

# WA DER Market Participation Forum



13 December 2023



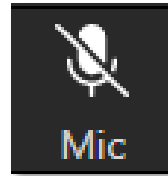
# Welcome

Tom Butler – Manager, WA Distributed Markets

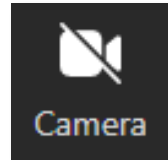
We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

**We pay respect to Elders past and present.**

# Online forum housekeeping



Please mute your microphone during the presentation.



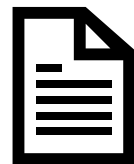
Please leave your camera off as well  
but we'd love to see you during Q&A!



We are very interested in questions and feedback.

We will pause regularly to give you time to:

- comment in the chat; or
- Raise your hand to ask a question.
- We have allocated time at the end for Q&A.



We will share a copy of the presentation slides as a  
PDF after the meeting.

We welcome feedback via  
[WADERProgram@aemo.com.au](mailto:WADERProgram@aemo.com.au)

# Agenda

*Please note that this meeting will be recorded by AEMO and may be accessed and used by AEMO for **capturing meeting outcomes**. By continuing, you consent to AEMO recording the call and using the recording for this purpose. If you do not consent, you may exit the meeting. No other recording of the meeting is permitted.*

1. **Welcome** by Tom Butler
2. **2023 in review** by Tom Butler and Bruce Redmond
  - Project Symphony
  - DER Register
  - Technology Integration
  - DER roles in the WEM
3. **What's coming up for AEMO in 2024?** by Tom Butler
4. **Energy Policy WA update**
5. **Q&A**



# 2023 in Review

# Project Symphony

## Summary of Test and Learn Processes

*Project Symphony demonstrated the successful integration of technology platforms to support the orchestration of DER assets into a future energy market.*

Total Testing Duration

**34**

# Weeks of Testing

**“STABILITY PERIOD”**  
(Testing of all scenarios)

**14**

# Weeks of Testing

**145**

# of Tests Executed



Energy Services  
Bi-Directional

**5**

# Facilities Registered  
(largest 2.96MW)

**15,334,048**

# Dispatch Instructions  
(5 minute intervals)

**37,747**

# RTMS Variations  
(Real Time Market  
Submissions)



ESS - Contingency  
Raise

**197**

# Simulated Tests

**13**

# Network Frequency  
Deviations

**69**

# High Speed Data  
Recorders (HSDR)



Network Support Services

**75**

# Simulated Tests



Constrain to Zero

**68**

# Simulated Tests

# Project Symphony

Our energy future



# Project Symphony – WEM Recommendations

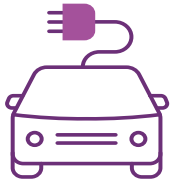
The implemented capability, testing and significant learnings from the pilot show that

- The ability to access stacked value from the aggregator's capability is critical to enabling DER aggregations, and this includes WEM services.
- DER Aggregations are potentially very large, central control does not align to the current electrical location-specific characteristics of Registered Facilities.
- DER Aggregator operations do not fit into the existing WEM Facility Classes – without some form of amendment, a scaled VPP with batteries would be treated as a Scheduled Facility.
- WEM arrangements should seek to permit entry to the WEM in line with system needs, whilst also enabling aggregations to develop capabilities over time.
- Enabling actions should commence including visibility arrangements, and DMO/DSO capabilities and integrations, supported by data exchange arrangements.

**Drawing from test outcomes, learnings and reporting delivered under Symphony, Energy Policy WA will be leading further assessment of WEM participation before confirming policy positions and any subsequent rule development.**



# Distributed Energy Resource Register



- Changes made in support of the [WA Gov Electric Vehicle Roadmap](#) actions in preparation to capture EVSE in the future.



- Integrate subsequent changes since initial implementation to include [Emergency Solar Management](#), Australian Standards [AS/NZ 4777:2:2020](#) and improve completeness/quality of data.



- Amended [WEM DER Register Procedure](#), [DER Technical Specification](#) and uplift to AEMO's [Developer Portal](#).



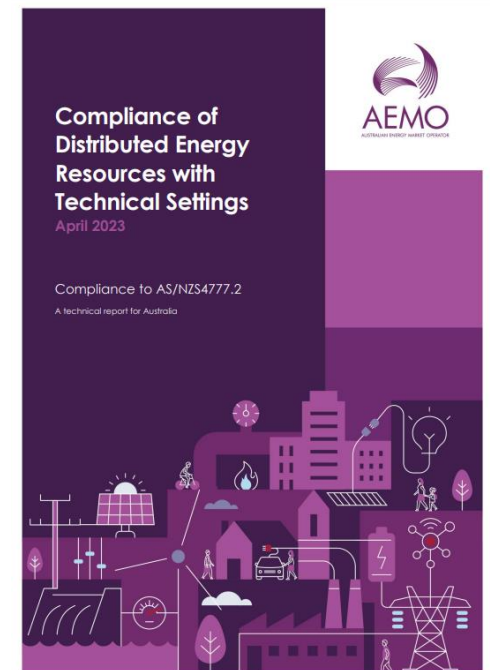
- Changes commenced 2 October 2023.

# Technology Integration

The Technology Integration project was established to undertake key actions under the WA Government's DER Roadmap, with a focus on operational tools and DER standards required for managing the WEM and SWIS under high and increasing DER penetrations.

Key deliverables during 2023 included:

- Global review of ISO considerations and actions to accommodate DER in system restart processes, finding that the SWIS/WEM's DER mix is unique and will have to develop an approach tailored to the local system. The report explores options that avoid, discourage, and activate DER to inform key decisions around standards, and aggregator roles.
- Comprehensive national review of DER [inverter compliance with technical settings](#), establishing immediate and long-term actions to uplift DER installation compliance nationally. Collaboration across AEMO and with research partners has continued to investigate DER inverter compliance challenges, with lessons and experiences feeding into an updated DER Inverter Compliance review update report.



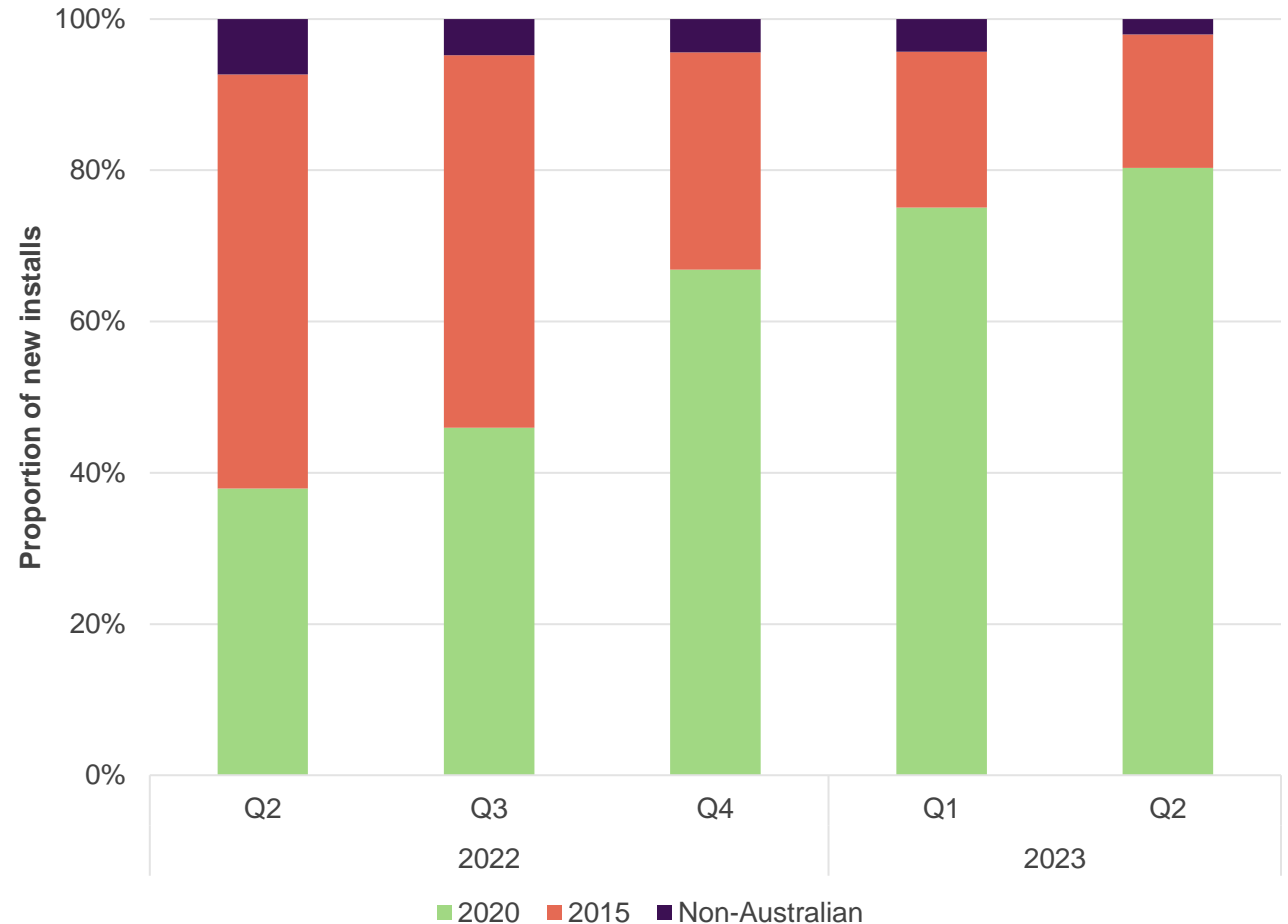
# Technology Integration

- AS/NZS4777.2:2020 (the 2020 Standard) defines **disturbance ride-through capabilities**, meaning inverters which meet the standard remain connected and continue operating following a power system disturbance
- This becomes very important for power system security if distributed resources are supplying a substantial proportion of regional demand

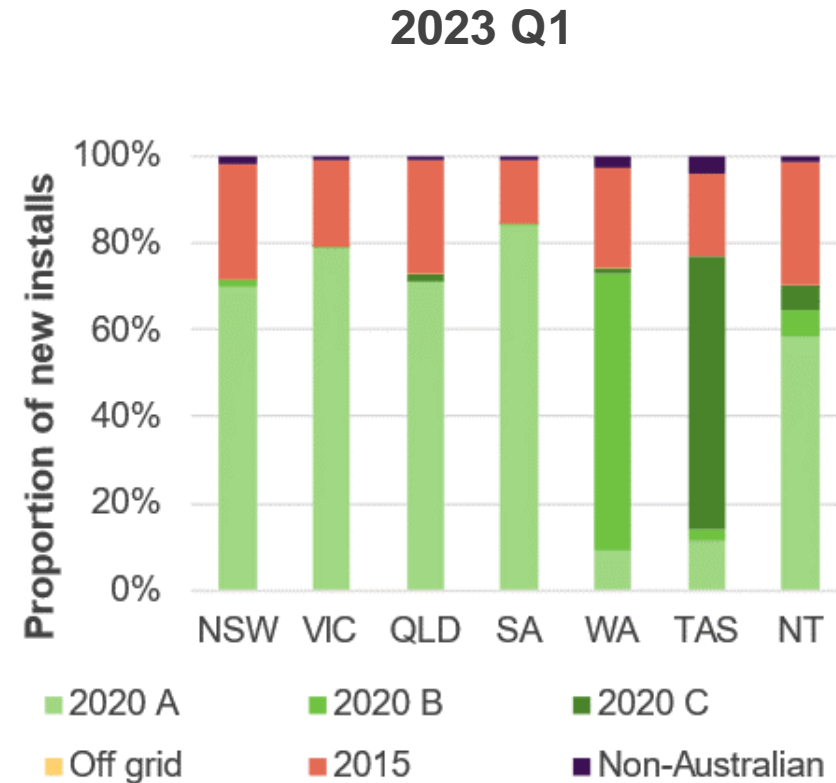
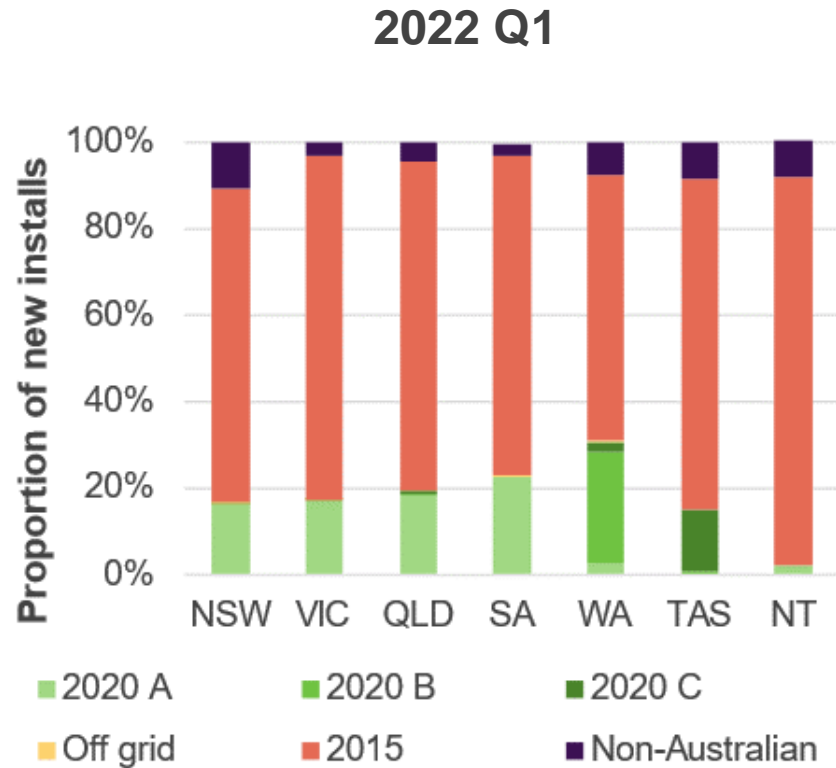
# Compliance with the 2020 Standard

- 2022 Q1/Q2: compliance in the field only ~40%
- 2023 Q1/Q2: 75-80% compliance

Compliance rates for new installs (weighted by market share):

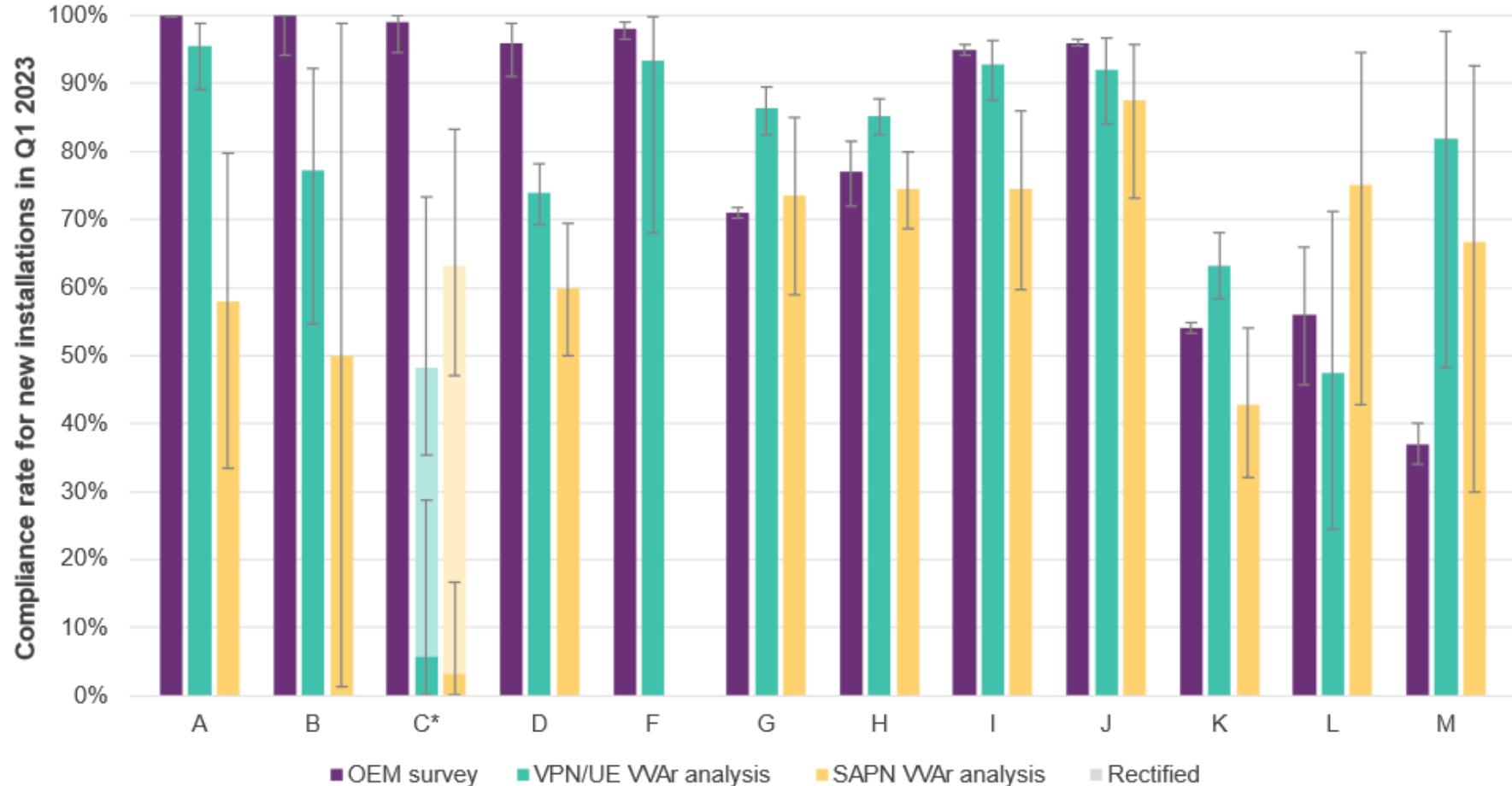


# Compliance rates by region



# DNSP analysis of DER compliance

- Cross-check OEM data with Volt-VAr analysis
- Comprehensive performance monitoring is needed



# Working with stakeholders

- Many stakeholders are taking proactive actions following AEMO's April 2023 recommendations
- Distribution Network Service Providers:
  - Introducing compliance monitoring programs (e.g. Volt-VAr performance monitoring)
  - Contacting installers that apply incorrect settings
  - Contacting manufacturers to rectify inverters that have been set incorrectly
  - Exploring improved commissioning processes
- Inverter manufacturers:
  - Removing legacy grid codes
  - Setting default grid codes
  - Marking legacy codes as “obsolete” and/or hiding in menus
  - Contacting installers that apply incorrect settings
  - Remotely updating settings on internet connected devices
  - Supplying data to AEMO and DNSPs
- CER & CEC:
  - Exploring options through existing roles managing accredited product listing, installer accreditation and installer training, audits, etc.
- AEMC and jurisdictions:
  - Considering long term governance frameworks

# Increasing roles for DER

- 2023 has been the year where DER has commenced playing roles that support the system, through aggregation and control.

Timing	2022/23 SRC	2023/23 NCESS (low load)	2023/24 SRC	2024/26 NCESS Reliability	2024/26 NCESS Reliability	2025/27 Reliability
Quantity required	174 MW	84 MW	326 MW	830 MW (peak)	MW (min)	354 MW (peak)
Unregistered Equipment	37.4 MW (demand response, incl. DER)	DER (DPV + Batteries)	DER + Demand Response	Demand Response	-	TBC
Registered Facilities	58.7 MW Reg. Facilities	Including ESR	Including ESR	Including ESR	Including ESR	TBC

- AEMO increasingly taking on unregistered equipment and DER providers under contract and is establishing basic tools to streamline deployment of these contracts.
- These real-world processes play a key role in informing further implementation activities over coming years.

\*Unregistered Equipment is inclusive of DER  
 ESR = Electric Storage Resource  
 SRC = Supplementary Reserve Capacity  
 NCESS = Non-Co-Optimised Essential System Services





# What's coming up in 2024

Tom Butler, Manager WA Distributed Markets

# Ongoing VPP testing ('Encore')

- Over the first half of 2024, AEMO will continue to expand on learning through coordinated testing, leveraging the Symphony infrastructure and investments.
- Key focus areas will be on informing future participation arrangements such as
  - Reserve capacity
  - Aggregator operating / performance specifications
  - DER ecosystem visibility
  - ESS-CR (Contingency Raise) and standards development

# Enabling DER Aggregator Participation

- AEMO is preparing a second in-period submission to the ERA, supporting key reform activities over FY25.
- Ongoing implementation of the WEM DER Program in line with the WA Government's DER Roadmap will be included in this proposal.
- The focus of this proposal will be on enabling enduring Distribution Market Operator capability, whilst EPWA leads rule development to support WEM arrangements.
- Scope includes
  - Establish enduring information exchanges between the DSO and AEMO to support VPP visibility and enable DSO-led network support arrangements alongside efficient WEM outcomes.
  - Update existing systems such as the DER Register, registration and forecasting.
  - Enable consideration of DER Aggregations within the reserve capacity mechanism.
  - Development of supporting rules and procedures as required to deliver on DER Orchestration Roles and Responsibilities and DER Roadmap actions.
- Timing: Planning commencing in January 2024, continues through to October 2025.
- *DER Aggregator Registration and Participation will be considered in AEMO's AR7 submission, as arrangements would be clarified by Energy Policy WA over 2024.*



Government of **Western Australia**  
Department of **Mines, Industry Regulation and Safety**  
**Energy Policy WA**

# DER Participation and Market Integration – EPWA Update

13 December 2023

Aden Barker

Director Electricity Networks &  
Customer Participation

Energy Policy WA

Working together for a  
**brighter** energy future.

# DER Roadmap progress report

## Key developments over the past 18 months

### Project Symphony

- WA's flagship DER aggregation pilot is now **substantively complete – Final Report being prepared**

### DER Orchestration Roles and Responsibilities Phase 2

- **Key functions** of the Distribution System Operator (DSO), Distribution Market Operator (DMO) and Aggregators have been **defined and progressed**.

### Legislative and regulatory reform

- The Electricity Industry (Distributed Energy Resources) Bill 2023 and the Electricity Industry (Alternative Electricity Services) Bill 2023 have been **introduced to Parliament** (passed the Legislative Assembly).

### Emergency Solar Management

- Ongoing improvements has enabled the reliable availability of over **100MW** of emergency response

### Customer products

- A **new time-of-use tariffs** has been released to promote load shifting during the evening peak and encourage daylight use. A **flexible exports style aggregation product** has also been developed to remunerate customers in exchange for remote management of their solar systems.

### Research

- EV consumer charging study published

# DER Roadmap progress report – Q1 2024

## Areas of focus for the next 12 months and beyond



# DER Orchestration Roles and Responsibilities Phase 2

## 1. Installation standards and configuration

Standards provide physical boundaries and minimum functionality for the safe and secure operation of the network and power system. Signalling functional requirements through standards will inform OEM investment in DER functionality.

## 2. Customer-Aggregator Relationship

Customer-Aggregator relationships determine how the aggregator will interface with the customer and power system/market entities

3. Visibility of DER activities for long, medium and short-term power system and network planning is needed to ensure the power system and network are operated safely and securely

## 4. NSS Framework

Clearly signalling the role of NSS will inform aggregator investment in capability

## 5. DOE governance and capacity allocation principles

DOEs are needed to optimize network operations and market outcomes

***For release Q1 2024***

# DER Roadmap Coordination Committee (DERRCC)

Ensuring the smooth delivery of the DER Roadmap and associated DER programs

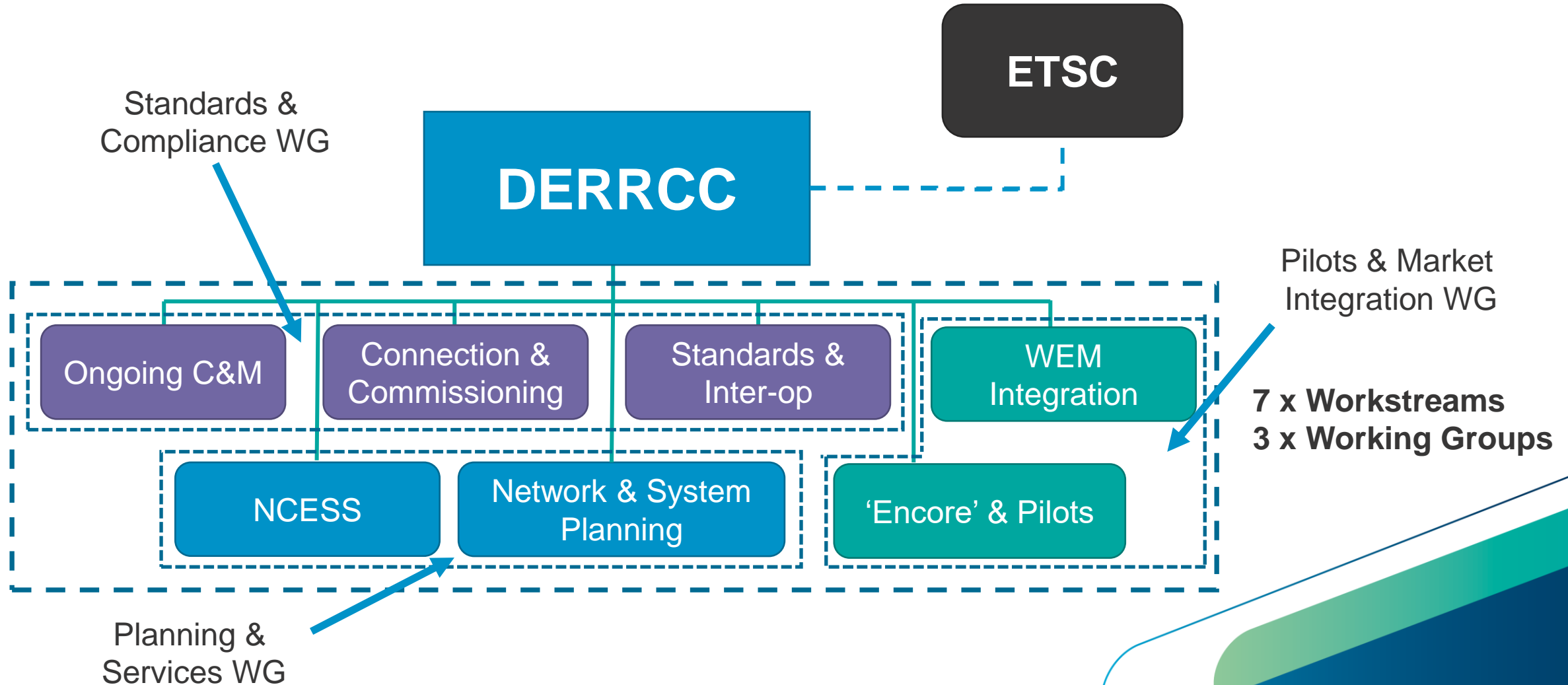
- **Chaired by EPWA**, membership is held by **senior representatives from EPWA, Synergy, Western Power, AEMO, and Horizon Power**
- **Aligns expectations** and understanding regarding DER Roadmap actions, objectives and underlying policy positions relevant to non-contestable customers
- **Coordinates planning** activities relevant to the implementation of the DER Roadmap, including **resourcing and the impact of new policy** initiatives
- **DERRCC is supported by Working Groups**, focusing on specific elements of the DER Roadmap, to progress actions and initiatives under nominated workstreams as endorsed by DERRCC

*EPWA is mindful of retail and WEM competition considerations*



# DER Roadmap Coordination Committee

Will operate similar to Energy Transformation taskforce





# Q&A

We welcome feedback and questions via  
[WADERProgram@aemo.com.au](mailto:WADERProgram@aemo.com.au)



**WA DER Program web pages:**  
[AEMO | WA DER Program](#)  
[WA DER Market Participation Forum](#)

**Project Symphony reports:**  
[ARENA's knowledge sharing bank](#)



For more information visit

[aemo.com.au](http://aemo.com.au)