Department of Energy and Economic Diversification

GOVERNMENT OF WESTERN AUSTRALIA

Energy Policy WA

Capability Class 2 Technologies (CC2T) Review Working Group - Minutes

Date:	26 March 2026
Time:	9:30 AM – 11:30 AM
Location:	Microsoft Teams online

Attendees	Representing	Comment
Dora Guzeleva	Chair	
Natalia Kostecki	Australian Energy Market Operator (AEMO)	
Rebecca Pedlow-Collins	AEMO	
Oscar Carlberg	Alinta	
Neil Finney	BLT Energy	Proxy for Francis Ip
Jake Flynn	Collgar Renewables	
Alister Alford	Enel X	
Richard Cheng	Economic Regulation Authority (ERA)	
Noel Schubert	Expert Consumer Panel	
Clement Ng	IGO	
Warren King	Frontier Energy	
Dale Waterson	Merredin Energy	
Max Collins	Neoen	
Bobby Ditric	NewGen Power Kwinana	
Patrick Peake	Perth Energy	
Sumeet Kaur	Shell	
Darren Gladman	SMA	
Rhiannon Bedola	Synergy	
Kaavya Jha	Tesla Motors	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	Proxy for Paul Jones
Other attendees	**From**	**Comment**
Riley Markham	AEMO	Subject matter expert

Sue Paul	Robinson Bowmaker Paul (RBP)	Consultant appointed to assist with this review
Richard Bowmaker	RBP	
Eija Samson	RBP	
Laura Koziol	EPWA	Presenter (Item 5)
Lara Bradbury	EPWA	Presenter (Item 5)
Sean McAvoy	EPWA	Secretariat
Luke Commins	EPWA	Secretariat
Apologies		
Francis Ip	BLT Energy	
Paul Jones	Western Power	

1. WELCOME

The Chair opened the meeting with an Acknowledgement of Country.

The Chair noted the Competition and Consumer Law Obligations of the Working Group members.

2. MEETING APOLOGIES AND ATTENDANCE

The Chair noted the attendance as listed above.

3. MINUTES OF MEETING 2026_02_05

The Chair noted that the minutes had been approved out of session and published online.

4. ACTION ITEMS

The Chair noted the update in the papers and recommended that Action Item 2/2025 be closed.

5. SPLITTING CAPABILITY CLASS 2 - STRAWMAN

Ms Koziol presented Slide 2.

- Mr Peake recommended setting a minimum renewable generation threshold to stop facilities from accessing the Network Access Quantity (NAQ) priority by registering as hybrids.

Ms Koziol agreed that this should be prevented.

In response to Mrs Bedola, Ms Koziol clarified that:

- Clause 4.11.4A of the Electricity System and Market (ESM) Rules explains how to assign Capability Classes to facilities including multiple technology types that have different Capability Classes; and
- the assignment of a Capability Class for hybrid facilities is based on the Certified Reserve Capacity (CRC) as this is before the NAQ process, while Capacity Credits are assigned after the NAQ process.

Ms Koziol presented Slides 3 to 4 and explained that, had this process been in place earlier, it would not have changed the outcome for any Facilities that have gone through any previous Reserve Capacity Cycles.

- Mrs Bedola noted that the proposal involves significant implementation costs and considered that it should only proceed if an issue emerges.
- Mr Cheng welcomed the proposal but agreed with Mrs Bedola's comment.

The Chair explained that it was recommended to not progress this proposal at this stage, due to the likely material implementation costs and because this is only relevant when AEMO determines a shortfall of Capability Class 1 and 3 (CC1 and CC3).

Ms Koziol asked whether there were any concerns, assuming the proposal was cost effective.

In response to Mrs Bedola, the Chair clarified that AEMO currently does not allow Demand Side Programmes (DSPs) to coexist with another technology type seeking Capacity Credits behind the same connection.

- Mr Alford asked why DSPs are assigned the lowest priority in the prioritisation order.

Ms Koziol responded that DSPs are dispatched as a last resort because they are not part of the co-optimised merit order and have reduced availability requirements, with the latest requirement being 23.75 hours over the year.

The Chair clarified that aggregated DSPs are only subject to the NAQ process in January before the start of the relevant Capacity Year, after AEMO publishes the constrained Transmission Node Identifier (TNI) information. The Chair acknowledged that the priority order may need to be revised, as the shortfall in CC1 and CC3 capacity indicates a risk of Unserved Energy and Electric Storage Resources (ESR) may not be useful in these conditions.

- Mr Alford noted that a significant number of TNIs are constrained, with load reduction competing against other resources. As the system becomes more constrained, the prioritisation order for DSPs becomes increasingly important.

The Chair advised that the implementation of the South West Interconnected System (SWIS) Transmission Plan may make the system less constrained.

The Chair thanked Ms Koziol and members for their contributions.

6. CURRENT STATE TECHNICAL ANALYSIS

Mr Bowmaker presented Slide 4.

In response to Mr Carlberg, Ms Paul explained that the context for this analysis was to help identify:

- when ESR is required to determine if the ESR Obligation Intervals (ESROIs) still align with the State Electricity Objective; and
- periods when a mandatory State of Charge (SOC) may be required for ESR when entering the ESROIs.

Mr Bowmaker presented Slides 5 to 8 noting that the FCESS Stage 1 ESM Rule changes were implemented in November 2024, and, therefore, System Stress Events (SSEs) occurring after November have greater relevance.

Mr Bowmaker advised that 9 SSEs occurred after November 2024 and all occurred during summer. These events were caused by extreme temperatures with low wind availability.

- Mr Collins asked whether these extreme days were correlated with minimum system demand days.

The Chair responded that this was unlikely, as minimum demand days generally occur in the shoulder periods, while all SSEs occurred in summer.

- Mr Schubert noted that the system is likely to experience its 1-in-10 peak demand day during periods of low wind output, because most wind farms are concentrated in the North Country, which tends to have similar wind conditions to the Perth metro area where low wind (e.g. no sea breeze) results in the highest demands.

The Chair agreed with Mr Schubert and acknowledged that this was what is experienced in practice.

Mr Bowmaker explained that the future state analysis accounts for real world wind–demand relationships by using historical correlated traces. He also noted that, as wind capacity increases, the system will increasingly feel the effects of wind availability.

In response to Mrs Bedola, the Chair explained that the 25 August 2025 event was not declared a Lack of Reserve (LOR) event, though it could be considered in future analysis. The Chair noted that similar events can share common characteristics and that ESRs were not adequately charged on that day.

- Ms Pedlow-Collins explained that LOR events are generally called in the morning based on AEMO's forecasts. However, on 25 August 2025, conditions deteriorated throughout the day, and AEMO chose to manage the situation in real time rather than declare an LOR event.

Mr Bowmaker presented Slides 9 to 19.

Referring to Slide 9, Mr Bowmaker advised that six of the SSEs that occurred after November 2024 occurred before 4:30pm.

- Referring to slide 17, Mr Schubert noted that it was logical to see no correlation between Charge Level and Frequency Co-optimised Essential System Services (FCESS), because although an ESR may be enabled for an FCESS service, actual energy dispatch only occurs when an FCESS event occurs, but little energy is transferred during normal operation

Mr Bowmaker agreed but noted that while FCESS enablement does impose some limits on the State of Charge (SOC), it does not account for the low charge levels observed.

Mr Bowmaker presented Slides 20 to 25.

- Mr Schubert noted that the WEM Dispatch Engine (WEMDE) optimises prices to achieve specific dispatch outcomes that align with the WEMDE algorithm, which may not align with the SSE.
- Mrs Bedola noted that ESRs base their offer decisions on price forecasts, and that simultaneous charging across the fleet could create an SSE.
- Mr Collins asked what the expected behaviour of ESRs would be in these examples, noting that the price outcome was likely to be better with the ESRs discharging.

The Chair clarified that the low SOC issue is a Power System Security and Reliability matter, because during LOR events the ESRs may be required to maintain system reliability during peak periods and, therefore, need to be adequately charged ahead of the

ESROIs. The Chair further clarified that on normal days, the ESR is expected to operate commercially.

- Mr Collins suggested that, during an LOR event, alternative options could include either:
    - AEMO assuming control of the ESR fleet, with ESRs compensated at the Market Price; or
    - Setting the Market Price equal to the Energy Market Price Cap.

The Chair explained that customers would likely bear higher costs, given they already fund the Reserve Capacity Mechanism that allows ESRs to recover all of their fixed costs. She added that ESRs are required to be available during the peak periods, and customers are already paying for that availability.

- Mr Collins noted that SSEs can arise for a range of reasons and considered that prices would generally signal these events, as appeared to be the case on 23 January 2025. He cautioned that restricting ESRs to their ESROIs in such circumstances could pose a risk to the system.
- Mr Carlberg considered that SSEs can be anticipated through price signals, which, along with system reliability concerns, are driven by AEMO's forecasts. He questioned what alternatives to price signals might better serve the system.

The Chair requested that AEMO provide further information on the 23 January 2025 event.

Action Item: AEMO to provide an explanation of the reasons for the price spike on 23 January 2025.

The Chair responded that, in a perfect market, AEMO would never need to intervene. While price signals work effectively most of the time, there are circumstances that still require intervention. She noted that balancing reliability and affordability is a key challenge of the State Electricity Objective, and that during these occasional periods of system stress, ESRs must be prepared to discharge during their ESROIs.

In response to Mrs Bedola, the Chair clarified that:

- the SOC obligations would apply only during extreme SSEs, likely an AEMO-declared LOR event;
- in such events, AEMO would direct ESRs to maintain a minimum SOC;
- in all other circumstances, ESRs would operate normally/commercially; and
- the intent is to provide transparency around the SOC obligation, so Market Participants understand why AEMO intervenes.

In response to Mr Collins, the Chair explained that when deciding an LOR, AEMO will:

- forecast system demand, intermittent generation, and the availability of Facilities, including any outages;
- consider its reserve levels in accordance with the Long Term Projected Assessment of System Adequacy (LT PASA);
- in the short term, determine whether it has sufficient reserves to meet forecast demand while also covering any relevant contingency events.

- Ms Kostecki supported the Chair's comments and noted that LOR conditions may be triggered by either an energy shortfall or an Essential System Service (ESS) shortfall, with the requirements for both defined under the ESM Rules.
- Mr Collins noted that on 9 February 2026, AEMO asked Neoen to charge its ESR ahead of the evening peak. He observed that the main impact was an increase in the clearing price meaning that, when AEMO requires a minimum SOC, the ESR is likely to incur a financial loss.

The Chair asked AEMO to explain why a direction was not issued on that occasion. The Chair added that at the 23 October 2025 CC2TRWG meeting, AEMO explained that for the 2025-26 summer period it would intervene to ensure adequate SOC levels for system security management.

Action Item: AEMO to provide an explanation of the reasons for not issuing a direction on 9 February 2026.

7. FUTURE STATE ANALYSIS

Mr Bowmaker presented Slide 27 and a new 'Capacity Assumptions' slide.

Mr Bowmaker noted that the capacity assumptions reflect only the information available at the time, which is why some projected growth or decline seems to end.

Mr Bowmaker presented Slide 29 to 33 and asked for comments from the members.

In response to Mr Peake, the Chair clarified that feedback is being sought on whether AEMO should have the discretion to set the SOC at various levels.

In response to Mr Collins, the Chair explained that the policy cannot be technology-neutral because different technologies have different characteristics. For example, gas and diesel Facilities must meet a 14-hour fuel requirement, and their certification is based on their ability to achieve this.

Members indicated their support for AEMO to have the flexibility in mandating different SOC levels, noting that this may be appropriate depending on system requirements.

Ms Paul presented Slide 34 and asked for comments from the members.

In response to Mr Schubert, Ms Paul clarified that the wind forecast refers to forecasted wind generation.

- Mr Peake noted that, as thermal capacity declines, and with continuous days of low wind availability, it becomes increasingly important to avoid wind spill by ensuring an appropriate contingency plan is in place.
- Mr Alford considered that it was the accuracy of the forecasts that mattered, as greater uncertainty increases the likelihood that additional reserves will need to be held.
- Mr Collins noted that forecast errors could cause ESRs to discharge at different times, which would likely affect their SOC heading into the ESROI.
- Mrs Bedola was not supportive of wind being used to define a SOC obligation as wind is only one element of an SSE.
- Mr Carlberg:
    - was not supportive of prescribing what AEMO must consider when deciding whether to intervene, noting that it is preferable for AEMO to retain flexibility to assess the whole-of-system information and impacts; and

- suggested that a WEM Procedure could outline the process, including elements such as notice periods, to provide greater transparency for Market Participants.

The Chair explained that:

- during LOR events, all generators are expected to be available for dispatch;
- forecast accuracy is critical, and work is ongoing to improve it; and
- forecasts would need to be accurate to provide certainty that an SSE will occur.

- Mr Collins and Mrs Bedola queried how any obligation would work with the Offer Construction Guideline and other obligations.

The Chair noted that it would be sensible for Market Participants to discuss these matters with the ERA. The Chair added that, at this stage, the expectation is that AEMO will issue a declaration during infrequent SSEs, and ESRs will act on that declaration in the same way it responds to other AEMO directions.

Ms Paul summarised that, based on the feedback, the trigger would likely be an LOR declaration, and asked AEMO whether such a declaration can only be issued on the morning of a Trading Day.

- Ms Pedlow-Collins explained that, while AEMO has traditionally issued LOR declarations in the morning, there is nothing preventing it from issuing one at any other time.

Ms Paul presented Slides 35 to 39 and asked for feedback from members about the proposed additional SOC refund mechanism.

- Mr Carlberg noted that:
  - introducing an additional refund mechanism would unnecessarily complicate the SOC obligation;
  - civil penalties, AEMO's disconnection powers, and the risk of being held responsible for a blackout already provide strong incentives to follow AEMO's directions; and
  - the SOC refund would only apply if Market Participants did not follow an AEMO direction, so questioned the rationale for treating this form of non-compliance differently from others.
- Mr Peake agreed with Mr Carlberg that non-compliant Market Participants being publicly named is a strong incentive. However, he considered an additional refund to be a better approach than relying on civil penalties.
- Mr King noted that, given ESRs receive Reserve Capacity payments, it is reasonable to expect it to be available and charged for dispatch during peak periods. He considered a penalty that encourages this behaviour, especially when AEMO issues a direction, to be reasonable.
- Mr Collins noted that ESRs must be given sufficient time to charge, and should not be penalised if they respond to an SSE that reduces their SOC before reaching the ESROIs.

The Chair noted that:

- although Market Participants must follow AEMO's directions, it is the ERA that decides whether to investigate non-compliance, and the Chair was not aware of any completed ERA investigations on dispatch non-compliance;

- non-compliance has occurred in the WEM, showing that commercial interests can sometimes outweigh the deterrent of civil penalties;
- in an efficient market, civil penalties should be rare; and
- the ESM Rules should be designed so that compliance is built into the framework, rather than relying on civil penalties, which are costly for all parties.

In response to Mrs Bedola, the Chair noted that, while there would be implementation costs, there would also be costs associated with ERA investigations and the application of civil penalties. Consequently, a compliance-by-design approach is likely to offer a more cost-effective pathway.

- Ms Pedlow-Collins noted that, although the proposal may appear straightforward, it should not be assumed that the additional refund mechanism would not have material implementation costs. Ms Pedlow-Collins advised that AEMO would need time before it could provide any estimate of the costs involved.

Action Item: AEMO to provide an estimate of the implementation costs associated with an additional refund mechanism.

- Mrs Bedola noted that Market Participants already have strong incentives to comply and recommended that implementation options consider the customer impact. While both AEMO and ERA fees are ultimately passed through to customers, the total cost depends on how likely the event would occur. Hence, the probability of the event happening should guide which option is the most cost-effective.
- Mr Ditric noted that the ERA is already responsible for monitoring non-compliance. Consequently, any new SOC obligation would simply become part of its usual operations and, therefore, it is unlikely for there to be any additional cost. The ERA would only need to undertake an investigation if a specific issue arose.

The Chair noted that she would confirm whether the ERA recovers its civil penalty proceedings through the WEM fees. She stated that any additional refund mechanism would depend on the associated implementation costs. Once there is a clearer understanding of those costs, it will be easier to determine which option is the most cost-effective.

Action Item: EPWA to confirm whether the ERA recovers its civil penalty proceedings from the WEM

Ms Paul advised that AEMO would be providing additional data and further future-state analysis would be provided at a future CC2TRWG meeting.

8. GENERAL BUSINESS

The Chair thanked members for their contributions and closed the meeting.

The meeting closed at 11:31am.