

2024 Wholesale Electricity Market Electricity Statement of Opportunities (WEM ESOO) Stakeholder Forum

24 June 2024



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.

AEMO Competition Law & Meeting Protocol

AEMO is committed to complying with all applicable laws, including the Competition and Consumer Act 2010 (CCA). In any dealings with AEMO regarding proposed reforms or other initiatives, all participants agree to adhere to the CCA at all times and to comply with this Protocol. Participants must arrange for their representatives to be briefed on competition law risks and obligations.

Participants in AEMO discussions **must**:

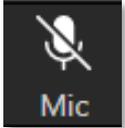
- Ensure that discussions are limited to the matters contemplated by the agenda for the discussion
- Make independent and unilateral decisions about their commercial positions and approach in relation to the matters under discussion with AEMO
- Immediately and clearly raise an objection with AEMO or the Chair of the meeting if a matter is discussed that the participant is concerned may give rise to competition law risks or a breach of this Protocol.

Participants in AEMO meetings **must not** discuss or agree on the following topics:

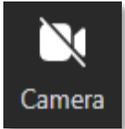
- Which customers they will supply or market to
- The price or other terms at which Participants will supply
- Bids or tenders, including the nature of a bid that a Participant intends to make or whether the Participant will participate in the bid
- Which suppliers Participants will acquire from (or the price or other terms on which they acquire goods or services)
- Refusing to supply a person or company access to any products, services or inputs they require.

Under no circumstances must Participants share Competitively Sensitive Information. Competitively Sensitive Information means confidential information relating to a Participant which if disclosed to a competitor could affect its current or future commercial strategies, such as pricing information, customer terms and conditions, supply terms and conditions, sales, marketing or procurement strategies, product development, margins, costs, capacity or production planning.

Online 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.



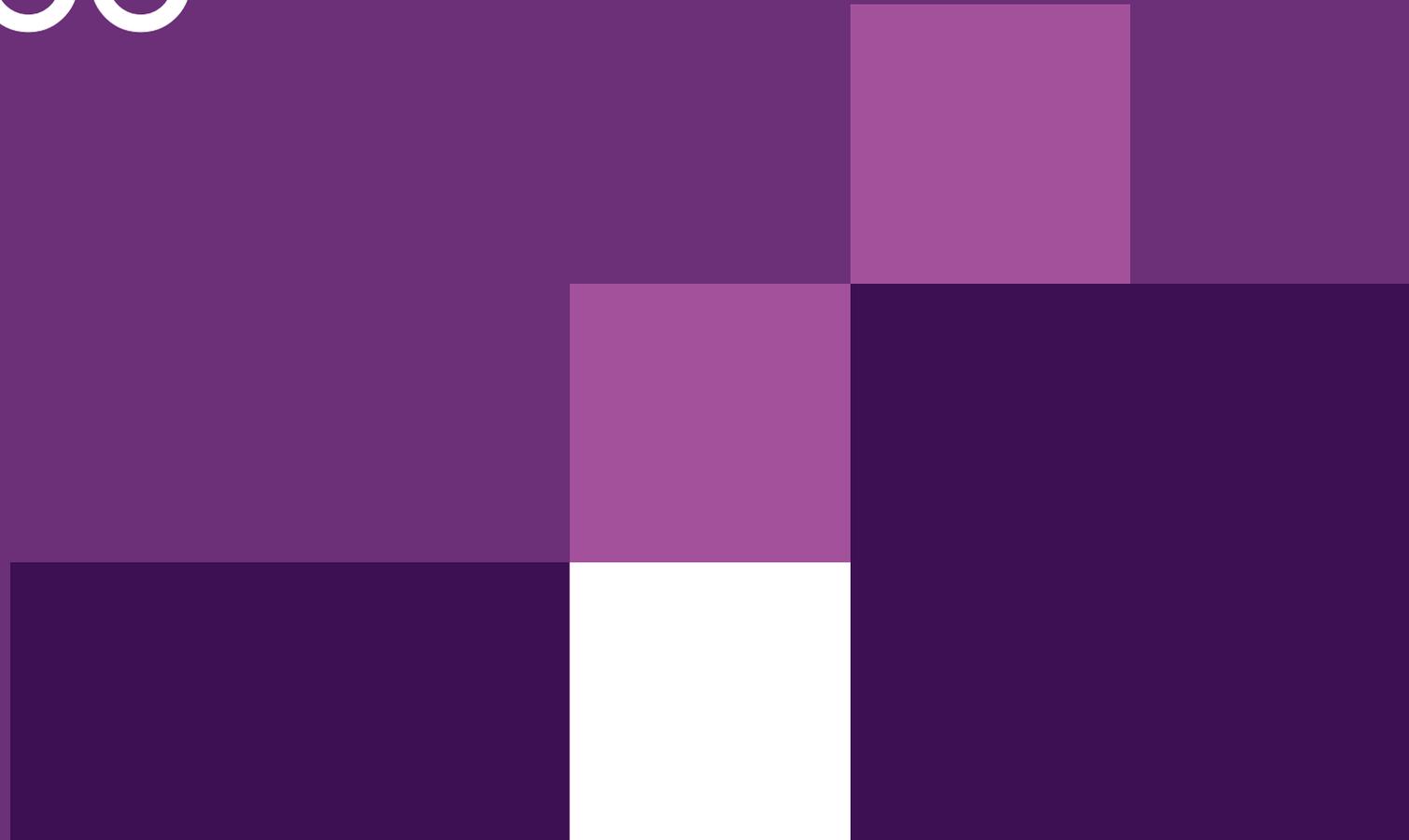
- We expect to have about 20 min for Q&A at the end. You are welcome to comment in the chat any time during the presentation or raise your hand to ask a question at the end.



- A recording of the forum and the presentation will be published on our webpage: [WEM ESOO](#)

We welcome your feedback: WAElectricityForum@aemo.com.au

2024 WEM ESOO key findings



Key findings: For the 10-year outlook period (2024-25 through to 2033-34)



Consumption



Electricity use supplied by the grid (excluding rooftop solar) is **forecast to increase on average 4.6% annually**.

This growth is driven by economic and population growth, along with the expected electrification of homes, businesses, industry and transport.



Peak demand



Peak demand is **forecast to grow on average 3.7% annually**.

Rising peak demand aligns with the factors driving operational consumption. Peak demands during summer and winter are converging.

A new **peak demand record was set in the SWIS in February 2024** during heatwave conditions.



Small Scale Solar



Small-scale solar, or distributed photovoltaic (DPV), uptake is **expected to continue increasing with about 6.5 gigawatts (GW) of capacity to be installed in the SWIS by 2033-34**.

Underpinning this growth are expected cost reductions and relatively short payback periods.



Supply



The near-term supply-demand outlook has **improved significantly since the 2023 WEM ESOO**.

Supply and demand will largely be balanced between 2025 and 2027 as result of AEMO's procurements of new capacity.



Investment Required



Investment in **generation, storage, demand-side response and transmission is required from 2027-28 onwards**.

Continued investment is needed as electricity demand grows and aging coal plants retire.

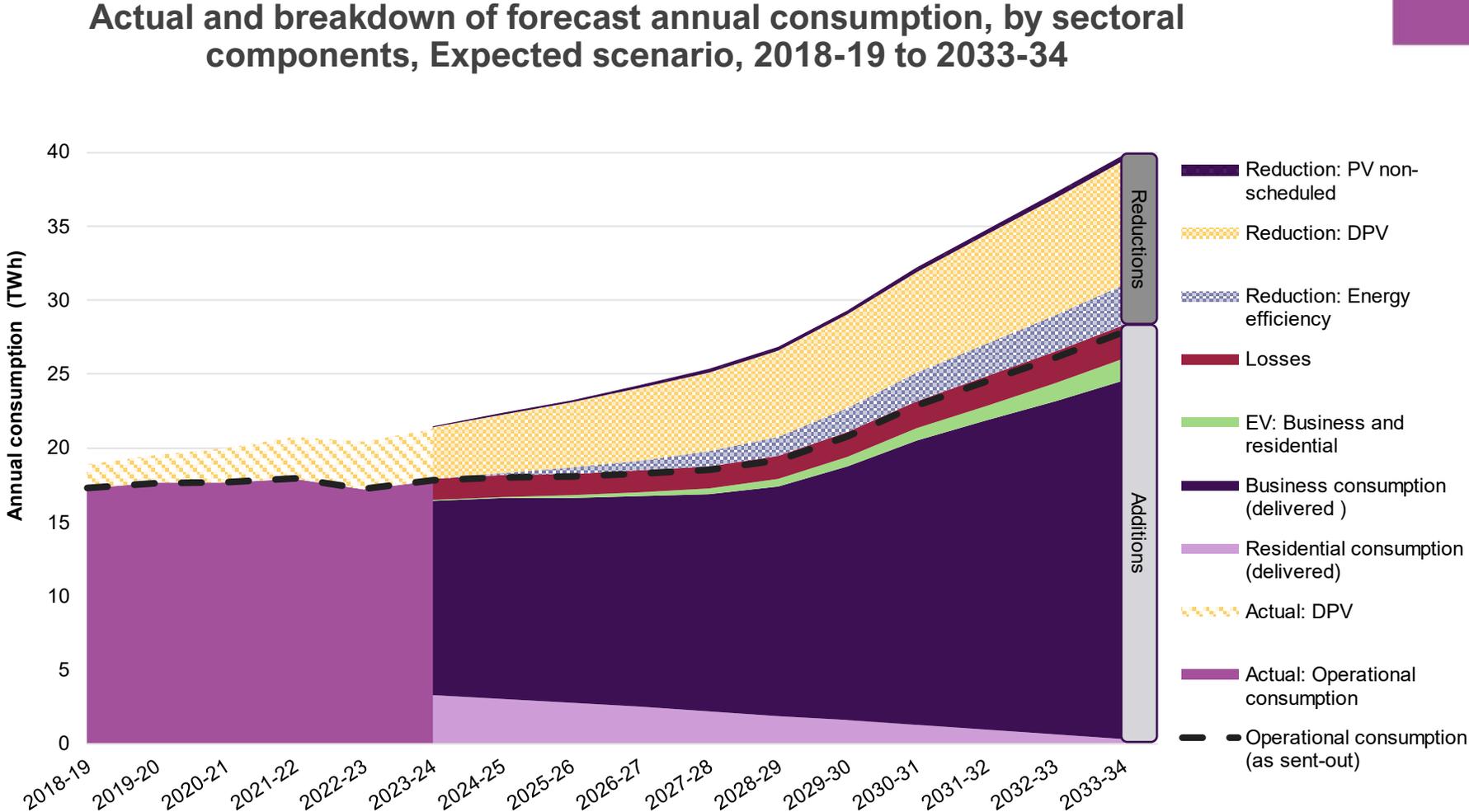
Consumption forecasts

Consumption



Electricity use supplied by the grid (excluding rooftop solar) is **forecast to increase on average 4.6% annually.**

This growth is driven by economic and population growth, along with the expected electrification of homes, businesses, industry and transport.



Summer peak demand forecasts



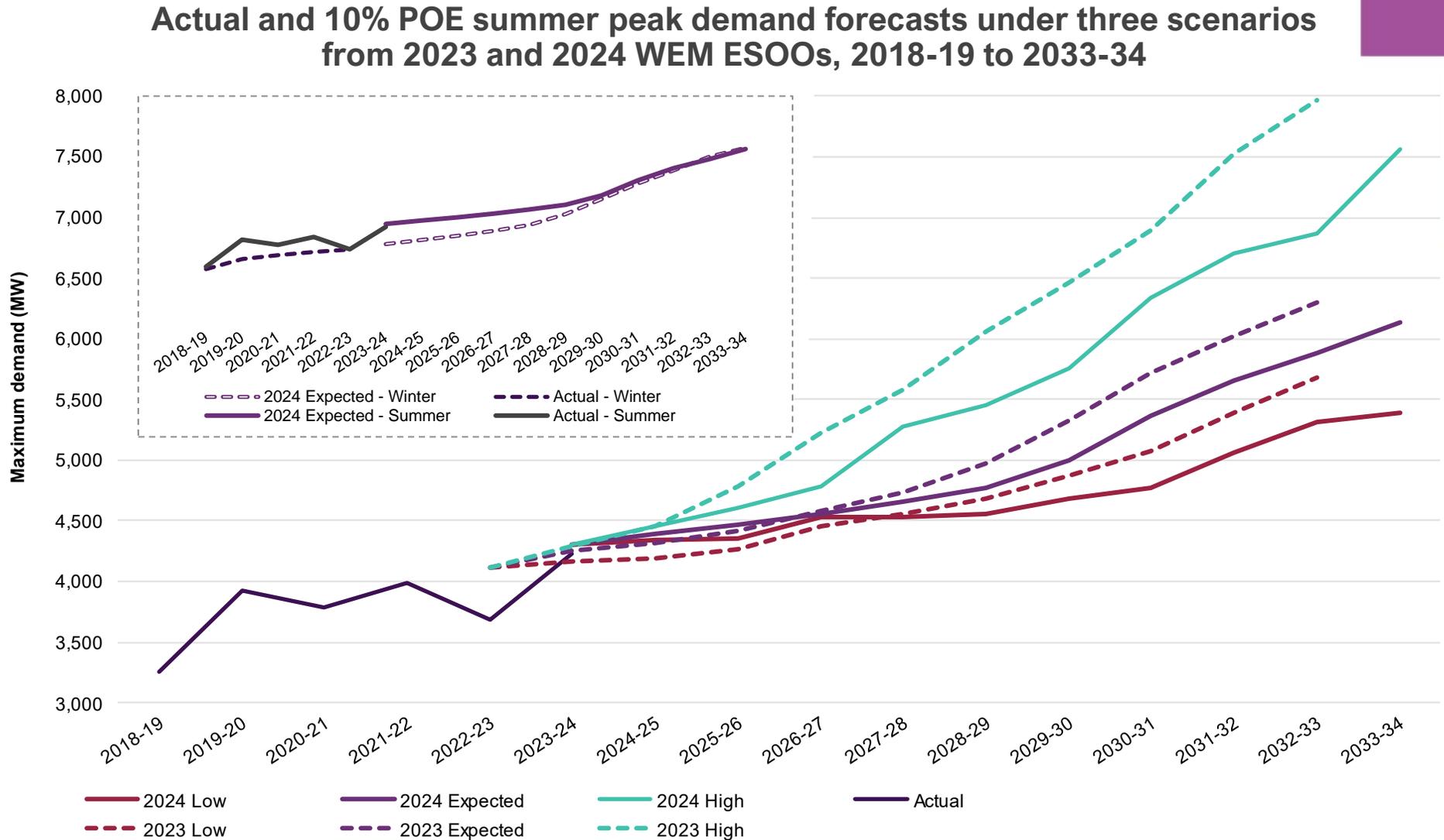
Peak demand



Peak demand is forecast to grow on average 3.7% annually.

A new peak demand record was set in the SWIS in February 2024 during heatwave conditions.

Peak demands during summer and winter are forecast to converge from 2029-30.



Distributed Energy Resources

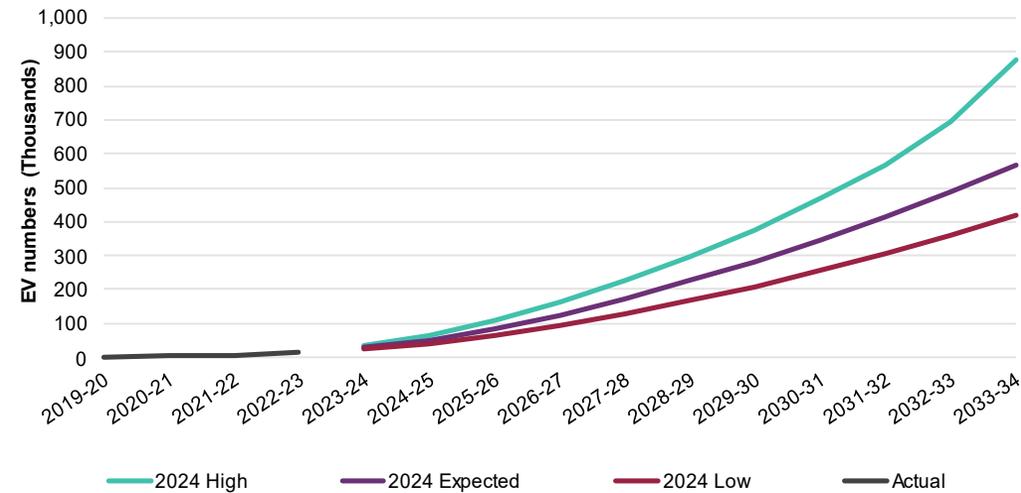
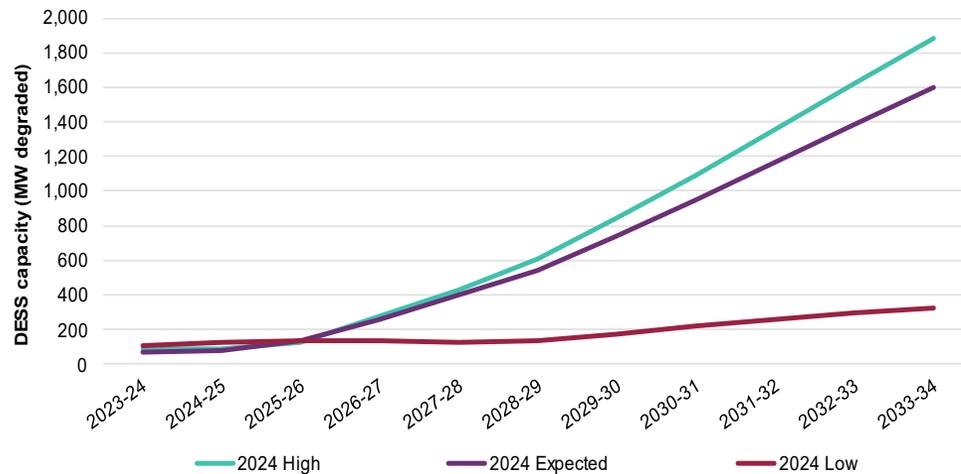
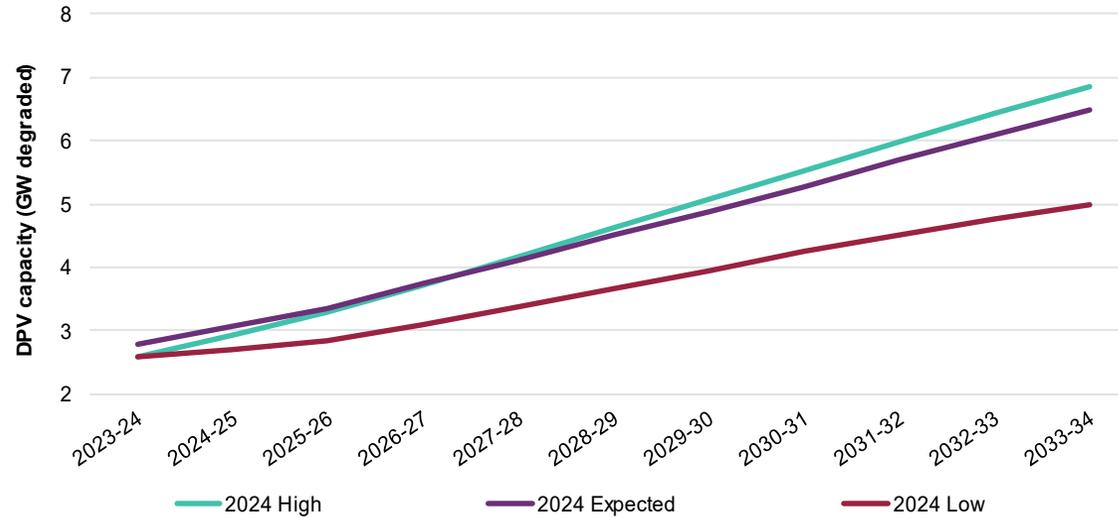


Distributed Solar PV

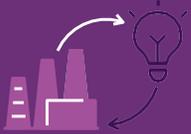


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Supply Demand Balance



Supply



The near-term supply-demand outlook has improved significantly since the 2023 WEM ES00.

Supply and demand will largely be balanced between 2025 and 2027 as result of AEMO's procurements of new capacity.

Forecast supply-demand balance, Expected scenario, 2024-25 to 2033-34



Investment required



Investment required



Investment in generation, storage, demand-side response and transmission is required from 2027-28 onwards.

Continued investment is needed as electricity demand grows and aging coal plants retire.

Capacity Year	2024-25	2025-26	2026-27	2027-28	2028-29
Reserve Capacity Cycle (WEM ESOO)	2022	2023	2024	2025	2026
Reserve Capacity Cycle Status	Capacity assigned	Capacity assigned	Capacity assignment over coming months	Not commenced	Not commenced
Reserve Capacity Target (RCT)	5,501	5,589	5,696	5,794	5,925
Capacity including NCESS	5,183	5,503	5,729	5,403	5,396
Capacity investment shortfall (-) or surplus	-317	-86	33	-391	-529
Potential mitigations					
Muja C unit 6 maintained in "reserve mode"	+193				
Possible early entry of Synergy's Collie ESR		+500			
Residual capacity shortfall (-) or surplus	-124	414	33	-391	-529
RCM processes to mitigate	SRC expected to be procured in 2024	SRC available, to be considered in 2025	Current Reserve Capacity Cycle	Future Reserve Capacity Cycle	Future Reserve Capacity Cycle

Under the WEM Rules, AEMO can use the Supplementary Reserve Capacity (SRC) and Non-Co-optimised Essential System Services (NCESS) mechanisms to support power system security and reliability.

AEMO has procured more than 1,000 MW of capacity to-date via the **NCESS** mechanism to help manage peak and minimum demand risks from 2024-26.

AEMO has identified a residual need for the 2024-25 summer and is planning to address this through SRC.

Investment required

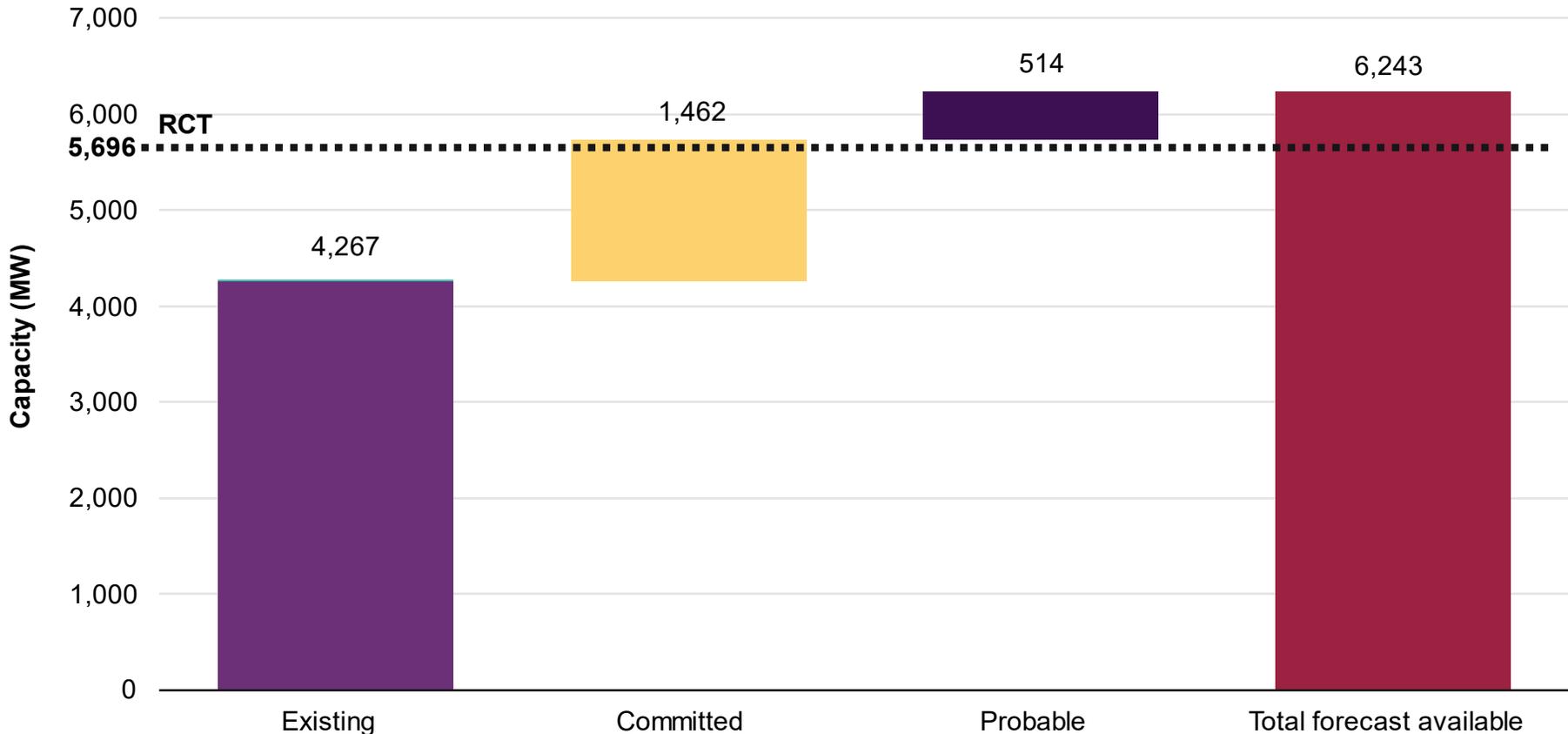


Investment required



Near term investments expected to achieve 2026-27 Reserve Capacity Requirement.

Sustained investment required for later years (391 MW in 2027-28 growing to 2880 MW in 2033-24)

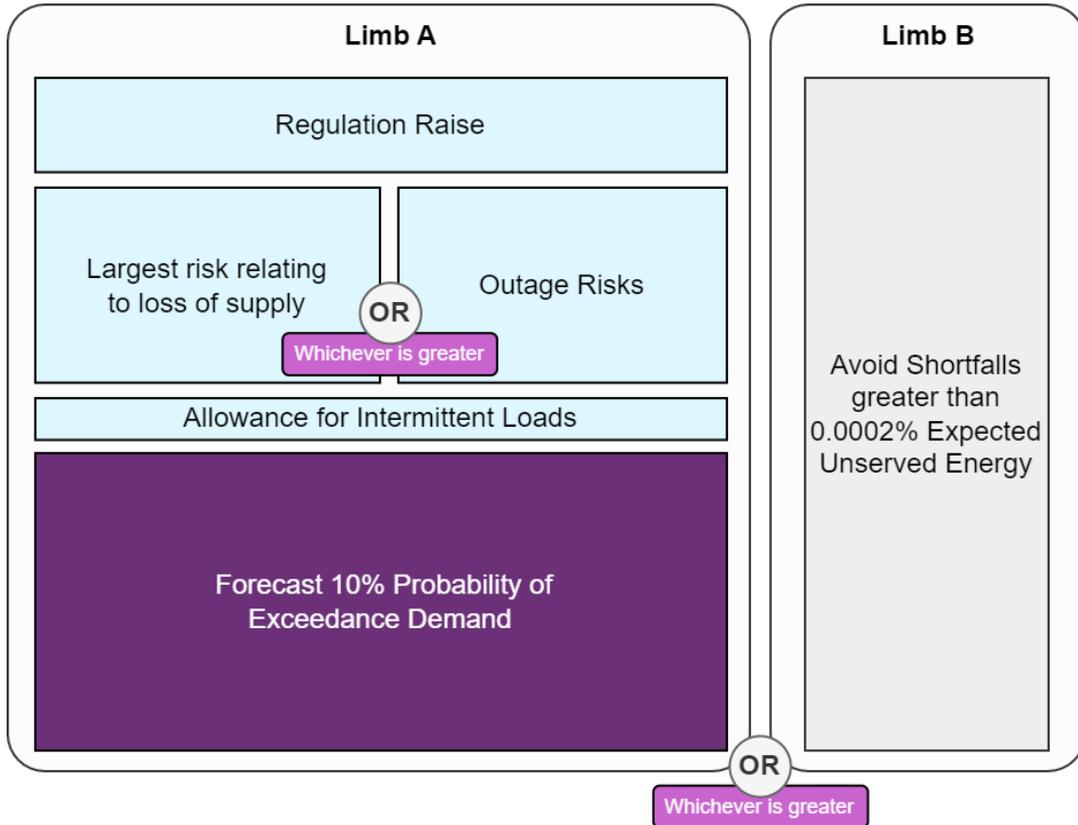


Reliability Assessment

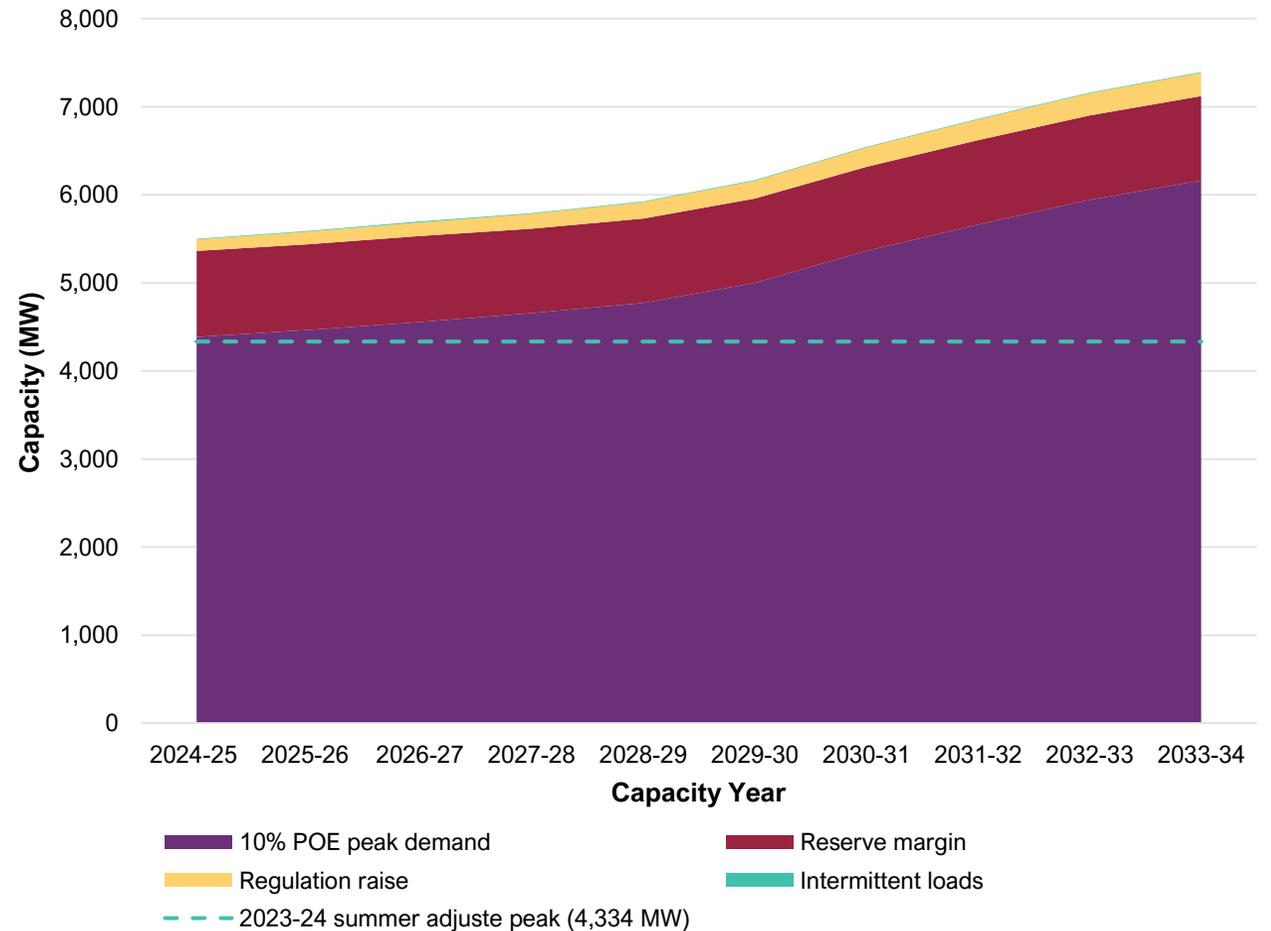


Planning Criterion

Limb A of the Planning Criterion continues to set the Reserve Capacity Target across the 10-year outlook period.



Limb A requirement

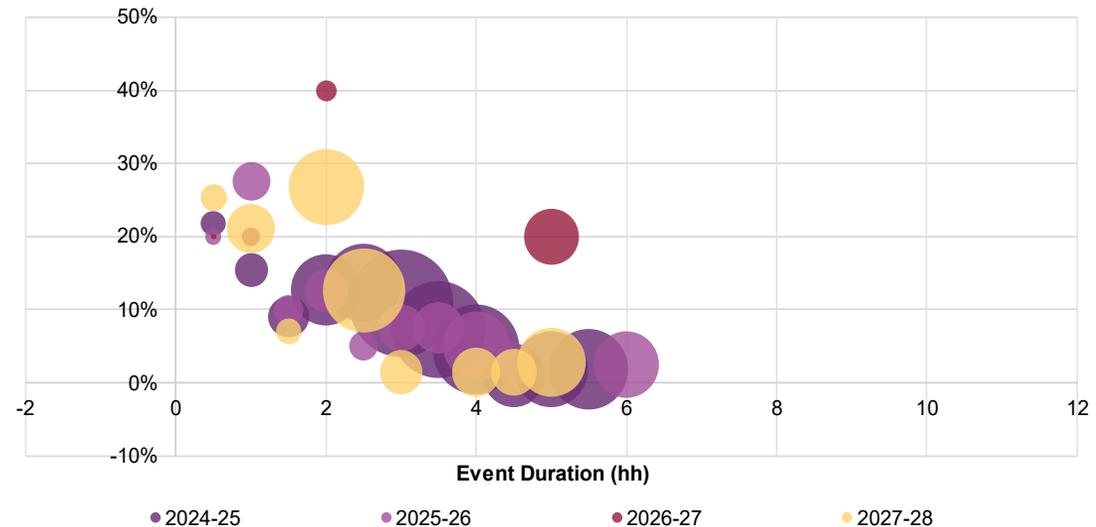
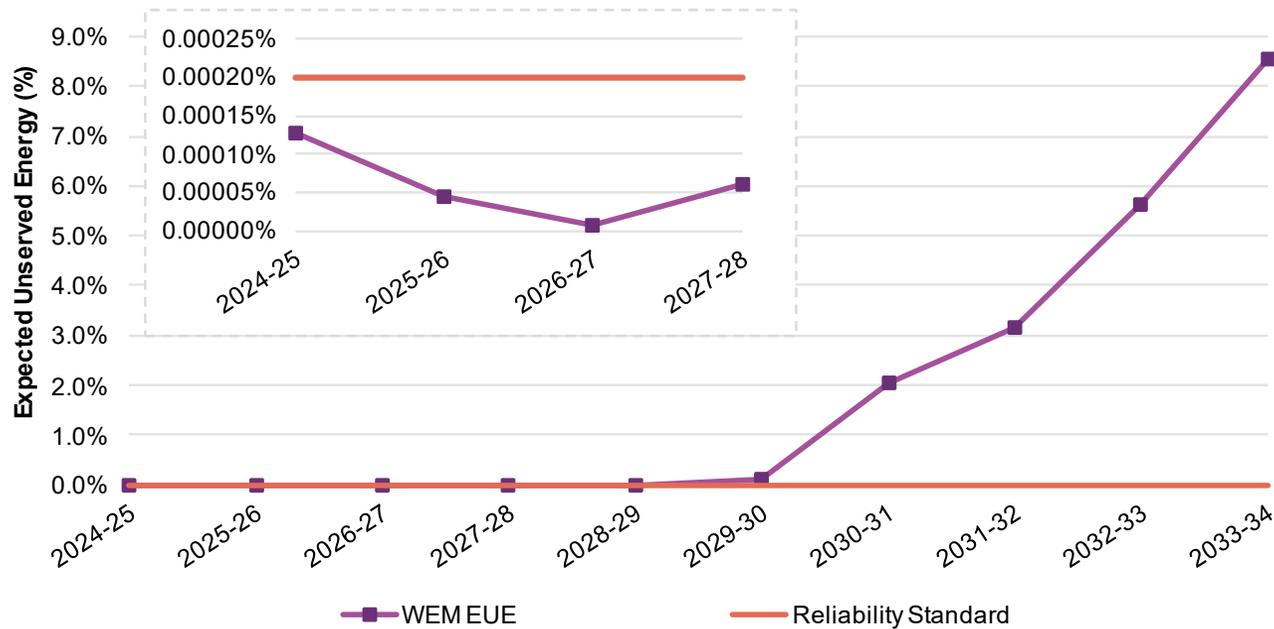


Limb B - EUE assessment (assumes no network congestion)

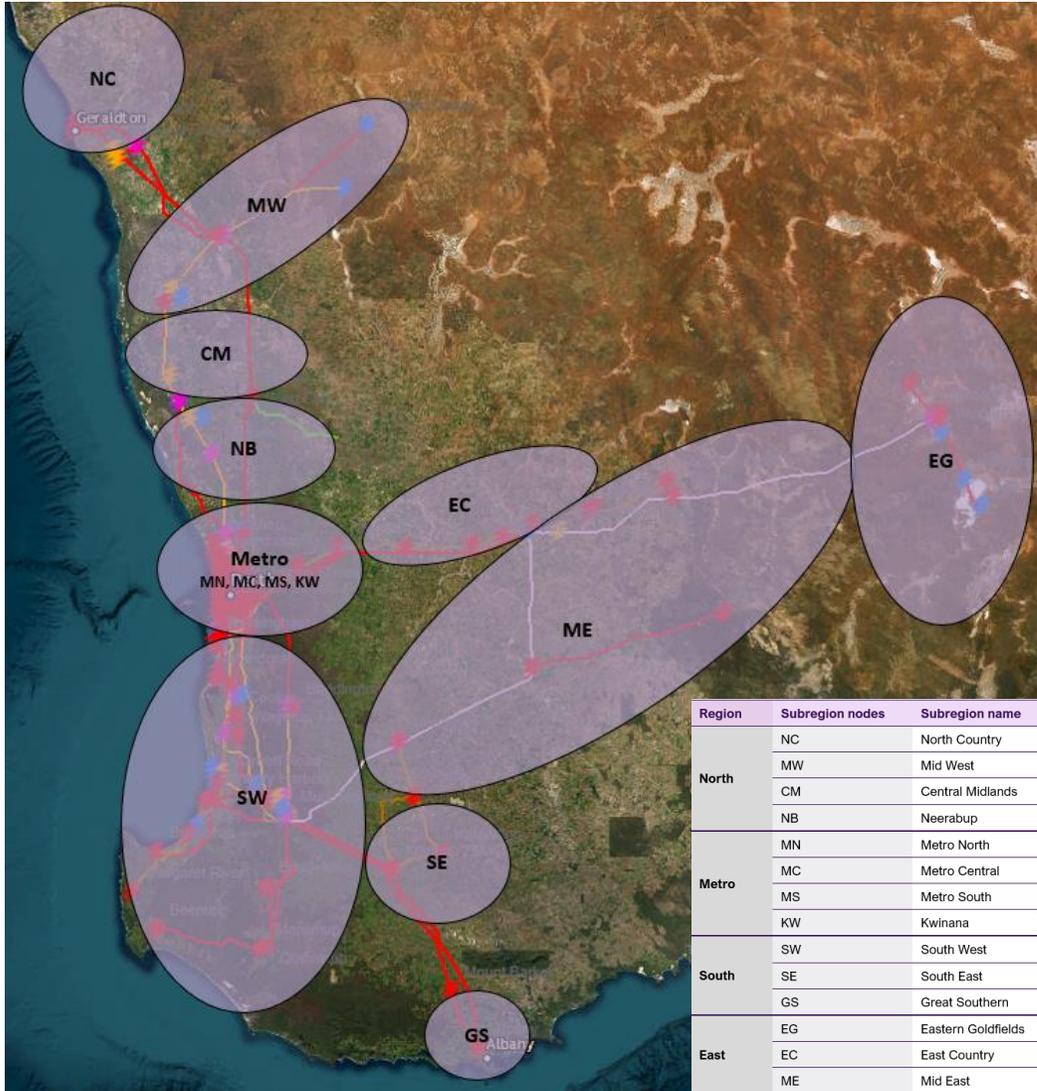
Expected Unserved Energy outcomes were below the 0.0002% threshold until 2027-28 with the expected fleet.

From 2028-29, without further investment in new capacity, modelled unserved energy exceeded the threshold to 0.0005% in 2028-29 rising rapidly to 8.5% in 2033-34.

Modelled new capacity to maintain Expected Unserved Energy to the threshold still fall short of Limb A target.



Assumptions regarding transmission



The regional capacity shortfall assessment includes constraint equations that represent the thermal limits of the transmission network.

The assessment includes the East Regional Energy Project (EREP, 2025-26) and Clean Energy Link – North Region (phased across 2026-27 and 2027-28).

- EREP completion in 2025-26 is expected to reduce East region-specific EUE.
- Clean Energy Link – North by 2027-28 will unlock additional network transfer capacity in the northern region and enable future generation to connect along the 330 kV infrastructure in the Mid West.

The SWIS Whole of System Plan, Western Power’s Transmission System Plan, and the WEM ESOO facilitate a coordinated approach to generation and network planning through the WEM planning cycle.

Duration requirements for storage

AEMO is now required to assess the duration requirements for new storage projects seeking capacity in the RCM.

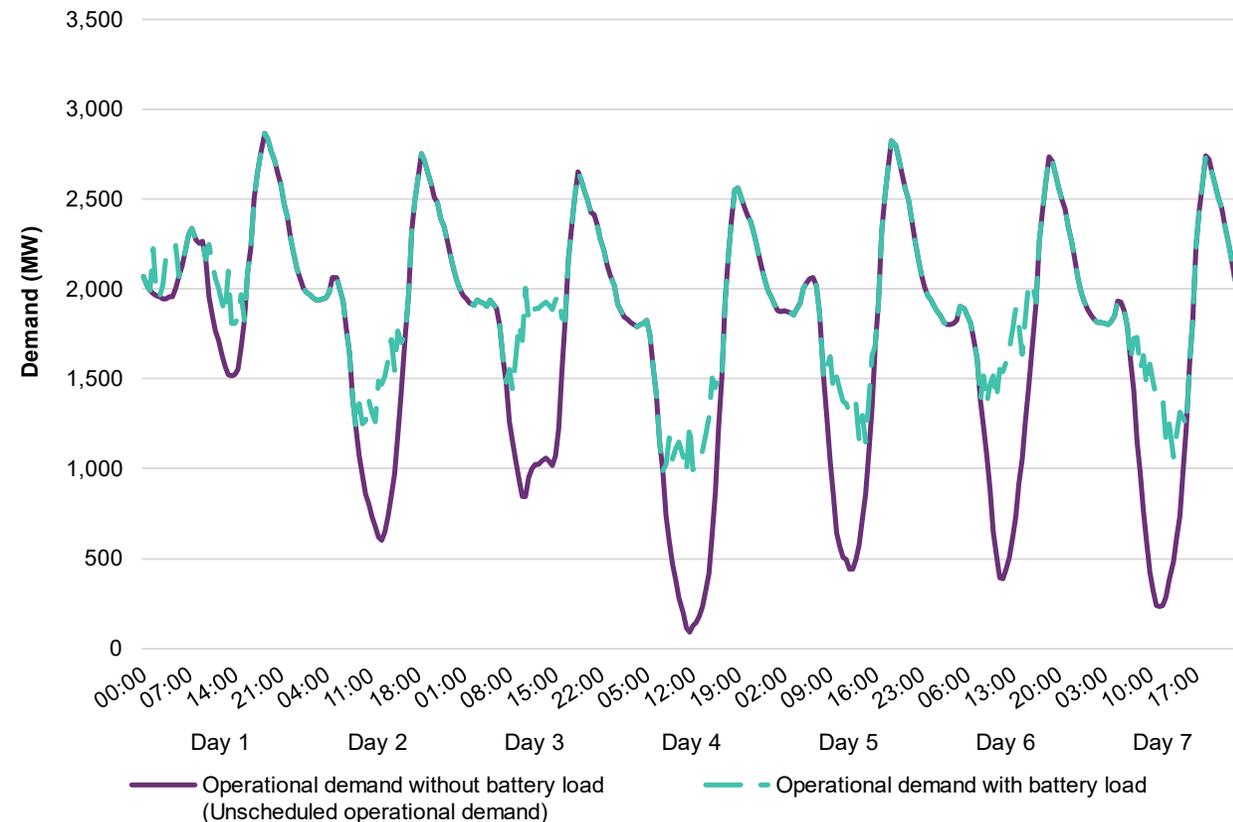
- The assessment considers the impact of duration-limited technologies on reducing demand and increasing the duration requirement if necessary.
- For 2026-27, the assessment has been undertaken but the results will not be used for RCM purposes as the transitional WEM rules have hard-wired the duration at **4 hours**.
- AEMO has identified that the current rules lead to excessive duration requirements.
 - Rule changes to promote a more efficient approach to future storage capacity evaluation and investments are being consulted as part of Miscellaneous 3 WEM Rule Amendments.
 - Analysis aligned with these rule changes suggests the storage duration will increase slightly in future years, with additional analysis to be presented in future ESOO's.

Committed and future storage investment is essential to mitigate forecast minimum demand risk

Projected growth in DPV is forecast to cause a rapid decline in minimum operational demand.

- Electric Storage Resources (ESR) will be critical to maintain operational demand to a secure level.
- Over 1,000 MW of storage is expected to help absorb excess solar and discharge it during high-demand periods by 2026-27.
- Based on similar projections in the 2022 WEM ESOO, AEMO secured 446 MW of minimum demand service for 2024-25 to 2025-26 to support system security during low operational demand periods.

Operational demand with and without battery load, a week in October 2026-27 (MW)



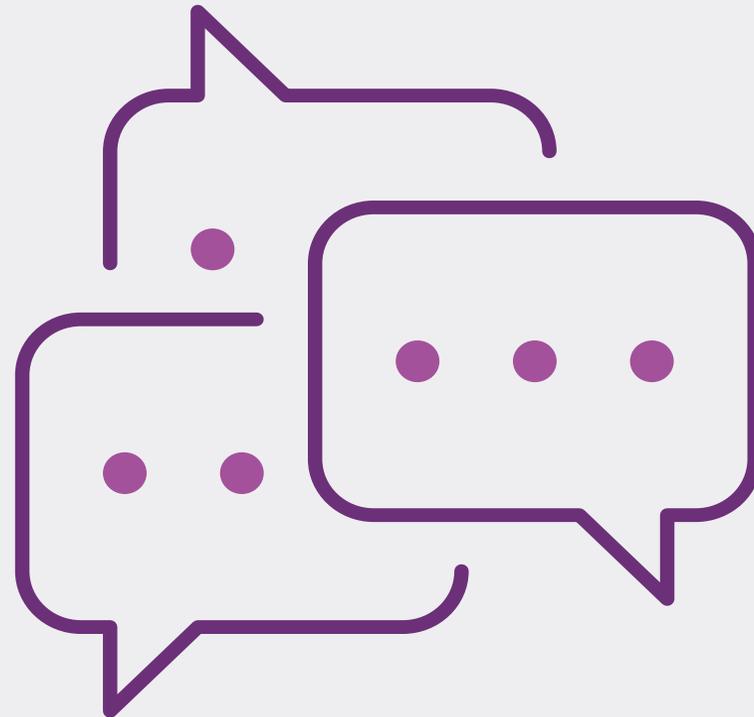
Summary of changes to the reliability assessment since the 2023 WEM ESOO

- Since the 2023 WEM ESOO, changes to the WEM Rules have:
 - Revised the second limb of the Planning Criterion
 - Introduced a regional capacity shortfall assessment
 - Amended requirements relating to the duration required for new ESR capacity and the need for additional capacity by specific Capability Classes.
- These changes have no immediate implications for the 2026-27 reliability outlook.
- Despite the tighter EUE limit, this WEM ESOO projects that the RCT will continue to be set by Limb A, which is sufficient to address the Limb B requirement for the outlook period.
 - Forecast EUE in the Goldfields is expected to significantly reduce following completion of Western Power's EREP.
 - The existing four-hour ESR Duration Requirement continues to apply for the 2024 Reserve Capacity Cycle, however AEMO anticipates the duration required may increase in future capacity cycles.
 - The Capability Class assessment does not indicate a need for specific capacity types in the near-term, however AEMO anticipates this may change later in the decade as coal-fired generation retires.

Q&A

We welcome feedback to:

WA.FutureSystemDesign@aemo.com.au





For more information visit

aemo.com.au