, Value of Customer Reliability, Reliability requirements

Harmonics, Flicker, Standards for the duration of interruption of supply in particular areas Payments to customers for failure to meet certain standards, Reliability requirements

Gaps

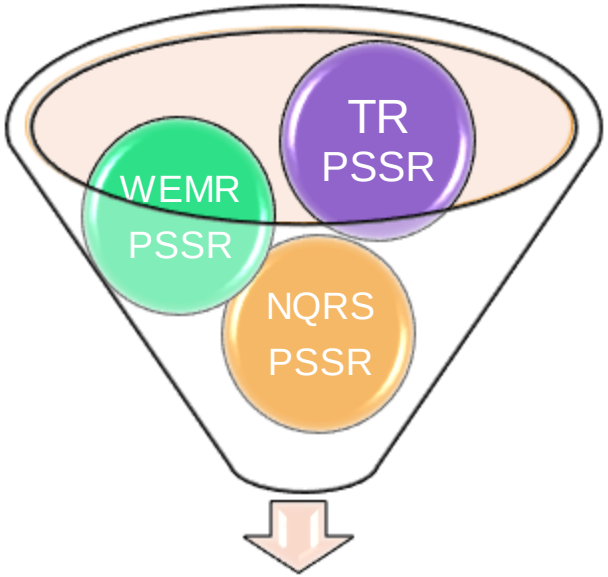
Overlaps

Current Roles and Responsibilities of AEMO & WP

PSSR application across timeframes

	Plan (3-10 yrs)	**Design , Procure, Construct** (3-5 yrs)	**Operate** (Real time – months)
AEMO	LT PASA, Load & Generation forecast Support WP planning activities	Procure ESS, NC-ESS, Reserve Capacity Support WP design activities	Direct and manage System Stability & Security – manage frequency, set secure voltage limits, determine operating states, approve outage and plan for the medium & short term (ST & MT PASA).
WP	Network Development Plans (Study & plan for network growth & stability based on several generation scenarios). Load forecast for 1-30 yrs	Design, procure, build network and NCS/ NC-ESS. Connect loads and generator. Manage customer and network compliance. Manage investment via AA every 5 yrs.	Manage voltage, reactive support, fault levels, Power quality, load transfers, study and request outages. Investigate network disturbances & events WP to inform AEMO of potential System security risks

The Centralised Framework



Unified SWIS PSSR Code

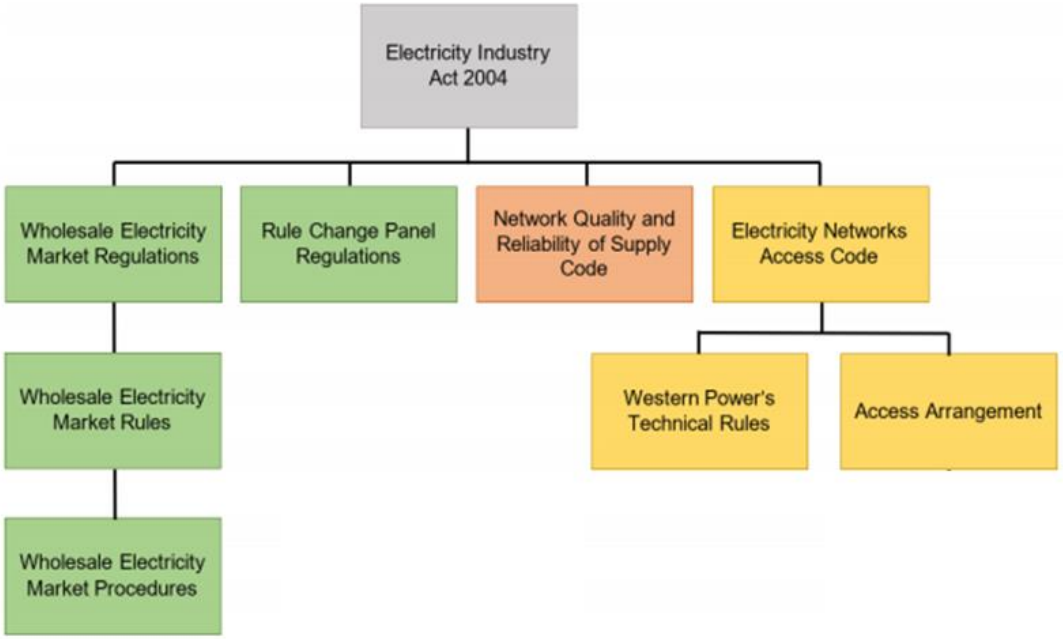
Governed by a suitable central body

Supported by a panel of experts

Legal Impediments for the Centralised Framework

The Electricity Industry Act 2004 makes provision for:

- The WEM Regulations & WEM Rules Part 9
- The Access to Network Services – Part 8
- Network Quality and Reliability Standards for Licensees – Part 9



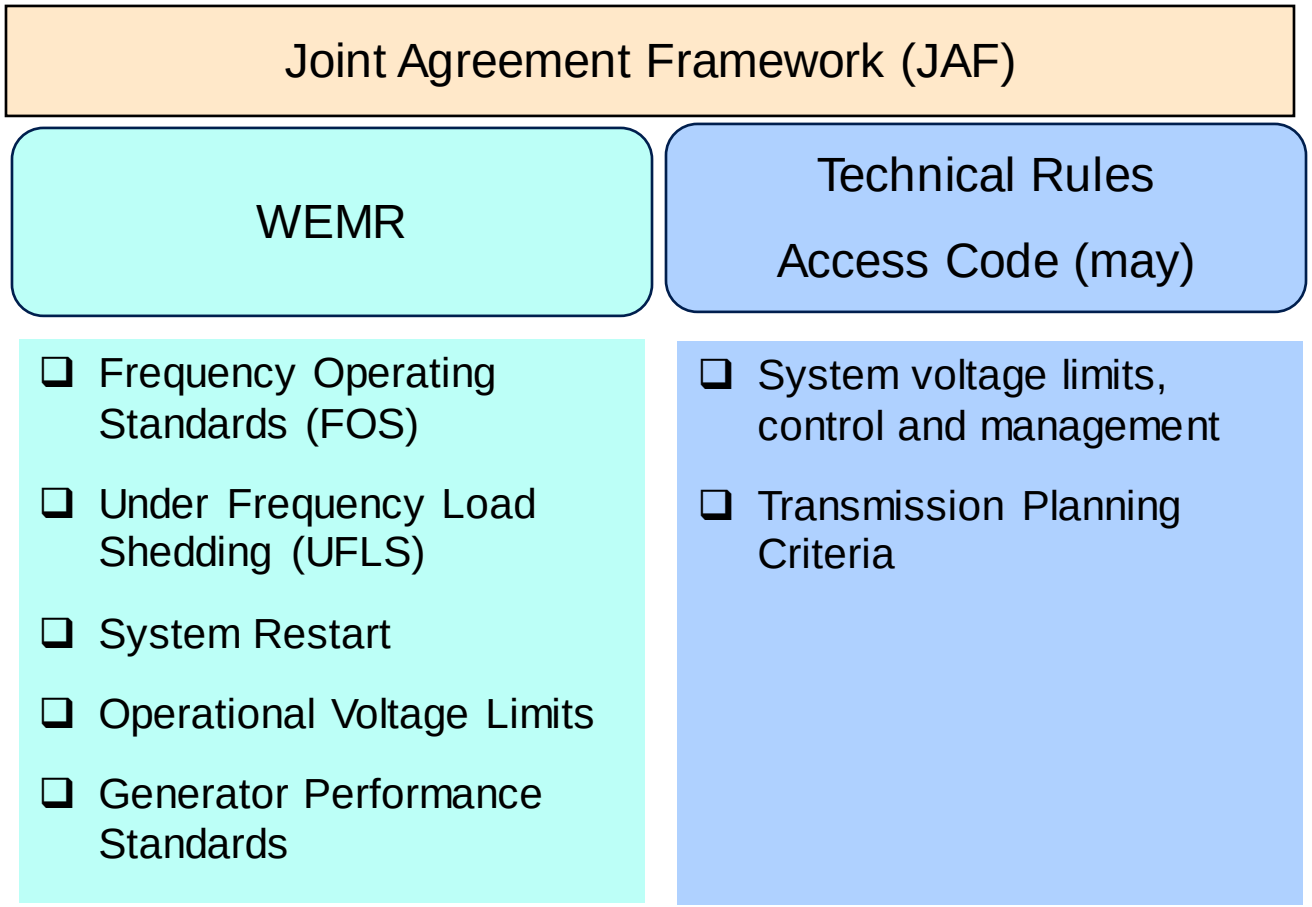
Key issues to be resolved in the interim period

Major gaps in the working together of AEMO and WP

Key Area	Subset	Issues
System Security/Stability	Frequency limit management	Change management and consultation
	Under Frequency Load Shedding	Determining secure requirements, change management and consultation. Roles and responsibility boundaries
	Voltage	Determining secure operational limits for Real time operations, change management and consultation for system voltage limits in TR, Roles and responsibility boundaries
	Process and handover responsibilities	To be addressed as part of the AEMO-WP protocol. The document to have heads of power under the WEMR.
System recovery	System Restart	Change management and consultation Roles and responsibility boundaries

Joint Agreement Framework – Interim measure

Alignment between TR & WEMR



JAF – Basic principles of consultation and agreement prior to amending the existing standard. Developing requirements for operation and coordination (process) .

JAF - System Restart & UFLS

Proposed WEMR & TR changes

The Joint Agreement Framework for System Restart and Under Frequency Load Shedding is in progress.

System Restart

The proposed changes for System Restart under Section 3.7 of the WEMR was consulted in Nov 2020. The WEM Rules are being finalised for gazettal.

Under Frequency Load Shedding

ETIU is working with AEMO and WP to establish the required changes for UFLS in Section 3.6 of the WEMR and the TR. The first drafting of WEMR is available and will be further refined in the next few weeks prior to public consultation. Technical Rules changes will be submitted to the ERA in July 2021.

WP is currently reviewing the UFLS arrangements and the implications for AA5 investment as required by the DER roadmap action item#10 'Grid Response'. This work will also support establish the details under the UFLS Joint Agreement Framework.

Forward schedule

Topic	Item	Tentative date
Additional amendments to ESS accreditation and transitional obligations	Exposure Draft of Rules for industry feedback, until 8 April	26 March
Managing Market Information	Taskforce Paper published	29 March
Market Power Mitigation	Consultation paper for industry feedback. Submissions close 28 April	31 March
TDOWG – market power mitigation	TDOWG	19 April (meeting invite to be sent)
PSSR Standards Framework	Taskforce Paper published	End-April
Further amendments to RCM and registration rules Additional amendments to ESS accreditation and transitional obligations	Gazettal of Amending Instruments Gazettal of Amending Instruments	End-April End-April
RCM and ESS accreditation	Commencement Notices	End April

Meeting close

Questions or feedback can be emailed to TDOWG@energy.wa.gov.au