

WA Electricity Consultative Forum

10 February 2025





We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country, and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first Reconciliation Action Plan in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation – a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Read our
RAP



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:

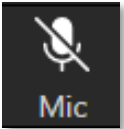
- Ensure that discussions are limited to the matters contemplated by the agenda for the discussion.
- Make independent and unilateral decisions about their commercial positions and approach in relation to the matters under discussion with AEMO.
- Immediately and clearly raise an objection with AEMO or 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:

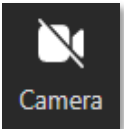
- Which customers they will supply or market to.
- The price or other terms at which Participants will supply.
- Bids or tenders, including the nature of a bid that a Participant intends to make or whether the Participant will participate in the bid
- Which suppliers Participants will acquire from (or 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 will pause regularly to give you time to comment in the chat or raise your hand to ask a question.
- We have a Q&A session at the end of today's session. Some questions may be saved for this session.



- A recording of the forum and the presentation will be published on our [webpage](#).
- We welcome feedback via WAElectricityForum@aemo.com.au.

Agenda

Item	Time (approx.)	Item	Speaker
1.	9.30am – 09.40am	Welcome and minutes	Martin Maticka (Chair)
2.	9.40am – 09.50am	WA Update	Aden Barker
3.	9.50am – 10.20am	Update on WA Power System: WA Operational Demand Record	Samantha Bailey
4.	10.20am – 10.35am	Publication: Quarterly Energy Dynamics Q4 2024	Adrian Pearce
5.	10.35am – 10.40am	Update on Reserve Capacity Mechanism	Neetika Kapani
6.	10.40am – 10.45am	WEM Procedures	Mena Gilchrist
7.	10.45am – 11.00am	Q&A and Other Business	Martin Maticka (Chair)
8.	11.00am	Meeting close	

We welcome feedback on topics for upcoming forums, contact us at:
WAelectricityforum@aemo.com.au



WA update

Aden Barker, WA Government & Stakeholder

WA Update

- Allowable Revenue Framework Rule Change Proposal
 - Stakeholder engagement
 - AEMO engagement
 - Review of framework
- ‘Project Jupiter’
 - Project announcement
 - Future engagement
- *DER Act 2024* commencement
- WA Stakeholder Survey
 - Future actions

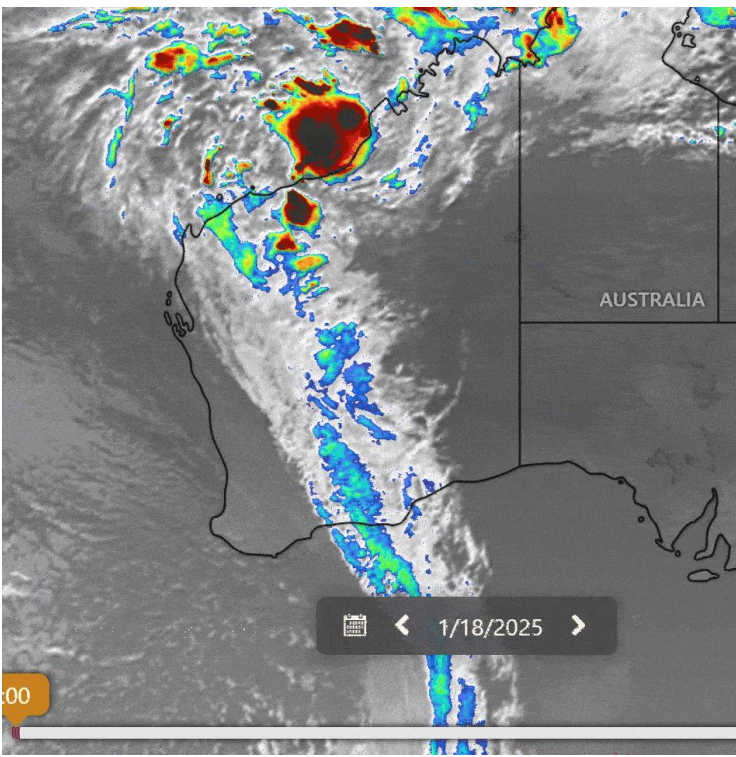
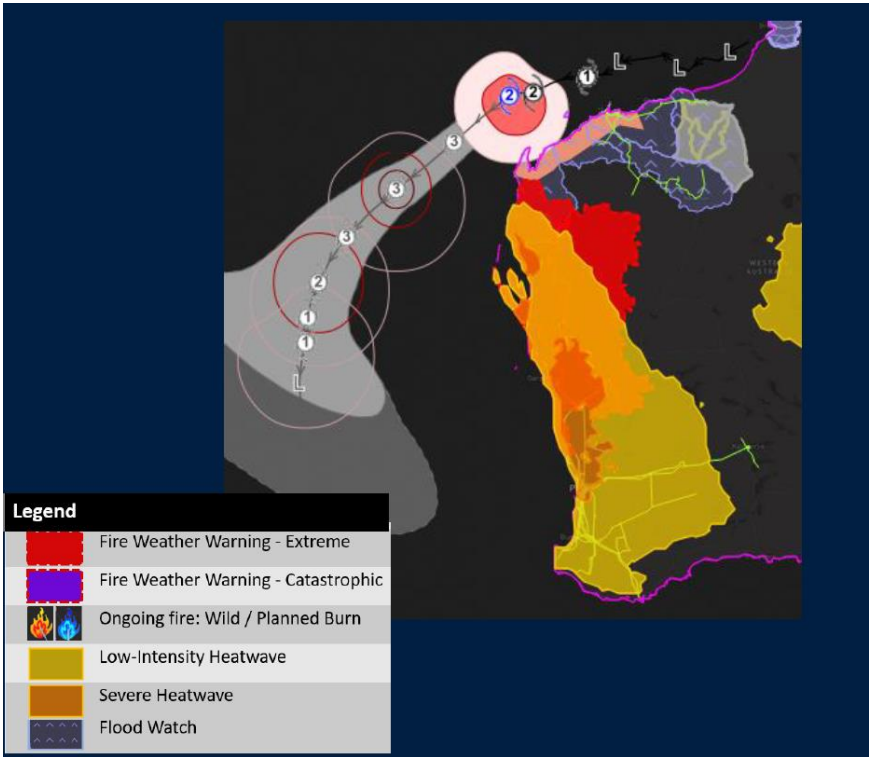
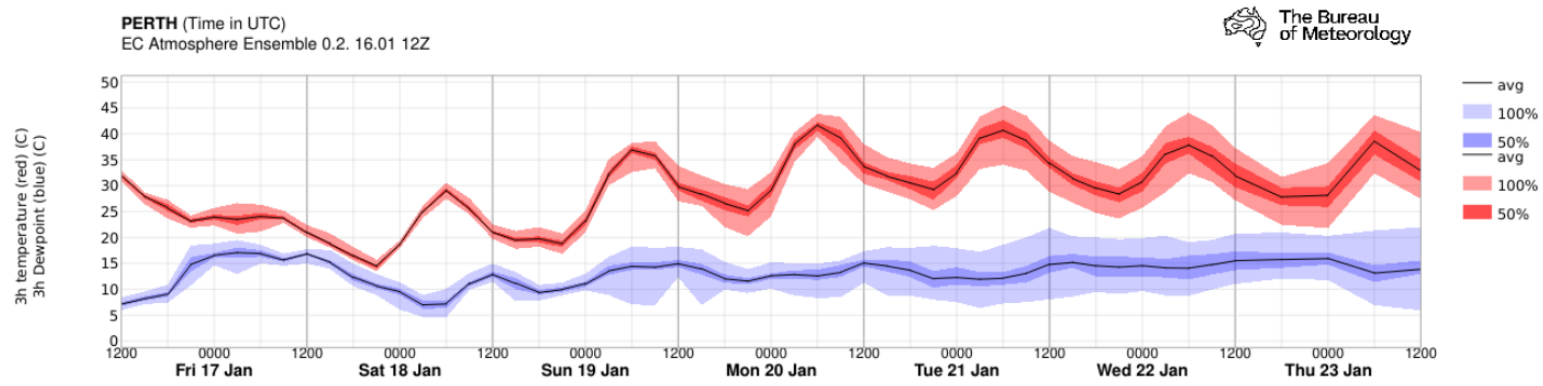




Update on Power system – WA Operational Demand Record

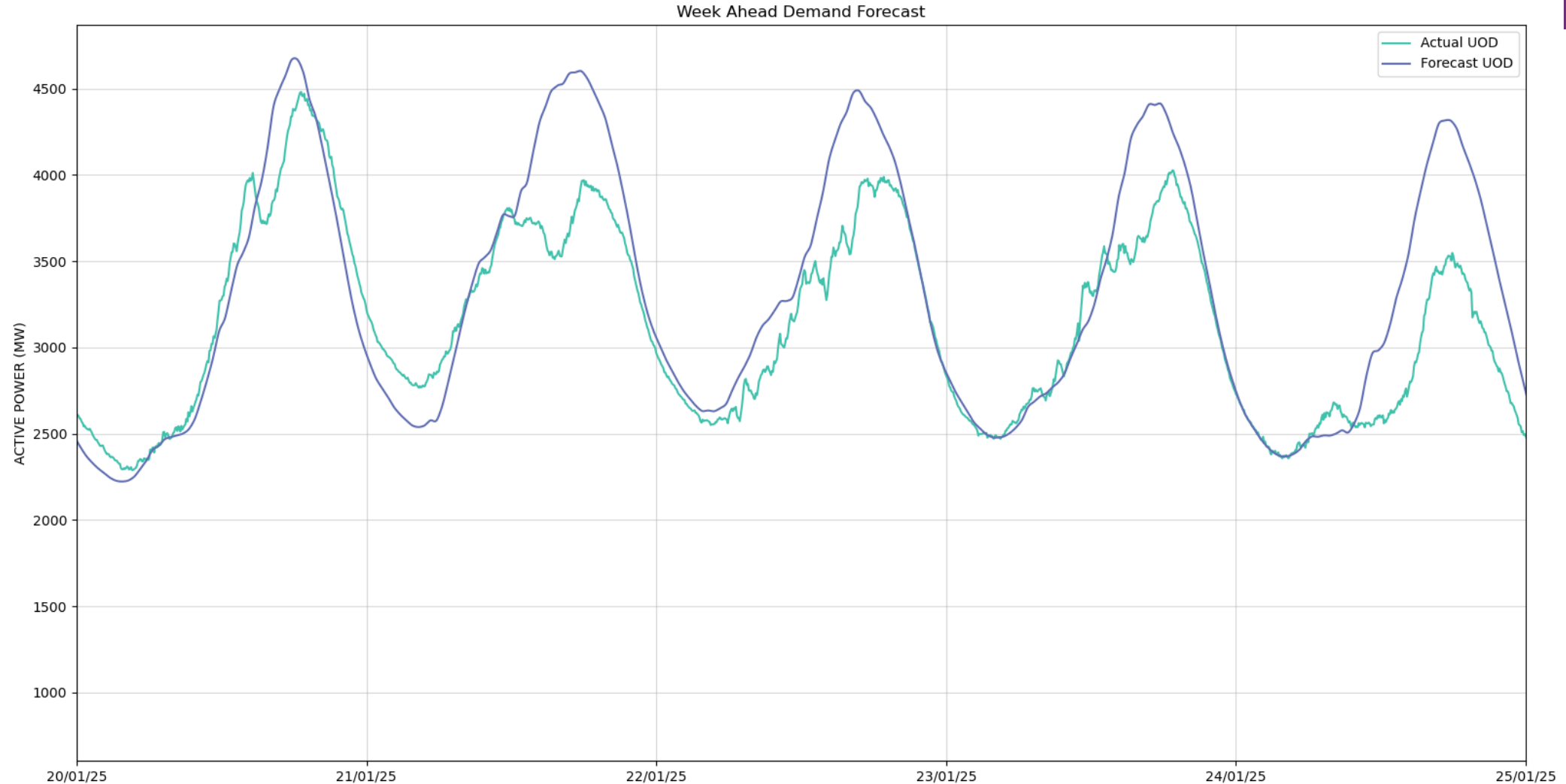
Samantha Bailey, WA Power System Engineer

Forecast Heatwave



BOM January Weather Summary:
[LINK](#)

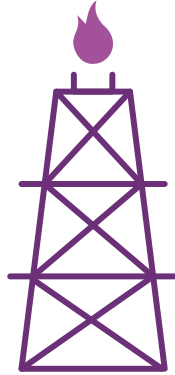
Week Ahead Forecast



Week Before LOR Event

T-7 Days

- Monitor forecasts
- Identify LOR conditions
- Investigate and validate record load forecasts



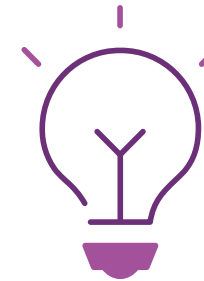
T-1 Days

- SC participants are advised they may be required to activate SCC
- Monitor day ahead forecast

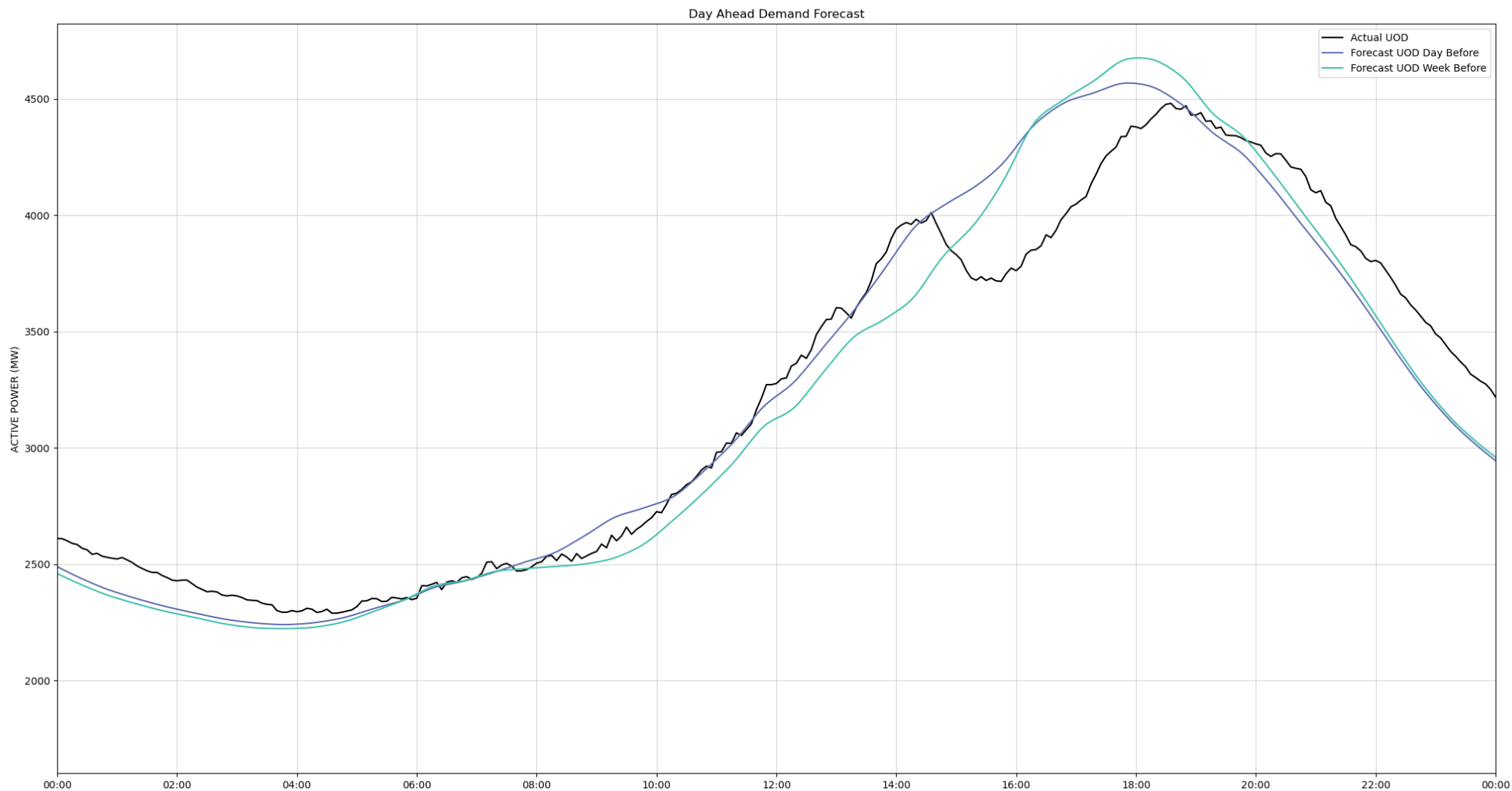


T-3 Days

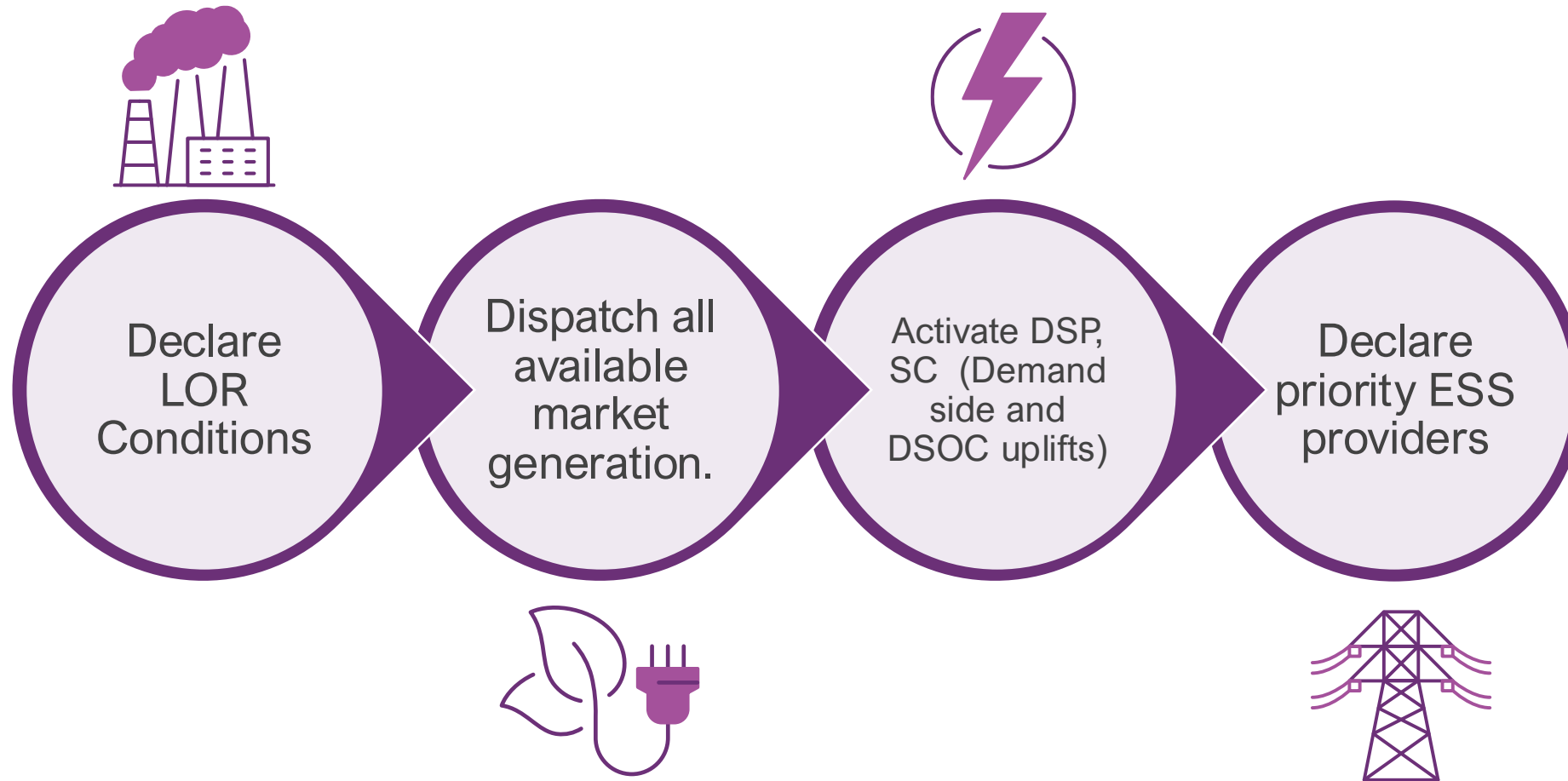
- Notify network operator
- Notify synergy



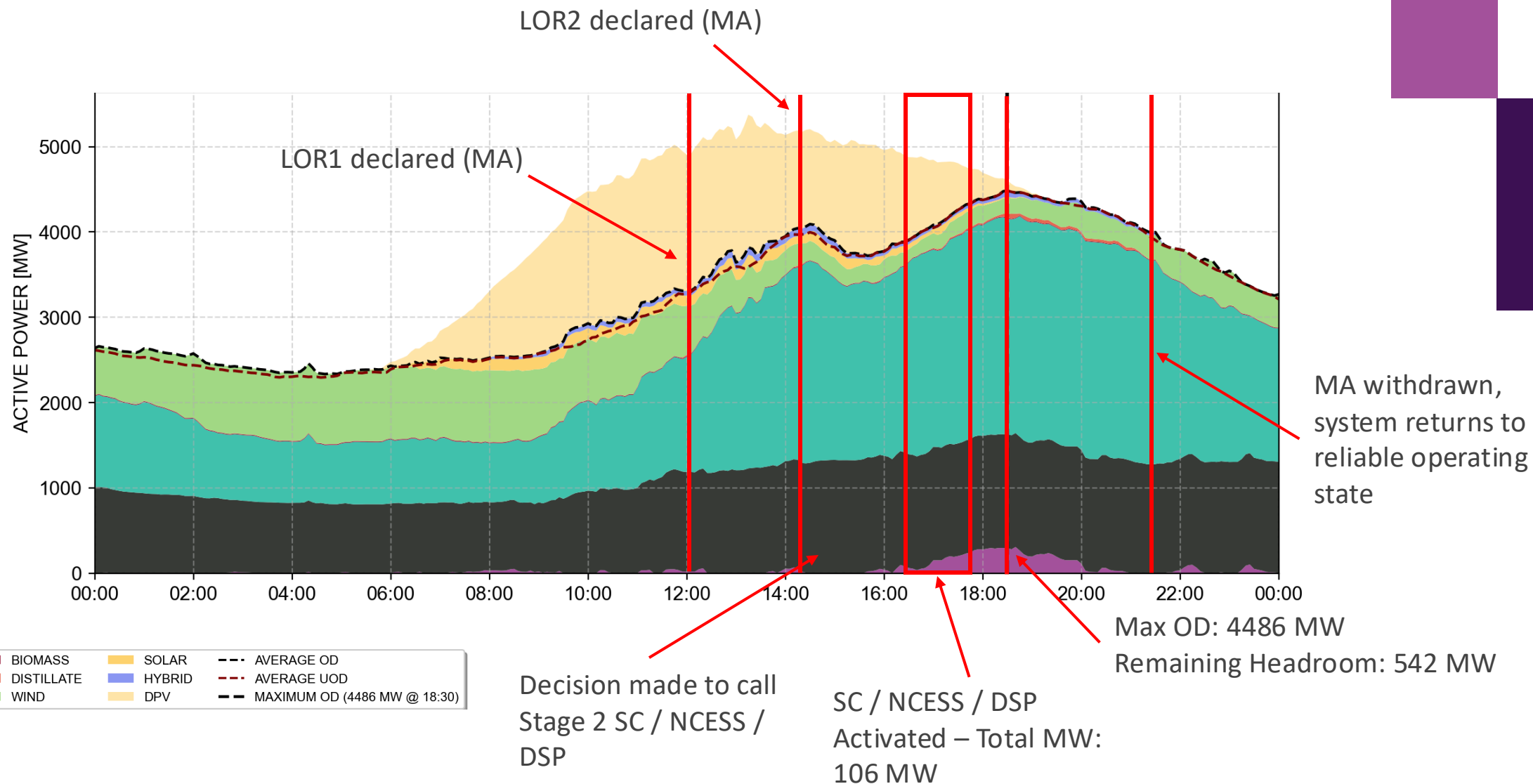
Day Ahead Forecast – 20th Jan



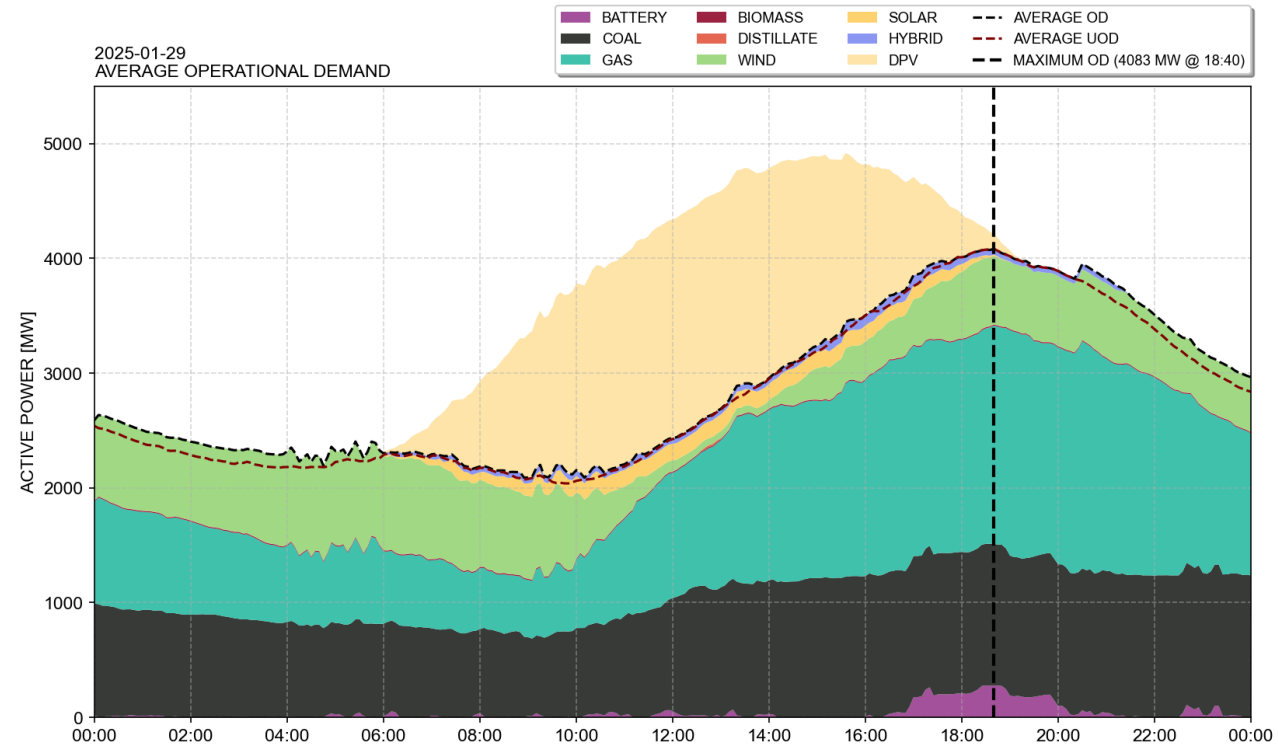
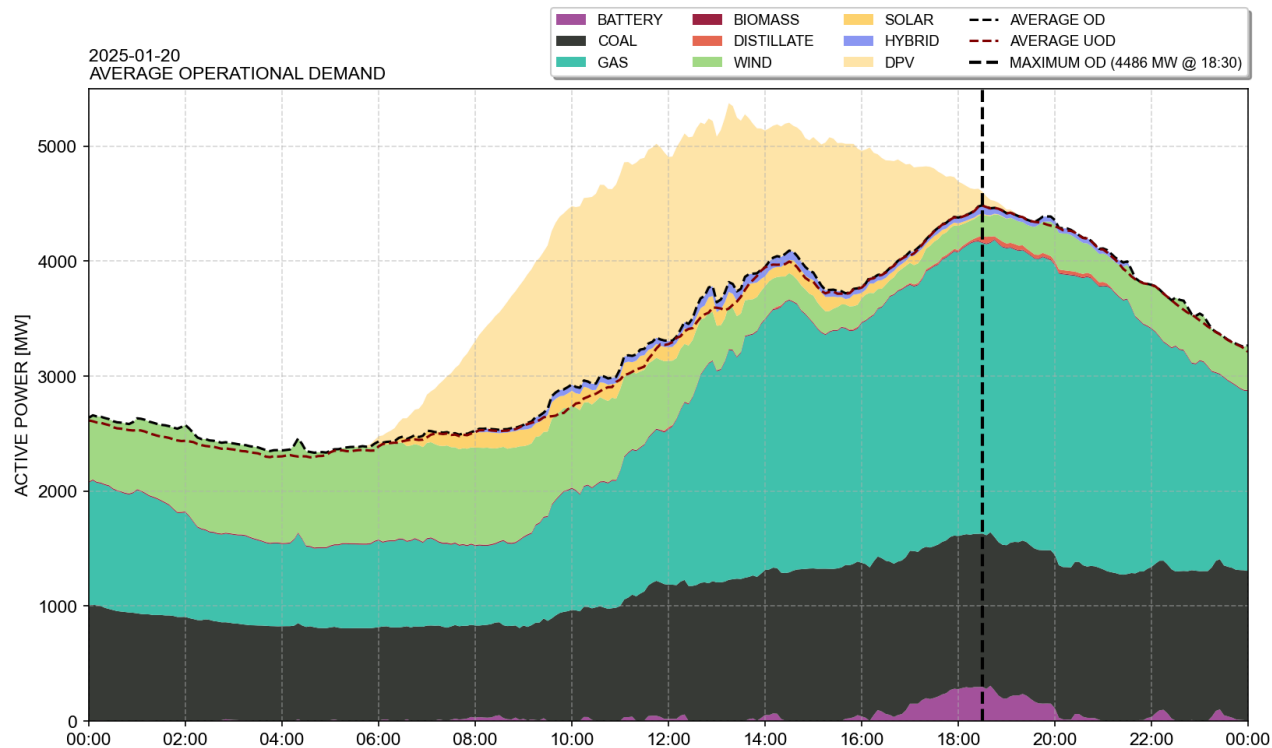
Operational Actions



Timeline of LOR Day – 20th Jan 2025

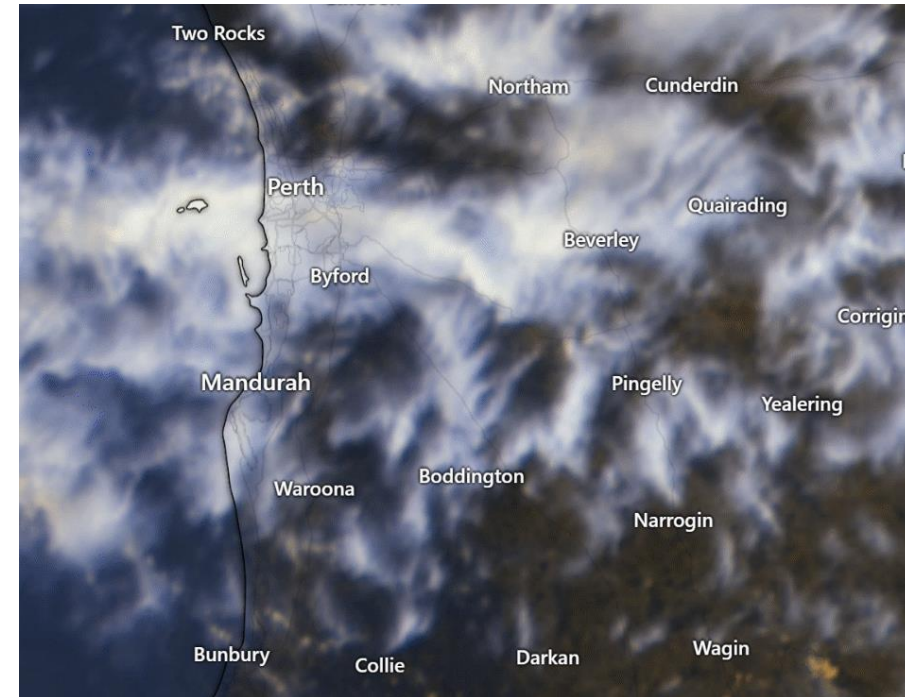
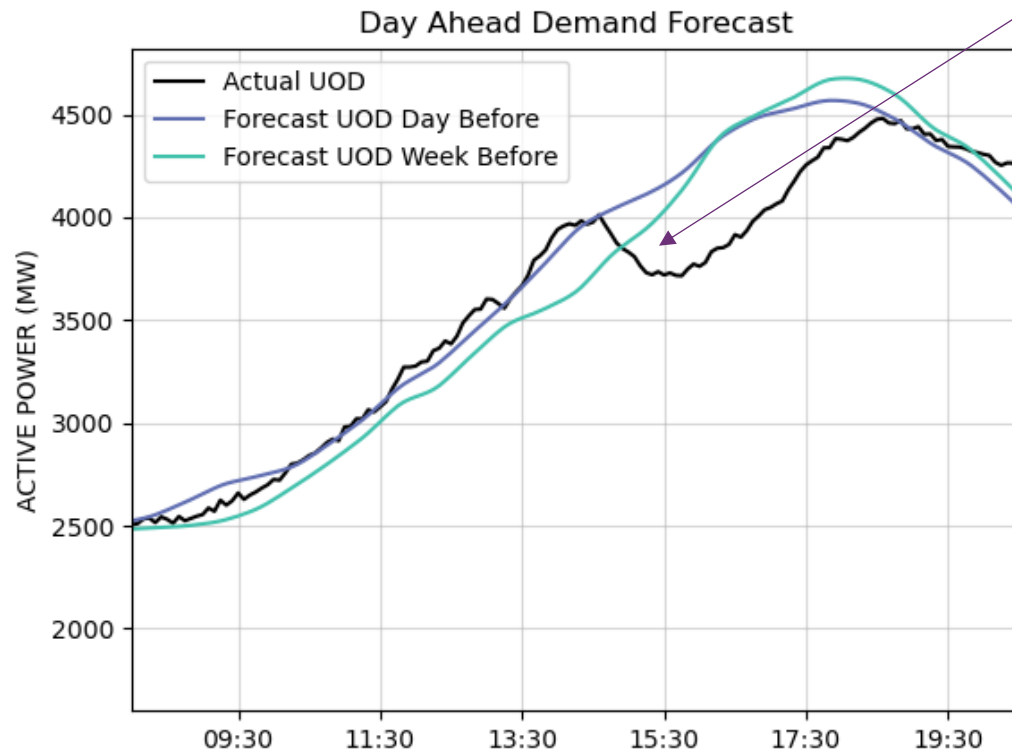


Midday Trough



DPV impact

Cloud clears



Monday - 20th Jan 2025

Record OD!



- Maximum Demand (5-minute average): 4486 MW at 18:30
- Maximum Demand (Instantaneous): 4502 MW at 18:32
- Max Temperature: 43.6°C
- Other conditions: Cloudy, tropical cyclone
- SC: 11.5 MW (activated)
- NCESS: 94.5 MW (activated)

Temperatures Across the State

- Maximum January temperature records were set in a number of places across WA:

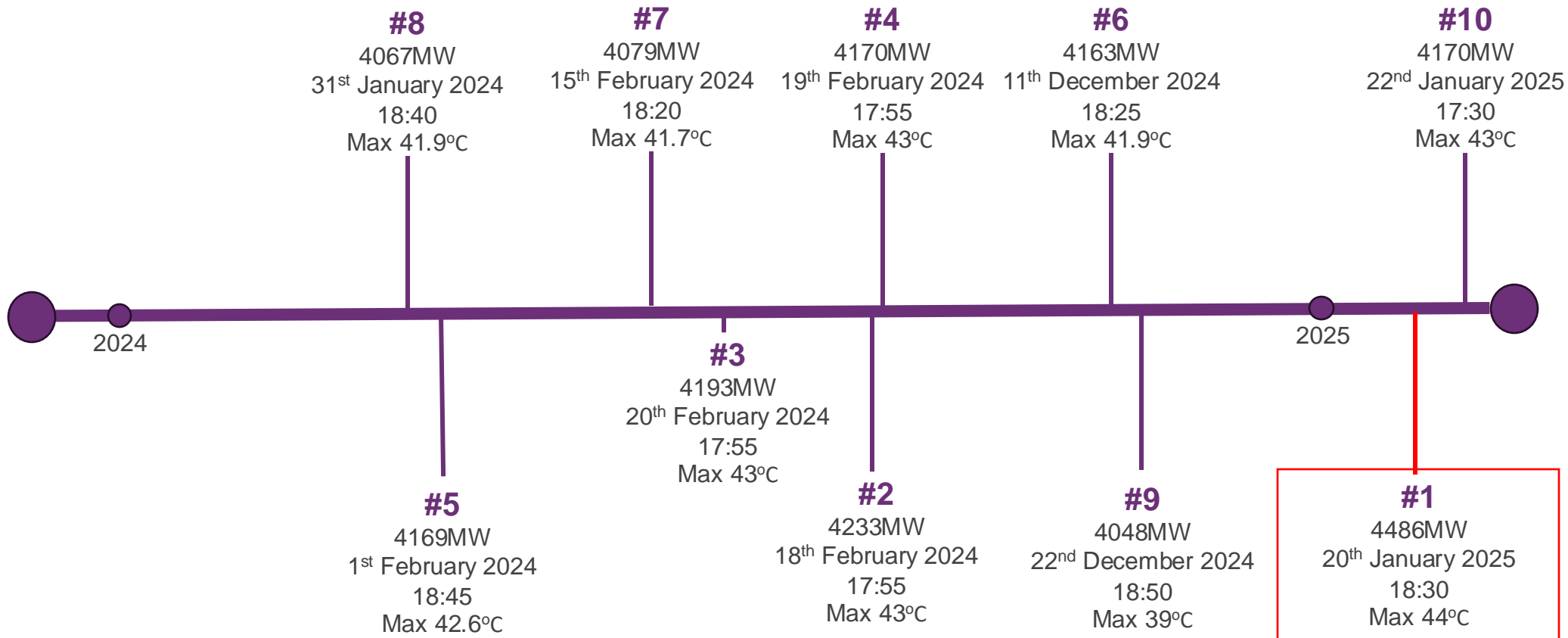
Location	Temperature (°C)
Hillarys Boat Harbour	41.2
Gingin Aerodome	44.6
Busselton	41.1
Jarrahwood	43.7
Geraldton	49.3
Jurien Bay	45.7

Temperatures

High temperatures were driven by:

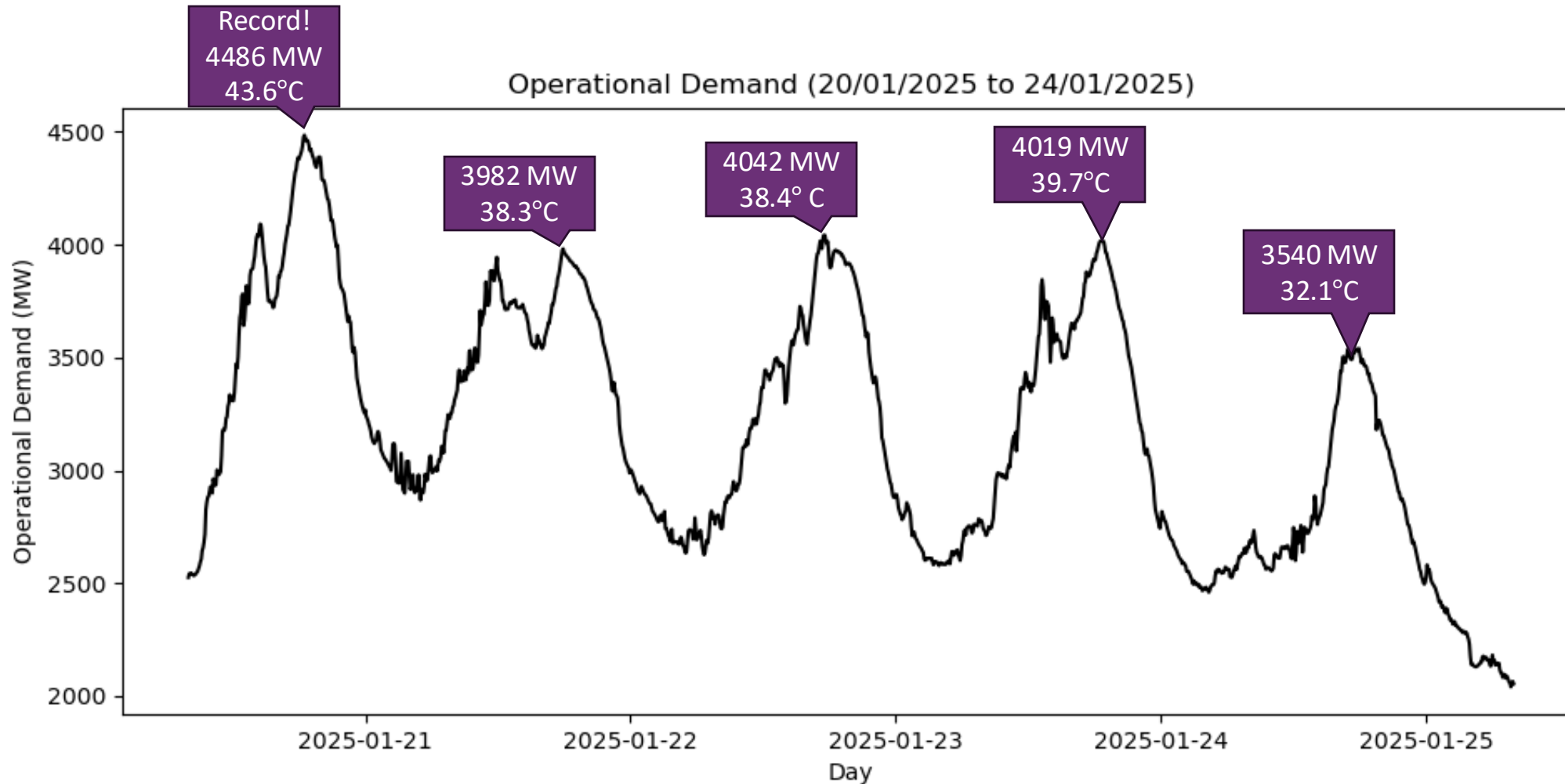
- Tropical Cyclone Sean
 - Contributed to cloud cover and higher dewpoints
- Ridge developed in the south of the state
 - Resulting in easterly wind regime over Southern WA

Record Setting OD

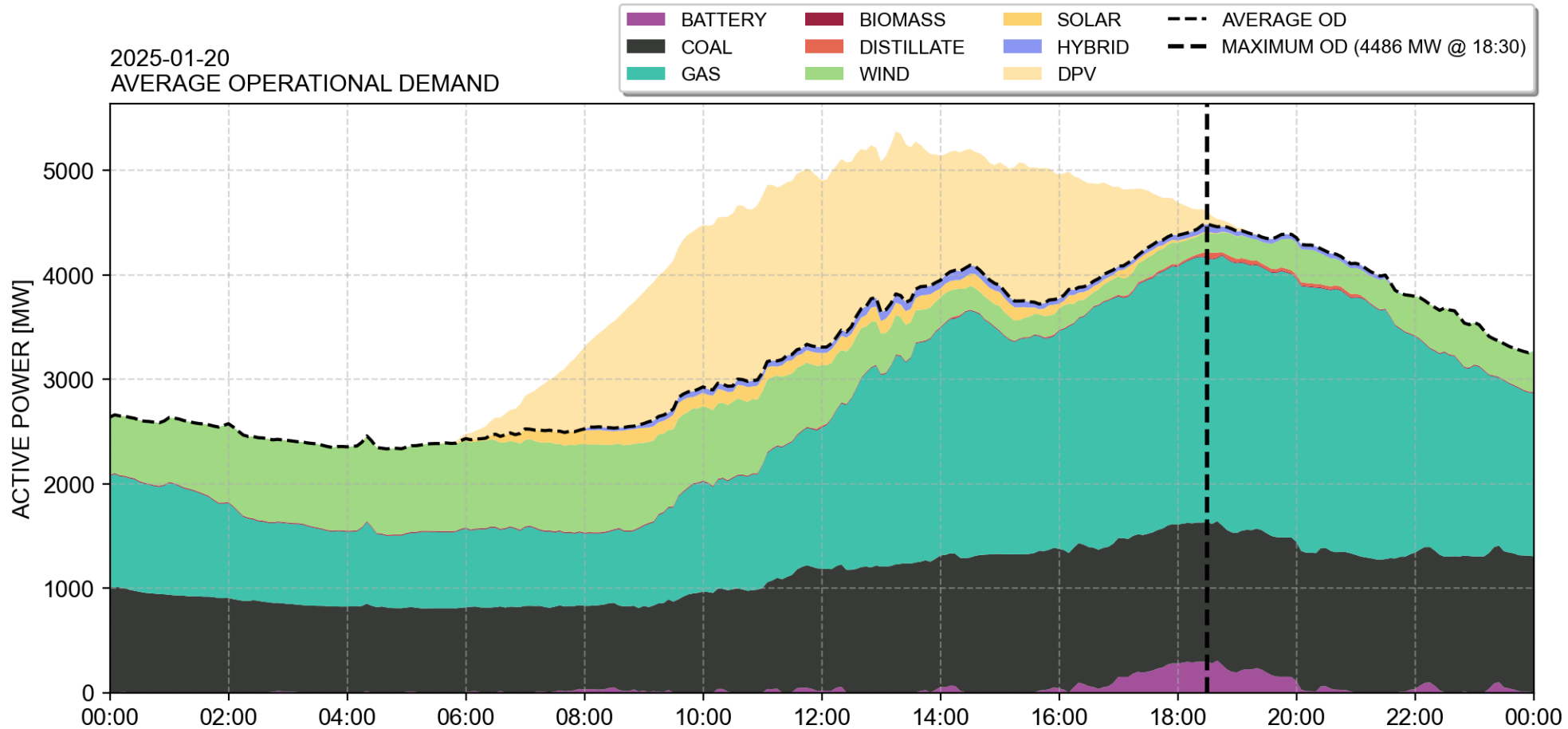


* Records as of 25th January 2025

Record Setting OD



Fuel Mix – 20th Jan 2025

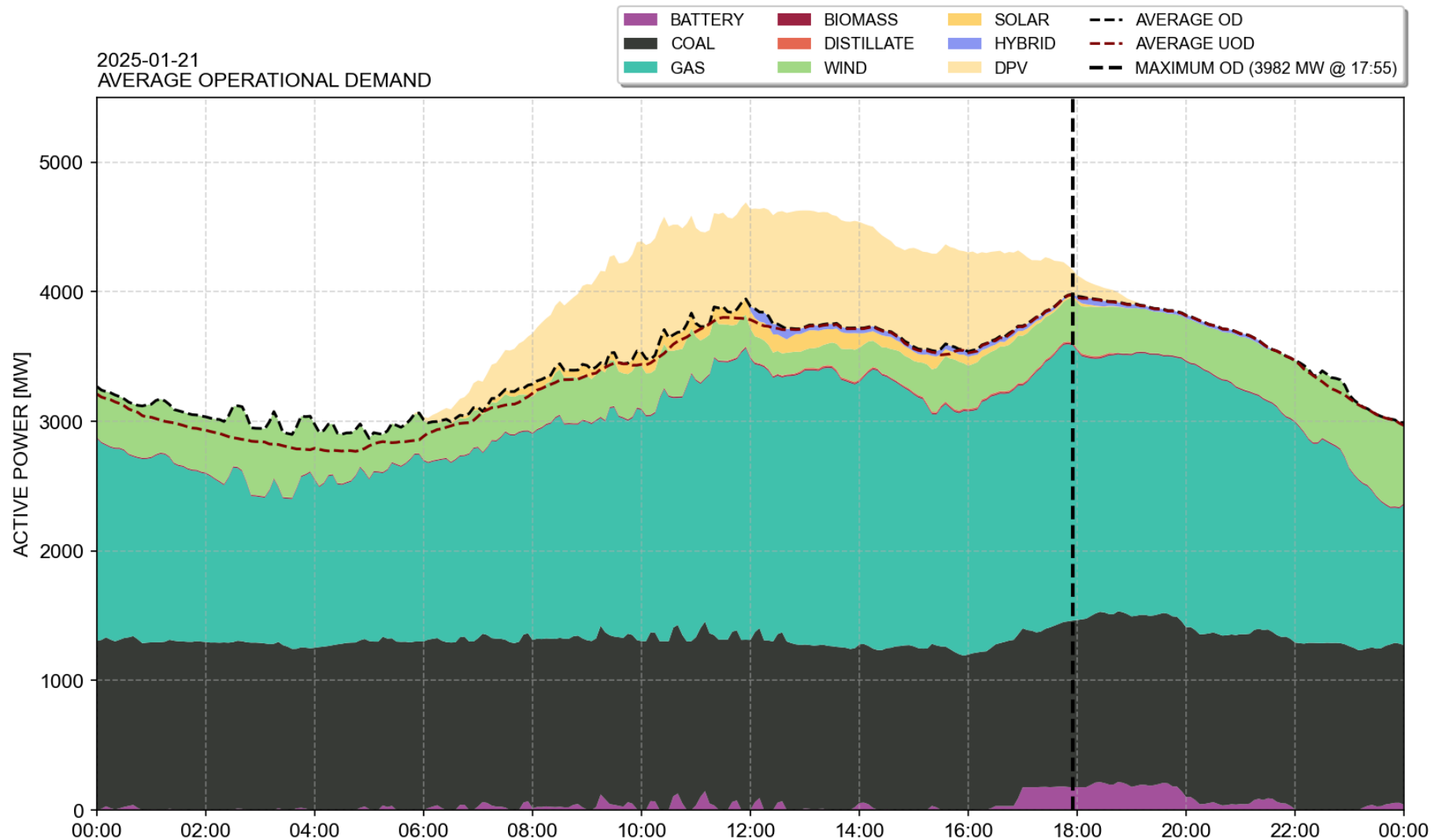


Fuel	MW	%
Gas	2526.3	56.3
Coal	1334.6	29.8
Battery	296.3	6.6
Wind	187.6	4.2
Hybrid	72.2	1.6
Distillate	51.9	1.2
Solar	8.9	0.2
Biomass	8.3	0.2
TOTAL	4486	100%

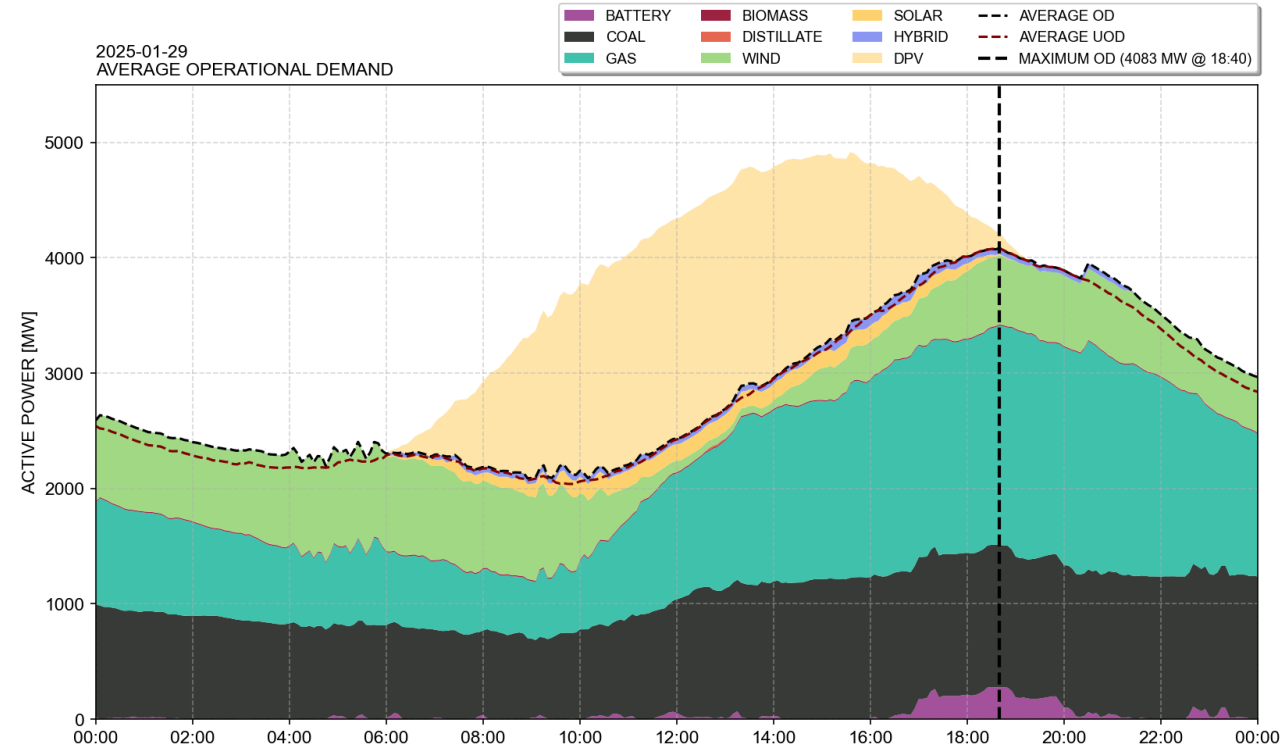
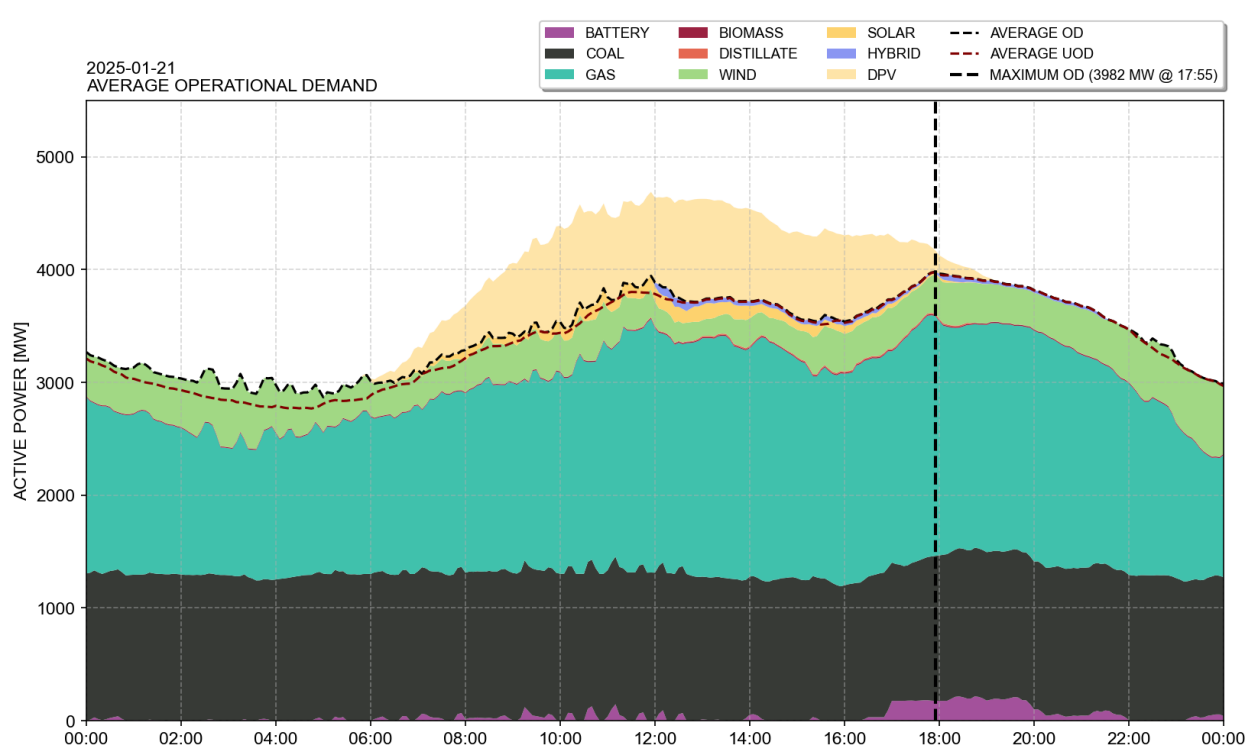
Tuesday - 21th Jan 2025

- Maximum Demand (5-minute average): 3982 MW at 17:55
- Maximum Demand (Instantaneous): 3998 MW at 17:58
- Max Temperature: 38.3°C
- Other conditions: Cloudy
- SC: 141.2 MW
- NCESS: 94.5 MW

Fuel Mix – 21th Jan 2025



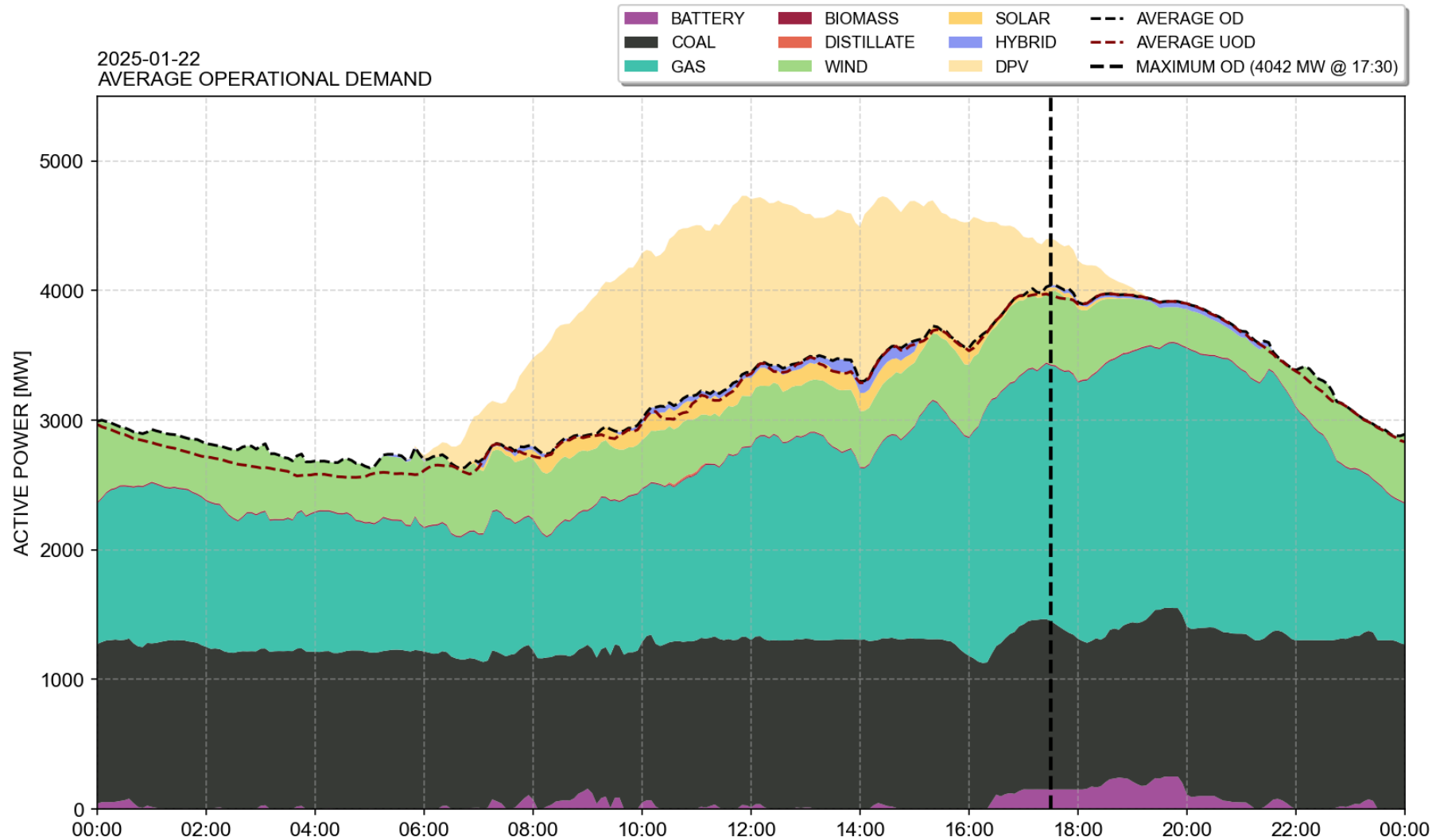
Cloud vs. Sunny Day



Wednesday – 22nd Jan 2025

- Maximum Demand (5-minute average): 4043 MW at 17:30
- Maximum Demand (Instantaneous): 4085 MW at 17:30
- Max Temperature: 38.4°C
- SC/ NCESS: None

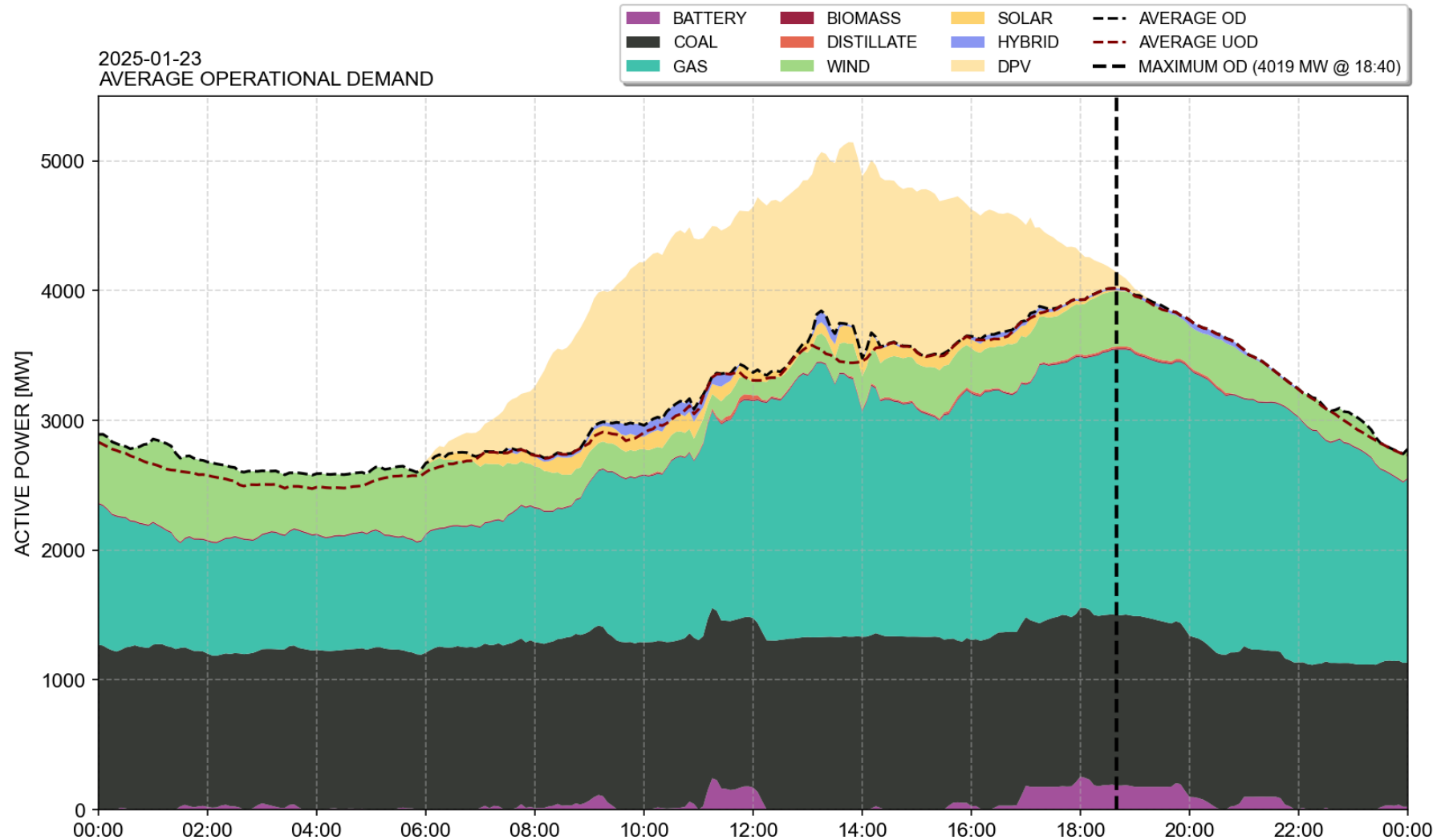
Fuel Mix – 22nd Jan 2025



Thursday – 23rd Jan 2025

- Maximum Demand (5-minute average): 4020 MW at 18:40
- Maximum Demand (Instantaneous): 4043 MW at 18:44
- Max Temperature: 39.7°C
- Other conditions: Bushfires
- SC: 65 MW
- NCESS: None

Fuel Mix – 23rd Jan 2025

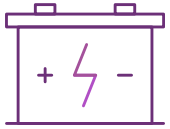


Publication: Quarterly Energy Dynamics (QED) Q4 2024



Adrian Pearce, Senior Analyst – WA Real-Time Market
Monitoring

Key trends for Q4 2024



Increasing battery capacity is driving changes in energy demand and generation profiles, and FCESS markets.



Demand records continue to be set, driven by increases in both underlying demand and increasing distributed PV



WEM generation mix is undergoing change with an increase in renewables (including a quarterly renewable contribution record) and lower coal, also resulting in lower emissions



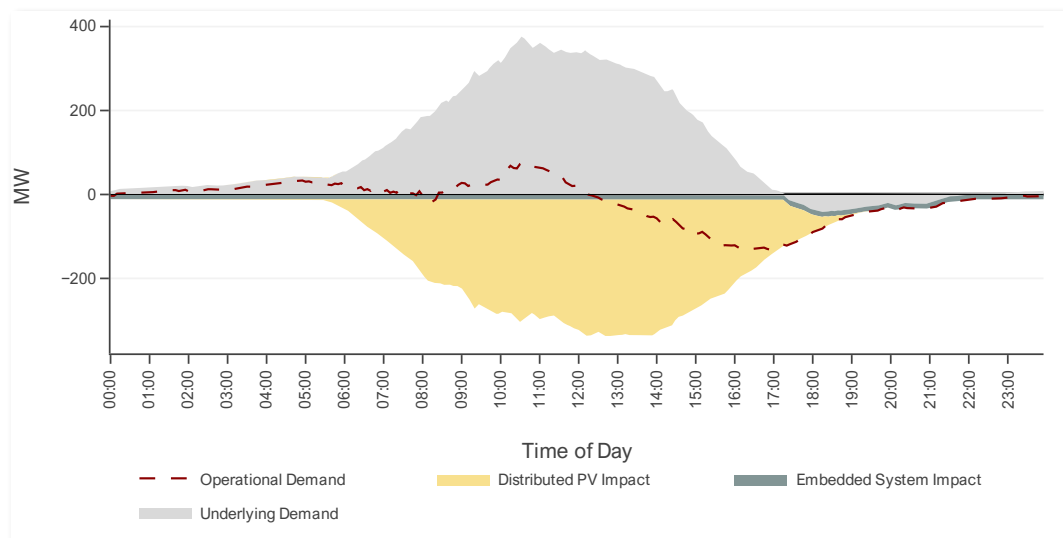
Energy price down, Essential System Services costs components changing due to rules changes, and commencement of Non-Co-optimised Essential System Services (NCESS) contracts.

The QED Report is available here:

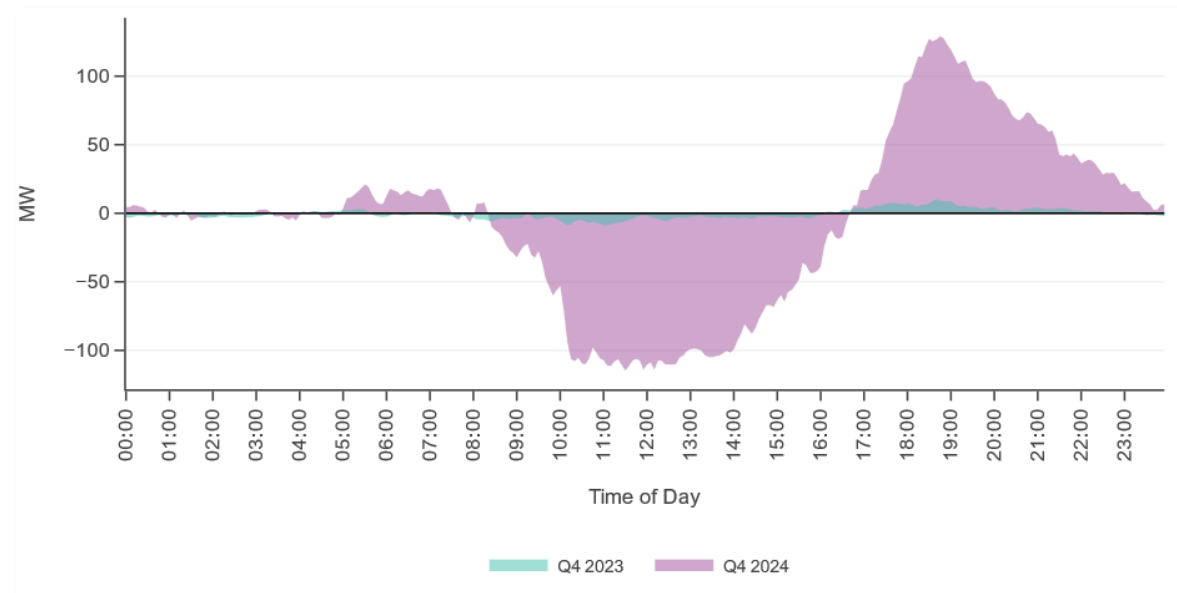
<https://aemo.com.au/energy-systems/major-publications/quarterly-energy-dynamics-qed>

Demand trends

Change in average WEM demand components by time of day – Q4 2023 vs Q4 2024



Batteries average energy generation/withdrawal by time of day – Q4 2023 and Q4 2024



- Operational demand was down about 17 MW. This masked an increase of 105 MW to Underlying Demand being outweighed by an increase in distributed PV output of 110 MW.
- 425 MW increase in battery capacity resulted in an overall increase in withdrawal (charging) of 38 MW, a contribution to the increasing underlying demand.
- Over the minimum demand periods of 10:00 to 14:00, battery Facilities averaged 116 MW of withdrawal, up 112 MW on Q4 2023.

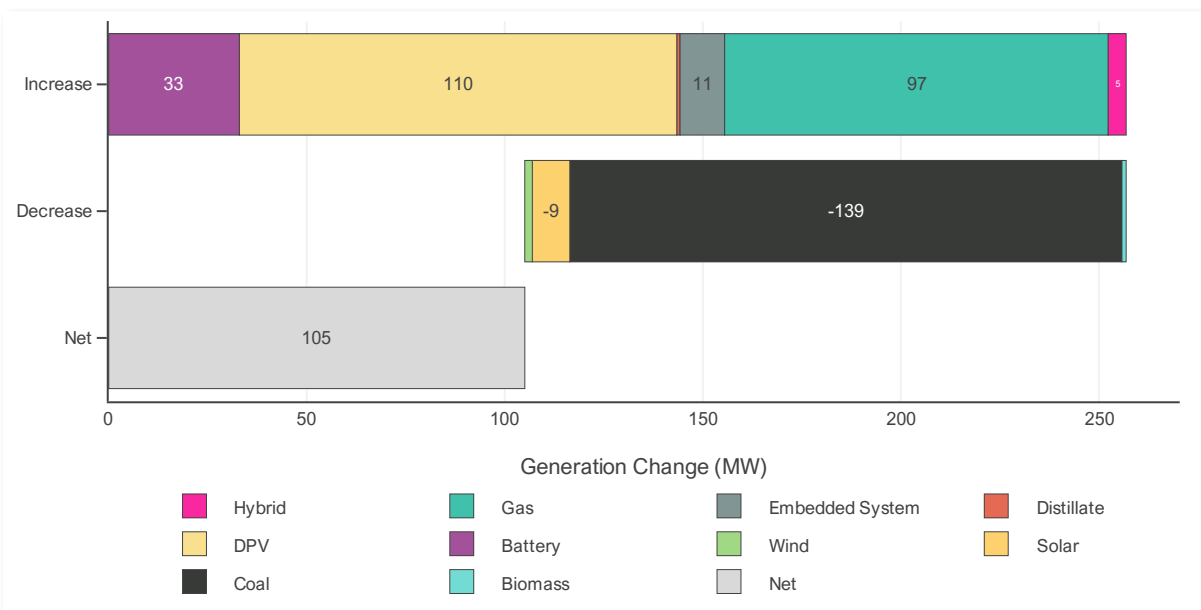
Demand trends - records

New demand records set in Q4 2024

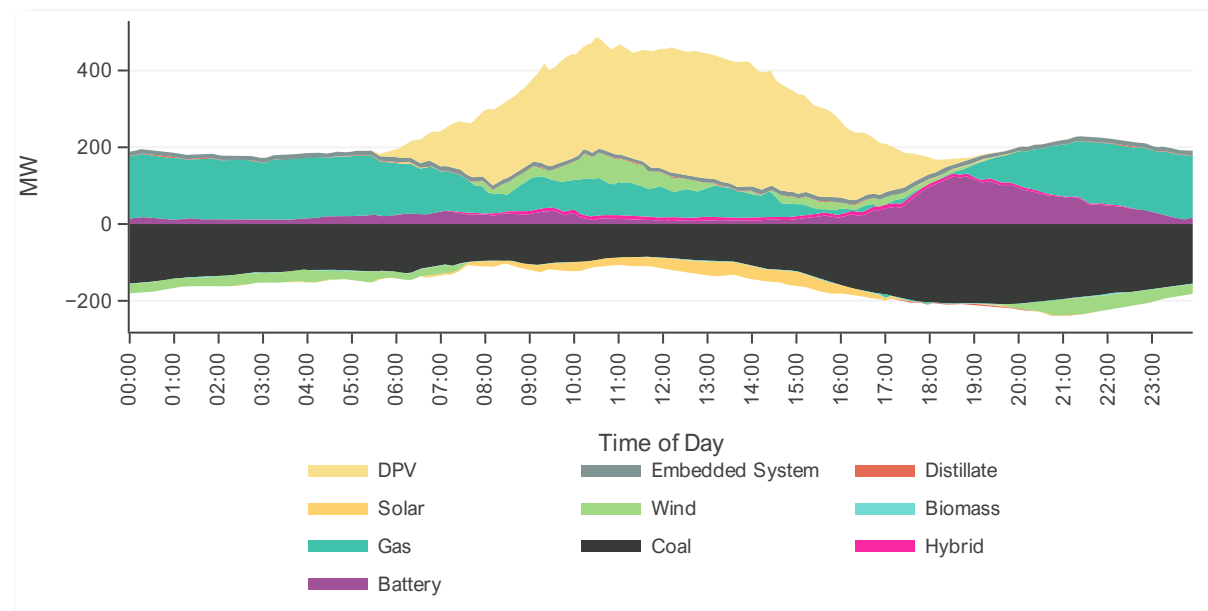
Demand measure	Demand record	Interval
Minimum operational demand	511 MW Previous record: 595 MW	13:40 10 November 2024 Previous record: 12:30 25 September 2023
Minimum unscheduled operational demand	474 MW Previous record: 499 MW	13:20 10 November 2024 Previous record: 3 November 2024
Maximum underlying demand	5,263 MW Previous record: 4,990 MW	14:25 11 December 2024 Previous record: 19 February 2024
Q4 maximum operational demand	4,163 MW Previous record: 4,040 MW	18:25 11 December 2024 Previous record: 17:55 23 November 2023

Generation trends

Change in quarterly average generation – Q4 2023 vs Q4 2024



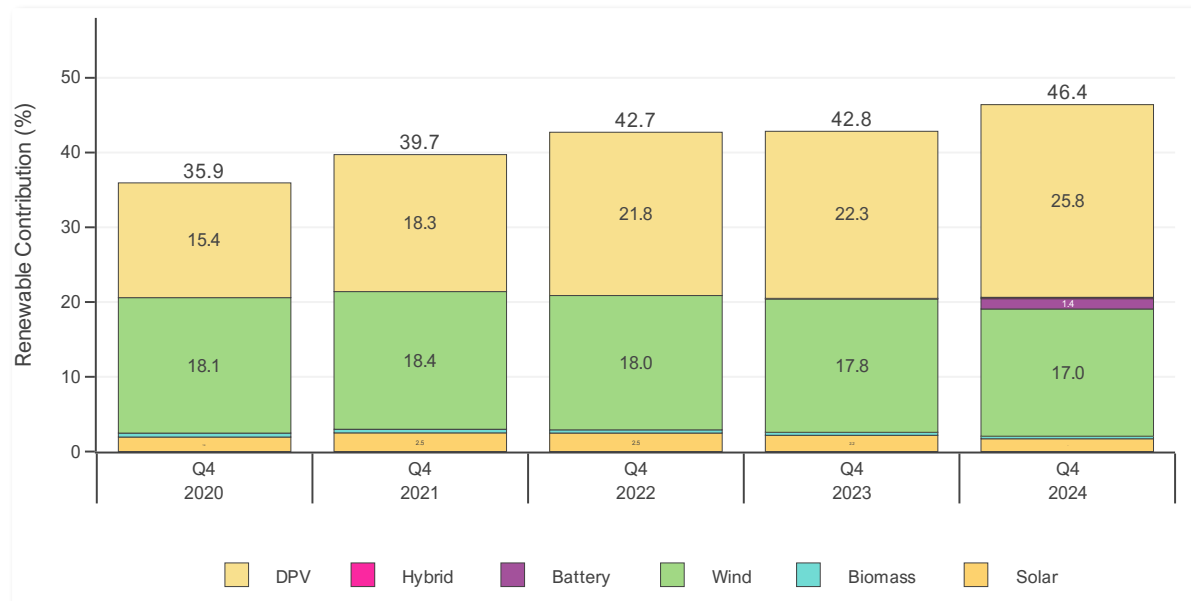
Average WEM change in fuel mix by time of day – Q4 2023 vs Q4 2024



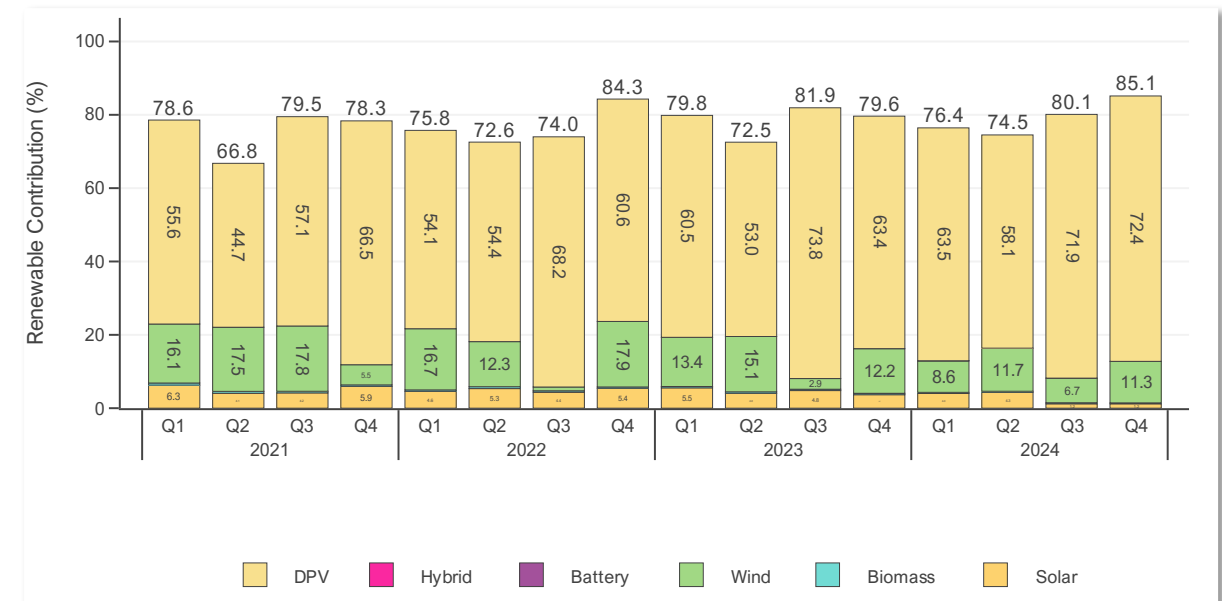
- Coal reduced by 139 MW, primarily due to reduced Facility availability.
- Gas increased by 97 MW as it covered some of the decrease in coal.
- Battery Facilities overall increased by 33 MW over Q4 2023. Over the peak periods 17:30 to 21:00 the average contribution rose 97 MW to 103 MW.

Renewables

Renewable contribution components – Q4s



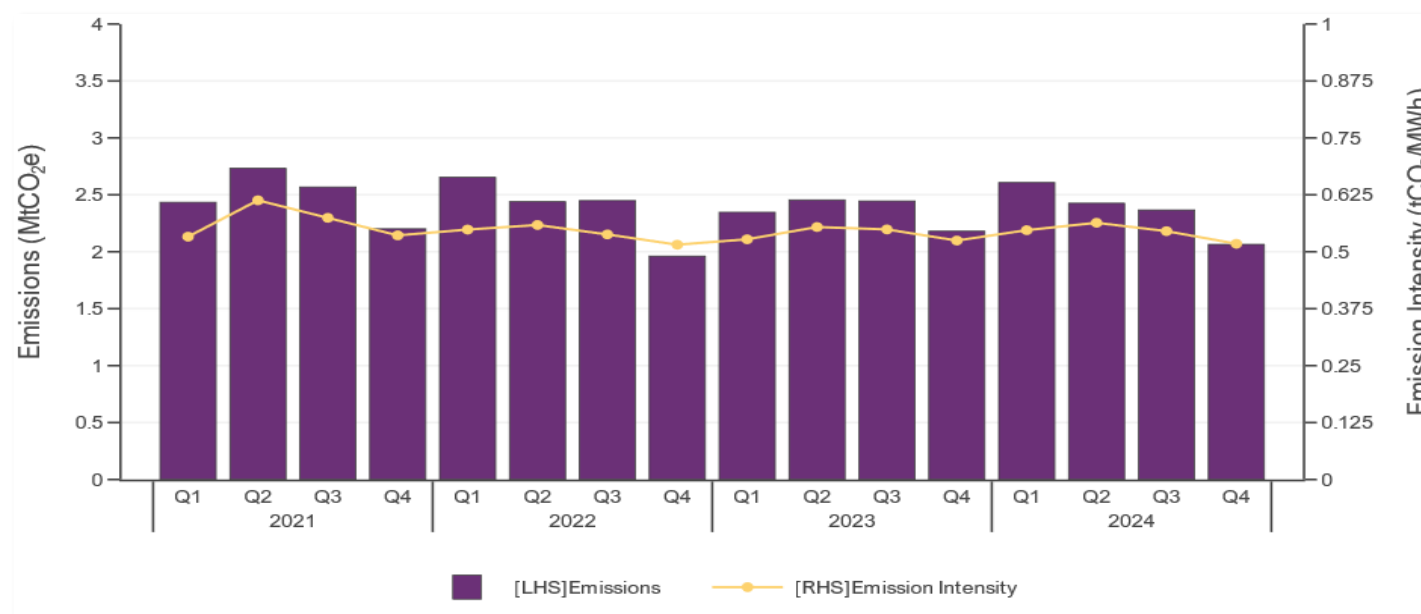
Percentage of WEM supply from renewable energy sources at time of peak renewable contribution



- An all-time quarterly renewable contribution high was set in Q4 2024 of 46.4%, driven by record distributed PV contribution of 25.8% (+3.5pp on Q4 2023), and battery share to 1.4% (+1.3pp on Q4 2023).
- An all-time peak renewable contribution of 85.1% was also set during the quarter on 17 November 2024, beating the 84.3% prior record observed on 12 December 2022.

Emissions

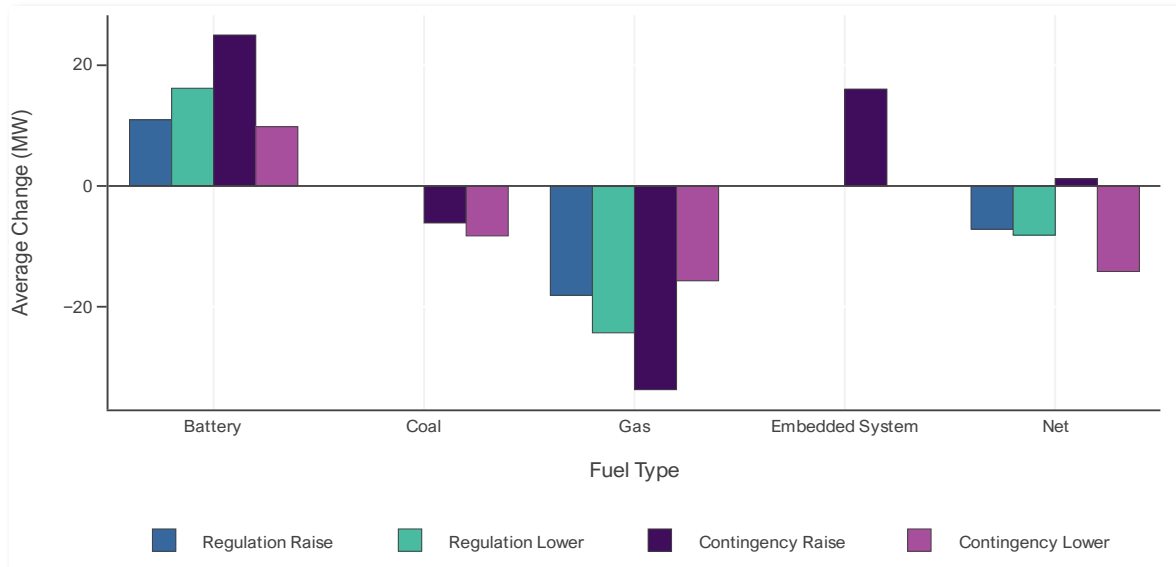
Quarterly WEM emissions and emission intensity – Q1 2021 to Q4 2024



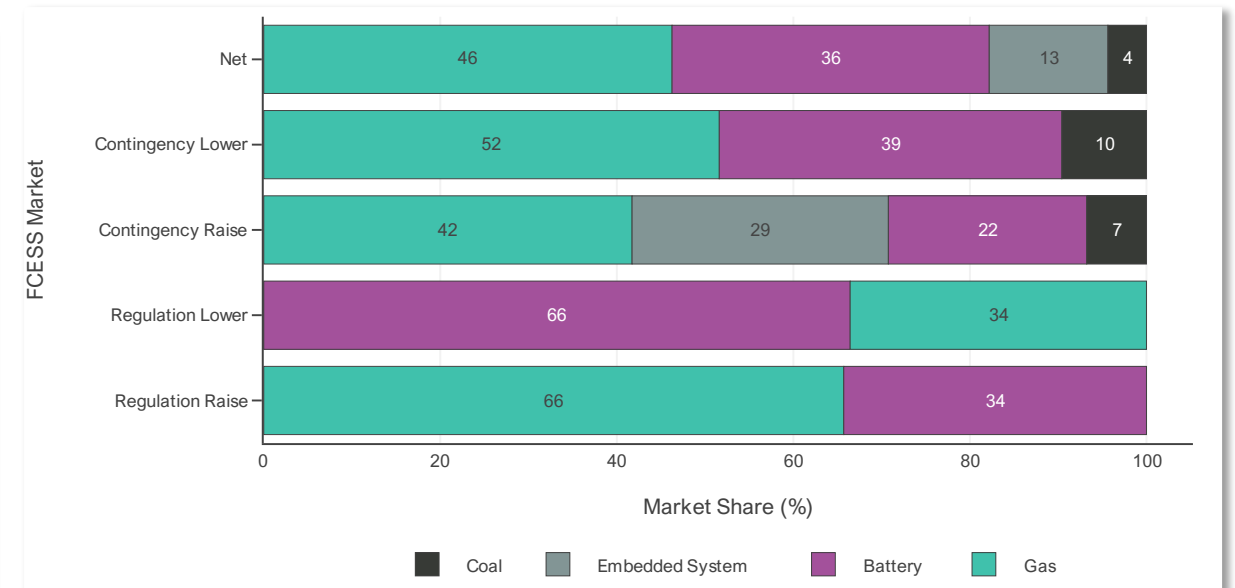
- Carbon emissions were down 5.3% compared to Q4 2023 to 2.06 MtCO₂-e.
- Driven by both the reduction in operational demand and the replacement of coal by gas in the supply mix causing emissions intensity to drop 1.3% compared to Q4 2023 to 0.518 tCO₂-e/MWh.
- This was still higher than Q4 2022, which experienced lower operational demand and emissions intensity.

FCESS markets dispatch

Change in FCESS enablement by fuel type – Q4 2023 vs Q4 2024



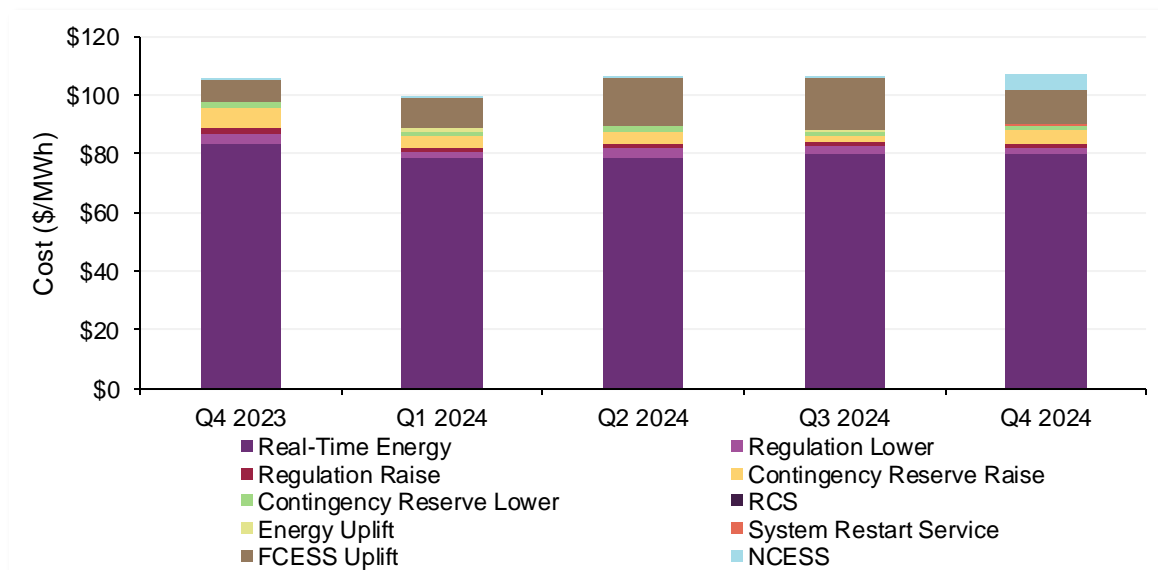
FCESS volume market share by market and fuel type – Q4 2024



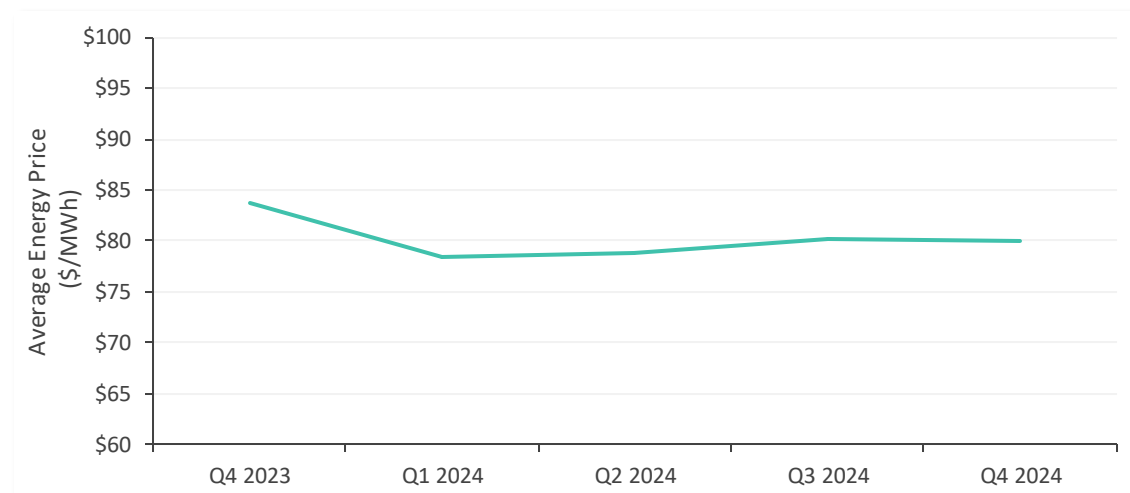
- Due to the accreditation of two battery Facilities in FCESS markets since Q4 2023, there have been large shifts in market share.
- Battery Facilities have captured 62 MW of FCESS, displacing gas which was down 79 MW and coal (contingency markets only) which was down 13 MW.
- Overall, this represented a 36% (from 0%) of total FCESS market share going to battery Facilities.
- This is expected to further increase in coming quarters as more battery Facilities become accredited.

Cost trends

Normalised energy and ESS costs per MWh consumed in the WEM – Q4 2023 to Q4 2024



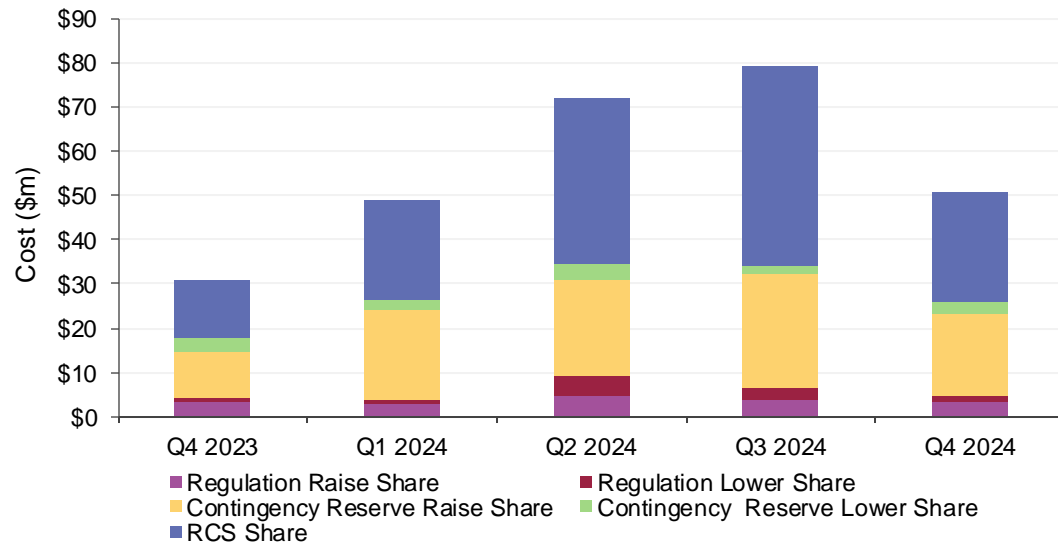
Quarterly Average Energy Prices – Q4 2023 to Q4 2024



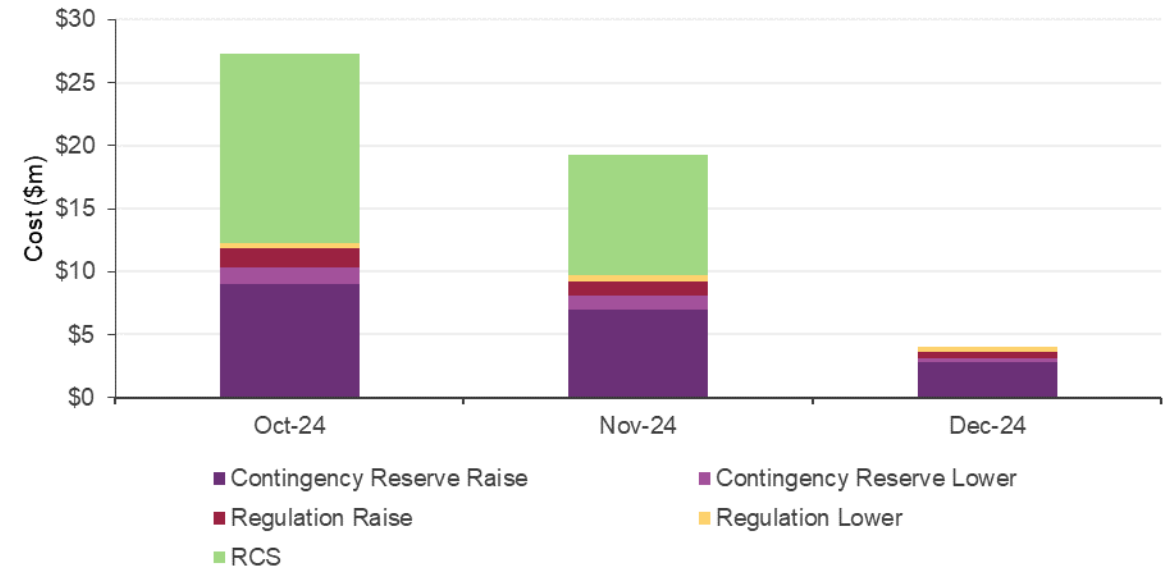
- The total cost of the Real-Time Market (Energy and ESS) was \$107.42/MWh in Q4 2024, a small increase from \$105.60/MWh in Q4 2023.
- Driven by increases in the normalised costs of NCESS (+\$5.31/MWh) and FCESS Uplift (+4.38/MWh), which were largely offset by decreases in the average energy price (-\$3.71/MWh) and normalised contingency reserve raise costs (-\$2.67/MWh).

Cost trends – FCESS Cost Review

Distribution of FCESS uplift costs to FCESS market services – Q4 2023 to Q4 2024



Distribution of FCESS uplift costs to FCESS market services – Oct 2024 to Dec 2024



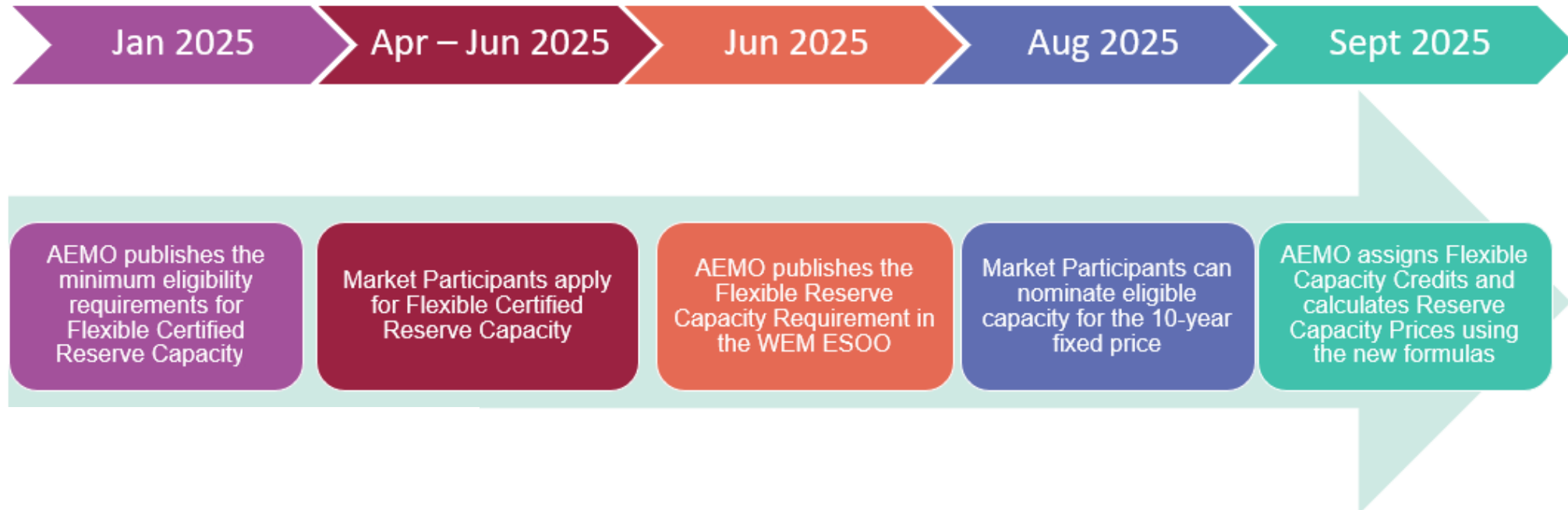
- FCESS Cost Review rule changes came into effect 20 November 2024, with implications for the FCESS market, in particular FCESS Uplift Payments.
- This has resulted in 36% lower FCESS Uplift costs (-\$28.8 million) compared to Q3 2024. Comparing December to October 2024 there was an 85% reduction in FCESS Uplift costs.
- The rule change also drove an increase in Energy Uplift payments to \$1.9 million (+\$0.7 million) on Q3 2024.

Update on Reserve Capacity Mechanism

Neetika Kapani, Manager – WA Capacity Investment & Assessment

2025 RCM key changes

- A new Flexible Capacity Product
- Addition of a 10-year fixed price option for eligible components of Scheduled and Semi-Scheduled facilities (Capability Class 1 facilities assigned Flexible Certified Reserve Capacity (CRC))
- Participation of DER in the CRC process



2025 Request for Expression of Interest (REOI)

- AEMO has published the 2025 REOI report on 31 January on the [AEMO website](#) and on [VendorPanel](#).
- While an EOI is not mandatory to be eligible to apply for CRC, proponents are encouraged to submit an EOI for any new capacity they intend to make available in the 2027-28 Capacity Year.
- REOI submissions close on 4 March 2025.
- Summary of REOI responses to be published by 14 April 2025.
- Additional scenario analysis has been presented in the REOI report, capturing the planned retirement of Collie coal-fired power station and the risk of coal supply issues impacting on generation from Bluewaters in the 2027-28 Capacity Year.
- Initial analysis indicates a potential capacity investment gap in the range of 160 MW - 600 MW for the 2027-28 Capacity Year.

Other processes underway

by the Capacity Investment & Assessment (CIA) Team

- Preparation for the 2025 Certified Reserve Capacity process is underway.
 - The final report on the Flexible Capacity Minimum Eligibility Requirements for the 2025 RC Cycle has been published here – https://aemo.com.au/consultations/current-and-closed-consultations/fcmer_2025.
 - Engagement with stakeholders around the upcoming 2025 CRC process continues.
 - First sessions of WEM Overview and RCM training for 2025 have been delivered.
 - A stakeholder survey was circulated last week to seek insights from stakeholders to shape the CRC information sessions to be delivered by the team in April.
<https://forms.office.com/r/25LtA04Z4Y>
- 2024-25 summer Reserve Capacity (RC) Testing process is underway.
 - The 'self-test' period ended on 31 January 2025.
 - Facilities that did not pass by observation by 31 January 2025 are being subjected to a formal RC Test with the summer testing season to conclude on 30 March 2025.
- The tender results for WA Capacity Investment Scheme for clean dispatchable technology will be announced in March 2025.

Please reach out to wa.capacity@aemo.com.au for any questions in relation to the REOI process, the upcoming 2025 CRC process, or other Reserve Capacity processes being undertaken by the CIA team.

WEM Procedures

Mena Gilchrist, Manager – WA Regulatory Affairs

Open consultations

Consultation	Status
WEM Procedure: Dispatch Settlement and Monitoring Data	Open 22/01/25 APCWG: 17/02/25 Closes 20/02/25

Your feedback matters!

- AEMO has made recent improvements to its consultation processes based on feedback from Market Participants. We'd love to hear your ideas at wa.marketdevelopment@aemo.com.au.
- If you're not on our AEMO Procedure Change Working Group and would like to be, hit us up! (yep, same email wa.marketdevelopment@aemo.com.au).
- We value your feedback on our WEM Procedures and remind Market Participants that you can recommend changes outside of open consultation processes. For further information on the Procedure Change Process, including a submission form for suggesting your own changes, head to our [Procedure Changes](#) webpage.

A heads up: Upcoming consultations

Consultation	Expected timing
WEM Procedure: Commissioning Test Plans	February 2025 (APCWG 17 Feb)
WEM Procedure: Certified Reserve Capacity	February 2025 (APCWG 17 Feb)
WEM Procedure: RCM Limit Advice	Late February 2025
WEM Procedure: Facility Registration	March 2025
WEM Procedure: MTPASA	March 2025
WEM Procedure: Low Reserve Conditions	March 2025
WEM Procedure: Identification of Affected Dispatch Intervals	March 2025
WEM Procedure: Supplementary Capacity	March 2025
WEM Procedures: Network Modelling Data, Communications and Control, and IMS Interface (three procedures consulting together)	March 2025

***Timeframes are provided in good faith and are subject to change.
Market Participants are encouraged to email
wa.marketdevelopment@aemo.com.au with any queries.***

Consultations completed

Consultation	Status
WEM Procedure: Credible Contingency Events	Closed 24/01/25
WEM Procedure: Direction of Registered Facilities in Scarcity Conditions	Closed 24/01/25
WEM Procedure: Facility Sub-Metering	Closed 31/01/25
WEM Procedure: Outage Intention Plans	Closed 17/01/25
WEM Procedure: Minimum Eligibility Requirements for Flexible CRC	Closed: 15/01/25
Minimum Eligibility Requirements for Flexible CRC	Closed 20/12/24
WEM Procedure: Dispatch Algorithm Formulation	Closed 28/11/24
WEM Procedure: Determination of Market Schedules	Closed 28/11/24
WEM Procedure: Real-Time Market Suspension	Closed 28/11/24

Further information on each consultation is available via the links

Questions or Feedback





For more information visit
aemo.com.au