2025 Wholesale Electricity Market Electricity Statement of Opportunities Webinar Questions and Answers

Published: 16 July 2025

Purpose

This document covers questions raised in the stakeholder webinar for the 2025 Wholesale Electricity Market (WEM) Electricity Statement of Opportunities (ESOO) which were not able to be responded to during the session due to time constraints. In some instances, questions have been edited for clarity.

To find a copy of the 2025 WEM ESOO report, the webinar recording or webinar presentation slide deck, please visit our website at: WEM ESOO

We welcome your feedback on the 2025 WEM ESOO report. Please direct any feedback or questions to the WA Future System Design team at: wa.futuresystemdesign@aemo.com.au

Context

A number of the responses to questions below refer to project categorisation and the criteria applied for new supply projects. For ease of reference, this is explained up front.

The 2025 WEM ESOO supply capacity forecasts consider existing and new projects that are sufficiently progressed in the development pipeline. This includes capacity from generation, battery storage, and demand side programs.

Each 2025 WEM ESOO scenario includes a varying level of new supply that is determined based on how advanced a project is. Only ‘existing’ and ‘committed’ projects are included in the Expected scenario.

AEMO uses the 2025 Expressions of Interest (EOI) for Certified Reserve Capacity (CRC) and responses to the 2025 Long Term Projected Assessment of System Adequacy (PASA) formal information requests (FIR) from Market Participants and Western Power to assess project progression, applying the following criteria:

1. Environmental approvals – evidence of a project’s status in environmental approval processes.
2. Network connection – evidence of connection progress to the SWIS, based on information provided by Western Power.

3. Finance decision – evidence that new projects are well progressed towards a final investment decision (FID).

Many of these significant project milestones are unlikely to be achieved until the new project proponent has confidence that Capacity Credits will be available. As such, for each new project (or upgrade) planning to be operational for the current Reserve Capacity Cycle or later, AEMO calculates a percentage score based on how advanced they are against these evaluation criteria and categorises the projects as follows:

- 'Committed' projects have a score of 80% or more
- 'Probable' projects have a score between 50% and 80%
- 'Proposed' projects have a score of less than 50%.

For further details on the evaluation methodology, refer to Appendix A3.1 of the 2025 WEM ESOO.

Questions & Answers

Question 1: Does AEMO foresee any demand growth due to large-scale data centres?

Answer: Several new proposed data centre loads were identified in this year's FIR process and most fall under the large industrial load category. However, these projects have not yet matured sufficiently to be included as 'committed' projects in the 2025 WEM ESOO. AEMO will continue to monitor market developments to inform next year's WEM ESOO.

For more details on the commitment criteria applied to loads, refer to Appendix A2.4 of the 2025 WEM ESOO.

Question 2: What proportion of the reduced electricity demand is due to lower industrial demand because of reduced electrification rates?

Answer: In the 2027-28 Capacity Year, electricity consumption is forecast to be nearly 0.8 TWh lower than under the 2024 WEM ESOO. In this same year, the electrification forecast for large industrial loads is forecast to be nearly 0.5 TWh lower than under the 2024 WEM ESOO.

Other factors, such as the solar photovoltaic (PV) rebound effect, drove the consumption forecasts lower, but were partially offset by increases in electricity consumption from other segments. As such, an exact percentage has not been calculated.

To access more detailed forecast data from the 2024 and 2025 WEM ESOOs, see AEMO's data portal: https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/electricity-forecasting-data-portal

Question 3: In the future, will System Strength services be procured via a market mechanism (including direct procurement), or will minimum standards be applied to new facilities?

Answer: A framework for System Strength is currently being developed as part of the Coordinator of Energy's Power System Security and Reliability (PSSR) Standards Review.

Energy Policy WA published a consultation paper on 19 June 2025 which sets out the findings and policy proposals from the PSSR Standards Review, including a proposal for a new System Strength framework.

Market Participants and interested parties are invited to provide feedback on the proposals by 31 July 2025.

For more information and to access the consultation paper, see: https://www.wa.gov.au/government/document-collections/power-system-security-and-reliability-standards-review

Question 4: Given the difference between the 2024 and 2025 WEM ESOO demand forecasts, how sensitive is the demand supply balance to changes in the future demand forecast, i.e. what if demand returns to 2024 levels?

Answer: The demand-supply balance is sensitive to changes to both demand and supply forecasts.

Demand forecasts influence the demand-supply balance through the Limb A determination, which includes the 10% probability of exceedance (POE) demand component, and Limb B as one of the key drivers for dispatch modelling. Supply forecasts determine the extent to which these standards may be met and are based on AEMO's assessment of project readiness and timing, as described in the Context section above.

AEMO has implemented demand forecasting data improvements in the 2025 WEM ESOO. Peak demand forecasts generated with statistical models have been trained with the past eight years of actual demand, to March 2025. This includes the 2023-24 and 2024-25 summer periods, which experienced higher recorded demand than previous years. The historical demand includes adjustments to add back the reduction in load associated with Non-Co-optimised Essential System Services (NCESS) and Supplementary Capacity (SC).

From a supply perspective, AEMO continues to engage closely with Western Power and project proponents on how new, expanding, or changing load and supply projects are tracking for early insights on how the supply-demand balance may change. These updates are then reflected in future WEM ESOOs to signal investment opportunities or to inform procurement decisions, such as for SC or NCESS.

Question 5: Are Facilities' Available Capacity Factor (ACF) considered when calculating Peak Capacity?

Answer: ACF is not directly considered when calculating or forecasting Peak Capacity. However, Forced Outages impacting a Facility's ACF can have an impact.

The forecast Peak Capacity for the initial two Capacity Years, 2025-26 and 2026-27, is determined by the assigned Capacity Credits and NCESS Contract quantities for the respective years, with adjustments for full operation dates based on progress reports and market research.

For the subsequent Capacity Years, AEMO estimates the potential amount of forecast Peak Capacity based on the technology type and the adjustment required for Facilities with historical Forced Outage rates exceeding a prescribed Forced Outage Threshold that have not been mitigated through significant maintenance or upgrades.

For further information, see section 4.2 of the 2025 WEM ESOO.

Question 6: Do the Expected Unserved Energy (EUE) calculations take into account SC activations?

Answer: To account for historical demand reduction associated with SC activation, AEMO adds the equivalent quantity back in to train the model for demand forecast development. The demand forecasts are then applied for the development of demand traces, which in turn are fed into the reliability assessment (thus impacting EUE outcomes).

In calculating EUE, AEMO does not assume any future SC, as the WEM ESOO is used to help identify whether any SC will be needed in the next Hot Season.

Question 7: What is the likelihood of the Capacity Investment Scheme (CIS) approved projects proceeding now that the battery storage duration requirement has increased from four hours to six hours (with the effect of derating four-hour storage by one third)?

Answer: Whether a CIS approved project proceeds will depend on a range of factors, including the terms of the CIS Agreement between the Commonwealth and the relevant CIS project proponent.

The outcome of the 2025 Reserve Capacity Cycle, including whether CIS projects receive Capacity Credits, will be announced in August 2025 and will be published on the market data site.

Question 8: The WA Renewable Energy Transition Agreement between the Commonwealth and Western Australian governments calls for a minimum of 6.5 TWh of wind and solar projects in WA by 2030. How has this been taken into account in the 2025 WEM ESOO?

Answer: The 2025 WEM ESOO provides a future view of opportunities in the WEM. Whilst AEMO is aware of significant volumes of projects, these projects are not considered 'committed' and thus are not reflected in the supply-demand balance.

Should these projects progress, they would help improve the outlook for system adequacy in the future.

Projects are assessed applying the criteria set out in the Context section above. For more information on the assessment criteria and the categorisation of projects, see Appendices 3 and 4 (respectively) in the 2025 WEM ESOO.

Question 9: Have you modelled a scenario where the (announced) offshore wind is connected to the SWIS at the end of the ESOO 10-year period?

Answer: The recently announced offshore wind projects are not included in the 2025 WEM ESOO supply forecasts, as they are not considered committed based on AEMO's project status evaluation applying the criteria set out in the Context section above.

Should these projects progress, they would help improve the outlook for system adequacy in the future.

For more information on the assessment criteria and the categorisation of projects, see Appendices 3 and 4 (respectively) in the 2025 WEM ESOO.

Question 10: Is System Strength expected to impact on the Network Access Quantities (NAQ) for 2027?

Answer: No non-thermal limit advice for system strength has been provided by Western Power in previous NAQ processes. Western Power may determine operational limits required to manage system strength during peak demand events, which would be expected to be reflected in limit advice provided for future cycles.

Question 11: Will the findings from the future System Strength study on fault currents in the Shotts terminal be published?

Answer: The short circuit ratio (SCR) screening results and discussion of further studies to be undertaken are presented in Chapter 6 of the 2025 WEM ESOO.

AEMO and Western Power plan to undertake more detailed studies to identify the system requirements at each 'at risk' location and the viable remedial options.

Obligations on publishing system strength requirements will be considered as part of the Power System Security and Reliability (PSSR) Standards Review.

Question 12: Any updates on the Waste to Energy plants due to be commissioned?

Answer: We have considered the waste-to-energy (WTE) projects, Phoenix Kwinana and East Rockingham, under the 2025 WEM ESOO expected scenario. Like all upcoming projects, these projects were assessed based on the information AEMO received through the 2025 WEM ESOO FIR responses from market participants and Western Power and through the 2025 EOI for CRC.

The project status evaluation methodology is included in Appendix 3 of the WEM ESOO, while a breakdown of all existing and committed projects is in Appendix 4.

Question 13: Is percentage renewables generation being considered as potential network constraint for future modelling, considering global experience and recent events?

Answer: AEMO is closely following global experience under high renewables contribution but at this stage no direct limit is placed on renewables contribution. The reliability modelling underpinning the WEM ESOO does consider limits to intermittent contribution, through modelling of Frequency Co-optimised Essential System Service requirements. However, other limits which may impact instantaneous contribution of renewables are being explored through the SWIS Engineering Roadmap.

Question 14: What sort of weather conditions (i.e. extended periods of low wind/ solar irradiance) have been considered in assessing potential for EUE?

Answer: The reliability modelling is conducted using historical weather patterns from 2010-2024 (14 historical reference years). Extreme events are explored to the extent that they have occurred within these weather reference years.

For example, for the 2025-26 simulation where the weather conditions from the 2015-16 reference year were applied, the low wind conditions lead to battery storage not sufficiently recharging to meet demand. As such, it resulted in EUE after 8:30pm.

For further discussion on this point, see section 5.5.1 of the 2025 WEM ESOO.

Question 15: What considerations have been made for the impact of electric vehicle (EV) uptake and in particular, the benefit of storage and supply-demand balancing?

Answer: EV uptake is forecast using all available policy information, including New Vehicle Efficiency Standards (NVES).

There are assumptions around different at-home and public charging profiles which are used to produce EV demand and consumption for driving purposes.

Vehicle-to-grid battery depth and capacity assumptions are used during supply side optimisation to capture the impact of EVs as storage.

The demand and consumption, together with EV forecasts, are applied for the development of the demand trace, which is fed into reliability modelling and thus influences the outcome of the demand-supply balance.

For further information, see CSIRO consultant's report at: https://aemo.com.au/-/media/files/major-publications/isp/2025/stage-2/electric-vehicle-projections-2024.pdf

Question 16: Does the 2025 WEM ESOO model every 30-minute interval chronologically over the 10 year outlook period?

Answer: Correct. The dispatch modelling for Limb B (without network constraints) and sub-regional shortfall assessment (with network constraints) is performed using 30-minute intervals. For more information on the methodology for dispatch modelling, see EY's methodology report: https://aemo.com.au/-/media/files/electricity/wem/planning_and_forecasting/esoo/2025/ey---2025-wem-esoo-reliability-assessment-methodology-report.pdf?la=en

Question 17: Has the effect of the upcoming home battery subsidy expansion been factored in, noting the subsidy now requires virtual power plant (VPP) enablement?

Answer: The effect of the WA Government battery rebate was factored in at the time the forecast was developed, although this was prior to the recently announced policy changes, including VPP participation.

The Federal Government rebate is partially included, as the Expected and High scenarios previously anticipated rebates of comparable size.

For further information, see Appendix A2.3.2 of the 2025 WEM ESOO report.

Question 18: Is AEMO concerned that less than 20% of 'committed' capacity is energy-generating, both from a price perspective and a system reliability perspective? What are the drivers behind the lack of new energy-generating projects coming online?

Answer: The 2025 WEM ESOO Capability Class assessment identifies the minimum requirement for additional generation from Capability Class 1 (non-intermittent generators, such as gas-fired generators) and Capability Class 3 (intermittent generators, such as wind or solar farms) to meet the Reserve Capacity Target while maintaining EUE below 0.0002% on annual consumption.

Through these assessments, AEMO has determined that the minimum amount of Capability Class 1 and 3 in addition to existing and committed projects is 110 MW for the 2027-28 Capacity Year.

As this highlights a shortfall for energy-generating capacity, new energy-generating capacity projects will be higher up in the priority order for assignment of Network Access Quantities (NAQ) than battery storage projects (provided they have not been assigned a NAQ in a previous Reserve Capacity Cycle.

AEMO is aware of a number of energy-producing projects that are progressing, but have not yet reached the milestones required to satisfy the commitment criteria. The reliability assessment in this WEM ESOO emphasises the importance of timely development of these projects and supporting network infrastructure.

Question 19: Given the proportion of total system generation coming from inverter based resources (IBR) is increasing, what consideration has been given to the potential for cascading collapse of the system as a result of trickle down faults?

Answer: The reliability modelling reflects quantities of Essential System Services required to manage the system conditions in each interval (largest credible contingency and regulation quantities). Any changes to the credible risks which may correspond to the future fleet will continue to be assessed and applied, as relevant through the reliability modelling.

Any new Facilities have to go through a connection process with Western Power and AEMO which includes more detailed studies prior to connection to ensure system security is maintained.

In operational timeframes, the WEM Dispatch Engine and AEMO Operations teams maintain system security by ensuring sufficient Frequency Co-optimised Essential System Services (FCESS) are available, and make adjustments according to the system requirements. The calculated frequency nadir associated with the largest credible supply contingency is maintained above the Under Frequency Load Shedding (UFLS) scheme maintained by Western Power to stop the system from a cascading collapse.

The SWIS Engineering Roadmap sets out the engineering solutions required to enable the SWIS to operate securely and reliably in the transition to net zero. Several of these actions will support AEMO's forecasts for security and reliability as the contribution from renewables increases in the SWIS. For more information on the SWIS Engineering Roadmap, see: https://aemo.com.au/initiatives/major-programs/engineering-roadmap

Question 20: With respect to the 'Committed' and 'Probable' projects that AEMO has included in the supply volumes, does that include or exclude projects that have taken part in the 2025 EOI for CRC?

Answer: All information received through the 2025 EOI for CRC has been assessed applying the criteria set out in the Context section above.

For more information on the assessment criteria and the categorisation of projects, see Appendices 3 and 4 (respectively) in the 2025 WEM ESOO.

Question 21: The 2025 EOI for CRC was non-mandatory (again), so new prospective candidates could still enter the Reserve Capacity Cycle and receive Capacity Credits for the 2027-28 Capacity Year. How is that accounted for in the 2025 WEM ESOO supply-demand balance?

Answer: In addition to information from the 2025 EOI for CRC, AEMO has taken into account information from FIR responses received from Western Power and Market Participants as well as from public sources. Using this information, AEMO categorised the projects by applying the criteria set out in the Context section above.

For more information on the assessment criteria and the categorisation of projects, see Appendices 3 and 4 (respectively) of the 2025 WEM ESOO.

Question 22: Is there a breakdown of the Facility classes for the 507MW of Probable Facilities in the Limb A assessment in Table 2?

Answer: Yes, a breakdown on the Facilities by technology type is included in Table 10 of Appendix 4 of the 2025 WEM ESOO.

Question 23: Given recent reporting on some Market Participants' operational losses, what work does AEMO undertake to confirm the financial health of system suppliers?

Answer: AEMO does not have a formal role in reviewing the financial health of Market Participants, but notes that Market Participants are required by the ESM Rules to provide Credit Support (in the form of an unconditional guarantee or bank undertaking) or a Security Deposit to AEMO. Market Participants offering new Reserve Capacity into the Reserve Capacity Mechanism may also be required to provide a Reserve Capacity Security which can take the form of either an unconditional guarantee or bank undertaking) or a Security Deposit to AEMO.

For more information, see clauses 2.38 and 4.13 of the ESM Rules.

Question 24: How is the Peak Energy Storage Resource Obligation Duration (ESROD) Uplift of 256MW determined?

Answer: The steps for calculating the ESROD Uplift are set out in Appendix 11 Part C of the ESM Rules and in Appendix A5.2.3 of the 2025 WEM ESOO.