

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

Date:	23 October 2025
Time:	9:30 AM – 11:28 AM
Location:	Microsoft Teams online

Attendees	Representing in Working Group	Comment
Dora Guzeleva	Chair	
Richard Bowmaker	Robinson Bowmaker Paul (RBP)	
Sue Paul	RBP	
Natalia Kostecki	Australian Energy Market Operator (AEMO)	
Rebecca Pedlow-Collins	AEMO	
Leon Kwek	AEMO	
Oscar Carlberg	Alinta	
Neil Finney	BLT Energy	Proxy for Francis Ip
Jake Flynn	Collgar Renewables	
Alister Alford	Enel X	
Jason Dignard	ERA	Proxy for Richard Cheng
Noel Schubert	Expert Consumer Panel	
Warren King	Frontier Energy	
Clement Ng	IGO	
Will Chen	Neoen	
Bobby Ditric	NewGen Power Kwinana	
Patrick Peake	Perth Energy	
Darren Gladman	SMA	
Rhiannon Bedola	Synergy	
Sumeet Kaur	Shell Energy	
Ash Densham	Telsa	
Paul Jones	Western Power	
Other attendees	From	Comment
Luke Commins	EPWA	

Shelley Worthington	EPWA	
Catlianna Evans	RBP	
Eija Samson	RBP	
Apologies	From	
Francis Ip	BLT Energy	
Richard Cheng	ERA	
Max Collins	Neoen	
Dale Waterson	Merredin Energy	
Kavya Jha	Telsa	

1. WELCOME

The Chair opened the meeting with an Acknowledgement of Country.

The Chair noted the Competition and Consumer Law obligations of the CC2T Review Working Group (CC2TRWG) members, inviting members to bring to her attention any issues should they arise.

2. WELCOME AND INTRODUCTIONS

The Chair welcomed the members of the CC2TRWG and asked each to introduce themselves.

3. SCOPE OF WORK AND ROLE OF THE WORKING GROUP

The Chair noted that:

- the review was required under 4.13.B of the Electricity System and Market (ESM) Rules and to address issues that have arisen regarding the participation of Demand Side Program (DSP) and Electricity Storage Resource (ESR) in the Wholesale Electricity Market (WEM);
- the review required completion by 1 October 2026 and the intent was to complete it prior to the publication of the 2026 WEM Statement of Opportunities;
- the Terms of Reference for the CC2TRWG is published on the EPWA website and the CC2TRWG members are expected to contribute their knowledge and analysis; and
- the Scope of Work for the review relied heavily on AEMO for modelling and analysis and AEMO, EPWA and RBP would meet regularly alongside the CC2TRWG meetings.

4. PURPOSE OF THIS REVIEW

Ms Paul presented slides 4 – 5 and providing an overview of what was in scope for the review as outlined on the slides. She noted that the review:

- requirements were updated in the ESM Rules on 15 January 2025 and, therefore, requirements that had not been in effect long enough to undertake a meaningful assessment would not be included; and
- was focussed on the Reserve Capacity Mechanism (RCM) and whether the current obligations, incentives and mechanisms as they relate to CC2T were fit for purpose in an increasingly changing power system.

Ms Paul presented slide 6 and explained the upcoming stages of the project and the proposed timing for project deliverables.

In response to a question from Mr Carlberg regarding the certification method for ESR, the Chair advised that the review was a requirement under the ESM Rules, not the result of any problems that had been identified in the current mechanism.

The Chair noted that the jurisdictional review had a set of criteria, against which the CC2TRWG would be assessing the alternative certification methods against the current method in the WEM.

5. AEMO'S CONTRIBUTION TO THE CC2T REVIEW

Mr Kwek noted that AEMO's submission to the CC2TRWG will be taken as read and presented the example of an event on the 25 August 2025. He explained that this was an unusual day as:

- the weather was an unusually cold and wet with demand close to a record high at almost 4 gigawatts (GW) with a very long peak period;
- there was a loss of almost 1 GW of PV output at 14:00 due to cloud cover, but that did not require manual intervention by AEMO as it was managed by ESRs providing Regulation services;
- by 16:30, the ESR were charged to around 40% and this was the time when AEMO became aware of the issue (This was prior to the commencement of the ESR obligation intervals at 17:30); and
- Synergy changed its submission for the Kwinana ESR and started to charge ahead of the ESR obligation intervals, and consequently the Collie ESR upstarted discharging, and the peak period commenced potentially 50% short of ESR capacity.

Mr Kwek stated that this showed that the current arrangements were not working as intended. He added that 2 GW of storage capacity was expected by the end of 2027 and, if this situation were to occur again, AEMO could have a shortfall of 1 GW during the system peak period.

Mr Kwek noted that, around 18:00, the AEMO control room was required to intervene and cap the output of one of the ESR to keep them at half output for the rest of the peak period. He clarified that the AEMO intervention reflected the information that the control room had available at the time.

Mr Kwek advised that, when manual intervention is required, the approach from the control room is to make the minimum adjustment and be as light touch as possible. In this instance the decision was to contain one ESR to half output to sustain its charge. This caused the WEM Dispatch Engine (WEMDE) to redispatch 150-200 MW across the other facilities in the SWIS.

Mr Kwek noted that this resulted in requiring peaking gas plant to come on with relatively short notice. Ordinarily, this would not be an issue, but shortly after AEMO was made aware that gas demands were causing issues with the pressure of the gas pipeline.

Mr Kwek noted that it was not immediately clear how much the forecasts played a role, but it was clear that gas traders were likely also reliant on the forecast ESR capacity as gas nominations were low and there was not sufficient pressure in the gas network. This led AEMO to intervene another five or six times for some facilities.

Mr Kwek noted that:

- clearly assumptions could be made about the role of ESR and its state of charge;
- the ESM Rules do not explicitly clarify what AEMO should be doing in these circumstances and what market penalties should apply when a facility is not able to meet Dispatch Instructions;
- when parts of the system are put under stress, things start to go wrong and when AEMO starts to intervene, other things go wrong;
- AEMO is undertaking a formal investigation of this incident as required under clause 3.8.1 of the ESM Rules; and
- that in the end, the system did not drop below the Lack of Reserve 1 (LOR1) threshold.

Mr Kwek advised that in May 2025 AEMO had (internally) created a team to manage the issues around storage. This consisted of subject matter experts including regulatory and Reserve Capacity Mechanism specialists who are available to follow up on any additional information.

Mr Kwek presented slide 22 noting that, although some of the ESR were entering the dispatch period with less than 50% state of charge, through the peak period their state of charge was high enough to meet their obligations and as a result there were no refunds applied.

Mr Kwek presented slides 23 and 24, noting that:

- AEMO was not routinely seeing issues in the control room with the ESR and their state of charge, but that some issues were starting to show;
- it required the control room operator will intervene to prevent WEMDE from dispatching them;
- while it is important for participants to manage their state of charge through their offers, there are features within WEMDE that can automatically manage state of charge and that it is important to have the backstop within the dispatch algorithm;
- internally, AEMO has commenced some work on the 'effective state of charge' to determine what the implications are for the Certified Reserve Capacity of a Facility; and
- AEMO needs certainty that Reserve Capacity planning and market dispatch is based on actual performance parameters, rather than physical readings off an inverter.

Mr Kwek presented slide 25¹ noting that this was an example of what you can do with the information you have at the time versus what things may look like in hindsight. He emphasised that the state of charge becomes a very real constraint. He noted that, in the example provided, the participant lost a third of its revenue potential.

Mr Kwek presented slide 27 and explained that AEMO was having internal discussions on its operational policy in the lead up to summer. He noted that the information provided is an informal overview of the approach. He also noted that there is a healthy tension between a system operation response as opposed to a market operations view on how to handle situations when the power system is under stress, and the overriding decision threshold is that the lights need to stay on.

¹ CIGRE Australia Conference in September 2025

Mr Kwek noted that, while the event on the 25 August was a stressful situation, it was not at the level of stress that can occur in the summer period. He provided an overview of the two options to manage a power system under stress, outlined on slide 28, and noted that there could be legal implications if AEMO starts to intervene with the commercial position of a Market Participant.

Mr Kwek noted that working group feedback was sought on the power system versus market approach before more formal consultation.

Mr Kwek presented slide 29 outlining AEMO's power system approach, which is that at the start of an LOR day, an ESR would be required to maintain an increasing state of charge over the day. Mr Kwek presented examples of this on slide 30.

Mr Kwek presented slide 30 noting that:

- certain parameters needed to be worked through such as limits for Frequency Co-optimised Essential System Services and forecast probability;
- forecasts that do not eventuate was a big consideration;
- the issues and details will be presented and consulted on through an upcoming AEMO operational pre-summer forum (date to be advised).

In response to a question from Mrs Bedola, Mr Kwek advised that there would be a public consultation.

- Mr King and Mrs Bedola asked how the proposal would apply to hybrid facilities and to Semi-Scheduled Facilities.

Mr Kwek replied that he would take the question on notice and that an answer would be provided either through the consultation or this Working Group.

The Chair clarified that what AEMO is considering is not a long-term solution, rather it focusses on the upcoming summer period. She noted that when market failures occur, the design must be reviewed and if necessary changed. It was her opinion that frequent manual intervention by AEMO constituted market failure.

- Mr Peake suggested that once Peak Capacity Credits are assigned, the rising floor would presumably be applied so that ESR are charged at 2 pm.

The Chair provided a recap of the issues that have to be addressed by the CC2TRWG:

- the minimum allowable discharge floor needs to be addressed for certification purposes;
- the current Reserve Capacity obligation, including:
 - whether triggers are required to ensure that ESR are fully charged to meet their Reserve Capacity Obligation Quantity in certain circumstances; and
 - what the RCOQ is for existing and future ESR, and the duration of the obligations;
- the refunds levels, and how they should apply;
- whether the ESM Rules require strengthening to ensure that the market submissions and forecasts that are provided to AEMO accurately reflect the capability of the ESR in the dispatch horizon.

The Chair clarified that this is still a self-commitment market and that, if the goal was to move to a central commitment market, this should be done transparently. She noted that

any other issues outside of the scope of this review would be logged and considered at a future date.

In response to a question from Mr Carlberg, Mr Kwek confirmed there would be a separate consultation on potentially increasing the floor for the intervening period to get through this summer. Mr Kwek noted that the parameters to be consulted on were open to suggestion and contributions from stakeholders.

The Chair noted that CC2TRWG members feedback was welcome and requested that, where appropriate, other working group members should be copied into correspondence emailed to EPWA.

- Mr Carlberg suggested that it would be helpful to be aware of what other interventions or levers might be available to address the issues that were presented. If there are other levers that the CC2TRWG members support, there would be less work required on the RCM arrangements.

The Chair noted that with 2GW of storage in the market, the RCM arrangements for storage should be looked at but, separate to that, there were operational issues that required addressing ahead of this coming summer.

Mr Kwek provided an outline of the next steps and timelines outlined on slide 5 and the context of the internal working group at AEMO. which was supported by subject matter experts as noted earlier.

Mr Kwek presented slide 7 noting that last summer there was a standing policy in the AEMO control room that, if the state of charge did not reach 80% by 16:00, the control room would intervene. (In the Texas electricity market, the policy is to intervene by 15:00). He noted that ultimately this was not necessary, but that AEMO recognised there was a need to commence work in this area as concerns with ESR have started to show.

Mr Kwek presented slide 8 and noted that an expectation of 2 GW of storage energy limited capacity was very credible and likely to be higher.

In response to a question from Mrs Bedola, Mr Kwek said that he could provide an updated graph (slide 8) in MW.

Mr Kwek presented slide 9 noting that the event in August was an indicator that they had reached the low transition point of the scale and that when 2GW of storage enter the system this is likely to reach the moderate transition point.

- Mr Schubert requested to see charts showing peak day demand with the obligations of ESR overlaid. Mr Schubert noted that the ESR will flatten out the demand profile and the ESR must cover that which means that the duration requirements are going to have to be longer.

The Chair noted that analysis was undertaken as part of the extension of the availability duration gap (ADG) to six hours and the ADG will continue to be reviewed. This project will also include modelling, to see how the peak demand intervals have changed and whether the RCOQ for ESR and DSPs need to change.

- Mr Schubert noted that the demand profiles in the future are going to be changed by ESR and the ESR must be able to cover that flatter demand profile, meaning the durations will need to be longer, and that morning peaks on cold days possibly would need to be covered by batteries as well.
- Mr Peake noted that if an intervention from AEMO is necessary, as was required on 25 August 2025, some of the cost of that intervention should be placed back on the

storage facilities. Consumers should not have to pay for the cost of running diesel fired power stations.

Mr Kwek agreed and considered that a reasonable intervention would have been to force that state of charge even at a slight loss to avoid the dispatch of the higher cost energy source.

The Chair noted that consideration of whether refunds are sufficient to incentivise the right state of charge was within scope of the Review.

- Mr Carlberg noted that he was not clear whether rejecting outages was considered a form of intervention and asked how difficult AEMO was expecting the issue of outages to become as the levels of storage increase and sought to clarify whether outage coordination was within the scope of work.

Mr Kwek, noted that he could not give a definitive answer, and advised Mr Carlberg to seek clarification at the public forum. He noted that it was his view that outages are not a pragmatic solution and that if AEMO is creating uncertainty about outages, they should not be running through the peak summer period.

The Chair said there are market mechanisms to incentivise longer duration storage and the ADG is one of them. The CC2TRWG needs to test whether they are sufficient and examine everything related to storage in the RCM.

In response to a comment from Mr Carlberg, the Chair noted that the issue of outages was a topical one that required consideration. She noted that that issues that could not be addressed within this scope of work would be logged for consideration at a later date.

Mr Kwek advised members to review of the paper provided and added that as storage increases there was a real need to start thinking about how those ESR are getting charged in the first instance.

6. NEXT STEPS

The Chair thanked Mr Kwek for his presentation and noted that the date for the next CC2TRWG would be advised.

7. GENERAL BUSINESS

The meeting closed at 11.28am.