Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Meeting Agenda

Meeting Title:	Market Advisory Committee (MAC)
Date:	Thursday 23 November 2023
Time:	9:30 AM – 11:30 AM
Location:	Wyndham Room, Energy Policy WA, and on-line

Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda • Conflicts of interest • Competition Law	Chair	Noting	2 min
2	Meeting Apologies/Attendance	Chair	Noting	2 min
3	Minutes of Meeting 2023_10_12	Chair	Approval	2 min
4	Action Items	Chair	Noting	2 min
5	Market Development Forward Work Program	Chair/Secretariat	Discussion	5 min
6	Update on Working Groups			
	(a) AEMO Procedure Change Working Group	AEMO	Noting	5 min
	(b) Reserve Capacity Mechanism Review Working Group (RCMWG)	RCMRWG Chair	Noting	5 min
	(c) WEM Investment Certainty Review	WICRWG Chair	Discussion	60 min
7	Rule Changes			
	(a) Overview of Rule Change Proposals	Chair/Secretariat	Noting	2 min
8	Power System Security and Reliability (PSSR) Standards Review– Scope of Works and Terms of Reference	PSSR Review Chair	Discussion	20 min
9	Benchmark Reserve Capacity Price (BRCP) WEM Procedure review Working Group	Chair/ERA	Discussion	10 min
10	General Business	Chair	Discussion	5 min
	Next meeting: 9:30am Thursday 8 February 2024			

Please note, this meeting will be recorded.

Competition and Consumer Law Obligations

Members of the MAC (**Members**) note their obligations under the *Competition and Consumer Act 2010* (**CCA**).

If a Member has a concern regarding the competition law implications of any issue being discussed at any meeting, please bring the matter to the immediate attention of the Chairperson.

Part IV of the CCA (titled "Restrictive Trade Practices") contains several prohibitions (rules) targeting anti-competitive conduct. These include:

(a) **cartel conduct**: cartel conduct is an arrangement or understanding between competitors to fix prices; restrict the supply or acquisition of goods or services by parties to the arrangement; allocate customers or territories; and or rig bids.

(b) **concerted practices**: a concerted practice can be conceived of as involving cooperation between competitors which has the purpose, effect or likely effect of substantially lessening competition, in particular, sharing Competitively Sensitive Information with competitors such as future pricing intentions and this end:

- a concerted practice, according to the ACCC, involves a lower threshold between parties than a contract arrangement or understanding; and accordingly; and
- a forum like the MAC is capable being a place where such cooperation could occur.

(c) **anti-competitive contracts, arrangements understandings**: any contract, arrangement or understanding which has the purpose, effect or likely effect of substantially lessening competition.

(d) **anti-competitive conduct (market power)**: any conduct by a company with market power which has the purpose, effect or likely effect of substantially lessening competition.

(e) **collective boycotts**: where a group of competitors agree not to acquire goods or services from, or not to supply goods or services to, a business with whom the group is negotiating, unless the business accepts the terms and conditions offered by the group.

A contravention of the CCA could result in a significant fine (up to $500,000 for individuals and more than $10 million for companies). Cartel conduct may also result in criminal sanctions, including gaol terms for individuals.

Sensitive Information means and includes:

(a) commercially sensitive information belonging to a Member's organisation or business (in this document such bodies are referred to as an Industry Stakeholder); and

(b) information which, if disclosed, would breach an Industry Stakeholder's obligations of confidence to third parties, be against laws or regulations (including competition laws), would waive legal professional privilege, or cause unreasonable prejudice to the Coordinator of Energy or the State of Western Australia).

Guiding Principle – what not to discuss

In any circumstance in which Industry Stakeholders are or are likely to be in competition with one another a Member must not discuss or exchange with any of the other Members information that is not otherwise in the public domain about commercially sensitive matters, including without limitation the following:

(a) the rates or prices (including any discounts or rebates) for the goods produced or the services produced by the Industry Stakeholders that are paid by or offered to third parties;

(b) the confidential details regarding a customer or supplier of an Industry Stakeholder;

(c) any strategies employed by an Industry Stakeholder to further any business that is or is likely to be in competition with a business of another Industry Stakeholder, (including, without limitation, any strategy related to an Industry Stakeholder's approach to bilateral contracting or bidding in the energy or ancillary/essential system services markets);

(d) the prices paid or offered to be paid (including any aspects of a transaction) by an Industry Stakeholder to acquire goods or services from third parties; and

(e) the confidential particulars of a third party supplier of goods or services to an Industry Stakeholder, including any circumstances in which an Industry Stakeholder has refused to or would refuse to acquire goods or services from a third party supplier or class of third party supplier.

Compliance Procedures for Meetings

If any of the matters listed above is raised for discussion, or information is sought to be exchanged in relation to the matter, the relevant Member must object to the matter being discussed. If, despite the objection, discussion of the relevant matter continues, then the relevant Member should advise the Chairperson and cease participation in the meeting/discussion and the relevant events must be recorded in the minutes for the meeting, including the time at which the relevant Member ceased to participate.

Government of Western Australia
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Energy Policy WA

Minutes

Meeting Title:	Market Advisory Committee (MAC)
Date:	12 October 2023
Time:	9:30am –11:24am
Location:	Online (Microsoft Teams)

Attendees	Class	Comment
Sally McMahon	Chair	
Martin Maticka	Australian Energy Market Operator (AEMO)	Left at 11.15
Dean Sharafi	AEMO	Left at 11.15
Kei Sukmadjaja	Network Operator	Proxy for Zahra Jabiri
Genevieve Teo	Synergy	
Noel Schubert	Small-Use Consumer Representative	
Jacinda Papps	Market Generator	
Adam Stephen	Market Generator	
Paul Arias	Market Generator	
Peter Huxtable	Contestable Customer	
Timothy Edwards	Market Customer	
Geoff Gaston	Market Customer	Late start
Patrick Peake	Market Customer	
Noel Ryan	Observer appointed by the Minister	
Rajat Sarawat	Observer appointed by the Economic Regulation Authority (ERA)	

Also in Attendance	From	Comment
Dora Guzeleva	EPWA	MAC Secretariat
Bronwyn Gunn	EPWA	MAC Secretariat
Shelley Worthington	EPWA	MAC Secretariat
Tim Robinson	Robinson Bowmaker Paul (RBP)	Observer for Item 8
Richard Bowmaker	RPB	Presenter for Item 8
Geoff Glazier	Merz Consulting	Observer for Item 8

Apologies	From	Comment
Zahra Jabiri	Western Power	
Chris Alexander	Small-Use Consumer Representative	

Item	Subject	Action
1	**Welcome** The Chair opened the meeting at 9:30am with an Acknowledgement of Country. The Chair noted she had no new conflicts to declare. The Chair noted that that the views or advice provided by the MAC to the Coordinator do not necessarily represent the views of the Chair. The Chair noted the Competition and Consumer Law obligations of the MAC, inviting members to bring to her attention any issues should they arise. The Chair noted that MAC operates for the good of the WEM Market Objectives and members are to participate in the interests of the stakeholder group they represent.	
2	**Meeting Apologies/Attendance** The Chair noted the attendance and apologies as listed above.	
3	**Minutes of Meeting 2023_08_30** The MAC accepted the minutes of the 30 August 2023 meeting as a true and accurate record of the meeting. **Action: The MAC Secretariat to publish the minutes of the 30 August 2023 MAC meeting on the Coordinator's Website as final.**	**MAC Secretariat**
4	**Action Items** The Chair noted that there was an open action item: **15/2023:** for Western Power to provide advice about the information that it shares with AEMO in real time when loads are constrained. • Ms Sukmadjaja from Western Power noted that: ○ AEMO has real time visibility of customer load flow information via SCADA points (if applicable) that are transmitted to AEMO via the Inter Control Centre Communication Protocol link. Additionally, Western Power provides AEMO with the details of the special protection schemes via a register that is uploaded onto the AEMO/Western Power SharePoint site. • Mr Schubert noted that the intent of the question was to understand whether AEMO would have visibility when Western Power curtails a load. SCADA may change for many reasons, so load curtailment may not be apparent with this data alone.	

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Ideally, AEMO's control room would have visibility that a load had been curtailed.

- Mr Schubert noted that flow of information from Western Power to AEMO for system operation purposes is being considered as part of the Demand Side Response (DSR) Review.
- Ms Sukmadjaja responded that she was not the subject matter expert in this area and suggested that this was best discussed within the DSR Review working group.

5 Market Development Forward Work Program

The Chair noted the updates, and the paper was taken as read.

- Mr Edwards noted that the new Wholesale Electricity Market (WEM) had commenced since the last meeting.

The Chair acknowledged the new market start on 1 October 2023 and asked if there were any comments from the MAC.

- Mr Edwards noted the volatility in pricing and noted that the discussion on flexible capacity and ramping was timely.
- Mr Sharafi noted that, from AEMO's perspective, the market start had gone smoothly, any initial issues had been resolved quickly and the overall experience was much better than expected.

6 Update on Working Groups

(a) AEMO Procedure Change Working Group (APCWG)

The Chair noted that a number of procedures had commenced.

Mr Maticka confirmed that AEMO had developed and updated 57 procedures in the lead up to the new market start, with another 12 procedures still requiring finalisation, and thanked those who had provided comment. He noted that the gaps in procedure development were communicated through WRIG.

Mr Maticka advised that further changes to procedures may be required in the next 12 months.

(b) Reserve Capacity Mechanism Review Working Group (RCMRWG) Update

The Chair noted that the minutes from the previous RCMRWG meetings were included in the papers and that the Exposure Draft of the WEM Amending Rules implementing the outcomes of the RCM Review was published on 14 September 2023.

The Chair reminded MAC members of the need to receive updates from members of the MAC working groups in their organisations.

Ms Guzeleva noted that:

- the consultation on the RCM WEM Amending Rules Exposure Draft closes on 19 October 2023;
- discussions were ongoing with stakeholders;

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- EPWA is open to informal feedback;
- submissions should be made as soon as practicable; and
- the Amending Rules will be submitted to the Minister by the end of November.

Ms Guzeleva noted that the commencement of the Amending Rules would need to be staged, as some aspects are more urgent than others. She noted that an RCMRWG meeting is scheduled for 19 October 2023 to discuss sequencing of the RCM Amending Rules and the second stage of the BRCP Reference Technology Review.

(c) Cost Allocation Review Working Group (CARWG) Update

The Chair noted that the minutes from the previous CARWG meetings were included in the papers and the next step is to release the Exposure Draft of the WEM Amending Rules implementing the outcomes of the CAR in mid-October. This had been delayed post new WEM commencement as requested by stakeholders.

(d) Demand Side Response Review Working Group (DSRRWG) Update

Ms Guzeleva noted that the Demand Side Response (DSR) Review Consultation Paper was also delayed slightly and submissions close on 2 November 2023. Ms Guzeleva noted that EPWA is looking for participants to advise if anything has been overlooked in the review.

(e) WEM Investment Certainty Review Working Group (WICRWG)

The Chair noted that the minutes from the previous WICRWG meeting were included in the combined papers and MAC was asked to note the updates.

Ms Guzeleva noted that a more comprehensive paper will be presented at the next MAC meeting on 23 November 2023 on the following three items:

- the emissions thresholds;
- the proposed exemptions for existing flexible technologies from the emissions thresholds; and
- a 10-year guarantee for new longer duration technologies.

Ms Guzeleva noted that:

- Concerns had been raised about the previous proposal to base the emissions threshold for existing facilities on the quantum of emissions, which is directly linked to the output of the facilities.
- Following analysis by RBP on plant performance and national data, the proposal has been changed to base the threshold on the emissions rate of an existing facility.
- This was widely accepted at the 11 October 2023 WICRWG meeting. At this meeting there was discussion on whether the rate of emissions for individual facilities will continue to be

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assessed over time, and concerns were raised about how that impacts investment certainty.

Next steps for the WICRWG were to look at the remaining two initiatives (the Reserve Capacity Price curve and the wholesale energy price guarantee for renewable generators).

Ms Guzeleva noted that the paper for Agenda item 6(e) did not cover the 11 October 2023 meeting as this was held on the day before the MAC meeting.

- Mr Edwards noted that much of the discussion was around the rationale for the emission set point of 0.55, and to make sure that high emission generators do not exit too quickly before new efficient facilities come in to replace them.
- Mr Edwards noted that, due to the depth of discussion, the meeting did not cover everything that it intended but that it was successful in reaching consensus, despite opposing views. and a reasonable and pragmatic way of moving forward.

Ms Guzeleva agreed that the discussion was very well considered and balanced despite strong stakeholder views on each side and noted that the next WICRWG meeting would cover those matters that were not discussed. Mr Peake supported Mr Edwards comments, noting that the different elements of the energy trilemma were well considered.

The Chair noted that the WICRWG had a slightly broader range of membership compared to other MAC working groups. The Chair noted that this had proven to be beneficial for all views to be represented.

- Mr Edwards noted that he had highlighted to people, commenting on the MAC on LinkedIn, that stakeholders with relevant views were encouraged to apply for a membership on the working groups because membership was open to all.

7 Rule Changes

(a) Overview of Rule Change Proposals

The Chair provided an overview, and the paper was taken as read.

8 Benchmark Reserve Capacity Price (BRCP) Reference Technology Review

The Chair noted that the MAC was asked to note the presentation and provide views on the analysis.

Ms Guzeleva outlined the agenda and presented slide 3.

Ms Guzeleva reminded members that Review Outcome 9 of the RCM Review required the Coordinator to review the reference technologies, but that the ERA was still required to update the full BRCP methodology. This work on the reference technology has commenced ahead of the rules being amended as the ERA must commence its methodology review by early 2024.

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Ms Guzeleva noted that assumptions had to be made in order to undertake the economic analysis in this project, but it was still the ERA's prerogative to determine parameters such as economic life when it reviews its BRCP methodology.

Mr Bowmaker outlined the review approach in Slide 5. He noted that the review is currently up to step 4.

Mr Bowmaker presented Slide 6.

Mr Bowmaker presented slide 8. He noted that the proposed carbon emissions intensity of 0.55 tonnes per MWh excludes diesel fuels and many gas turbine technologies and this has a significant impact on the assessment.

Mr Robinson presented Slide 9.

Mr Bowmaker presented Slide 10 and noted that questions had been asked about the requirements for the flexible service in the 11 October WICRWG meeting. He noted that some assumptions had to be made for this project, but that the establishment of the actual requirements is the responsibility of AEMO under the rules.

Mr Bowmaker presented Slide 11 and noted that the current reference technology is excluded from the shortlist as it does not meet the emission threshold but was included for comparison in the analysis.

Mr Bowmaker presented Slide 12.

Mr Bowmaker presented Slide 13. Mrs Papps noted that Western Power's recently released Registration of Interest was asking for $100,000 per MW. Mrs Papps stated that the BRCP methodology developed by the ERA would need to reflect these connection costs.

Mr Bowmaker presented Slide 14.

Mr Bowmaker presented Slide 15.

The Chair asked whether the team considered what the ERA's view on economic life might be.

Mr Robinson advised that the ERA had not provided a view but noted that there was discussions on this in the working group and there was agreement that a 25 year life for gas plant would be reasonable.

Ms Guzeleva noted that, if gas was chosen as the technology type, it could be converted to hydrogen in the future, and this had been discussed during the initial stages of the analysis.

- Mr Sarawat noted that, while the ERA is a member on the working group, the methodology review would consider the economic life together with everything else.

Mr Bowmaker presented Slide 17. He noted that:

- what was presented was the relative costs not actual cost; and
- all shortlisted technologies were more expensive than the current technology, which is a result of the carbon intensity constraint that has been applied.

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Mr Bowmaker presented Slide 18.

- Mr Stephen asked how the gas transport reservation charge was arrived at as he hadn't seen contracting arrangements like that before.

Mr Bowmaker responded that there was an assumption that a gas lateral would be providing that, and that a facility would use its 14 hours of fuel on a day but then build up the line pack over two days and that was the lowest cost way to meet the 14-hour fuel requirement rather than having a 14 hour a day reservation charge.

Ms Guzeleva added that this was replicating how the current requirements for an on-site liquids tank work.

Mr Bowmaker presented Slide 19.

Mr Bowmaker presented Slide 20.

Mr Edwards noted that:

- this is not comparing like for like technologies, i.e., storage and generators, and it is a fundamental flaw to compare the two that way;
- while capacity at time of need can be delivered by the discharge of storage or by generation, AEMO has stated that a strong grid is a diverse grid, and this review was pointing to storage only;
- a 25-year asset life cannot be assigned to lithium storage. In reality, cells will not be replaced when they fail, instead the owners will retire the asset and replace it with newer technology;
- there is a significant risk that the price of storage will drop quickly, thereby dropping the BRCP, making it uneconomic for generation to connect to the grid; and
- at some point gas will be replaced by hydrogen and there is a chance the system will be in the same situation it is in now, with very little renewable firm generation.

Ms Guzeleva noted that:

- The reference technology has been the same for the last 20 years and a range of technologies have come in over that time.
- The BRCP is supposed to capture the top of the load duration curve and the most efficient new entry that can service that one-in-ten peak load. It is not supposed to determine what technology should enter the market, otherwise there would have only been Siemens 160 MW OCGTs entering in the last 20 years.
- Over time, the duration of the peak will increase and the reference technology will be reviewed accordingly. What is currently required is a technology to cover the 4 hour peak and the analysis shows that storage is the most efficient new entry to service this.

The Chair sought to clarify whether Mr Edwards concern was that if the BRCP price incentivises the lowest cost alternative and the price of storage drops such that the BRCP becomes too low for generation

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to enter, then there will be issues with having enough generation to charge the storage facilities.

- Mr Edwards agreed noting that at some point we will need new generation to service predicted load growth, not just storage that can shift load.
- Mr Sharafi concurred with Mr Edwards, noting the need to consider the circumstances when the system experiences scarcity besides during the peak, such as winter days with no wind and little solar when there is a longer duration gap.
- Mr Schubert noted the need to account for other available sources of revenue for generators. Mr Schubert noted that the last 10% – 20% of emitting plant would be difficult to remove from the system and as such there will be conventional generation in the mix for some time to come. While in the future the reference technology may need to change, at this point in time batteries appeared suitable.

The Chair noted that it might be beneficial for the review to capture assumptions about:

- where the energy stored by batteries will come from in the short, medium and long term and whether that has any implications for using storage as the reference technology; and
- any other additional revenue generators may earn from providing other services that might incentivise them to enter regardless of what the BRCP is.

Ms Guzeleva noted that this discussion assumed there was no growth in renewables and pointed out that the WIC Review was also looking at what incentives renewables would require in the future.

The Chair added that Ms Guzeleva's point highlights the importance of articulating in the review what is been assumed when selecting a BRCP Reference Technology.

Mr Bowmaker presented Slides 21 to 25.

Mr Guzeleva presented Slide 27.

Ms Guzeleva noted that with the technology change, the BRCP would go up considerably for the reasons outlined on the slide. She asked MAC members if they are comfortable to proceed with the introduction of this new technology type ahead of the emissions threshold coming in. She also asked whether liquid storage on site for gas generators should be allowed under the emission thresholds to mitigate some of the concerns around reliability.

- Mr Peake noted that higher prices are a concern but system security is as well. Higher prices would encourage battery storage, which would firm up renewables, counteract residential solar output, and connect generation facilities faster than having to wait for transmission investment. It may also encourage more efficient gas firming plant to come in.

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- Mr Schubert supported the early introduction of the new reference technology. He noted that, as a consumer representative, he had concerns with increasing costs, adding that the BRCP based on the existing technology was already increasing. However, as there was a need to incentivise the right sort of generation, he supports proceeding with the new reference technology as soon as practical.
- Mr Arias supported introducing the new reference technology as soon as possible.
- Mrs Papps supported the above comments and noted that, if the change did not proceed, there is a risk that AEMO will need to call Non-Co-Optimised Essential System Service (NCESS) or Supplementary Reserve Capacity (SRC) which could result in a higher cost to consumers.
- Mr Maticka noted his support for anything that encourages more capacity to come in earlier. A delay may mean projects are deferred in the hope of a higher price in future years. A delay may encourage high emitting generators to enter before the implementation of the emission thresholds.
- Mrs Papps noted that the Environmental Protection Authority's new guidelines would deter the entry of high emitting technologies.
- Mr Stephen supported the introduction of the new reference technology as soon as possible but questioned whether 200 MW was actually the right size. He stated that, given the way WEMDE has been functioning, there is no certainty that a generator would be dispatched for 200MW.

Ms Guzeleva noted that AEMO is addressing the issue of generators being dispatched at lower levels, so time needs to be allowed to rectify this before drawing conclusions.

Mr Bowmaker noted that some modelling had already been done for the next stages of the review, which showed a 200MW battery as being profitable.

- Mr Huxtable provided general support, noting that while there would be an increase in cost for new facilities, this was countered by the fact that there was a transitional Reserve Capacity Price and the need for regular reviews.

Ms Guzeleva summarised that the majority of views indicated that the new reference technology should be introduced sooner rather than later and noted that Mrs Papps earlier comments regarding avoiding NCESS and SRC were valid. Ms Guzeleva also requested that MAC members continue to consider the issue of liquid storage.

Ms Guzeleva noted that the issues raised around generation sources for storage are acknowledged, but that net zero by 2050 is still the target. There had been strong views put forward in the WICRWG that introducing gas in this intervening period is not consistent with that.

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EPWA, along with AEMO and the ERA, will in future be required to balance reliability, cost and emissions in their decision making.

Mr Robinson added that the modelling to date indicates that historic levels of intermittent generation output are sufficient to charge the amount of battery storage required in the next few years.

Ms Guzeleva noted that the consultation paper would ask whether the BRCP Review should happen every three years.

- Mr Sharafi asked Mr Robinson whether the modelling included June 2023 when some of the generators were on outage and renewables were not sufficient and as such diesel generation was required to run.

Mr Robinson replied that 2023 had not yet been modelled.

- Mr Sharifi suggested including it.

Ms Guzeleva noted that there was unusual number of outages in June 2023 and the majority of these were forced outages, and an outcome of the RCM Review is to strengthen the forced outages regime. Ms Guzeleva noted that there is a draft rule that would require AEMO to remove Capacity Credits from underperforming generators which will help with this problem.

Ms Guzeleva noted that concerns had been raised by proponents that if the same technology is set for both Peak and Flex capacity, there may not be incentives for facilities to offer the flexible capacity service, given that the way the rules are currently structured means there are obligations but no additional revenue in this circumstance.

Ms Guzeleva noted that the WIC Review would be looking into the price curve for peak and flexible capacity and this would again consider if they needed to have different shapes.

The Chair summarised that this appeared to be an economic issue of providing sufficient incentives generally.

- Mr Edwards asked where the price may sit for Flexible Capacity.

Mr Robinson noted that the price will be driven by the BRCP and the amount of flexible capacity required relative to what is currently available. Currently there a peak capacity shortfall and it's likely the flexible capacity price will be lower than the peak.

Ms Guzeleva added that the more storage is introduced into the system, the less of a problem the midday trough becomes. As a result, the afternoon ramp is lower and the need for flexible capacity may end up reducing over time.

- Mr Schubert asked what forecasts were used for the modelling.

Mr Robinson advised that the modelling started with the 2022 Electricity Statement of Opportunities (ESOO) forecasts adjusted for projected behind the meter solar growth.

- Mr Schubert noted that if the modelling were to use the South West Interconnected System Demand Assessment (SWISDA) forecasts (with the significant increase in demand) this would

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change the results quite considerably, suggesting that a sensitivity analysis may be required.

Ms Guzeleva noted that the 2023 ESOO forecasts were based on SWISDA and if the analysis was updated to the 2023 ESOO this would align it with the SWISDA.

The Chair sought the views of MAC members who had not yet commented.

- Ms Teo supported the comments from other members and the need to look into prices as soon as possible.

Ms Guzeleva noted that the consultation paper would be sent to the MAC out of session and summarised the outcomes from this meeting as follows:

- the paper would include analysis to demonstrate whether system adequacy would be maintained under low renewables conditions with 4-hour battery storage and, while acknowledging that the purpose of the RCM is to address the system peak requirements, the comments by Mr Edwards and others will be considered;
- a majority of MAC members support the introduction of the new BRCP Reference Technology as soon as practicable;
- there is concern about the future mix of technologies; and
- the BRCP reference technology reviews need to happen frequently due to the pace of technology change.

The Chair noted that if the BRCP is to be set on the basis of 4 hour storage, the paper could state the assumptions that are made about the ability of existing generation to charge storage and the incentives for sufficient generation to enter in the future.

The Chair also suggested capturing:

- the reasons for the support to make the change sooner rather than later. This could include both the concerns about the impact on consumers and the need to provide incentives for entry of low emission technologies to lower emissions, while acknowledging that, if there isn't sufficient low emissions generation and storage entering the market, the intervention costs and impact on consumers could be worse.
- The comments about 200MW being the right size.
- Some assumptions about what is expected for the mix of technologies given the proposed reference technology.

Ms Guzeleva noted that the analysis will demonstrate whether there is sufficient generation to charge the storage.

Ms Guzeleva noted the next steps as per Slide 29, noting that the decision regarding the reference technology needed to be published by mid-December to allow the ERA to commence its methodology review in early 2024.

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11	**General Business** There was no general business. The next MAC meeting is scheduled for 23 November 2023 for an in-person meeting starting from 9:00am with a cup of tea.	

The meeting closed at 11:24am.

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 4: MAC Action Items

Market Advisory Committee (**MAC**) Meeting 2023_11_23

Shaded	Shaded action items are actions that have been completed since the last MAC meeting. Updates from last MAC meeting provided for information in RED.
Unshaded	Unshaded action items are still being progressed.
Missing	Action items missing in sequence have been completed from previous meetings and subsequently removed from log.

Item	Action	Responsibility	Meeting Arising	Status
16/2023	MAC Secretariat to publish the minutes of the 30 August 2023 MAC meeting on the Coordinator's Website as final.	MAC Secretariat	2023_10_12	**Closed** The minutes were approved out of session and published on the Coordinator's Website on 21 September 2023.

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 5: Market Development Forward Work Program

Market Advisory Committee (**MAC**) Meeting 2023_10_12

1. Purpose

- To provide an update on the Market Development Forward Work Program.
- Changes to the Market Development Forward Work Program provided at the previous MAC meeting are shown in red font in the Tables below.

2. Recommendation

- The MAC Secretariat recommends that the MAC notes the updates to the Market Development Forward Work Program provided in Tables 1-4, including that:
    - the Chair of the Reserve Capacity Mechanism Review Working Group (RCMRWG) will provide a verbal update to the MAC on the progress of the Reserve Capacity Mechanism (RCM) Review - see Agenda Item 6(b);
    - the Chair of the WEM Investment Certainty Review Working Group (WICRWG) will provide an update to the MAC on the progress of WEM Investment Certainty (WIC) Review - see Agenda Item 6(c); and
    - the Power System Security and Reliability (PSSR) Standards Review has been added to the Market Development Forward Work program and will be discussed at Agenda Item 8.

3. Process

Stakeholders may raise issues for consideration by the MAC at any time by sending an email to the MAC Secretariat at energymarkets@dmirs.wa.gov.au.

Stakeholders should submit issues for consideration by the MAC two weeks before a MAC meeting so that the MAC Secretariat can include the issue in the papers for the MAC meeting, which are circulated one week before the meeting.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**

RCM Review	A review of the RCM, including a review of the Planning Criterion.	• The MAC has established the RCM Review Working Group (**RCMRWG**). Information on the Working Group is available at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group, including:
		  • the Terms of RCMRWG, as approved by the MAC;
		  • the list of RCMRWG members;
		  • meeting papers and minutes from the RCMRWG meeting on 20 January 2022, 17 February 2022, 17 March 2022, 5 May 2022, 2 June 2022, 16 June 2022, 14 July 2022, 2 July 2022, 13 October 2022, 24 November 2022; 15 December 2022, 1 February 2023, 16 February 2023, 2 March 2023, 22 March 2023, 6 July 2023, 13 July, 30 August 2023.
		• The following papers have been released and are available on the RCM Review webpage at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review:
		  • the Scope of Works for the review, as approved by the Coordinator;
		  • the Stage 1 Consultation Paper;
		  • the Paper on the Review of International Capacity Mechanisms;
		  • submissions on the Stage 1 Consultation Paper;
		  • the RCM Review Information Paper (Stage 1) and Consultation Paper (Stage 2); and
		  • submissions on the RCM Review Consultation Paper (Stage 2).
		  • The RCM – WEM Amending Rules Exposure Draft.
		  • submissions on the RCM – WEM Amending Rules Exposure Draft.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
Benchmark Reserve Capacity Price (BRCP) Reference Technology Review	• The RCM Review will introduce a provision in the WEM Rules that will require the Coordinator to review the BRCP reference technologies.	• The RCMRWG is supporting the Coordinator in the review of the BRCP reference technologies. Information on the Working Group is available at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group, including: ○ meeting papers and minutes from the RCMRWG meeting on 21 September and 19 October 2023. • The BRCP Reference Technology Review Consultation Paper has been released and is available at Benchmark Reserve Capacity Price Reference Technology Review (www.wa.gov.au)

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**

Cost Allocation Review	A review of:
	• the allocation of Market Fees, including behind the meter (**BTM**) and Distributed Energy Resources (**DER**) issues;
	• cost allocation for Essential System Services; and
	• Issues 2, 16, 23 and 35 from the MAC Issues List (see Table 3).
		• The MAC has established the Cost Allocation Review Working Group (**CARWG**). Information on the CARWG is available at https://www.wa.gov.au/government/document-collections/cost-allocation-review-working-group, including:
		  • the Scope of Work for the review, as approved by the Coordinator;
		  • the Terms of Reference for the CARWG, as approved by the MAC;
		  • the list of CARWG members;
		  • meeting papers and minutes from the CARWG meetings on 9 May 2022, 7 June 2022, 30 August 2022, 27 September 2022, 25 October 2022, 29 November 2022, 21 March 2023,2 May 2023 and 29 August 2023.
		The following papers have been released and are available on the CAR webpage at Cost Allocation Review (www.wa.gov.au)
		  • the Consultation Paper;
		  • the International Review;
		  • submissions on the Consultation Paper;
		  • the Cost Allocation Review Information Paper.
		• The Exposure Draft of the WEM Amending Rules implementing the outcomes of the CAR have been published for consultation and is available at Cost Allocation Review (www.wa.gov.au).

Procedure Change Process Review	A review of the Procedure Change Process to address issues identified through Energy Policy WA's consultation on governance changes.	• The MAC discussed a draft Scope of Work for this review at its meeting on 11 October 2022. MAC members provided comments on the draft Scope of Works at that meeting, and were asked to provide further comments by email. EPWA did not receive any further comments.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
		• EPWA will update the Scope of Works to reflect the MAC discussions and, following the Coordinator approval of the Scope, will provide the final scope and a timeline for the review to the MAC in early 2023.
Forecast quality	Review of Issue 9 from the MAC Issues List (see Table 4).	• This review has been deferred.
Network Access Quantity (**NAQ**) Review	Assess the performance of the NAQ regime, including policy related to replacement capacity, and address issues identified during implementation of the Energy Transformation Strategy (ETS).	• This review will be commenced after completion of the RCM Review.
Short Term Energy Market (**STEM**) Review	Review the performance of the STEM to address issues identified during implementation of the ETS.	• This review has been deferred.

Review of the Participation of Demand Side in the Wholesale Electricity Market (**WEM**)	The scope of this review is to:
	• identify the different ways that Loads/Demand Side Response can participate across the different WEM components;
	• identify and remove any disincentives or barriers for Loads/Demand Side Response participating across the different WEM components; and
	• identify any potential for over- or under-compensation of Loads/Demand
		• The MAC has established the Demand Side Response Review Working Group (DSRRWG). Information on the DSRRWG is available at Demand Side Response Review Working Group (www.wa.gov.au), including:
		  • the Terms of Reference for the DSRRWG, as approved by the MAC;
		  • meeting papers and minutes from the DSRRWG meeting on 10 May 2023, 7 June 2023, 5 July 2023 and 2 August 2023.
		• The following papers have been released and are available on the DSR Review webpage at Demand Side Response Review (www.wa.gov.au)
		  • the Scope of Work for the review, as approved by the Coordinator; and
		  • the Demand Side Response Review Consultation paper.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
	Side Response (including as part of 'hybrid' facilities") as a result of their participation in the various market mechanisms.	• the consultation period for the Demand Side Response Review Consultation paper closed on 2 November 2023 and eight submissions were received.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
WEM Investment Certainty (**WIC**) Review	The WIC Review will consider, design and implement the following five reforms that have been announced by the Minister for Energy, which are aimed at providing further investment certainty to assist the decarbonisation of the WEM: (1) changing the Reserve Capacity Price (RCP) curve so it sends sharper signals for investment when demand for new capacity is stronger; (2) a 10-year RCP guarantee for new technologies, such as long-duration storage; (3) a wholesale energy price guarantee for renewable generators, to top up their energy revenues as WEM prices start to decline, in return for them firming up their capacity; (4) emission thresholds for existing and new high emission technologies in the WEM; and (5) a 10-year exemption from the emissions thresholds for existing flexible gas plants that qualify to provide the new flexibility service.	• The MAC has established the WIC Review Working Group (WICRWG). Information on the WICRWG is available at Wholesale Electricity Market Investment Certainty (WIC) Review Working Group (www.wa.gov.au) including: ○ the Terms of Reference for the WICRWG, as approved by the MAC; ○ the list of WICRWG members; and ○ meeting papers and minutes from the 31 August 2023 and 11 October WICRWG meeting. ○ meeting papers from the 8 November WICRWG meeting. • The following papers have been released and are available on the WIC Review webpage at https://www.wa.gov.au/government/document-collections/wholesale-electricity-market-investment-certainty-review, including: ○ the Scope of Work for the review, as approved by the Coordinator.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
Review of the Market Advisory Committee (**MAC**)	The scope of this review is to ensure that the purpose, representation, process and operations of the MAC are fit for purpose, and in particular, that it operates efficiently and provides balanced, timely and useful advice to the Coordinator.	• The MAC supported a Scope of Works for this review at its meeting on 8 June 2023, and advised EPWA to further consider the timing of the review. • In response to MAC's comments, EPWA now proposes to commence the MAC Review in early 2024.

Review of the Power Systems Security and Reliability (**PSSR**) Standards	The scope of this review is to:
	• review the various PSSR related provisions in the instruments governing power system security and reliability in the SWIS;
	• assess whether the combination of existing standards is effective to ensure power system security and reliability can be maintained;
	• develop proposals for a single end-to-end PSSR standard and a centralised governance framework; and
	• draft amending Rules and other regulatory changes, as necessary.
		• A Scope of Work for this review is presented to the MAC at its meeting on 23 November 2023.
		• Under Agenda Item 8 MAC members are being asked to approve:
		  • the establishment of a Working Group to assist with the PSSR Review; and
		  • the Terms of Reference for the PSSR Review Working Group.

Table 2 – Issues to be Addressed in the RCM Review			
Id	**Submitter/Date**	**Issue**	**Status**
1	Shane Cremin November 2017	**IRCR calculations and capacity allocation** There is a need to look at how IRCR and the annual capacity requirement are calculated (i.e. not just the peak intervals in summer) along with recognising BTM solar plus storage. The incentive should be for retailers (or third-party providers) to reduce their dependence on grid supply during peak intervals, which will also better reflect the requirement for conventional 'reserve capacity' and reduce the cost per kWh to consumers of that conventional 'reserve capacity'.	Closed. Considered in the RCM Review.
3	Shane Cremin November 2017	Penalties for outages.	Closed. Considered in the RCM Review.
4	Shane Cremin November 2017	Incentives for maintaining appropriate generation mix.	Closed. Considered in the RCM Review and the WIC Review.
14/36	Bluewaters and ERM Power November 2017	**Capacity Refund Arrangements:** The current capacity refund arrangement is overly punitive as Market Participants face excessive capacity refund exposure. This refund exposure is more than what is necessary to incentivise the Market Participants to meet their obligations for making capacity available. Practical impacts of such excessive refund exposure include: • compromising the business viability of some capacity providers – the resulting business interruption can compromise reliability and security of the power system in the SWIS; and • excessive insurance premiums and cost for meeting prudential support requirements.	Closed. Considered in the RCM Review.

Table 2 – Issues to be Addressed in the RCM Review			
Id	**Submitter/Date**	**Issue**	**Status**
		Bluewaters recommended imposing seasonal, monthly and/or daily caps on the capacity refund. Bluewaters considered that reviewing capacity refund arrangements and reducing the excessive refund exposure is likely to promote the Wholesale Market Objectives by minimising: • unnecessary business interruption to capacity providers and in turn minimising disruption to supply availability; which is expected to promote power system reliability and security; and • unnecessary excessive insurance premium and prudential support costs, the saving of which can be passed on to consumers.	
30	Synergy November 2017	**Reserve Capacity Mechanism** Synergy would like to propose a review of WEM Rules related to reserve capacity requirements and reserve capacity capability criteria to ensure alignment and consistency in determination of certain criteria. For instance: • assessment of reserve capacity requirement criteria, reserve capacity capability and reserve capacity obligations; • IRCR assessment; • Relevant Demand determination; • determination of NTDL status; • Relevant Level determination; and • assessment of thermal generation capacity. The review will support Wholesale Market Objectives (a) and (d).	Closed. Considered in the RCM Review.

Table 2 – Issues to be Addressed in the RCM Review			
Id	**Submitter/Date**	**Issue**	**Status**
56	Perth Energy July 2019	**Issues with Reserve Capacity Testing** • Market Generators that fail a Reserve Capacity Test may prefer to accept a small shortfall in a test (and a corresponding reduction in their Capacity Credits) than to run a second test. • There is a discrepancy between the number of Trading Intervals for self-testing vs. AEMO testing. • There is ambiguity in the timing requirements for a second test when the relevant generator is on an outage. • There is ambiguity on the number of Capacity Credits that AEMO is to assign when certain test results occur.	Closed. Considered in the RCM Review.
58	MAC October 2019	**Outage scheduling for dual-fuel Scheduled Generators** '0 MW' outages are currently used to notify System Management when a dual-fuel Scheduled Generator is unable to operate on one of its nominated fuels. There is no explicit obligation in the WEM Rules or the Power System Operation Procedure: Facility Outages to request/report outages that limit the ability of a Scheduled Generator to operate using one of its fuels. In terms of the provision of sent out energy (the service used to determine Capacity Cost Refunds), it is questionable whether this situation qualifies as an outage at all. More generally, the WEM Rules lack clarity on the nature and extent of a Market Generator's obligations to ensure that its Facility can operate on the fuel used for its certification, what (if anything) should occur if these obligations are not met, and the implications for outage scheduling and Reserve Capacity Testing. • (See section 7.2.2.5 of the Final Rule Change Report for RC_2013_15.)	Closed.

Table 3 – Issues to be Addressed in the Cost Allocation Review			
Id	**Submitter/Date**	**Issue**	**Status**
2	Shane Cremin November 2017	Allocation of market costs – who bears Market Fees and who pays for grid support services with less grid generation and consumption?	Closed – Considered in the Cost Allocation Review. Refer to the Cost Allocation Review Information Paper. EPWA plans to publish for consultation an Exposure Draft of the proposed WEM Amending Rules to implement the Review Outcomes.
16	Bluewaters November 2017	BTM generation is treated as reduction in electricity demand rather than actual generation. Hence, the BTM generators are not paying their fair share of the network costs, Market Fees and ancillary services charges. Therefore, the non-BTM Market Participants are subsiding the BTM generation in the WEM. Subsidy does not promote efficient economic outcome. Rapid growth of BTM generation will only exacerbate this inefficiency if not promptly addressed. Bluewaters recommends changes to the WEM Rules to require BTM generators to pay their fair share of the network costs, Market Fees and ancillary services charges. This is an example of a regulatory arrangement becoming obsolete due to the emergence of new technologies. Regulatory design needs to keep up with changes in the industry landscape (including technological change) to ensure that the WEM continues to meet its objectives. If this BTM issue is not promptly addressed, there will be distortion in investment signals, which will lead to an inappropriate generation facility mix in the WEM, hence compromising power system security and in turn not promoting the Wholesale Market Objectives.	Closed – Considered in the Cost Allocation Review. Refer to the Cost Allocation Review Information Paper.

Table 3 – Issues to be Addressed in the Cost Allocation Review			
Id	**Submitter/Date**	**Issue**	**Status**
23	Bluewaters November 2017	Allocation of Market Fees on a 50/50 basis between generators and retailers may be overly simplistic and not consider the impacts on economic efficiency. In particular, the costs associated with an electricity market reform program should be recovered from entities based on the benefit they receive from the reform. This is expected to increase the visibility of (and therefore incentivise) prudence and accountability when it comes to deciding the need and scope of the reform. Recommendations: to review the Market Fees structure including the cost recovery mechanism for a reform program. The cost saving from improved economic efficiency can be passed on to the end consumers, hence promoting the Wholesale Market Objectives.	Closed – Considered in the Cost Allocation Review. Refer to the Cost Allocation Review Information Paper.
35	ERM Power November 2017	**BTM generation and apportionment of Market Fees, ancillary services, etc.** The amount of solar PV generation on the system is increasing every year, to the point where solar PV generation is the single biggest unit of generation on the SWIS. This category of generation has a significant impact on the system and we have seen this in terms of the daytime trough that is observed on the SWIS when the sun is shining. The issue is that generators that are on are moving around to meet the needs of this generation facility but this generation facility, which could impact system stability, does not pay its fair share of the costs of maintaining the system in a stable manner. That is, they are not the generators that receive its fair apportionment of Market Fees and pay any ancillary service costs but yet they have absolute freedom to generate into the SWIS when the fuel source is.	Closed – Considered in the Cost Allocation Review. Refer to the Cost Allocation Review Information Paper.

Table 4 – Other Issues			
Id	**Submitter/Date**	**Issue**	**Status**
9	Community Electricity November 2017	Improvement of AEMO forecasts of System Load; real-time and day-ahead.	Consideration of this issue has been deferred.

MARKET ADVISORY COMMITTEE MEETING, 23 November 2023

FOR DISCUSSION

SUBJECT: UPDATE ON AEMO'S WEM PROCEDURES

AGENDA ITEM: 6(A)

1. PURPOSE

Provide a status update on the activities of the AEMO Procedure Change Working Group and AEMO Procedure Change Proposals.

2. AEMO PROCEDURE CHANGE WORKING GROUP (APCWG)

	Most recent meetings	**Next meeting**
Date	8 November 2023	As required
WEM Procedures for discussion	WEM Procedure: Dispatch Algorithm Formulation	

3. AEMO PROCEDURE CHANGE PROPOSALS

The status of AEMO Procedure Change Proposals is described below, current as at 8 November 2023. Changes since the previous MAC meeting are in red text. A procedure change is removed from this report after its commencement has been reported or a decision has been taken not to proceed with a potential Procedure Change Proposal.

ID	Summary of changes	Status	Next steps	Indicative Date
Procedure Change Proposal AEPC_2023_03 WEM Procedure: Dispatch Algorithm Formulation	AEMO has determined several changes are required to the WEMDE implementation and Dispatch Algorithm Formulation: • Issue 1: Allowances on ESS Trapezia • Issue 2: Removal of lower bound on Contingency variables • Issue 3: Addition of CVQ to Constraint 2.4.17 Additionally, AEMO has made minor clarifications to other areas of the formulation. The changes were implemented on 12 October 2023 to address system issues and improve market outcomes. Consultation on the Procedure Change Proposal began on 26 October 2023.	Consultation Commenced		12 December 2023

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 6(b): Update on the RCM Review Working Group

Market Advisory Committee (MAC) Meeting 2023_11_23

1. Purpose

- The Chair of the Reserve Capacity Review Working Group (RCMRWG) to provide an update on the activities of the RCMRWG since the last MAC meeting.

2. Recommendation

That the MAC notes:

(1) the update from the RCMRWG meetings on 21 September and 19 October 2023; and

(2) the minutes from the RCMRWG meetings on 21 September and 19 October 2023. (Attachment 1 and 2)

3. Background

RCM Review – Wholesale Electricity Market (WEM) Amending Rules Exposure Draft

- The consultation period for the Exposure Draft of the WEM Amending Rules implementing the outcomes of the RCM Review closed 19 October 2023 with 6 submissions received.
- At the 19 October 2023 meeting, the RCMRWG discussed the sequencing of the draft WEM Amending Rules implementing the outcomes of the RCM Review, including the changes to:
    - The EOI process and Preliminary RCM Constraint Equations;
    - Peak Individual Reserve Capacity Requirement (IRCR) and reserve capacity refunds; and
    - Electricity Statement of Opportunities (ESOO) timing and data provision.
- AEMO provided the rationale for the sequencing of the implementation of the WEM Amending Rules and explained how the implementation of different aspects of the reform package may impact on the normal RCM timeframes and therefore need to be staged.
- It was proposed that:
    - implementation would be in two stages:
        - stage one - changes relating to the peak capacity product; and
        - stage two - changes relating to the new flexible capacity product;
    - changes implemented for the 2024 cycle will include:
        - certification of Demand Side Programmes (DSP);
        - the new Relevant Level Method (RLM); and
        - changes to the Reserve Capacity Refunds;

- significant system changes are required to implement component pricing, and this cannot be achieved in time for the certification application window opening in April 2024;
- changes to the IRCR will be in place for year 3 of the 2024 cycle (i.e. 2026); and
- stage two changes require significant implementation effort and AEMO is unable implement these in time for the 2024 Reserve Capacity Cycle.

Benchmark Reserve Capacity Price (BRCP) reference technologies

- Review Outcome 9 of the RCM Review was the introduction of a requirement for the Coordinator to review the Benchmark Reserve Capacity Price (BRCP) reference technologies.
- The objective of the review is to determine the reference technologies for the Peak and Flexible BRCP.
- The first review of the BRCP reference technologies must be conducted to set the reference technologies before the Flexible Capacity product can be implemented.
- The RCMRWG is also supporting the Coordinator in this review.
- On 19 October 2023, the RCMRWG discussed the economic analysis undertaken to assist further consideration of whether gross cost of new entry (CONE) or net CONE should apply in the future, including that:
  - while Net CONE may result in lower costs to consumers, the amount of reduction is highly sensitive to other factors;
  - implementing Net CONE adds significant complexity and uncertainty to the BRCP determination procedure;
  - the resulting uncertainty may deter investment, undermining cost savings and reliability; and
  - retaining a Gross CONE is the recommended approach.
- On 24 October 2023, EPWA circulated a draft BRCP Reference Technology Review consultation paper out of session to the MAC for its review. The final paper was published 2 November 2023 with the consultation period closing 30 November 2023.
- Papers and minutes for the RCMRWG meetings are available on the RCMRWG webpage at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group.
- Further information on the RCM Review, including all Papers. submissions and the WEM Amending Rules Exposure Draft are available on the RCM Review webpage at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review.
- The BRCP Reference Technology is available on the BRCP Reference Technology Review webpage at Benchmark Reserve Capacity Price Reference Technology Review (www.wa.gov.au)

4. Next Steps

- It is intended that the RCM WEM Amending Rules will be submitted to the Minister for his approval by the end of November 2023.

- The Coordinator of energy is expected to publish a determination of the BRCP Reference Technologies in mid-December 2023

Attachments

(1) Agenda Item 6(b) – Attachment 1 – RCMRWG 2023_09_21 - Minutes

(2) Agenda Item 6(b) – Attachment 2 – RCMRWG 2023_10_19 – Minutes

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (RCMRWG)
Date:	21 September 2023
Time:	11:00 AM to 12:55 PM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Manus Higgins	AEMO	
Toby Price	AEMO	
Oscar Carlberg	Alinta Energy	
Geoff Gaston	Change Energy	
Richard Cheng	Economic Regulation Authority (ERA)	
Andrew Stevens	Energy Person	
Samuel Lee Mahon	Frontier Energy	
Patrick Peake	Perth Energy	
Paul Arias	Shell Energy	
Tessa Liddelow	Shell Energy	
Noel Schubert	Small-Use Consumer representative	
Andrew Walker	South 32	
Daniel Kurz	Summit Southern Cross Power	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Richard Bowmaker	RBP	
Isaac Gumbrell	RBP	
Ajith Sreenivasan	RBP	
Geoff Glazier	Merz Consulting (Merz)	
Shelley Worthington	EPWA	
Tonia Curby	EPWA	

Item	Subject	Action
1	**Welcome** The Chair opened the meeting with an Acknowledgment of Country and welcomed members.	
2	**Meeting Attendance** The meeting attendance as listed above.	
3	**Benchmark Reserve Capacity Price Reference Technology Review** The Chair noted that this review results from a Reserve Capacity Mechanism (RCM) Review outcome for the Coordinator to review the Benchmark Reserve Capacity Price (BRCP) reference technology for both the Peak and the Flexible (Flex) capacity product. The Chair noted the review was a matter of priority as: • the ERA needs to undertake a review of the BRCP methodology and requires the reference technology for the BRCP in order to commence the review at the start of 2024; and • the sequencing of the WEM Amending Rules had not been determined and will be discussed with the RCMRWG on 19 October 2023, including when the provisions for the new Flex product would commence, for which a reference technology needs to be determined. The Chair noted that: • RBP and Merz are providing technical support to assist EPWA and the Coordinator to determine the most cost-efficient new entrant for both the Peak and Flex products; • there will be a public consultation process seeking feedback on a proposed reference technology later in the year; and • it is anticipated that EPWA will determine the technology type for the Flex and Peak products by the end of the year. The Chair acknowledged that some members of the RCMRWG were not comfortable with moving from gross cost of new entry (CONE) to net CONE and that economic analysis would be undertaken to assist further consideration of this. Mr Bowmaker presented an overview of the work completed so far, including: • the technology long list; • the technology shortlist of five technologies based on: ○ the ability of the technology to meet the requirements of providing the Peak and Flex products; ○ an assumed capacity factor of 10% (Peak) and 25% (Flex); ○ the technology's ability to meet the provisional emissions thresholds being developed under the WEM investment certainty review (WIC Review); and	

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- the cost of the technology.

Mr Bowmaker noted that the next steps will be to undertake gross vs net CONE analysis and modelling, and develop the proposal for the reference technologies for consultation.

The analysis regarding gross CONE vs net CONE is intended to be discussed at the RCMRWG meeting on 19 October 2023.

- Regarding the capacity service requirements, Mr Gaston sought to clarify if EPWA was looking at the definition of capacity and whether it must be dispatchable to a specific output.

The Chair responded that all capacity must be dispatchable to a specific output in order to receive Capacity Credits.

- Mr Gaston responded that there was a need to ensure that capacity is reliable, noting there are certain technologies for which the output is not guaranteed.

The Chair responded that the reference technology is used for setting the BRCP only, and that there is no guarantee that there will be certified facilities of this technology type in practice. She added that:

- conventional generators are certified at 41 degrees Celsius with their NAQ taken into account in awarding them with capacity credits;
- intermittent generators are certified under the Relevant Level Method (RLM) to determine what portion of their nameplate capacity can be awarded capacity credits; and
- storage is rated based on linear derating at 41 degrees Celsius over four hours.

The Chair noted that the issue was to set the BRCP on the basis of the most efficient new entrant in the market, which for many years has been the 160MW Siemens open cycle turbine.

- Mr Gaston sought to clarify whether 100MW of the Flexible Capacity would be able to produce 100MW.

The Chair confirmed that, to be eligible for Flexible Capacity credits Facilities must have Peak Capacity Credits, should always be certified on how much they can actually achieve at 41 degrees Celsius, or under the RLM for intermittent generators. She added that flexible capacity will need to meet other requirements that are different to the Peak Capacity requirements, including:

- fast start;
- low minimum generation;
- fast shut down; and
- fast ramping.

The Chair confirmed that no matter what the reference technology is, individual facilities will have to demonstrate to the AEMO that they can reach the level of certified capacity when called.

- Mr Schubert considered that if the quantity of demand side programmes were to grow significantly, the assumed 10% capacity

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factor may need to increase. This is because the increase in DSPs, if dispatched last, would shave a bigger section of the load duration curve off. This means that there are more hours in the next level down which would be met by peaking technology.

- Mr Glazier responded that the outcome is not overly sensitive to the capacity factor because of the interplay between operation and cost recovery in the energy market. If capacity factor informs anything, it would be the operational life considerations.
- Mrs Bedola considered that a higher capacity factor would impact battery life.
- Mr Schubert added that the 10% capacity factor may pose a problem if it exceeds an annual emissions threshold.

The Chair noted that this is a good question which will be discussed at the Market Advisory Committee (MAC) meeting on 12 October 2023.

- Mrs Bedola asked when it is expected that the four-hour duration would not be enough for battery storage.

The Chair responded that RBP undertook modelling and concluded that four hours is sufficient until the baseload plants retire.

The Chair noted that it is expected that the BRCP reference technology would be reviewed frequently and may change in the future.

- Mrs Bedola noted that, if the assumption is that we need four-hour batteries and the duration gap is six hours, this would have very different cost outcomes. If this reference technology is forward focused, a five- or six-hour battery may need to be considered rather than a four-hour battery.

The Chair responded that customers should not pay for something they do not yet need. Modelling showed that the duration gap is unlikely to extend before there is high penetration of storage and DSPs to shave the peak, around the time when coal retires. There are also extensive provisions in the draft WEM Rules to protect existing storage when new longer duration storage is required.

Mr Robinson agreed that this was correct, that the announced coal retirement by 2030 begins to drive the extension of the duration gap. However, it is not until about 2032 when the duration gap increases to six hours.

- Mrs Bedola considered that if the requirement of six-hour storage is in the next couple of years, the BRCP or some other mechanism, should put out a signal earlier than required.
- Mrs Bedola pointed to the reliability gap resulting from the retirement of coal and increase of renewables, and noted the role of storage in system reliability and security, not just for peak demand.

The Chair questioned what would drive a duration gap opening in the next two years. She noted that analysis was undertaken in the first stage of the RCM review to identify the drivers for the duration gap widening and it was determined that the main driver is the retirement of the baseload plant.

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- Mrs Bedola noted the similar issues in South Australia and their need for longer duration storage to address reliability.

The Chair noted that, in this instance, we are not considering the whole of the duration curve, rather discussing a Peak (agreeing that the length of the peak is important) and a Flex product. Until the duration gap is projected to go beyond four hours, customers should not be paying for longer duration storage in the interim. There are provisions in the draft rules to protect the existing storage that has been commissioned before the date the duration gap actually starts to grow.

- Mr Cheng sought to clarify whether EPWA is proposing to change the capacity factor from 2% to 10%.

The Chair confirmed this.

Mr Bowmaker presented the proposed service requirements for the Peak and Flex service.

- Mr Carlberg questioned whether EPWA was assuming the AEMO Flex certification requirements, noting that these requirements should be consistent.

Mr Bowmaker answered that assumptions were made in undertaking the analysis, including assuming decisions/parameters that would be made by the ERA and AEMO. Mr Bowmaker noted that the analysis does not appear to be sensitive to the capacity factor and, in a similar way, it is not sensitive to these assumptions. These will be described in the consultation paper.

Mr Bowmaker clarified that these assumptions do not preclude the ERA or AEMO from making different decisions.

Mr Bowmaker presented the technology shortlist for the Flex and Peak service. Mr Bowmaker noted that the current BRCP is set by the Siemens open cycle gas turbine (OCGT) liquid fuelled 160MW generator, which does not meet the emissions requirement of 0.55 tonnes of CO2 per MWh proposed for implementation through the WIC Review. This technology, however, has been included in the presented figures as a reference.

- Mr Schubert noted an error on slide twelve.

Mr Glazier confirmed that this was an error, noting the headings have been switched around.

Mr Bowmaker noted that he will amend this slide.

Mr Bowmaker noted that the technology size is defined by economic use of fuel supply and electrical connections. He noted that a facility bigger than about 200MW will increase the Contingency Reserve Raise requirement, which may have a flow on effect on market costs.

Mr Bowmaker discussed the connection location, noting that this has been considered in order to make estimates of cost impacts. The assumption was a standalone facility with 330kV connection, at ~200MW in total, made up of smaller units.

- Mrs Bedola considered that sharing existing connection should not be the baseline assumption for new entrants noting that, although there

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may be opportunity to put a project behind an existing connection, it is doubtful that the owner of that connection would let another entity put a facility behind their connection point. The assumption should be on the basis of a new entrant facility.

- Mrs Bedola also considered that Non-Co-optimised Essential System Service (NCESS) revenues should be done after the fact. Peak facilities should be assumed to be procured solely for Peak and not making assumptions around NCESS. Facilities should not get a lower capacity price because it is assumed that the facility will get NCESS. Rather, the NCESS cost should be decreased because the facility gets more money through these other market mechanisms.

The Chair responded that NCESS has not been taken into account.

Mr Glazier responded that these are intended to be discussion points and ultimately the outcome was consistent with the point raised by Mrs Bedola and NCESS was not taken into account.

In response to Mrs Bedola's comment regarding facilities sharing connection points, Mr Glazier clarified that it was found that there is a fair amount of declared sent out capacity (DSOC) left in the vicinity of solar and wind facilities which could be used to install facilities that work cooperatively with wind and solar. The question was whether the most efficient new entrant was new capacity in combination with wind and solar behind the connection point.

- Mr Schubert considered that, as coal retires, network capacity will be freed up and available for new technologies even if not placed on the existing site.

- Mrs Bedola noted that Synergy may or may not use this freed up capacity itself. Mrs Bedola did not agree with the assumption that DSOC is available due to coal retirement, especially given the announcement of the Collie battery. Mrs Bedola assumed that Synergy would be using its existing connection points.

The Chair considered that it did not matter who used the connection points, but rather that the retirement of coal will enable free capacity at that voltage.

Mr Glazier clarified that this was not looking at spare capacity behind existing coal facilities, but rather spare capacity behind new wind and solar connections, but clarified that this assumption will not be moved forward.

- Mr Peake asked whether this is just shallow connection costs and whether it includes new transmission lines to the facility.

The Chair responded that the BRCP does not include new transmission lines to the facility.

Mr Bowmaker discussed the economic life, noting that 25-year economic life was assumed for all technology types but that this is something the ERA will ultimately determine.

Mr Bowmaker noted that major overhauls may be included as a variable cost component and that Flex Capacity providers will incur greater maintenance costs than Peak providers.

Item	Subject	Action

- Mrs Bedola asked the ERA to confirm the assumption that major overhauls can be recovered as a variable cost.
- Mr Cheng responded that this can be included in the formation of price offers.

Mr Bowmaker presented the capital/upfront costs of the shortlisted technologies, relative to the existing BRCP reference technology.

Mr Bowmaker noted that all of the reference technologies are more expensive compared to the current BRCP reference technology. The lithium-based batteries are the lowest capital/upfront cost shortlisted technology at a per MW basis.

Mr Bowmaker presented the fixed operating costs.

Mr Bowmaker noted that shortlisted technologies, other than lithium- and vanadium-based batteries, are more expensive on a per MW basis than the current reference technology.

Mr Bowmaker noted that the likely Peak and Flex service reference technology is a 200MW/800MWh lithium Electric Storage Resource (ESR) connected at 330kV.

- Mrs Bedola noted concerns around dealing with longer-term reliability, security and stability issues, such as renewable droughts, which a four-hour battery cannot cover. There needs to be some consideration of duration and how it is encouraged to be covered.

The Chair questioned whether members understood that this will lead to an increase in the current reserve capacity price. She noted that it would be unwise to include requirements for this Peak and Flex service, which are not currently needed, as this would increase the immediate cost to customers.

The Chair noted that if there is a desire to have another service, this should be discussed as a separate service.

- Mr Arias questioned the reasoning behind 14-hour supply gas lateral, noting that not all gas technologies have this, and noted that there is an inclusion of a reservation charge on the pipeline which is a change from the existing calculation.

Mr Glazier responded that this was included to reflect the existing requirement for the reference technology to have 14-hours of storage. Mr Glazier noted that the assumption was for a 1km gas lateral and a gas compressor station, but that this does not appear to make a huge difference to the cost.

- Mr Arias considered that the connection to the pipeline itself provides that security of supply.

Mr Glazier responded that this is only the case if the facility pays to be able to draw gas from the network for 100% output of the plant. The modelled facility achieves lower cost gas transport contracts by assuming 14-hour gas storage at the facility.

- Mr Arias responded that he was not sure that this would be the model but understands the reasoning in this context.

Item	Subject	Action

The Chair highlighted the significant difference in the capital/upfront costs between the current reference technology and the ESR. The Chair also noted that, if the ERA decides to move from 50 year to 25 year life, the costs will increase further significantly.

- Mr Price considered that the power system cannot be operated with 100% peak capacity supplied by storage as there is nothing to charge the storage. Mr Price considered that there may be a need to reconsider the incentives that lead to fleet compositions which would not be adequate.

The Chair did not understand this argument unless there will be no renewable generation on the system but only storage. She noted that the current reference technology does not provide everything this system needs, for instance the baseload needs during the night given that the current technology is assumed to operate for 2%. She added that the capacity factor assumption is 10%, not 2%, and that this is intended to reflect the marginal plant which is only needed during the system peak. Everything else, which has a lower variable cost, gets dispatched first.

- Mr Price considered this supported his point. If the incentives were there for all capacity types to enter this would work. However, if these incentives were not there then there is a question whether the framework is appropriate, noting that he was not arguing that it is not appropriate.
- Mr Carlberg asked whether any additional fixed costs are added to the forecast contracting cost based on the 14-hour fuel requirement.

The Chair noted that the ERA is compelled by the WEM Rules to allow participants to recover long-term take-or-pay gas contract costs through their offers.

- Mr Carlberg clarified that there are certain fixed costs associated with the 14-hour requirement, for example having an option to buy more gas to meet the 14-hour requirements, and that there is a cost to having this option in the contract.

Mr Robinson responded that the assumption is for a 14-hour storage in a gas lateral and contracting for firm gas transport for a portion of that.

Mr Glazier clarified that a facility would need a gas lateral anyway and increasing the diameter to allow for 14-hour storage adds relatively small cost. Mr Glazier noted that the aqua coloured bar in the graph on slide 19 is the gas transport reservation charge. It is assumed that the gas will come from the spot market in this context.

- Mr Arias asked whether other fixed market related costs were considered, for example compliance and trading system costs.

The Chair considered that this is for the ERA to determine.

- Mr Cheng responded that currently this is covered under the M costs in the margin which are all the fixed cost incidentals required to be recovered through the BRCP.

Item	Subject	Action

- Mr Schubert sought to clarify that EPWA has included replacements required for technologies to last for 25 years in the capital cost figures.

Mr Glazier responded that over its life an OCGT, for example, goes through a major overhaul. Under the current methodology, major overhauls are reflected in the variable costs in the energy market. Mr Glazier considered that replacing the cells in a ERS installation is similar to major overhauls in OCGTs. The assumption is that the more these facilities are used, the more frequently a major overhaul would occur.

- Mr Price sought to clarify the assumption that an ESR will degrade faster providing the Flex service because the assumption is that it is operating daily.

The Chair responded that the warranty would be for one cycle per day if the ESR is providing the Flex service and it will last for ten years. After which it would undertake a major overhaul which would be picked up in its variable costs.

- Mr Price clarified he was asking whether there is a difference in the Flex and the Peak in terms of replacement of cells and timing.

Mr Glazier responded that further analysis is required to be undertaken to provide the detail.

Mr Bowmaker clarified that the major overhaul cost has not affected the capital cost and fixed operating costs as it was assumed that major overhaul cost would be recovered through the variable costs. He noted that a battery cycling twice a day compared with daily would have higher energy offers because each hour it runs brings it closer to a major overhaul requirement.

The Chair noted that a peak product would not require daily cycling noting that the assumption was a capacity factor of 10%.

Mr Robinson noted that if Mr Price does not consider a Peak and Flex ESR have a different operating structure than that would be important feedback as changes to this assumption would impact the modelling to be undertaken as the next step.

- Mr Price asked if there are any ESR vendors in the WICRWG.

The Chair responded that there are ESR vendors in the WICRWG, but that the net vs gross CONE will be considered by this group. Consultation with ESR vendors will need to be undertaken.

- Mrs Bedola considered that ESR degradation may need to be considered in terms of the Capacity Credits it receives and the costs per MW per annum need to account for this decrease in Capacity Credits due to degradation over its lifetime.

Mr Glazier responded that, at this stage, only pure capacity cost has been looked at and there is likely enough margin between the lithium batteries and the next best option to be comfortable that if they are degrading at different speeds, the Capacity Credits would equalize.

- Mrs Bedola clarified that the annual revenue when receiving 100% Capacity Credits should be higher to account for later in the asset's life

Item	Subject	Action

when it only receives 85% Capacity Credits due to ESR degradation. Mrs Bedola considered that there needs to be a weighting applied to account for this.

Mr Glazier took an action to investigate taking the weighted average over 25 years, including the major overhaul after a particular period, to account for this.

- Mr Cheng provided the following excerpt from the ERA's Offer Construction Guideline:
    - ESRs – for example, lithium-ion batteries – incur cycling costs as they charge and discharge, causing the storage cells to degrade and making them less effective in total charging capability, eventually requiring cell replacement. This degradation cost is an incremental cost related to the production of electricity, and therefore, can be included in the formation of price offers.

The Chair considered that this answers Mrs Bedola's earlier question about ESR degradation over ten years and that this can be included as a variable cost. She noted that this resolves Mr Glazier's action.

- Mr Price expressed interest in feedback from ESR vendors, especially regarding ESR warranty. Mr Price considered he did not think any of these services would likely degrade a battery quicker and it would be capped by the warranty rather than the behaviour.

Mr Glazier added that ESR manufacturers generally provide warranties based on MWh discharged.

Mr Bowmaker presented the changes in capital and fixed operating costs between the current reference technology and the lithium ESR.

Mr Bowmaker discussed the implications of the analysis, noting that the 160MW OCGT is still the least cost new entrant until the proposed emissions thresholds becomes binding for new entrants. He noted that the new BRCP reference technology will be higher cost than the current one due to carbon intensity target excluding liquid fuels and materially lower economic lives.

- Mr Schubert asked why heavy OCGT was mentioned noting that it was not on the shortlist of technologies on slide 23.

Mr Bowmaker noted that this was an error and will amend the slide.

- Mrs Bedola noted that she has observed a definite push from customers to be green and does not consider it likely that a new diesel facility will enter the market even prior to the emissions thresholds taking effect.
- Mrs Bedola considered that there is a need to look at changing the reference technology prior to the emissions penalty taking effect.

The Chair agreed with Mrs Bedola and asked members to consider whether it is completely out of the question for technologies to put a diesel tank and never use it, and how this can be taken into account in the emissions threshold.

- Mr Carlberg responded that this might be what the system needs.

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- Mr Peake considered that the facility would lose its Capacity Credits as soon as it runs for its capacity test and that this would make it unfeasible.

The Chair clarified that this is not what she meant but rather whether there could be a sensible annual limit as is the case for the current Environmental Protection Agency (EPA) ministerial statements. This would be an emergency backup fuel that would be used very infrequently.

- Mr Peake responded that the facility could not be run to even test as this would cause it to lose its capacity credits.
- Mr Carlberg queried whether the current premiums and costs a facility is required to cover due to it being high emissions are taken into account, for example, the cost associated with the facility reducing its emissions in line with net zero by 2050 under the new EPA guidelines.

The Chair noted that the certainty of emissions thresholds is important for reliability as well as emissions and it would be a good idea to understand the implications of these EPA guidelines, noting that there is intent for EPWA to speak with the EPA in parallel.

- Mr Peake considered that the analysis looks sound, however had an issue with whether there are some more fixed maintenance costs for a battery that should be included.
- Mr Peake asked if EPWA had any idea how much the BRCP may rise.

The Chair responded that a comparison in prices between the current reference technology and the proposed new reference technology is shown in the presentation.

Mr Bowmaker discussed the key assumptions for the economic analysis to be undertaken.

Mr Bowmaker noted that some of these points will ultimately be up to the ERA to determine.

- Mr Schubert considered that that the 200MW size is good, and connection location could be at an existing substation with spare capacity due to coal retirement and not necessarily behind an existing connection point.
- Mr Price considered that the 200MW size is reasonable as a single contingency risk but larger can certainly be accommodated with the right interconnection arrangement.
- Mrs Bedola questioned the process and timeframes for EPWA and the ERA to determine the BRCP for the next cycle and whether the current BRCP reference technology would be maintained until 2024 or the new reference technology will be implemented straight away.

The Chair responded that the intent is not to delay this process and would like to complete this by the end of the year.

The Chair sought the views of the working group as to the likelihood of new diesel plants coming in.

Item	Subject	Action

- Mr Carlberg agreed that given the emissions thresholds are coming in, it is unlikely that participants will invest in new diesel plants.
- Mr Carlberg also considered that there is a risk of overpaying by bringing in the new reference technology ahead of the emissions thresholds.

The Chair responded that, under the new WEM rules, the price caps are set at the highest cost technology which is currently diesel.

The Chair asked the ERA what the timeline of its BRCP process will be.

- Mr Cheng responded that it was dependent on the time it takes for the methodology and procedure changes. It is possible this would be ready for the next cycle but could not guarantee a time at this point.

4 Next Steps

Mr Bowmaker outlined the next steps which are to finalise data, conduct modelling and develop a reference technology and gross/net cone proposal.

The Chair noted that the gross vs net CONE will be discussed at an upcoming RCMRWG on 19 October and summarised that:

- RCMRWG members are generally comfortable as long as this and the methodology developed by the ERA cover all of the expected fixed costs; and
- there is an outstanding issue regarding 50 year versus 25 year life, however EPWA will assume 25 years for the purposes of modelling, noting this will ultimately be determined by the ERA.

The Chair welcomed feedback from the working group members prior to the economic analysis being undertaken.

5 General Business

No general business was discussed.

The meeting closed at 12:55 pm

Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (RCMRWG)
Date:	19 October 2023
Time:	9:30 AM to 11:30 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Manus Higgins	AEMO	
Toby Price	AEMO	
Mike Hales	AEMO	
Grace Liu	AEMO	
Oscar Carlberg	Alinta Energy	
Geoff Gaston	Change Energy	
Dr Matt Shanazari	Economic Regulation Authority (ERA)	
Jake Flynn	Collgar Wind Farm	
Andrew Stevens	Energy Person	
Patrick Peake	Perth Energy	
Paul Arias	Shell Energy	
Tessa Liddelow	Shell Energy	
Noel Schubert	Small-Use Consumer representative	
Daniel Kurz	Summit Southern Cross Power	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Richard Bowmaker	RBP	
Ajith Sreenivasan	RBP	
Cameron Owen	Enel X	
Scott Cornish	Enel X	
Jenny Laidlaw	Energy Policy WA (EPWA)	

Item	Subject	Action
1	**Welcome** The Chair opened the meeting with an Acknowledgment of Country and welcomed members. The Chair noted the competition and consumer law obligations.	
2	**Meeting Apologies/Attendance** The Chair noted the attendance as listed above.	
3	**Draft Minutes of meeting 2023_09_21** The Chair noted minor comments from Mr Schubert. No other comments were received so the Chair confirmed the minutes as approved.	
4	**Sequencing of the Draft WEM Amending Rules implementing the outcomes of the RCM Review** The Chair noted that these Rules are to go to the Minister by the end of November. The Chair noted that there have been constructive discussions with AEMO, and that Mr Hales from AEMO will be leading the discussion and explaining the rationale for the Rules sequencing. The Chair stated that: • Energy Policy WA (EPWA) does not want to implement these rules in a way that means the standard Reserve Capacity Mechanism (RCM) timeframes need to be extended in any of the coming years; • EPWA supports what AEMO is proposing but is seeking views on the relative importance of different aspects of the reform package; and • AEMO will explain how the implementation of different aspects may impact on normal RCM timeframes and therefore need to be staggered. Mr Hales talked through Slide 2 (rule commencement) in the papers. He noted that: • the full set of proposed changes could not be implemented in the next 6 months (i.e. before the next certification application window opens); • AEMO has considered how to best stage implementation to incentivize the entry of new capacity in the next year or two to meet the capacity shortfall without jeopardizing the capacity timeline; • staging will be in 2 parts: peak capacity product, and the changes related to that, followed by the new flexible capacity product; • stage 1, to be implemented for the 2024 cycle, will include the Demand Side Programmes (DSP) certification changes and the new Relevant Level Method (RLM). The change to the Reserve Capacity Refunds will also be implemented by October 2024; • component pricing cannot be achieved in time for the certification applications window opening in April, as the system changes are significant;	

Item	Subject	Action

- changes to the Individual Reserve Capacity Requirement (IRCR) will be in place for year 3 of the 2024 cycle (i.e. 2026).

Mr Hales talked through Slide 3 (proposed commencement of changes) in the papers.

Mr Hales talked through Slide 4 (preliminary RCM constraint equations) in the papers. He noted that:

- The Expression of Interest (EOI) process is not mandatory. However, it is still used in Appendix 3 for tie-breaking so there is an advantage for participants to participate in it.
- When new facilities submit an EOI, AEMO has to provide those new facilities to Western Power, and must create new preliminary RCM constraint equations and publish these in May. These constraint equations would consider existing facilities and only new facilities who had participated in the EOI, and therefore would not be complete.
- When the final RCM constraint equations, that are required for the NAQ modelling are available in August, they would include facilities that have applied for Certified Reserve Capacity (CRC) and would be likely to change relative to the preliminary equations published earlier.

Mr Hales asked whether participants find the preliminary RCM constraint equations beneficial and whether the non-mandatory EOI is still useful.

The Chair noted that EPWA needed a prompt response to finalise the amending rules.

- Mr Carlberg stated that there is no benefit in the preliminary equations, for Alinta, as there is no one internally who can use them in a practical way.
- Mr Peake agreed with Mr Carlberg.
- Mr Schubert noted that many new proponents, who may have views on this, may be absent from this meeting.

The Chair acknowledged this but noted the need to make a decision.

- Mr Stevens stated that any contemporary information on constraints that can be acquired would be useful and that constraints are a major factor influencing investment decisions.

The Chair noted that, given EOIs will not be compulsory going forward, the information may not be that contemporary.

- Mr Stevens agreed that this would be a problem and noted that Western Power already finds it difficult to manage new connections and it takes time to determine how constraints will affect those connections.
- Mr Stevens asked whether facilities should be compelled to submit an EOI unless their facility is already accounted for in constraint equations through other means (e.g. because they have already lodged a connection application) to ensure accuracy in constraint equations.

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- Mr Peake noted that a compulsory EOI process means the constraint equations will include projects that are unlikely to go ahead.

The Chair agreed and noted that with a compulsory EOI participants have previously put a number of variants of their facility so they don't miss out, a high proportion of which never made it to certification.

- Mr Stevens agreed that there should be some reasonable hurdle to expressing interest in joining the grid (and therefore included in constraint equations) and asked whether this should be workshopped between AEMO and Western Power to achieve alignment.

The Chair noted that the draft amending rules have gone in the opposite direction. They would allow participants to provide evidence when they submit their certification application that they will have an ETAC (rather than having to have one already, as this has been a major obstacle to certifying facilities).

- Mr Stevens noted that there is often a misalignment between what AEMO and Western Power need at early stages. Western Power has changed its connection process and taken steps to weed out applicants who aren't serious at early stages (through application fees). He suggested that the changed connection process should align with a potential filter for AEMO at the EOI stage so that the two processes work together.

The Chair acknowledged that the misalignment is causing issues for participants and AEMO. She noted that Western Power's connection processes should continue to improve and that Western Power and AEMO should work together to achieve alignment.

- Mr Kurz agreed with Mr Stevens' comments in regard to the balance between accessibility and realistic outcomes. He agreed that it is up to Western Power and AEMO to work out the appropriate balance.

The Chair noted that the conclusion is that if the constraint equations are accurate then they are useful.

Mr Hales discussed slide 5 (peak IRCR and reserve capacity rebate). He noted that there may be benefits to implementing IRCR alongside the commencement of the 5-minute settlement (5MS) and cost allocation review (CAR) amending rules and asked whether participants agree, or want to see this happen earlier/later.

The Chair clarified that the peak IRCR methodology will be implemented immediately for the purposes of the RLM and that what is being discussed now related only to the allocation of capacity costs.

- Mr Kurz asked when the Non-Temperature Dependent Load (NTDL) and Temperature Dependent Load (TDL) changes would happen.

Mr Hales confirmed that they would be included with this package, along with the changes to appendix 5.

The Chair clarified that changes to Appendix 5 that are needed for the purposes of the RLM would commence in 2024.

Item	Subject	Action

Mr Hales noted that it is possible for the NTDL/TDL changes to commence in 2024 if there is a strong preference for that from participants, however 2025 or 2026 is AEMO's preference.

- Mrs Bedola noted that the NTDL/TDL, IRCR and refunds reforms are not being implemented in the first package in 2024, but that these are the 3 reforms with the biggest customer impacts.

The Chair noted that refunds are being changed (to be returned to (market) customers) as of October 2024.

- Mrs Bedola asked how complex the NTDL/TDL changes are to implement and noted that Synergy would prefer these to be implemented earlier, if possible, to better share costs across all customers.
- Mr Carlberg stated that later is better to avoid risks of delaying higher priority items. 5MS and CAR are last on Alinta's list.

The Chair noted that IRCR, 5MS and CAR changes are only linked from a systems development point of view.

- Mr Kurz stated that 2025 or 2026 for the changes is more practical for resulting changes to retail contracts which are priced typically for 2 years.
- Mrs Bedola asked whether there is an issue with the DSP changes being implemented but not the IRCR changes, as DSPs will be certified on the basis of the IRCR set using the current methodology, which will change by the time the obligations come into effect.

The Chair and Mr Hales noted that there is still an IRCR to use for certification and that there will need to be a cutover at some point.

The Chair asked how long retailers needed to change arrangements with customers as a result of the NTDL/TDL changes.

- Mr Kurz stated that sufficient time would be required for that retail contract to go through the natural cycle of renewal.
- Mr Gaston noted that there are change in law provisions in contracts to allow for these type of changes. He considered that refunds and NTDL/TDL should come in 2024, and that changing peak IRCR can be deferred until 2025.

The Chair summarized the discussion as follows:

  - there is no strong objection for peak IRCR to be delayed to 2025;
  - refunds changes should be implemented as soon as practicable; and
  - there are mixed views on whether to implement NTDL/TDL in 2024 (Mrs Bedola, Mr Gaston) or 2025 (Mr Kurz and Mr Carlberg).

- Mr Arias asked Mr Hales whether AEMO's costs change much depending on whether the changes are done all at once or in tranches.

Mr Hales noted that the NTDL/TDL changes could not be separated from the rest of the changes in Appendix 5, as this would be complex/costly.

Item	Subject	Action

- Mr Carlberg noted that implementing all the changes together would allow better visibility of system implications.

The Chair summarised that the view was to implement all changes together for 1 October 2025, but commence changes to refunds as soon as possible.

- Mr Kurz supported this.

Mr Hales talked through Slides 6 and 7 in the meeting papers and requested feedback on the preferred option from participants.

Ms Lui clarified that the preliminary values in Option 1 would just be based on the 2024 ESOO with no additional analysis/updates.

The Chair clarified Options 1 and 2 as follows.

Option 1 – AEMO does a preliminary assessment, on the basis of the 2024 Electricity Statement of Opportunities (ESOO) and releases this in January, and does a final assessment for the ESOO and releases that on 10 June. Parameters may change a bit but the ESOO is a week earlier to allow participants more time to consider the information.

Option 2 – for certain parameters, AEMO will publish a final determination in January based on the 2024 ESOO. Remaining parameters to be released in the ESOO on 17 June.

Ms Lui noted that for the 2025 cycle, data related to the flexible capacity product would be provided in 2025 Request for EOI report as a transitional arrangement as that data wouldn't be in the 2024 ESOO. In future years, the preliminary values for option 1 would be based on the previous ESOO.

- Mr Carlberg asked what the expected benefit of Option 1 was if the information released in January was not updated from the previous ESOO (and therefore is information participants would already have).

Ms Lui stated that it would be put together with the EOI information for participants.

- Mr Carlberg reiterated that it was difficult to see any additional benefit that was being offered.

The Chair agreed with Mr Carlberg that it was difficult to see the benefits and asked whether the simplest option would be to move the ESOO to 10 June.

Ms Lui noted that this is option 1.

Ms Lui reiterated that she considered providing consolidated information in an EOI request would be beneficial to new participants, even if it is not new information.

- Mr Peake asked whether, historically, there has been much change in data between January and June. He stated a preference for as much data to be settled at the EOI stage as possible.

The Chair noted that some of parameters (e.g. Reserve Capacity Target) cannot be determined without the forecast in the ESOO.

Item	Subject	Action

- Mrs Bedola asked where the bottlenecks are in the ESOO and why it couldn't be moved even earlier, as best outcome would be to get complete information as soon as possible.

Ms Lui noted that AEMO needs to have enough time to analyze data from the hot season (which runs until the end of March), to run the model and get approval from the Board.

The Chair suggested that there is a third option in which the ESOO is still released in June but some of the actual parameters on slide 7 are published several weeks earlier.

Ms Lui took this on notice and will advise whether this is possible.

Mrs Bedola expressed support for this option.

Action: AEMO to determine whether key parameters can be published in the weeks before ESOO publication. **AEMO**

- Mr Schubert noted that events over summer can affect the forecast. He considered that option 1 is better as January is too early for final requirements.
- Mrs Bedola asked whether the flexible product was intended to be in place for next year.

The Chair clarified that the requirements would be published next year so that participants can start preparing proposals for the following year, but that systems will not be implemented for certification next year.

Mr Hales confirmed that the publication of the flexible reserve capacity requirement will not be ready for the June 2024 ESOO and needs to be delayed until the 2025 EOI document in January to give AEMO time to develop that information. This will be a transitional arrangement and then the information will be incorporated into the June ESOO in future years.

- Mrs Bedola queried whether the requirements for flexible capacity could be developed in a more timely manner by looking at the requirements for ESS facilities (e.g. ability to start, stop and ramp quickly) and mimicking those. She noted that facilities providing contingency services would have a ramp rate requirement.

Mr Price clarified that more work needed to be done to look at the fleet, as well as the projected ramp requirements, and from that to develop the specification for participating in the flexible capacity product.

- Mr Peake asked whether certification can be pushed back a week or so rather than the ESOO being brought forward.
- Mr Carlberg also asked whether the CRC window could be delayed as the key difficulty tends to be getting network access signed by then rather than the ESOO.

The Chair noted that it would not be feasible for AEMO to compress timeframes any further.

The chair summarised the discussion, as follows:

- AEMO has an action to look at an option to publish data essential for certification of new facilities prior to the ESOO on 17 June; and

Item	Subject	Action

- no comments were provided on the transitional arrangements for implementing the flexible capacity product.

Mr Hales went back to Slide 3 (proposed commencement).

- Mrs Bedola stated that the key priority should be implementing the flexible capacity product and component pricing to address projected capacity shortfalls, and that DSP changes are less important.

The Chair noted that component pricing is limited by system changes and that rules will be made in December 2023 to provide clarity about how it will apply.

Mr Hales confirmed that this will take 18 months for AEMO to implement, as it requires a significant rebuild of the RCM systems, and the earliest it can be applied is 2025.

- Mrs Bedola asked whether certification in 2024 would be on the basis of separate components. She noted that, if certification based on separate components only happened in 2025, pricing would only apply in 2027.
- Mr Carlberg agreed with Mrs Bedola.

Mr Hales noted that prices are calculated as part of certification and system changes are required for this. AEMO would have to change prices after the fact if capacity is certified on the basis of component pricing in 2024.

The Chair requested that AEMO confirms this

Action: AEMO to confirm why component pricing is needed for the certification process, and to check whether it is possible to certify on the basis of component pricing in 2024 and settle on that basis in 2026. **AEMO**

- Mr Schubert stated that implementing the flexible capacity product could be delayed a few years (as per the slide) because there is enough in the system now and new batteries have been announced. The system is short of peak capacity and needs more DSPs in the short term to service this.
- Mrs Bedola expressed concerns about the DSP changes, including the limited dispatch requirements and the price parity with capability class 1 facilities. She expressed concerns about making it easier for DSP to participate when thermal generators in the capability class 2 are getting paid less but have more availability requirements than DSPs.

The Chair noted that the policy decision has already been made and will not be revisited, and that the question now is about implementation.

- Mrs Bedola clarified that her preference is that the DSP changes be delayed as long as possible.

Mr Carlberg stated the DSP changes were also not a priority for Alinta.

- Mr Peake stated that if the DSP changes can be done easily, then they should be done as soon as possible.

Item	Subject	Action

- Mrs Bedola asked whether it would be easier to get component pricing in for the 2024 certification if DSP is delayed.

Mr Hales stated that DSP system changes are minimal and moving them won't affect anything else. He noted that, of the 2024 changes, RLM system changes are more complex.

- Mr Schubert reiterated that the system needs peak capacity, and thus more DSPs, in the short term.

The Chair noted that, if this change is not made, then DSPs will not participate in the capacity mechanism, and AEMO will be required to call supplementary capacity each year. Procuring DSPs through supplementary capacity will cost much more than incentivizing participation in the RCM.

Mr Peake noted that the only way to see if DSPs are contributing is to try them.

5 BRCP Reference Technology Review – Net/Gross CONE analysis

Before discussing the BRCP, Mr Robinson noted that in the early comments on the Amending Rules some matters come up about Demand Side Programmes (DSP).

Firstly, Mr Robinson noted that under the Amending Rules a DSP's capability to deliver a reduction will be measured against its actual demand, not its relevant demand and that consumption deviation applications will also be removed. If one of the loads in a DSP is on outage, then the minimum load proposed for that facility is still counted. Given the above, it is proposed to move from standing data minimum demand to real time minimum demand and allow DSPs to adjust their minimum demand more regularly. The DSP will still be required to have enough gap between actual consumption and minimum demand to ensure it can deliver the demand side response it is certified for.

No comments were received.

Mr Robinson noted that the Amending Rules also propose changes to the DSP refunds. He noted that currently the refund rate for the availability requirement and the dispatch requirement are the same. It is proposed to set these differently – the rates for dispatch non-compliance would be based on the DSP dispatch requirement but if it doesn't meet the availability requirements the refund would be based on the required availability hours (e.g. 20 hours).

- Mr Carlberg considered that the proposal should be to shorten the period over which refund rate will be based.
- Mrs Bedola supported Mr Carlberg.
- Mr Cameron noted that a generator on a forced outage for 2 months a year would lose all of its capacity credits, while a DSP on 100% forced outage for 2.5 days would lose all of its capacity credits and an additional 25% as a punitive measure. He considered this unnecessary and supported a punitive measure if a DSP does not deliver when called on by AEMO but outside of that would prefer if DSPs are treated in line with all generators.

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The Chair noted that EPWA is trying to strike a balance between not being overly punitive and the obligations on DSPs, which are significantly less than those for generators.

- Mr Cameron supports the availability refunds being based on the number of hours that the DSP is required to be available for dispatch (12 hours per day).

The Chair noted that DSPs are not required to log forced outages and that the intent of this proposal is to measure the DSPs minimum load in the hours when they have to be available and apply the penalty to this, rather than the one interval when they do not respond.

- Mr Stevens supported DSPs being subject to the extra penalty.
- Mrs Bedola supported DSPs having to pay refunds on the basis of availability hours.

Mr Robinson thanked members for their feedback.

Mr Bowmaker started the discussion on the net/gross CONE analysis. He summarised the approach taken in the BRCP Reference Technology Review and recapped that the most efficient new entrant technology on a gross CONE basis for both the Peak and Flex Service is a 200MW / 800MWh lithium battery energy storage system (BESS) connected at 330kV.

Mr Bowmaker presented the approach taken to analyse the gross and net cost of new entry (CONE), noting that:

- For the peak product, gross CONE would be applied if the reference technology would be the marginal energy supplier. If not, further assessment would be required on whether applying net CONE would be appropriate.
- For the flex product, if the reference technology was the marginal energy supplier in the intervals where flex capacity would be required then gross CONE should be applied. If not, further assessment would be required on whether applying net CONE would be appropriate.
- This was done using the WEMSIM model to forecast energy market prices, marginal cost of generation and the net market revenue for the reference technology facility, and gross and net CONE.

Mr Bowmaker noted that the modelling results are indicative only and should not be relied on for any other purpose.

Mr Bowmaker explained that the BESS would not be the marginal energy supplier for either product for the next 10 years.

Further analysis was required to determine whether gross or net CONE should be used. This showed the net CONE was significantly lower cost than the gross CONE, but that the results were highly dependent on inputs and sensitivity analysis showed the two results closely converging.

An assessment of the advantages and disadvantages of each showed that gross CONE however would provide higher investment certainty and be a simpler approach, while net CONE would require modelling that is highly sensitive to inputs which may undermine investment certainty.

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- Dr Shahnazari agreed that net CONE would create uncertainty and create administrative problems, but large profit margins would pose a cost to consumers. He considered that there may be other solutions to manage the uncertainty. For example, when the ERA calibrates the reserve capacity price curve it could be mindful of the decision to adopt the gross CONE and reduce the buffer on the curve when surplus capacity gets close to zero.

The Chair noted that there is a specific item in the WEM Investment Certainty Review to deal with the reserve capacity price curve which will be discussed on 8 November 2023.

- Mr Schubert considered that the analysis presented needed further discussion.

The Chair agreed to discuss further with Mr Schubert and RBP and noted that there will be public consultation on this topic shortly.

- Mr Arias considered that gross CONE would be the simplest approach, noting the need to balance simplicity, cost and investment certainty.
- Mr Carlberg considered that net CONE would create risk for new proponents, especially as more renewables enter the market.

The Chair responded that analysis was undertaken during the RCM review, which indicated that storage would be profitable to 2050.

- Mrs Bedola agreed that net CONE creates a barrier.

The Chair noted that gross CONE may need to be considered in the ERA's offer construction guideline.

- Mr Carlberg raised concerns around investor uncertainty if the net CONE approach is used.
- Mr Schubert suggested using gross CONE, and then undertaking a review to determine which approach should be chosen over time.

The Chair considered that this is a good suggestion and suggested that reviews should occur every three years, rather than every five years.

- Mr Schubert considered that the ERA could annually monitor the difference between gross and net CONE.

The Chair responded that setting gross or net CONE is now the Coordinator's role.

Mr Peake agreed with Mr Carlberg and Mr Schubert.

6	**General Business** No general business was discussed	

The meeting closed at 11:30am

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 6(c): Update on the WIC Review Working Group

Market Advisory Committee (MAC) Meeting 2023_11_23

1. Purpose

- The Chair of the Wholesale Energy Market Investment Certainty (WIC) Review Working Group (WICRWG) to provide an update on the activities of the WICRWG.

2. Recommendation

That the MAC:

(1) notes the minutes from the WICRWG meeting on October 11 2023 (Attachment 1);

(2) notes the update from the WICRWG meeting on 8 November 2023; and

(3) provides any additional comments on the proposals outlined in Attachment 2.

3. Process

- The MAC established the WICRWG to support the Coordinator's WIC Review under clause 2.2D.1 of the WEM Rules.
- The WIC Review is addressing issues that were recognised in the Reserve Capacity Mechanism Review and will consider the five specific reforms that were announced by the Minister for Energy on 9 May 2023.
- At the WICRWG working group meetings on 31 August and 11 October 2023, discussion focussed on Initiatives 4 and 5:
    - Initiative 4: Emission thresholds for existing and new high emission technologies in the WEM; and
    - Initiative 5: Introducing a 10-year exemption from the emission thresholds for existing flexible gas plants that qualify to provide the new flexibility service.
- As a result of these discussions, Energy Policy WA implemented further changes to the design of the emission thresholds for existing and new facilities.
- At the WICRWG meeting on 8 November 2023 the following was discussed:
    - the amended proposals for the design of the emissions thresholds;
    - defining "new technologies" under Initiative 2: the ten-year Reserve Capacity Price (RCP) guarantee for new technologies and issues around qualifying technologies;
    - preliminary discussion on options for implementing Initiative 1: Changing the Reserve Capacity Price (RCP) curve to send sharper signals for investment when demand for new capacity is stronger;
    - inflation adjustment for transitional facilities; and

  - the combined impact on consumers of the recent and proposed changes to the BRCP, the increases in the Reserve Capacity Price, and the changes to the capacity reserve margin by AEMO.

- Proposals for Initiative 1 will be presented to the MAC at its next scheduled meeting following further discussions at the next meeting of the WICRWG.
- The Terms of Refence, papers and minutes for the WICRWG meetings are available on the WICRWG webpage at Wholesale Electricity Market Investment Certainty (WIC) Review Working Group (www.wa.gov.au)
- Further information on the WIC Review, including the Scope of Works are available on the WIC Review webpage at Wholesale Electricity Market Investment Certainty Review (www.wa.gov.au)

4. Next Steps

WICRWG meeting 6 December 2023.

5. Attachments

(1) Agenda Item 6(c) – Attachment 1 – WICRWG 2023_10_11 – Minutes

(2) Agenda Item 6(c) – Attachment 2 - Update on the WICRWG - Presentation

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Minutes

Meeting Title:	WEM Investment Certainty Review (WIC Review)
Date:	11 October 2023
Time:	9:30 AM to 11:30 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Mena Gilchrist	AEMO	
Oscar Carlberg	Alinta Energy	
Graham Pearson	Australian Energy Council	
Daniel Kurz	Bluewaters Power 1 Pty Ltd	
Francis Ip	BLT Energy Pty Ltd	
Tom Frood	Bright Energy Investments	Joined at 10:10am
Jake Flynn	Collgar Renewables	
Liz Aitken	Empire Carbon and Energy	
William Street	Entego Group Pty Ltd	
Dr Matt Shahnazari	ERA	
Luke Skinner	Expert Consumer Panel	
Noel Schubert	Expert Consumer Panel	
Dale Waterson	Merredin Energy	
Timothy Edwards	Metro Power	
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Shane Cremin	Summit Southern Cross Power Pty Ltd	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Shelley Worthington	Energy Policy WA	
Tonia Curby	Energy Policy WA	
Tim Robinson	RBP (consultants to Energy Policy WA)	

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1-3 Welcome, Minutes and attendance

The Chair opened the meeting with an Acknowledgment of Country and welcomed members.

The attendance was taken as listed above.

The Minutes from WICRWG 2023_08_31 were approved.

4 Approach to emissions threshold regime – existing facilities

Mr Robinson recapped the two proposed thresholds, the Emissions Rate Threshold and the Emissions Quantity Threshold. He noted that existing facilities would only be subject to the Emissions Rate Threshold, with arrangements to phase it in.

Mr Robinson noted that this proposal is different to the proposal presented at the last WICRWG meeting.

Mr Robinson described the issues with using National Greenhouse Emissions Register (NGER) data to assess performance against the emissions thresholds, noting that:

- the use of NGER data no longer seems workable;
- NGER groups facilities differently to how they are registered in the WEM;
- some facilities do not produce enough energy to have reporting obligations meaning that these facilities would require an additional mechanism to capture emissions data;
- due to the nature of the NGER reporting period, emissions data would be 18 months old by the time it would be used for the purpose of the RCM;
- the data includes emissions and energy produced for all uses, including sources not directly related with electricity generation; and
- emissions intensities are volatile between years due to facilities' efficiencies at different capacity factors.

- Mrs Bedola asked which facilities do not have reporting obligations.

Mr Robinson answered that small facilities generally do not have reporting obligations.

- Ms Aitken answered that the Tesla units do not have to report to NGER.
- Mr Waterson answered that the Merredin facility does not need to report to the NGER.

Mr Robinson noted that EPWA considers that a WEM specific reporting mechanism should be developed.

Mr Robinson outlined the two options for the approach to emissions tracking in the WEM:

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- option one is to use a historical emissions rate based on actual output and actual emissions using historical data - Mr Robinson noted that this option would cause more volatility from year to year; and
- option two is to use a theoretical emissions rate based on theoretical emissions at a specified point on the heat rate curve - Mr Robinson noted that this option would be less volatile and less complex and would provide clear signals. He considered that this option would be easier to manage and monitor than having to calculate historical emissions data every year.

Mr Robinson noted that EPWA considers that option two is more suitable.

- Ms Aitken considered that the actual emissions rate would be better than the theoretical emissions rate as dispatch in the WEM may cause the plant to not be able to operate at theoretical emissions intensities.
- Mr Skinner was concerned with what the transparency would be when comparing actual with theoretical emissions, noting that there are risks with relying on manufacturer or generator provided data.

Mr Robinson asked if Mr Skinner meant that there would need to be a way to check and validate the theoretical emissions rate against the actual rate.

- Mr Skinner agreed and noted that transparency was also needed to ensure that what is said is being done, is what is actually being done.

The Chair noted that EPWA will consider this further and take these views into account, and that EPWA would consider both options.

- Mr Schubert noted that he is happy with the theoretical emissions limit but agrees with Mr Skinner that it would need to be checked against actual emissions.
- Mr Schubert considers that sent out generation should be used as this would incentivise plants to improve their efficiency.

Mr Robinson noted that sent out generation is currently used in the proposal.

- Mr Edwards considered that the Clean Energy Regulator does something similar, for example it uses meter data to create Large-scale Generation Certificates (LGCs). He considered that there needs to be a theoretical threshold and a true-up at the end of the period.
- Mr Carlberg noted his support with the theoretical emissions limit approach and the intent of a true-up but is concerned it may present a high risk to investors. He considered that true-ups would be related to heat rate which is not always in the generator's control.

The Chair clarified whether Mr Carlberg meant he was happy with the theoretical emissions rate but does not support changing the threshold afterwards.

- Mr Carlberg noted that he is hesitant to support the true-up.
- Mrs Bedola agreed with Mr Carlberg.
- Mr Peake agreed with Mr Carlberg, especially if the plant is providing ESS and is not at optimum operating efficiency.

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Mr Robinson discussed the annual emissions quantity variation for different facilities and noted that a facility's actual emissions rate may be quite different from its theoretical emission rates from year to year. He asked Mr Carlberg if he was questioning how to avoid this volatility.

- Mr Carlberg considered that aside from choosing their technology type, generators are not in control of the emissions.
- Mr Kurz considered that the heat rate variation between loading levels can be large.
- Ms Aitken agreed with Mr Carlberg's point that not operating at optimum efficiency is a real risk in the theoretical approach. She noted that every generator knows what its fuel use is in real time which could be used to calculate emissions and suggested penalising facilities if they deviate by more than 10%.

The Chair noted that tracking fuel use may make sense.

Mr Robinson noted that these are not directly comparable, but could be factored in.

- Mr Schubert agreed with Ms Aitken that actual fuel use could be a good basis of emissions calculation.

The Chair noted that EPWA may further investigate the use of heat curves for calculating emissions.

- Mrs Bedola noted that she would be able to provide some heat curves for analysis.

The Chair accepted Mrs Bedola's offer.

- Mr Skinner considered that this supports why true-ups should be required, because it would be a big problem for reducing emissions if a facility emits more than they say they will.

The Chair clarified that emissions would not be self-reported by generators.

Mr Robinson responded that this would be like the expert reports for the Relevant Level Method, for example. He noted that this would need to be substantiated through actual heat rates and comparisons to the forecast rate.

The Chair noted that at a high level, using the heat rate would be less volatile than using the output.

- Mr Street asked how the heat rate point would be chosen for the calculation.

Mr Robinson responded that this would need to take into account the projected capacity factor for the plant.

- Mr Street clarified that the likely type of generator in this space will be flexible rather than baseload and the variability of its output by year depends on system and commercial requirements and can change greatly. Mr Street considered that a dynamic input which can reflect this variability may be more appropriate.

The Chair noted that EPWA will look further into this.

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- Mr Carlberg noted he is happy with checking the heat rates but is mindful of penalising a generator when it is forced to operate at a less efficient part of their heat rate curve than expected.

The Chair noted that the proposed methodology presented today provides more certainty than the methodology discussed last time. She noted that the majority view at the last WICRWG meeting was that a more robust method which provides more certainty for investors is required.

Mr Robinson summarised that WICRWG members are settling somewhere in-between the two options.

The Chair noted that the methodology will need transparency, clarity, verifiability and auditability and that this will be drafted in the WEM Rules.

- Ms Aitken considered that annual volatility is the point here noting that, if a plant is becoming more marginal and its operational threshold becomes closer to the prescribed level, then it needs to make decisions about either reducing operations, investing capital to reduce emissions or shut down.
- Ms Gilchrist noted that AEMO is supportive of the proposal, however, questioned what AEMO's role would be in the testing of the theoretical rate. She noted that AEMO would like the flexibility of being able to use independent experts if this can deliver better outcomes.

The Chair noted that AEMO would have the flexibility to use independent experts if this is determined to have better outcomes.

- Mr Peak noted that plants have been operating well away from their predicted outputs this year due to external issues.
- Mr Schubert considered that ideally WEMDE would be able to optimise for emissions too and noted that a price on emissions would help WEMDE to do this.
- Mr Peake asked how batteries are treated under this proposal.

Mr Robinson responded that batteries are not considered in emissions calculations as the emissions of the facility producing the electricity are counted.

- Mr Skinner responded that emissions are not counted twice.
- Mrs Bedola noted that there needs to be some level of oversight as to how the rate is used but that the variability in output levels should not penalise facilities if it is driven by market needs.
- Mr Peake considered that the target may need to be more sophisticated. He considered that there may need to be a curve or bounds that a facility is allowed to operate in. He considered that this would account for emissions that are outside of the generators control to a degree.

The Chair considered that the simplest approach would be to look at manufacturer data and then compare it to actual facility data.

- Mrs Bedola responded to Mr Peake that facilities could certify at lower capacity if the rate is too high at their maximum output.

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- Ms Gilchrist asked if this meant that the facility could still run at its maximum output but would not receive capacity credits for all of its capacity.
- Ms Bedola responded that this would restrict their capacity credits.

The Chair considered that this may get too complex, noting that the intention of this review is to provide a signal in the RCM and give certainty to the AEMO regarding what is happening in each Reserve Capacity Cycle.

- Mr Waterson questioned whether emissions rate would be less favourable at a lower operating output.

Mr Robinson agreed, noting that the optimum emissions rate is around 90% of the capacity.

- Mr Peake considered that to limit emissions a generator would want to avoid a low level of output rather than high.
- Mr Kurz noted that the most efficient rate is not at the top end of the capacity.
- Mrs Bedola considered that the maximum sent out could be set at the level at which it has been certified.
- Mr Schubert asked whether the 0.55 threshold would need to change if we used sent out rather than generated MWh.
- Mrs Bedola considered that this would need to be accounted for in the 14-hour obligation.

Mr Robinson noted that EPWA will consider this discussion and come back with revised proposals.

- Mr Cremin agreed with Mr Peake and considered that, if the aim of this work is investment certainty, it would be very challenging for proponents to invest if there are factors that are out of their hands. He noted that this is not dissimilar to what is done at the moment, with capacity credits awarded at 41 degrees Celsius which is not standard and as a result specialist tests are required. He considered that simplicity is needed and change should not be made each year.

The Chair agreed about simplicity.

- Mr Street agreed with Mr Cremin.
- Mr Skinner noted that he did not think new gas turbines should be encouraged.
- Mr Carlberg considered that the SWISDA says otherwise.
- Ms Aitken noted preference for the approach presented today, over the proposal from the last WICRWG meeting.
- Mr Peake considered that the nominated rate should be the facility's rated capacity.

Mr Robinson suggested using emissions rates at different points of the heat rate curve and either combining them or having different emission thresholds along the heat curve.

- Mrs Bedola suggested that a facility could certify a smaller number of MW to prevent it from being removed from the market. She considered

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that this would prevent a whole facility's worth of capacity being removed, but rather a smaller amount of capacity to assist with the transition.

The Chair noted that new technologies are needed to come in, noting that the network is currently constrained. She was not sure what the consequence would be of having a fleet of generators generating below their rated capacity preventing new capacity of coming in.

Mr Robinson was concerned that this would actually make things less certain.

- Mr Schubert noted that existing facilities can improve as technology evolves.

The Chair noted that this is something that should be considered.

The Chair summarised that the key concerns of the WICRWG are:

- providing certainty for investors;
- members prefer the option presented in this meeting, over the option presented at the previous WICRWG meeting; and
- the chosen option will need transparency and simplicity.

5 Approach to emissions threshold regime - New Facilities

- Ms Gilchrist questioned how directions from AEMO would impact a facility running at or above its emissions cap.

The Chair noted that this would not be relevant for existing facilities under this proposal.

Mr Robinson noted that this would be relevant for new facilities and that this will be covered in a later slide.

Mr Robinson noted that the proposed thresholds are 0.55tCO2-e/MWh and 1000tCO2-e/MW annual threshold. He noted that this does not preclude new peaking/firming gas fired plants which would be able to run at a capacity factor of up to 20% under this proposal. He noted that this does preclude new coal and diesel plants.

Mr Robinson noted that the Benchmark Reserve Capacity Price Reference Technology Review is assuming a capacity factor of 10%.

Mr Robinson noted that AEMO directions could be excluded from the annual cap, but the ERA would need to monitor for facilities deliberately forcing a direction by AEMO.

- Mrs Bedola noted if a gas-fired facility is coming in, it cannot have an obligation to have 14-hour fuel if the thresholds are limited to 20% capacity factor.

The Chair responded that the 14-hour obligation does not mean that a facility needs to run for 14 hours but rather that the facility has 14 hours of fuel when the AEMO needs it.

- Mrs Bedola noted that these facilities would prefer to be certified in the capability class two. She noted that there are issues with creating a system where facilities over-contract for fuel.

The Chair considered that these are two different things, what availability is wanted from a plant compared to what a plant is

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expected to run during the year. She noted that the proposal requires the facilities to have 14-hour of fuel and the ability to replenish this within three days.

- Mrs Bedola noted she was not sure if one could get a gas contract for three days in a row.

The Chair responded that there have been various allowances made for the ways a plant can meet this obligation including the use of gas laterals and storage.

- Ms Aitken asked why the emissions rate is greater than the current WEM average intensity published by the CER of 0.52. Ms Aitken considered that the threshold should be at or below the emissions average of the WEM.

The Chair considered that this calculation takes into account all the generation above a certain size.

Mr Robinson considered that the average intensity rate would include all of the generation and this average would be made up of lots of different types of facilities.

The Chair considered that this rate would drop rapidly if we achieved the level of intermittent renewable generation we want on our system, and that this average rate includes the renewables generators.

- Ms Aitken raised a concern that the proposed thresholds would never bring us to net zero.

The Chair responded that the threshold is proposed to decrease over time.

- Mr Schubert responded to Ms Aitken noting that this average includes renewables, and if this average removed all renewables, it would be higher than 0.55.
- Ms Aitken responded that we should be aiming for a reduction over time, noting that a new facility can be exempt from these thresholds.

The Chair clarified that only existing facilities would be eligible for exemption. She noted that participants have expressed concerns about reliability.

- Mr Skinner agreed with Ms Aitken in theory and considered that any new entrant should have lower than the existing average emissions intensity and that this is a question about whether or not we should build new gas facilities.
- Mr Bedola responded that when Synergy's coal facilities retire, the average will drop.
- Mr Skinner considered that this meeting is about the peaking plant which has a relatively small impact on overall emissions.
- Mr Schubert responded that in a system with 90% renewables, for example, the emissions intensity would be extremely low and there would be no plant other than renewables which could meet this threshold.

The Chair emphasized the importance of demonstrating a transition which does not harm reliability and security of the system.

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- Mr Carlberg noted support in principle with the 0.55 threshold, noting that new gas would be sensitive to a true-up which would expose it to risk.
- Mr Carlberg asked for the rationale behind the quantity threshold, noting that he did not think that thermal capacity which operates under the proposed threshold would be displacing other capacity types.

The Chair responded that, while we want to help the security of the system by bringing in peaking plants, the objective is not to have gas replace coal at high emissions rates.

- With regard to exemptions for AEMO directions, Mr Carlberg noted that peaking plants would be offering at the price cap, and asked whether exemptions would be given when dispatched at the cap.

Mr Robinson responded that this is not the intent, and that the facility would need a formal direction from AEMO, when it is intervening in the market, to receive an exemption.

The Chair noted that AEMO would provide directions under the Rules during a high risk operating state. She reminded members that this point arose from concerns raised by Ms Gilchrist regarding a situation in which AEMO is issuing more directions than usual and in which AEMO should be able to direct facilities close to their emissions cap. The Chair emphasized that this would not apply to participant bidding behaviour.

- Mr Carlberg referred to the volatility in the new market and noted that the 1000tCO2 limit may be a big risk to generators, specifically when a facility is being called unexpectedly.
- Mr Cremin agreed with Mr Carlberg, noting that the 1000tCO2 thresholds to not make sense and that no investor will build base load gas in this market. Reciprocating plants are more likely and it would not be sensible to limit them to 20% capacity factor.

The Chair asked members not to draw any conclusions from the first two weeks of new market operation, noting that there have been some unexpected outcomes which AEMO is investigating.

- Dr Shahnazari noted that he is not too concerned about setting the emissions threshold at the average of the system and that it is unlikely that most of the generation in the system would come from facilities with a higher-than-average emissions intensity. He added that he is not too concerned at this stage, as it seems that at this point in time we are more concerned about removing coal from the system.

The Chair clarified that we wish to remove baseload gas from the system, as well as baseload coal.

The Chair noted that the 0.55 will change over time and that this will be explained later in the slidepack.

- Mr Peake questioned whether there would be new capacity to meet a lower emission threshold.

Mr Robinson noted that the threshold was chosen as at this level there are facilities which could meet it.

Mr Robinson clarified that, if the threshold was lowered all current technologies would be excluded and the only facilities left would be new

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relatively unproven technologies such as those using hydrogen blending, and carbon capture and storage.

Mr Robinson explained that the threshold would decrease towards 2050, which would either decrease capacity factors or drive the introduction of new technologies.

- Mr Frood asked why not net zero, rather than zero emissions, by 2050.

Mr Robinson responded that there may be some mechanisms to offset emissions.

- Mr Skinner considered that, although 2050 is the current legislated date for net zero, if the aim is to actually stay below 2C we need to reach net zero closer to 2035.

The Chair noted that this is relevant context for the risks we are dealing with here.

Mr Robinson provided an example of what the quantity threshold could look like over time.

Mr Robinson asked members to consider whether a trajectory should be set, which reduces over time to 2050, or if the threshold should be regularly reviewed, e.g. every 5 years.

Mr Robinson asked whether more certainty would be provided if the threshold drops every year by a small amount, or if the threshold reductions are larger but only every 5 years.

The Chair reminded members that the aim is to maintain reliability and security while providing investment certainty.

- Ms Gilchrist noted that the assumption is that facilities will retire when they are no longer eligible for capacity payments and questioned whether this was an accurate assumption. She questioned whether there was the potential for facilities to run more often in the real time market because they are no longer eligible for capacity credits.

The Chair responded that Ms Gilchrist is correct, and that these facilities would still be able to operate in the market without receiving capacity credits. The Chair noted that in other jurisdictions there is a lot of concern about the uncertainty of facilities exiting the market at a short notice. One of the objectives of this review is to provide certainty of when capacity credits are due to be retired in order to bring new capacity in. She considered that this would allow new capacity to enter the market with presumably much lower running costs, which would help competition and pricing.

The Chair noted that this review is being undertaken in the absence of clear national policy and noted that this policy may be retired if Commonwealth policy came in that could replace it.

- Mr Schubert noted that his favoured option is to drop the threshold by a small amount each year, with regular review.
- Mr Peake agreed with Mr Schubert and considered that costs to customers need to be considered. He considered that driving out an older plant which hardly runs and replacing it with a new expensive plant is not a good idea.

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The Chair considered that this is not necessarily true, and that bringing in new plant would not necessarily increase but may decrease the price.

- Mr Street considered that the option to decrease the threshold every 5 years would provide more certainty, noting the risks around the lag in facilities being brought into operation.
- Mr Frood considered that although the constant drop is attractive, it may not reflect the changing technology landscape and considered that this needs to be reviewed regularly.
- Mr Carlberg considered that this should be subject to regular reviews based on modelling.
- Mr Skinner agreed with Mr Carlberg noting that there will be too much change to predict 20 years in the future.

The Chair summarised the members views that the market should signal a gradual drop in the threshold which would be reviewed at regular intervals outlined under the Rules.

- Mrs Bedola agreed with the Chair.
- Ms Aitken considered if we want new gas, the facility needs to last for 20 years to ensure a return on investment. She noted that if the threshold rate continues to decline, then the proponents would have to finance the facility over 10 years as this is the only time the facility output will be guaranteed to not be curtailed based on the emissions intensity threshold. Ms Aitken asked if the way that the capacity mechanism pays for these plants is going to change. Ms Aitken did not believe this has been addressed.
- Ms Aitken emphasized that the reserve capacity price would need to be doubled in order to allow for a new gas plant to make return on investment. She noted that this does not provide investment certainty and cannot see a new facility investing under this proposal.

The Chair noted that the mechanism has to be designed so net zero emissions can be achieved by 2050.

- Mr Carlberg and Mr Cremin agreed with Ms Aitken.
- Ms Gilchrist questioned whether a drop for each year could be provided for in the rules, with the reviews allowing the drop to be less. She considered that this could provide more certainty and allow the drop to be decreased in the event there is no capacity to replace the capacity which would be excluded.

The Chair considered that this would be the purpose of the proposed review.

- Mrs Bedola sought to clarify her understanding that once a facility was registered, it would be considered an existing facility and be subject to reduced rates. She added that the rate threshold would remain, but the annual threshold would continue to decrease.

Mr Robinson responded that the proposal is that a facility would keep its thresholds from when the facility entered for 10 years. He considered that it could be an option to allow the facility to keep its rate threshold forever, but the annual threshold decreases over time.

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- Mr Skinner considered that there is no emission reduction policy setting which can give investment certainty to high emissions technology beyond ten years in reality.
- Dr Shahnazari considered that there is a deep level of uncertainty on future technology costs and the system mix. He considered that a trajectory for emissions levels over time to net zero needs to be agreed to provide some certainty for investors.
- Mr Carlberg noted that SWISDA showed new gas being built to approximately 2040 which suggests lowering the threshold for new facilities would need to occur around that time.

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6 Existing Facilities - transition

Mr Robinson explained that the transitional threshold would initially be capped at 1t/CO2-e/MWh, with a decrease of 0.05tCO2-e each year, which would provide a relatively smooth profile of capacity excluded from the RCM.

- Mr Peake considered that he would prefer to use the previous proposal noting it would be better to have older, less efficient machines running with a cap on emissions, over closing plants and forcing new plants onto the system.

The Chair noted that the analysis has shown this approach may not be practical.

- Ms Aitken considered that this could be solved if generators would be allowed to use offsets allowing them to operate for their full investment term.
- Mr Carlberg considered that the target is net zero not absolute zero, noting that the final 20% is expensive.
- Mr Waterson considered that offsets could work as a penalty to allow older plants to operate.
- Mrs Bedola considered that offsets could be included in the energy market rather than the RCM.
- Ms Aitken considers that this does not solve the problem of recovering fixed and investment costs over 20 years.

The Chair noted that offsets were discussed in a previous meeting and noted that members were not receptive to offsets.

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7 Exemptions for Flexible Capacity Providers

Mr Robinson noted that there would be 2GW of existing capacity, which would be eligible for Flexible Capacity Credits, noting that these facilities would be exempt from emission thresholds for ten years.

- Mrs Bedola asked what the assumptions were for the Flex product.

Mr Robinson responded that the assumptions were similar to those made under the BRCP reference technology review.

Mr Robinson noted that the reason for the exemptions are the reliability concerns.

Item	Subject	Action

- Dr Shahnazari asked what the implications of this policy are, noting that the exemptions would mean we need to do more after 2030.

Mr Robinson responded that further modelling of the effects of this proposal on emissions will be done as a part of this project which may answer this question.

- Mr Skinner sought to understand how the exemptions allow us to stay within carbon budgets we are internationally committed to, noting we should get data on emissions scenarios before we make decisions. He noted that the importance of emissions reductions is being overridden by reliability concerns, rather than balancing the two.

The Chair responded that this exemption would only apply to existing plants as applying exemptions for new plants would add to emissions rather than gradually reducing emissions. Regarding existing plants, the analysis shows that we need to be careful to maintain reliability.

The Chair noted that this proposal will not solve our emissions objectives, but is rather to ensure that our reserve capacity mechanism does not continue to entrench this. She noted that in the absence of this mechanism, new liquid fuel plants could be built.

- Mr Carlberg considered that a similar exemption should be provided for the new Flex capacity plant, noting that the Flex product requires facilities to operate at low levels, and turn on and off quickly. He considers that this would dramatically deteriorate emissions intensity rates.

The Chair responded that the proposal is not to apply exemptions for new plants unless people provide strong evidence why we should.

The Chair noted the risk with introducing this proposal too radically on reliability.

- Mr Skinner agreed with the Chair but was concerned about the opposite outcome, if international, federal and state pressures may require decarbonisation at a quicker rate.

The Chair acknowledged this and noted that with a shift in Government policy, this review outcomes will need to be changed. She noted that this policy aims to balance reliability with emissions reductions in the WEM. The Chair noted the lack of legislated carbon budgets.

- Mr Skinner noted that, while there are no legislated carbon budgets, there are clear international guidelines regarding Australia's carbon budget and noted that these are real and can be pointed to. He noted that the difficulty is these do not match up to Government policy.

Mr Robinson noted that this is the first time this type of policy is being introduced.

- Ms Aitken asked for an example of an existing plant in the WEM which could become flexible.
- Mrs Bedola provided an example of Synergy's HEGT and possibly Pinjar units.
- Mr Peake added Kwinana Swift.

Item	Subject	Action
	• Mr Peake considered that the amount of emissions in the future can only be reduced by major investment in renewables and that, if the transmission system is built, investors will build renewables.	
8	**Cogeneration** Mr Robinson outlined two options • add a mechanism to split emissions from electricity and process heat; or • exclude cogeneration from these thresholds altogether. Mr Robinson noted that most of the cogeneration plants are not receiving capacity credits and that most of these plants are reaching end of life in the next 10-15 years. Mr Robinson noted the recommended option is to exclude these from the scheme. The Chair noted that most cogeneration facilities do not receive capacity credits and are usually collocated with processing facilities. She noted that there is an ambition for these processes to electrify. She noted the potential equity issues if those cogeneration facilities which have capacity credits are included in this proposal while not including the facilities which do not have capacity credits. • Mr Schubert noted the efficiency of cogeneration facilities and considered that cogeneration plants emissions could be calculated based on 'useful energy produced'. • Ms Aitken noted that cogeneration facilities are treated as scope 1 and are captured under the safeguard mechanism. • Mrs Bedola noted she is not in a position to comment here and that this should be a discussion EPWA has with the cogeneration facility owners, and accepts the proposal to exclude them from this regime as they will be captured under the federal safeguard mechanism. • Mr Carlberg considers that once process heat emissions are removed from cogeneration facilities, the facility would be within the proposed existing threshold for their remaining life. • Ms Gilchrist noted the BRCP review which could increase the capacity price and questioned whether this could be considered as a floor only meaning the price could go up but not down for those eligible.	
9	**Summary of emissions threshold proposals** This agenda item was deferred to the next WICRWG meeting.	
10	**10-year RCP guarantee for new technologies** Mr Robinson noted that: • the RCM proposes to offer a 10-year fixed price for proponents of new flexible technologies such as long-duration storage; and • EPWA proposes that any facility which uses a renewable fuel source to provide firm availability that exceeds the prevailing Electric Storage Resource Duration Requirement would be eligible.	

Item	Subject	Action

- Mr Huxtable queried whether pumped hydro with 4.1 hours of running time would be eligible.

The Chair clarified that this price guarantee can be introduced as soon as the RCM rules are implemented.

- Mr Skinner questioned the definition of renewable fuel source noting that biofuels are not necessarily a low emissions fuel source.

The Chair considered that more detailed discussions were needed to determine an appropriate definition of renewable fuel source.

- Mrs Bedola noted that EPWA needed to consider how to treat the change in duration, for example a 4-hour battery that ran for 6 hours.

The Chair clarified that a battery's duration would be determined if its nameplate capacity duration is longer than the duration gap.

The Chair clarified that if the duration gap is 4 hours, a 6-hour battery for example, would be eligible for the guarantee. If the duration gap moves to 6 hours, a new 6 hour battery would not get the guarantee, but an 8 hour battery would.

- Mr Carlberg considered that the definition could leverage the national legislation about renewable energy and asked whether batteries would be assumed to be renewable facilities.
- Mr Carlberg suggested offering this to all capacity identified by the SWISDA that meets the emissions thresholds. He did not think that it can be assumed that the business case for other technologies are in any less need of certainty than renewable technologies.

11 Upcoming meeting schedule

Members were provided with the upcoming meeting schedule.

12 General Business

No general business was discussed.

The meeting closed at 11:30 AM

Government of **Western Australia**
Energy Policy WA

Market Advisory Committee

WICRWG update

23 November 2023

Working together for a **brighter** energy future.

Agenda

Item	Item	Responsibility	Type	Duration
1	WIC Review scope	Chair	Discussion	5 min
2	Emissions thresholds - introduction	RBP	Discussion	5 min
3	Emissions thresholds - proposal	RBP	Discussion	20 min
4	Emissions thresholds – determining emission rates	RBP	Discussion	10 min
5	Ten-year RCP guarantee for new technologies	RBP	Discussion	15 min
6	WICRWG schedule	RBP	Noting	5 min
	Appendices – supporting detail			

1. WIC Review scope

WEM Investment Certainty Review: Agreed Scope

- Initiative 1: Changing the Reserve Capacity Price curve so it sends sharper signals for investment when demand for new capacity is stronger
- Initiative 2: A 10-year RCP guarantee for new technologies, such as long-duration storage
- Initiative 3: A wholesale energy price guarantee for renewable generators, to top up their energy revenues as WEM prices start to decline, in return for them firming up their capacity
- Initiative 4: Emission thresholds for existing and new high emission technologies in the WEM
- Initiative 5: Introducing a 10-year exemption from the emission thresholds for existing flexible gas plants that qualify to provide the new flexibility service
- Modelling: determine whether the package of reforms under the WIC Review will provide sufficient revenue certainty to potential investors to ensure that the Planning Criterion will be met

2. Emissions thresholds – introduction

Penalties on High Emission Technologies - Background

In mid-2022, the Minister for Energy provided to the Coordinator of Energy a draft policy statement requesting the design of a mechanism to impose a penalty on existing and new high emission technologies

Key policy constraints:

1. There will be a penalty on high-emission technologies
2. The penalty will apply to all facilities, new and existing
3. The penalty will be implemented through the WEM
4. The penalty should result in net zero cost impact on consumers
5. The accumulated penalties will be used to incentivize firming solutions to facilitate the growth in renewable intermittent generation

Preferred Option – RCM emissions thresholds

In March 2023, EPWA identified that the preferred option is to apply emission thresholds for participation in the Reserve Capacity Mechanism (RCM), as used in the UK and Europe. This option:

- Provides the highest certainty about the exit of facilities from the RCM
- Is relatively simple to implement and operate compared to the other options
- Has lower requirement to monitor and mitigate market power issues regarding cost pass-through
- Received the most support from MAC and RCMRWG members

MAC and RCMRWG members:

- Expressed concern that penalties would exacerbate reliability issues in the SWIS through accelerated retirement of existing firm generation
- Generally agreed that if penalties were to be implemented, RCM participation thresholds were a reasonable approach

Policy development was paused in Q1 2023, pending ministerial consideration. The Minister subsequently announced that the emission thresholds and a 10 year exemption for existing facilities providing Flexible Capacity from the threshold will be considered though a new package of WEM Investment Certainty (WIC) reforms

Emission Threshold Considerations for WIC Review

Federal emissions policy has developed in the last few months, but amendments to the safeguard mechanism still apply a sectoral baseline to electricity which is not expected to bind.

At state level, the new State Electricity Objective explicitly requires balancing reliability and price with environmental impact.

This wider situation is consistent with the introduction of emissions thresholds for RCM participation. The exemption for existing flexible facilities will go some way to mitigating potential reliability issues.

The quantity threshold will effectively cap the annual GWh output for certain facilities. While participants are mostly free to manage facility operation, capacity obligations and market power mitigation rules may constrain the ability to withdraw plant when it is close to the quantity threshold. Similarly, AEMO powers to direct facilities may also affect whether a facility is under or over the threshold.

The WIC Review needed to finalise:

- Initial and transitional threshold levels
- Commencement and transition timing
- Exemption parameters for facilities providing Flexible Capacity
- Interaction between dispatch availability obligations and emissions limits.

3. Treatment of existing facilities

Proposal as at the last MAC meeting that considered this

The European limit on emissions intensity is 0.55 tCO_2/MWh.

The lowest emission gas-fired facility (CCGT) currently operating in Australia has an emissions intensity of 0.375 tCO_2e/MWh.

At the 16 March 2023 MAC meeting, EPWA proposed to:

- Set an emission intensity threshold of 0.55 tCO_2e/MWh to apply to all new facilities from the 2026 capacity cycle (for the 2028 Capacity Year). This threshold would not apply to existing facilities.
- Set an emissions quantity threshold of 1,000 tCO_2e/MW to apply to all new facilities from the 2026 capacity cycle (2028 Capacity Year)
- Set an emission intensity threshold of 4,000 tCO2e/MW to apply to all existing facilities for the 2026 capacity cycle (2028 Capacity Year)
- Decrease the threshold for existing facilities by 500 tCO2e/MW in each subsequent year, until the threshold is the same for new and existing facilities in the 2035 capacity cycle

Note: **Dates are still under consideration and subject to responses to the consultation**

WIC feedback at its first meeting

The initial proposal was to apply only the emissions **quantity** threshold to existing facilities, as participants can influence this, while they have limited options over the emissions rate threshold

Some RCMRWG members considered that using a quantity threshold would not provide certainty, and further analysis supports this contention

- The annual dispatch quantity of facilities can be highly variable, meaning the annual emissions of facilities also fluctuates. Therefore, the date when a facility would be excluded from the RCM is difficult to predict.
- A key goal of the transitional profile was to allow a clear forecast of when particular facilities would no longer qualify in the RCM. Applying the emissions quantity threshold would lead to:
  - Uncertainty for participants around when their facilities would no longer be eligible for the RCM
  - Difficulty for investors to predict when capacity may exit the market
  - Challenges for AEMO in forecasting system reliability and potential capacity shortfalls.
- The tensions between emission thresholds and market power mitigation measures may incentivize inefficient bidding behavior
- It may also allow seldom-used high emission rate facilities to continue to receive Capacity Credits

Revised proposal – treatment of existing facilities

On the basis of the WIC Working Groups discussion and further analysis, EPWA proposed the following change:

Existing facilities will be subject to the rate threshold only, with transitional arrangements to phase it in over time.

Does the MAC agree with this approach?

Proposal – treatment of flexible and cogeneration facilities

EPWA presented options for treatment of flexible and cogeneration facilities, and the Working Group agreed that:

- Existing facilities providing Flexible Capacity would be exempt from the thresholds for ten years, with thresholds phased in from that point on to avoid a significant exit in a single year.
- Cogeneration facilities would be excluded from the threshold regime.

Does the MAC agree with these proposals?

4. Determining facility emissions rates

Emissions tracking approach for the WEM

In the March proposals, emissions data was to be based on NGER submissions, but it turned out to be unsuitable (see appendix A.1).

At the second working group meeting, the group discussed two options for using WEM data to assess emissions:

1. Historical: Emissions rate based on actual output and actual historical emissions
2. Theoretical: Emissions rate based on theoretical emissions at specified point on heat rate curve

Working group members were concerned that:

- Emission rates depend heavily on facility loading levels, based on the heat rate curve.
- Using historical emission rates could lead to significant swings if a facility ran at different loadings in subsequent years
- Using theoretical emission rates would mean departing from actual emissions

Discussion centered on a desire to avoid volatility.

EPWA reviewed heat rate data for existing SWIS facilities and approaches in other markets with emissions thresholds for RCM participation, to inform the next working group discussion.

Emissions Rate Measurement Proposal

EPWA refined the proposal so that emissions are assessed using WEM data for all facilities using a theoretical emission rate:

- Facility emissions rate based on theoretical emissions at maximum output
- Annual emissions quantity based on metered generation multiplied by the theoretical emissions rate
- AEMO must test the accuracy of standing data heat rate curves alongside capacity testing

This approach:

- Should be stable and predictable from year to year
- Reduces complexity (compared to using actual emission figures)
- Provides clear signals as to when facilities will exit the RCM

The working group agreed with the proposal, and identified matters for detailed design, such as treatment of:

- Fuel sources (e.g. production from different gas fields, through different pipelines)
- Fuel blending (e.g. biodiesel/mineral diesel or biogas/natural gas)
- Facilities for which maximum output is impacted by DSOC

Does the MAC agree with the approach?

5. Consequences of exceeding thresholds

Working Group discussion

The third WIC working group meeting discussed extensively consequences of a facility exceeding the RCM emissions thresholds

- AEMO was concerned that:
  - If a new facility exceeded the quantity threshold it could lose its Capacity Credits in the middle of a Capacity Year, and no longer be available for dispatch in the rest of the year
  - If a new facility approached the threshold, then even if not losing credits mid-year, it may make itself unavailable, just when it was needed to maintain reliability
  - AEMO suggested using only a lower rate threshold for new facilities, similar to existing facilities.
- Another member suggested discretion for AEMO to consider whether the quantity threshold was exceeded due to unusual circumstances
- While emissions from generation resulting from AEMO direction would be exempt, because capacity holders are required to offer, directions would only be required in limited circumstances
- Developers must take these policies into account when deciding when and what to build, and have obligations to notify retirements in advance
- Consumer representatives noted that emission reduction is important, as this policy is attempting to internalize the externality of environmental damage caused by emissions

EPWA responses

EPWA clarified that:

- A facility that exceeds the emissions quantity threshold would not lose Capacity Credits during a Capacity Year - the quantity threshold would be applied based at capacity certification time, based on the previous year's emissions.
- A facility that loses Capacity Credits in one cycle can reapply in the next cycle if its running profile changes.
- For a new peaking facility at the rate threshold, the quantity threshold implies a 20% capacity factor, so this dynamic would only occur if a new gas facility could potentially run 20% of the time.
- The quantity threshold exists to allow higher emission peaking facilities to enter the SWIS, while still restricting total CO2 emissions. Without a quantity threshold, limiting emissions would mean reducing the rate threshold to a level at which no new fossil fueled plant would be eligible for Capacity Credits at all.
- The EPA has a new guidance regarding emissions quantity thresholds, which are expressed in terms of absolute tCO2 (100,000 tCO2-e), while this proposal is expressed in terms of tCO2/MW installed.
- The requirement for emissions reductions is in tension with the needs for reliable and low-cost energy. This policy would need to be revisited if a new commonwealth policy addresses emission reductions for power plants.

Does the MAC have any other comments or concerns?

5. Emissions threshold proposals – summary

Emissions Threshold Proposals - Summary

EPWA proposes to:

- Set an emission intensity threshold of 0.55 tCO_2e/MWh to apply to all new facilities from the 2026 capacity cycle (for the 2028 Capacity Year). This threshold would not apply to existing facilities.
- Set an emissions quantity threshold of 1,000 tCO_2e/MW to apply to all new facilities from the 2026 capacity cycle (2028 Capacity Year).
- Set an emissions rate of 1 tCO_2e/MWh to apply to all existing facilities for the 2026 capacity cycle (2028 Capacity Year).
- Decrease the threshold for existing facilities by 0.05 tCO_2e/MWh in each subsequent year, until the threshold is the same for new and existing facilities in the 2037 capacity cycle.
- Postpone threshold reduction for ten years for exempt facilities, then reduce to 0.75 in 2037, and then by 0.05 each year until 2041.
- Reduce the thresholds for new facilities over time, with an indicative target of zero in 2050, and actual thresholds determined every five years for the following five capacity cycles.
- Allow a facility that loses Capacity Credits in one cycle to reapply in the next cycle if its running profile changes.

Note: **Dates are still under consideration and subject to responses to the consultation**

Emissions Threshold Proposals (2)

EPWA proposes to:

- Measure a facility's emissions rate based on theoretical emissions at maximum generation.
- Measure a facility's emissions quantity based on the metered generation at the theoretical emissions rate.
- Require AEMO to test the accuracy of heat rate curves alongside capacity testing.
- Exclude cogeneration facilities from threshold regime, while allowing cogeneration facilities to hold Capacity Credits.

Does the MAC have any other comments or concerns?

5. Ten-Year RCP Guarantee for New Technologies

Defining “new technologies” (1)

Initiative 2 offers a ten-year fixed price for “proponents of new flexible technologies, such as long-duration storage”. The desired outcome is to provide additional incentive for investment in these technologies, which will allow more variable renewable generation to connect without compromising reliability.

Under the proposed rules that implement the outcomes of the RCM Review, the required duration of storage facilities will be extended over time, as measured by the Availability Duration Gap. Any facility that can provide firm capacity over this timeframe will support the replacement of fossil-fuelled generation by renewables.

The key goal of this policy is to encourage long duration firming technologies, not necessarily nascent technologies or technologies that are new to the SWIS.

Defining “new technologies” (2)

Proposal: Allow a ten-year fixed capacity price for any new facility that:

- *provides firm availability over a period of time that exceeds the prevailing ESR Duration Requirement, and*
- *uses a renewable fuel source (if not an ESR facility).*

Such a facility would be treated like current fixed price facilities for RCM pricing purposes, but would be considered along with non-fixed price proposed facilities for NAQ purposes.

A thermal facility running on renewable hydrogen would be eligible. This is a matter for future consideration once that technology is more mature.

Working group feedback (1)

Members were generally comfortable with the approach, and discussions focused on developing the detail of the approach, including:

- Renewable energy fueled – for example, a facility fueled by biogas that cannot source enough biogas:
  - Applicants would need to provide evidence that their fuel supply was from renewable sources.
  - At first application, this could be in the form of firm or non-firm contracts for future periods.
  - For subsequent applications, this could be in terms of the fuel actually used.
- Renewable energy fueled storage facilities
  - In response to concerns raised by the working group, storage facilities will not be required to present a contract with a renewable generator
- Exceeding the ESR duration requirement:
  - This would be based on the design capability of a facility.
  - For an ESR facility, it would be determined as MWh stored divided by nameplate capacity, regardless of whether the facility is certified for less capacity than its nameplate.

Working group feedback (2)

Members also sought clarification on other parameters of the scheme, such as:

- Whether the price would be fixed, or would be a floor

  It would be a fixed price for the ten-year duration

- How long the scheme would be open for

  The ten-year fixed price allowance would be included in the regular review of the BRCP Reference Technology by the Coordinator

Does MAC have any comments or concerns?

6. WICRWG schedule

Upcoming WICRWG meetings

6 December:

- Price curve analysis
- Price curve initial proposal
- Modelling discussion

24 January:

- Price curve final proposal
- Price guarantee options.

February:

- Price guarantee analysis
- Price guarantee initial proposal.

March:

- Price guarantee final proposal.

April – Consultation paper released

June:

- Updates to proposals based on submissions.

June – Information paper released

July:

- Draft amending rules.

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A1. Treatment of new facilities

Issues with the use of NGER Data

Previous discussions proposed to use National Greenhouse Emissions Register (NGER) data to assess performance against emissions thresholds. This no longer appears workable.

- NGER reporting groups generation facilities differently to WEM registration. Individual facilities and facility components may have different emissions factors to that of the NGER grouping.
- Some facilities don't produce enough energy to be required to disclose emissions under the NGER scheme.
- The NGER reporting period runs from 1 July – 31 June. This data is not published until the 28th of Feb in the following year. Emissions data would be 18 months old by the time it is used to determine RCM participation.
- NGER data includes emissions and energy generated for all uses including parasitic load, on-site work, and emissions from sources not directly related to the generation of electricity (fuel in vehicles etc). Reported emissions are spread over a larger volume of energy than provided to the SWIS, so facilities with large parasitic loads have lower emissions intensity in NGER data than the intensity of sent-out energy.
- Emissions intensities are volatile between years due to facilities' efficiencies at different capacity factors

While some of these issues could be addressed with administrative effort, fundamentally the scope of the programme is different to that needed in the WEM.

Threshold levels for new facilities

Emissions rate threshold
The previously proposed per-unit-of-energy emissions threshold of 0.55tCO2/MWh is less than the emission rates of almost all existing fossil-fuelled generators on the SWIS. It would preclude new generators fired on coal or diesel, but would not preclude a new gas plant.

Proposal: 0.55tCO2-e/MWh threshold for new facilities.

Emissions quantity threshold
The previously proposed annual per-unit-of-capacity threshold was 1000tCO2-e/MW. At this level, a facility with an emissions intensity at the rate threshold would be able to produce energy at a ~20% average annual capacity factor. This is sufficient only to run as a peaking or sub-peaking plant. It would preclude new baseload fossil-fuelled capacity.

The Benchmark Reserve Capacity Price reference technology study has assumed a capacity factor of 10%. Assuming a 20% capacity factor when setting the limit provides a buffer for high-output years. Participants would take on the risk of being dispatched above the emissions threshold.

Emissions in case of AEMO direction could be excluded from the annual cap, but the ERA would need to watch for facilities deliberately withdrawing capacity so as to force a direction.

Proposal: 1000tCO2-e/MW annual threshold for new facilities.

Long term thresholds for new facilities

As the SWIS gets closer to 2050, the net-zero target means that fossil-fired capacity must further reduce. This means that the thresholds for new facilities will continue to get lower over time.

The specific thresholds to apply will depend on the technology available at the time, but should be expected to allow smaller and smaller capacity factors.

Each new facility would be allowed to participate in the RCM for at least ten years, as long as it continued to meet the thresholds that applied when it was commissioned.

Proposal: new facility thresholds will reduce over time to reach near zero by 2050.

Emissions quantity threshold emissions rate equivalent

Average annual capacity factor

Facility CO2-e/MWh	60%	50%	40%	30%	20%	10%	5%
0.05	263	219	175	131	88	44	22
0.1	526	438	350	263	175	88	44
0.15	788	657	526	394	263	131	66
0.2	1051	876	701	526	350	175	88
0.25	1314	1095	876	657	438	219	110
0.3	1577	1314	1051	788	526	263	131
0.35	1840	1533	1226	920	613	307	153
0.4	2102	1752	1402	1051	701	350	175
0.45	2365	1971	1577	1183	788	394	197
0.5	2628	2190	1752	1314	876	438	219
0.55	2891	2409	1927	1445	964	482	241

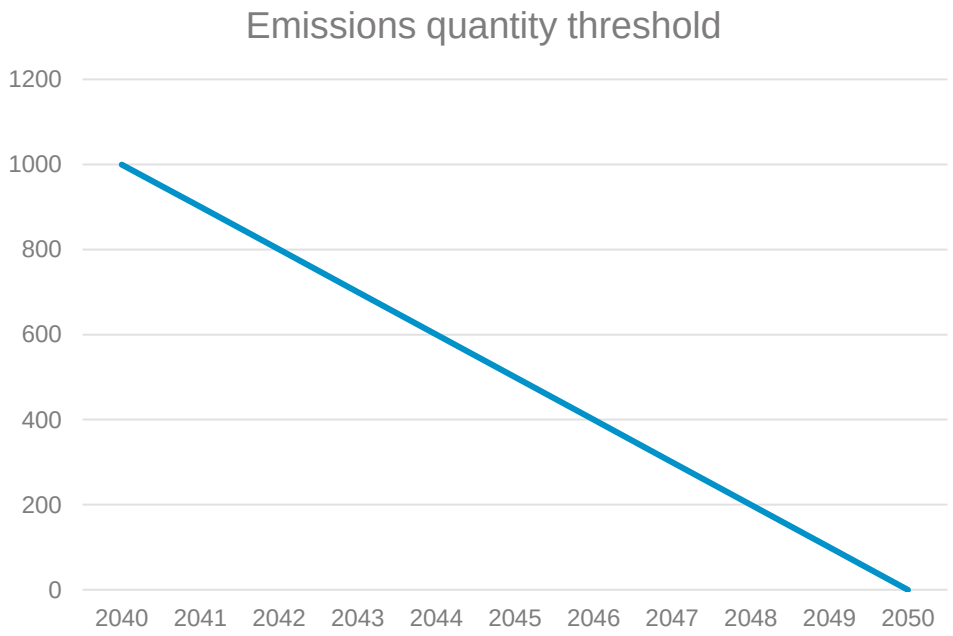
CCS and hydrogen blends

New CCGT

Reciprocating engine

1000 tCO2-e/MW

Example of reducing thresholds for new facilities over time



Average annual capacity factor

Facility CO2-e/MWh

	60%	50%	40%	30%	20%	10%	5%
0.05	263	219	175	131	88	44	22
0.1	526	438	350	263	175	88	44
0.15	788	657	526	394	263	131	66
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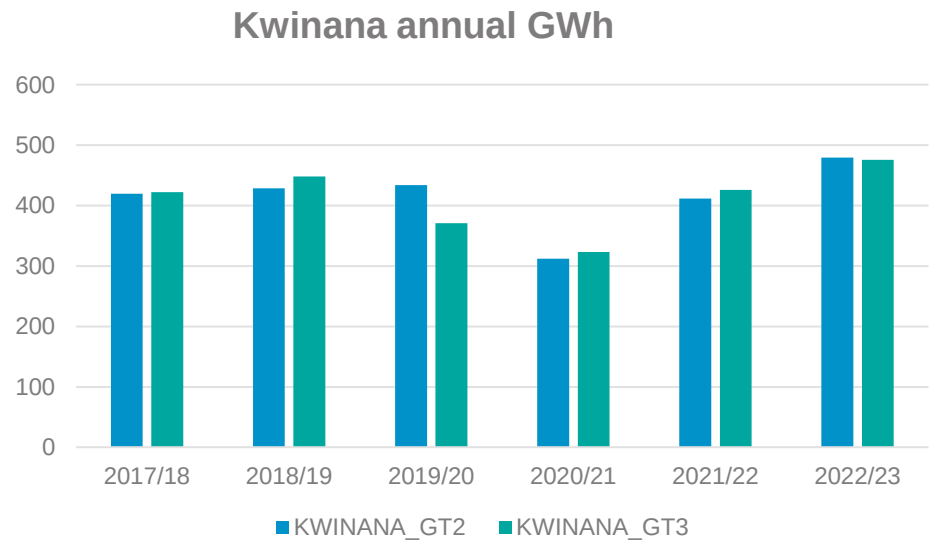
0.5	2628	2190	1752	1314	876	438	219
0.55	2891	2409	1927	1445	964	482	241

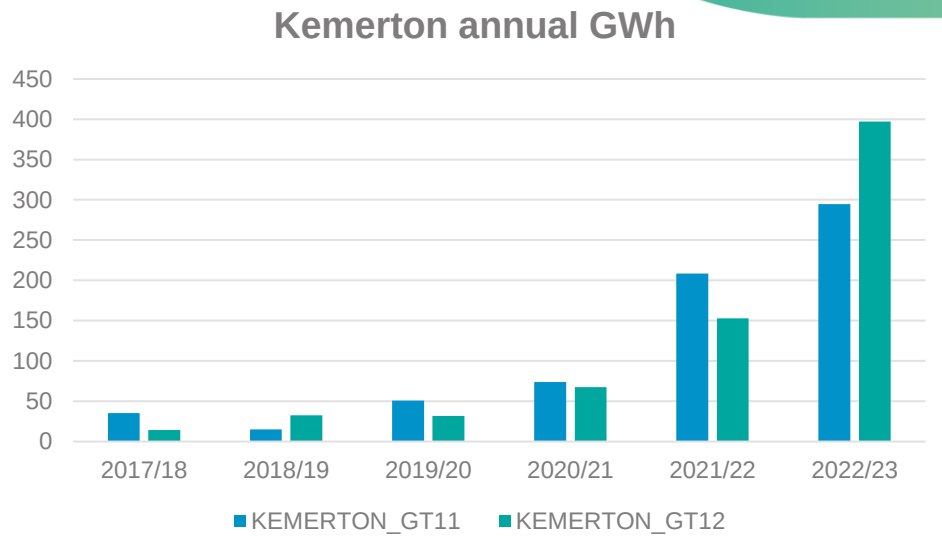
2040 2042 2044 2046 2048

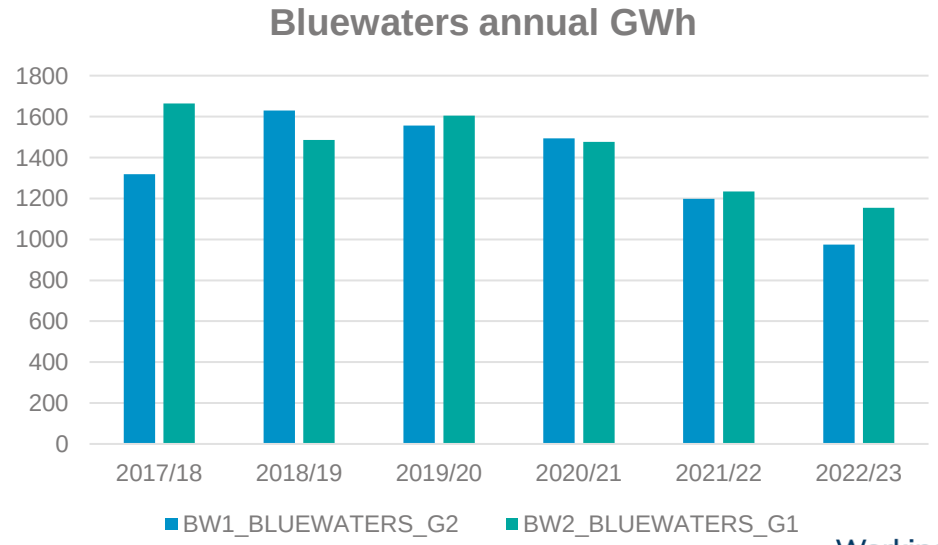
The WIC Working Group considered that actual thresholds should be set in regular reviews.

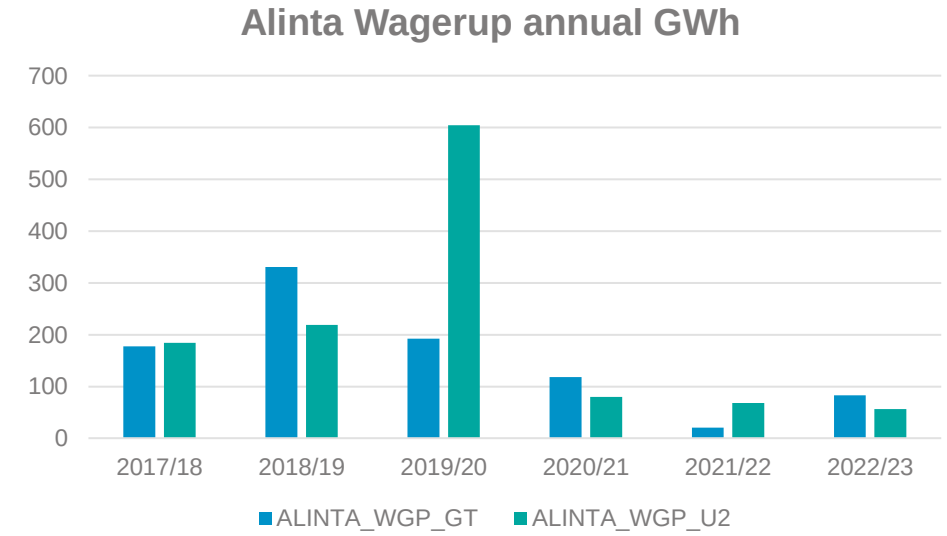
A2. Treatment of existing facilities

Variation in annual emissions quantity – selected facilities







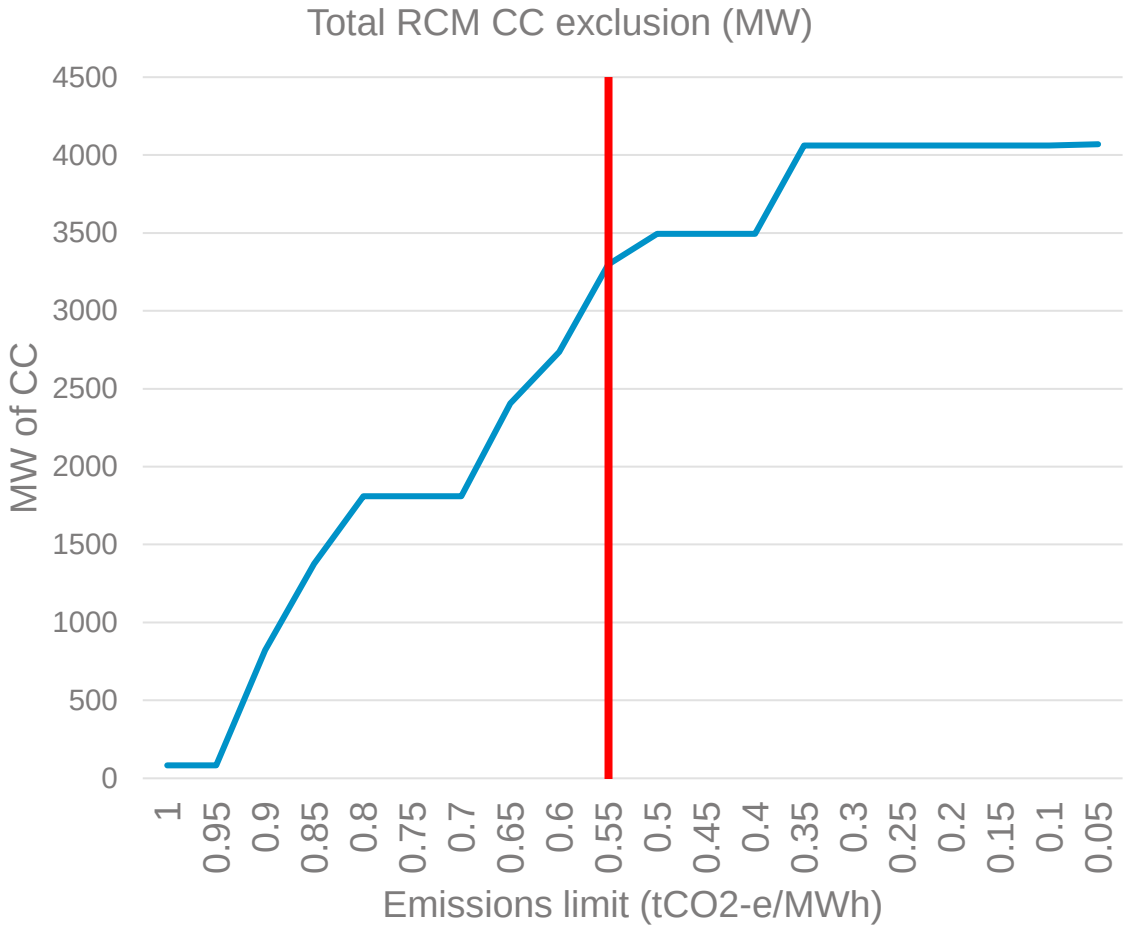


Using an emissions rate threshold for existing facilities

Excluding facilities from the RCM based on their per unit emissions intensity provides certainty as to when a facility will be excluded from the RCM. As long as the threshold is reduced in a smooth profile, the quantity of capacity affected decreases steadily and predictably.

An intensity threshold also provides incentive for participants to extend facility lives by investing in emission reducing technology.

Proposal: apply an emissions rate threshold to existing facilities rather than an emissions quantity threshold.

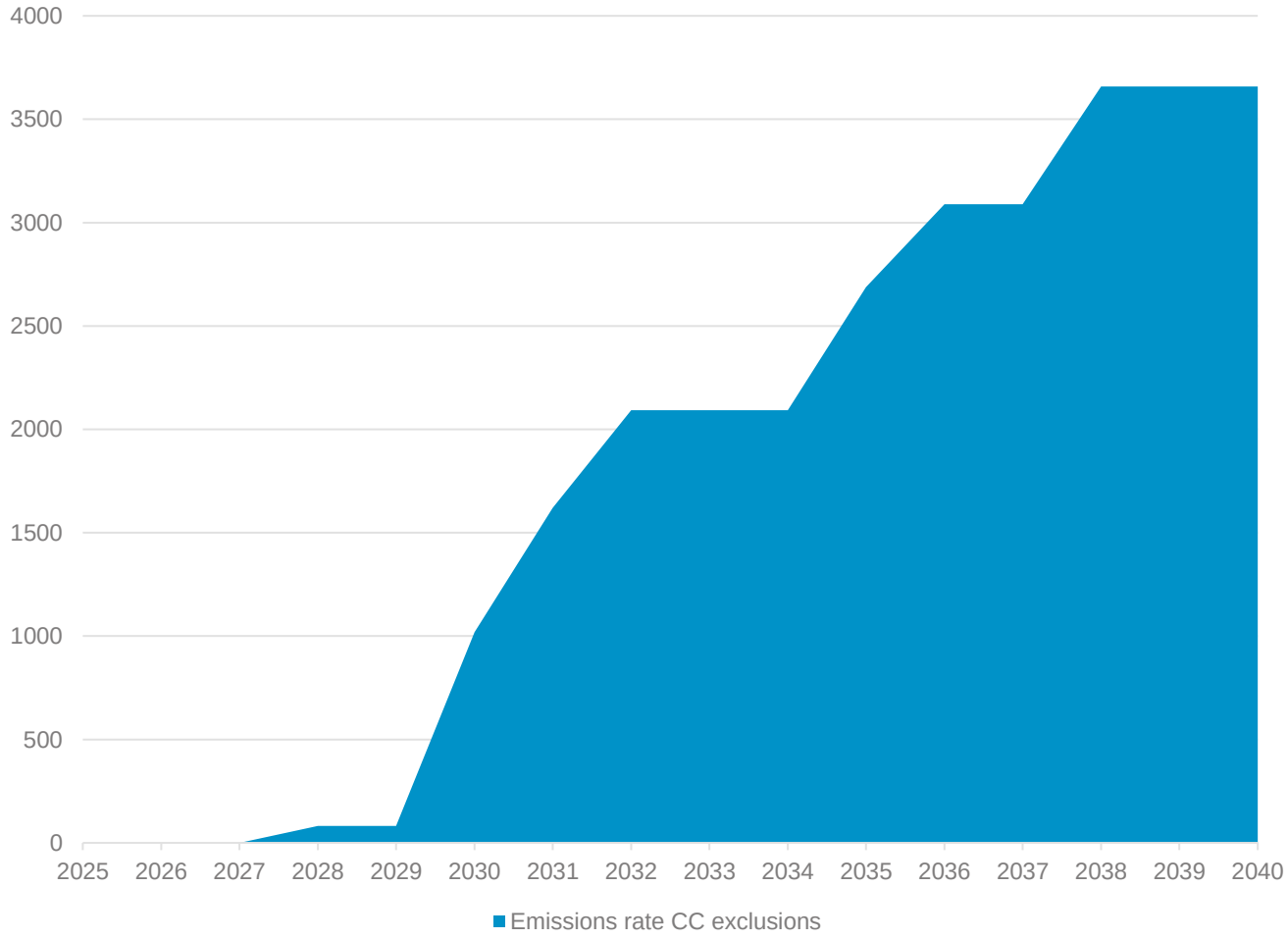


Transitional threshold levels for existing facilities

Ideally, a transitional threshold will avoid having large quantities of capacity exiting the SWIS at the same time.

An initial transitional cap of 1 t/CO2-e/MWh, with a decrease of 0.05tCO2-e each year would provide a relatively smooth profile of capacity excluded from the RCM.

Proposal: Apply an initial cap of 1.0 tCO2-e/MWh for existing facilities for Capacity Year 2028, and reduce by 0.05 each year until the rate matches that for new Facilities in 2037.



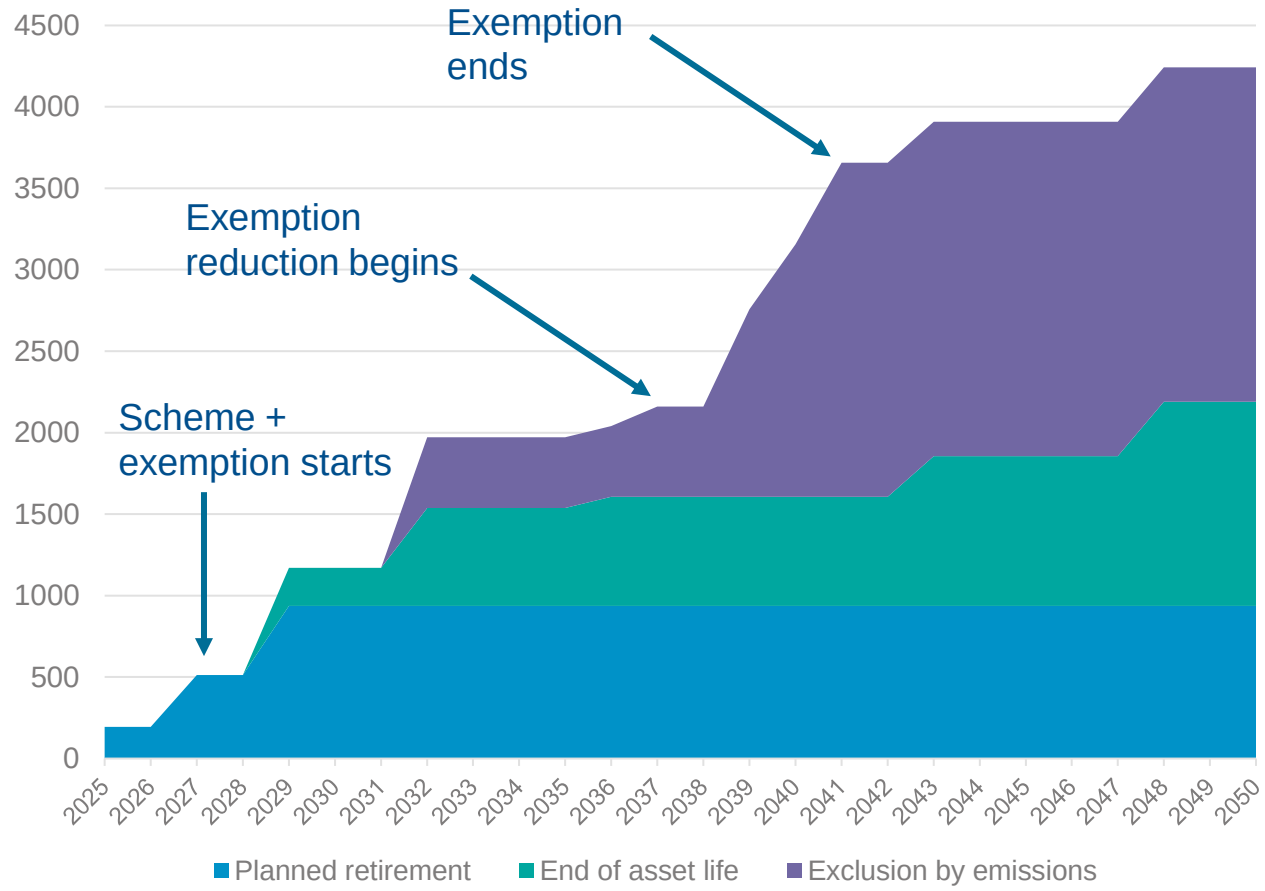
A3. Exemption for Flexible Capacity providers

Exemption parameters for facilities providing Flexible Capacity

We estimate that around 2 GW of existing capacity will be eligible for Flexible Capacity Credits.

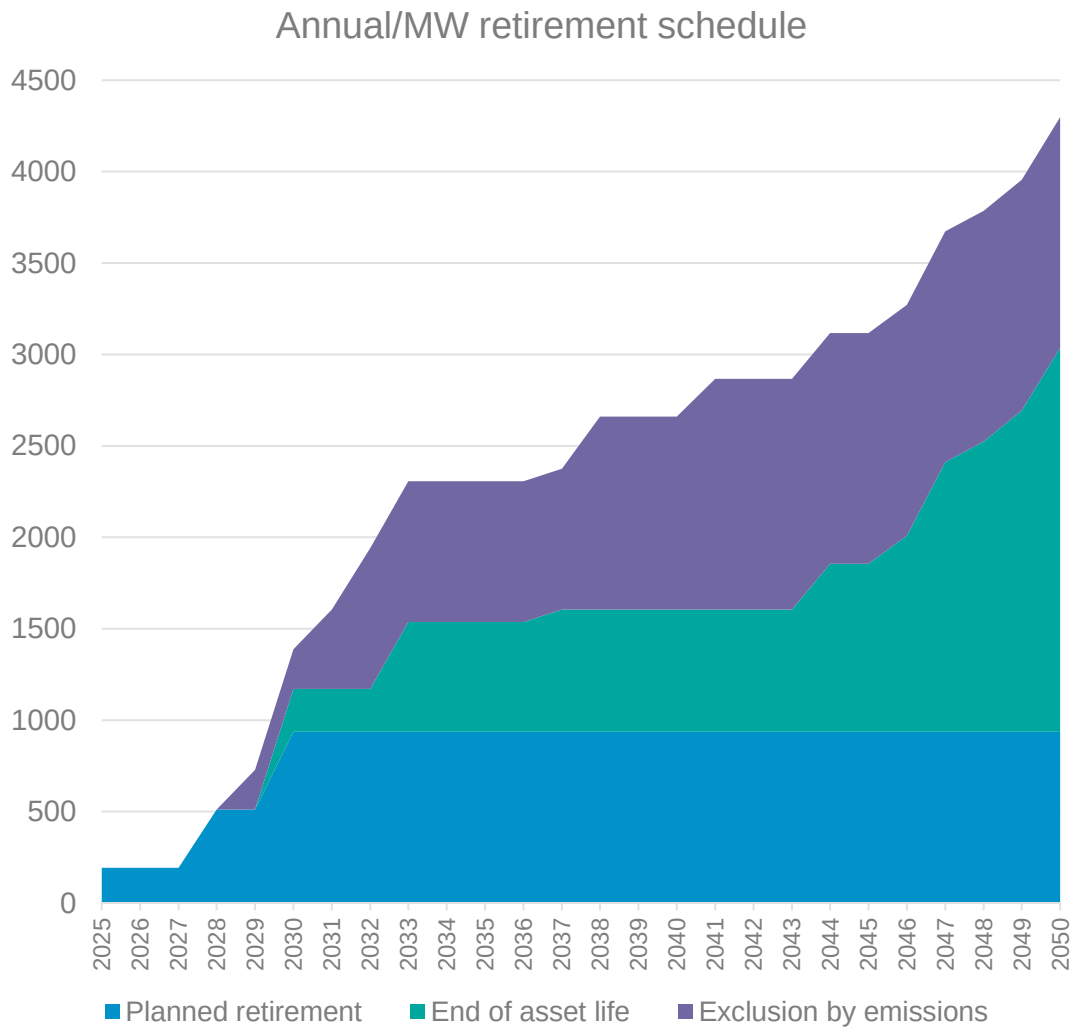
Under initiative 5, these facilities will be exempt from emissions thresholds for ten years, though some will reach the end of their natural economic life earlier

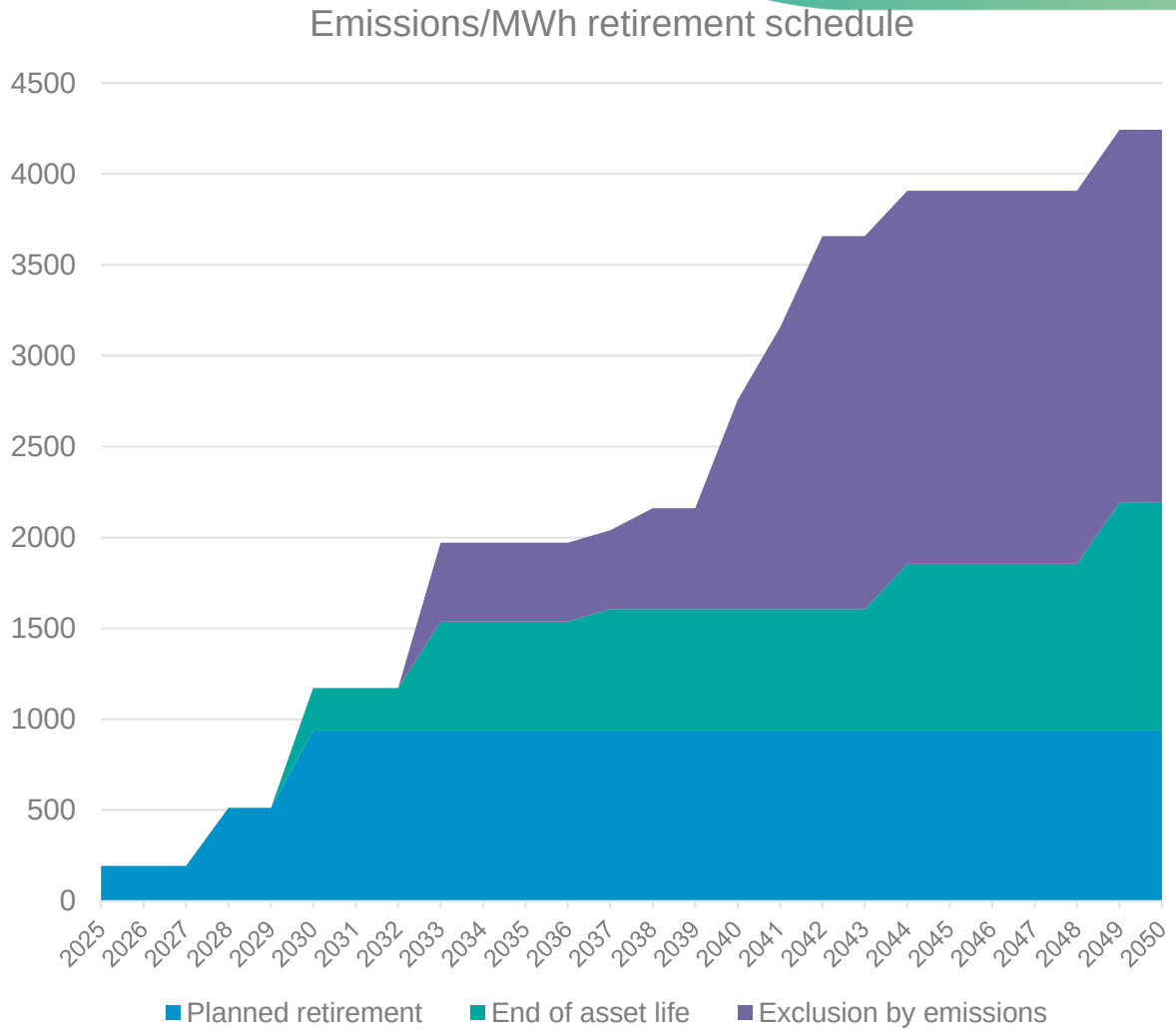
If the emissions threshold were to revert to the default new facility rate for all these facilities at the same time, it could result in more than 1000 MW exiting the SWIS at the same time, with potential significant reliability impact.



Proposal: Postpone threshold reduction for ten years for exempt facilities, then reduce to 0.75 in 2037, and then by 0.05 each year until 2041.

Comparing CO2/MW threshold with CO2/MWh threshold





A5. Treatment of cogeneration

Treatment of cogeneration (1)

Cogeneration facilities use fossil fuels to generate both electricity and heat or steam for use in the industrial process. Because a large proportion of the fuel goes towards creating energy that is not output as electricity, the inherent emission rate would be unfairly high if only the electricity is taken into account.

In European jurisdictions with emissions thresholds for capacity mechanism participation, cogeneration is subject to the same emissions penalties as the rest of the market. The emissions intensity of the cogeneration plant is determined by evaluating the proportion of energy produced for steam generation compared to energy generated for electricity production.

EPWA considered two options for managing emissions thresholds for cogeneration facilities in the SWIS:

1. Identify a standing ratio to allocate emissions from fuel use between electricity and process heat, and use that ratio to determine the inherent emissions rate per MWh generated by the facility.
2. Exclude cogeneration facilities from the emissions threshold regime.

Treatment of cogeneration (2)

If a heat:electricity ratio was applied to SWIS cogeneration facilities, it would likely fall between 1.3:1 and 2:1.

In the SWIS, most cogeneration operates entirely behind the meter, serving intermittent load. This intermittent load adds a very small quantity to the Reserve Capacity Target. Only a minority of cogeneration is registered for participation in the RCM. Presently, the SWIS incorporates a total of 346.9 MW of cogeneration Capacity Credits.

Most cogeneration facilities operate on gas, and the few coal boilers are reaching end of life. Any new facility requiring process heat is unlikely to use fossil fuels. Existing cogeneration equipment will reach end of life sometime around 2040, and may be retired earlier depending on fuel availability. Replacement equipment will either be:

- New fossil fired boilers, which have to meet new (non-carbon) environmental standards.
- Electric boilers which do not burn fuel locally.

The additional complexity required to determine and apply a heat:electricity split for cogeneration facilities is unlikely to affect overall emissions.

Proposal: Exclude existing cogeneration facilities from threshold regime. Allow Capacity Credits for existing cogeneration facilities.

A4. Theoretical heat rate calculations

Setting the theoretical heat rate (1)

The working group considered that the method for identifying the theoretical emission rate should reflect that thermal facility efficiency depends on how hard it is running. Facilities operating at minimum generation use more fuel (and produce more emissions) per MWh than facilities operating at near maximum capacity.

The choice of operating level used to determine the theoretical emission rate could be linked to past actual operating levels. If this approach were used, the emission rate for an individual facility could vary considerably from year to year.

Facilities already need to lodge heat rate curves as part of their confidential standing data, so EPWA has reviewed this data to assess the potential variability. EPWA considers that using the efficiency at maximum output (or at the level of Capacity Credits held) would provide investment certainty and reduce year-to-year volatility, while still allowing the threshold to be adjusted over time to reduce carbon emissions.

This approach would mean that AEMO does not need to measure actual emissions, but it would need to compare the standing data heat rate curve with actual performance. Fuel used at maximum output could be assessed alongside reserve capacity tests.

Setting the theoretical heat rate (2)

The formula to determine the emission rate (in kg/MWh) for a facility would be something like:

$$EmissionRate(facility) = \frac{EmissionFactor(fuel) \times ConsumptionRate(facility) \times EnergyContent(fuel)}{MaximumOutput(facility)}$$

- EmissionFactor(fuel) is the quantity of fossil sourced CO2 in kg/TJ of fuel. The WEM Rules or a WEM Procedure would include a table of factors for all relevant fuels.
- ConsumptionRate(facility) is the consumption rate (in kg/hour) of the fuel used at maximum electrical output.
- EnergyContent(fuel) is the net calorific value of the fuel in TJ/kg
- MaximumOutput(facility) is the maximum output of the facility in MW.

The emission factor for blended fuels (such as a biodiesel/mineral diesel mix, or a natural gas/hydrogen blend) would be a weighted average of the factors for those fuels.

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 7(a): Overview of Rule Change Proposals (as of 16 November 2023)

Market Advisory Committee (**MAC**) Meeting 2023_11_23

- Changes to the report since the previous MAC meeting are shown in red font.
- The next steps and the timing for the next steps are provided for Rule Change Proposals that are currently being actively progressed by the Coordinator of Energy (**Coordinator**) or the Minister.

Indicative Rule Change Activity Until the Next MAC Meeting

Reference	Title	Events	Indicative Timing
None			

Rule Change Proposals Commenced since the Report presented at the last MAC Meeting

Reference	Submitted	Proponent	Title	Commenced
None				

Rule Change Proposals Awaiting Commencement

Reference	Submitted	Proponent	Title	Commencement
None				

Rule Change Proposals Rejected since Report presented at the last MAC Meeting

Reference	Submitted	Proponent	Title	Rejected
RC_2019_01	21/06/2019	Enel X	The Relevant Demand Calculation	09/11/2023

Rule Change Proposals Awaiting Approval by the Minister

Reference	Submitted	Proponent	Title	Approval Due Date
None				

Formally Submitted Rule Change Proposal

Reference	Submitted	Proponent	Title	Urgency	Next Step	Date
Fast Track Rule Change Proposals with Consultation Period Closed						
None						
Fast Track Rule Change Proposals with Consultation Period Open						
None						
Standard Rule Change Proposals with Second Submission Period Closed						
RC_2019_01	21/06/2019	Enel X	The Relevant Demand calculation	Medium	Final Rule Change Report	09/11/2023
Standard Rule Change Proposals with Second Submission Period Open						
None						
Standard Rule Change Proposals with First Submission Period Closed						
None						
Standard Rule Change Proposals with the First Submission Period Open						
None						

Pre-Rule Change Proposals

Reference	Proponent	Description	Next Step	Date
None				

Rule Changes Made by the Minister since the Report presented at the last MAC Meeting

Gazette	Date	Title	Commencement
2023/145	18/07/2023	Wholesale Electricity Market Amendment (FCESS Shortfall Pricing) Rules 2023	• Commenced at 8:00am on 3 November 2023

Rule Change Made by the Minister and Awaiting Commencement

Gazette	Date	Title	Commencement
2023/96	18/07/2023	Wholesale Electricity Market Amendment (Supplementary Capacity No. 2) Rules 2023	• Schedule B will commence on 1 April 2024

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 8: Approval of the Terms of Reference for the Power System Security and Reliability Standards Working Group

Market Advisory Committee (**MAC**) Meeting 2023_11_23

1. Purpose

- EPWA to update the MAC on the Scope of Work for the Power System Security and Reliability (PSSR) Standards Review
- To request that MAC approves:
  - the establishment of the PSSR Standards Working Group (PSSRSWG); and
  - the Terms of Reference (TOR) for the PSSRSWG.

2. Recommendation

That the MAC:

(1) notes the Scope of Work for the PSSR Standards Review (Attachment 1);

(2) approves the establishment of the PSSRSWG; and

(3) considers and approves the TOR for the PSSRSWG (Attachment 2).

3. Background

- In April 2021, the Energy Transformation Taskforce recommended the development of a single end-to-end PSSR standard for the SWIS governed by centralised governance framework.
- While reforms associated with the Energy Transformation Strategy would typically be consulted on through the Transformation Design and Operation Working Group (TDOWG), Energy Policy WA considers that the technical nature of this review requires a different approach through which more detailed discussions and feedback can be facilitated.
- To achieve this, Energy Policy WA is proposing to establish a Working Group under the MAC to assist with this review, and consult with the MAC throughout the project.
- Energy Policy WA has developed a Scope of Work for the review of the Power System Security and Reliability standards in the SWIS. This scope has been reviewed by AEMO and Western Power.
- The Coordinator of Energy has approved the Scope of Work (Attachment 1).
- The MAC Secretariat has developed draft Terms of Reference for a PSSRSWG (Attachment 2).
- Following approval by the MAC of the Terms of Reference:
  - the MAC Secretariat will establish the PSSRSWG;
  - a PSSRSWG webpage will be created on the Coordinator's Website;

- the MAC Secretariat will advise stakeholders that they may nominate representatives on the PSSRSWG;
- Market Participants and other interested stakeholders may nominate a person for membership on the PSSRSWG for approval by the Chair; and
- the PSSRSWG will commence operation in early December 2023.

4. Attachments

(1) Agenda Item 8 - Attachment 1 - Scope of Work for the Review of the PSSR Standard for the SWIS

(2) Agenda Item 8 - Attachment 2 - Draft Terms of Reference for the PSSRSWG

Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**
Energy Policy WA

Power System Security and Reliability Standard for the SWIS

Project scope

October 2023

Working together for a **brighter** energy future.

An appropriate citation for this paper is: Power System Security and Reliability Standards Project Scope

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1. Introduction

The Power System Security and Reliability (PSSR) standards are a set of technical rules intended to maintain power system security and reliability. The existing PSSR standards for the South West Interconnected System (SWIS) are fragmented, with requirements and obligations spread across several regulatory instruments, each with its own objectives, change processes and decision makers.

As part of the Energy Transformation Strategy (ETS), the ETS Taskforce (the Taskforce) identified deficiencies with the existing regulation and governance of the current PSSR standards and oversaw a number of changes to the existing regulatory instruments to make urgent and critical improvements. In April 2021, the ETS Taskforce made the following determination for more comprehensive reform:[1]

> *"A centralised framework will be implemented to provide for the regulation and governance of a single end-to-end PSSR standard for the SWIS, including the establishment of:*
>
> - *a single instrument containing all relevant PSSR standards.*
> - *a centralised governance framework under the Coordinator of Energy, supported by a Reliability and Security Advisory Panel.*
>
> *Legislative reform should be recommended to the Minister by Energy Policy WA to enable the implementation of the centralised framework in an appropriate regulatory instrument.*
>
> *An interim Joint Agreement Framework for specific PSSR standards will be established through changes in WEM Rules and Technical Rules to ensure security and reliability is maintained during the development of a longer term, single set of PSSR standards under a centralised governance."*

The Taskforce considered that this would align the PSSR standards, streamline the roles and responsibilities of the entities managing power system security and reliability in the SWIS and ensure end-to-end consistency is maintained as the standards are established or modified.

Legislative reform to enable the implementation of a centralised instrument entered Parliament in August 2023, and will be considered by Parliament in due course. Following the passage of this legislation, work will need to be progressed to develop a single end-to-end standard that will be implemented in the Electricity System and Market Rules (ESMR).

[1] Refer to: Power System Security and Reliability Standards Framework: Information Paper

2. Background and work completed to date

2.1 Energy Transformation Strategy Stage 1

As part of the work under 'the Energy Transformation Strategy Stage 1, the Taskforce identified several issues in relation to the PSSR standards and their governance framework. These issues centred around the roles and responsibilities of Western Power and the Australian Energy Market Operator (AEMO) that needed to be addressed as a matter of urgency to ensure the effective management of the SWIS. These issues were addressed to the extent possible by changes to the existing instruments, as changes to primary legislation to enable a centralised instrument were not in scope for the Energy Transformation Stage 1. These changes included:

- Moving the Frequency Operating Standards from Western Power's Technical Rules to the WEM Rules to enable AEMO to discharge its key function of maintaining system security through frequency management.
- Revising the Operating States and credible contingency framework in the WEM Rules and aligning its operation with the Technical Rules.
- Updating and moving the Generator Performance Standards (GPS) for transmission connected generating systems from the Technical Rules to the WEM Rules to allow both AEMO and Western Power a role in determining performance standards for new generators, enable better monitoring of large transmission-connected generators, and allow a more graduated range of compliance responses.
- Allowing AEMO membership of the Technical Rules Committee to provide advice and support on Technical Rules amendments including PSSR standards.

Arrangements were also established to maintain security and reliability under the Joint Agreement Framework. This agreement formalises the operating arrangements between Western Power and AEMO by making changes to the WEM Rules and Technical Rules. It clarified the roles and responsibilities in relation to standards for under frequency load shedding, operational voltage limits and System Restart to ensure provisions are made for network investment and service procurement.

The changes also facilitated input from Western Power in relation to frequency operating standards and the GPS under the WEM Rules, and from AEMO in relation to Transmission Planning Criteria under the Technical Rules, both supported by basic principles of consultation and agreement.

Notwithstanding this work, deficiencies still remain. If not addressed these problems will lead to:

- investments in the network and the procurement of services in the market becoming misaligned, resulting in increased cost of market operation and inefficient network augmentation (due to a lack of agreed principles for system and network load forecast);
- divergence of regulatory instruments over time, leading to continued overlap, gaps and duplication;
- actions undertaken by AEMO and Western Power to maintain power system reliability and security being misaligned and siloed, and not guided by common standards or a single entity responsible for coordination; and
- inability for specific needs of different end user groups (e.g. appropriate regional reliability standards) to be properly addressed.

2.2 Energy Transformation Strategy Stage 2

In July 2021, the Energy Transformation Strategy Stage 2 was announced. To be delivered between 2021 to 2025, the work under Stage 2 has four distinct themes, which together will enable the ongoing energy transition and reduce carbon emissions:

1. Implementing Taskforce decisions;

2. Integrating new technology into the power system;
3. Keeping the lights on as the power system transitions; and
4. Regulating for the future.

A key initiative under 'regulating for the future' is reforming the framework for, and governance of, power system and network security and reliability.

At the same time that the Energy Transformation Strategy Stage 2 was announced, governance arrangements were modified to clarify the roles of existing institutions in the energy sector with the intent of improving responsiveness and consistency of changes in the sector.

The updated framework recognises the need for strategic leadership and coordination and ensures that the sector can efficiently respond to the State's energy transformation challenges. As part of this change, the Coordinator of Energy became responsible for the WEM Rules as well as market development, in addition to its existing roles of policy setting, strategic planning and overall co-ordination of the energy sector.

2.3 Electricity Industry (Distributed Energy Resources) Amendment Bill 2023

Since the commencement of the Energy Transformation Strategy Stage 2, Energy Policy WA has been reviewing the legislative and governance arrangements for the energy sector with the aim of creating a regulatory environment that is agile and responsive to the challenges and opportunities of the energy transformation.

A Bill has been introduced into Parliament to amend the *Electricity Industry Act 2004* (EI Act) to achieve these objectives. The Electricity Industry Amendment (Distributed Energy Resources) Bill 2023[2] aims to do three things:

- introduce a new overarching State Electricity Objective;
- expand the scope of the WEM Rules so they may also address matters currently dealt with under other subordinate legislative instruments; and
- allow the EI Act to address new subject matter, such as Distributed Energy Resources (DER), microgrids, embedded networks and stand-alone power systems (SPS).

The objective of these reforms is to build greater resilience and flexibility in the energy sector by developing a holistic framework that works to deliver outcomes that protect and advance the interests of energy consumers.

The changes under this Bill will mean that the WEM Rules will be renamed the Electricity System and Market Rules (ESMR) to reflect their expanded range. The ESMR will continue to address the operation of the WEM and contain consolidated and future-focused rules governing the electricity system in Western Australia. Their scope will be expanded to address matters contained in:

- the Electricity Networks Access Code 2004 (Access Code), made under Part 8 of the EI Act;
- Western Power's Technical Rules, made under Chapter 12 of the Access Code;
- the Electricity Industry (Metering) Code 2012, made under Part 2 of the EI Act; and
- the Electricity Industry (Network Quality and Reliability of Supply) Code 2005 (NQRS Code), made under Part 2 of the EI Act.

2 https://parliament.wa.gov.au/parliament/bills.nsf/BillProgressPopup?openForm&ParentUNID=E35776BF096674C348258A1A001F9711

The Bill introduces a range of new definitions, however there are a few key ones related to the PSSR Standards project. These include:

- **Reliability**, in relation to the supply of electricity or the operation of an electricity system, means the ability of the electricity system to maintain or supply a consistent delivery of electricity to customers; and
- **Security**, in relation to the supply of electricity or the operation of an electricity system, includes the ability of the supply or electricity system to withstand disruption or disturbance or changed circumstances of supply or operation;
- **Quality**, in relation to the supply of electricity, means the extent to which the supply of electricity complies with any technical requirements of:
  - the regulations; and
  - the electricity system and market rules;

A new Division 3 in Part 9 of the EI Act will deal with reliable supply and electricity systems, setting out that the ESMR may provide for the following matters (amongst other things):

- the reliability of electricity supply and electricity systems;
- the security of electricity supply and electricity systems;
- the quality of electricity supply;
- the safe supply of electricity and the safe operation of electricity systems;

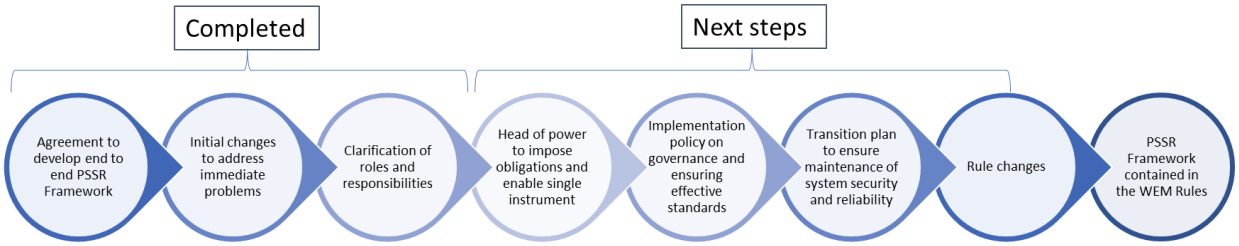
The commencement scheme for the new legislation is relatively complex. However, for the purposes of this project, on day one, the WEM Rules are amended to ESMR and new definitions come into force. Regulations will also need to be in place at this time to provide for voltage and frequency limits repealed from the *Electricity Act 1945.*

However, content of subsidiary instruments will not be amended on day one. These instruments will remain in force and be repealed over time as content is covered through amendments to the ESMR. These subsidiary instruments will be automatically repealed on 31 December 2028.

3. Scope of work for the PSSR Standards Project

Further policy development and detailed design is required to ensure that the PSSR standards are fit for purpose, that there are appropriate governance mechanisms, and that issues and gaps in the current instruments to are not transferred to the ESMR. Following this, subsequent rule changes will be required to give effect to the policy and detailed design.

Figure 1: Work completed and next steps



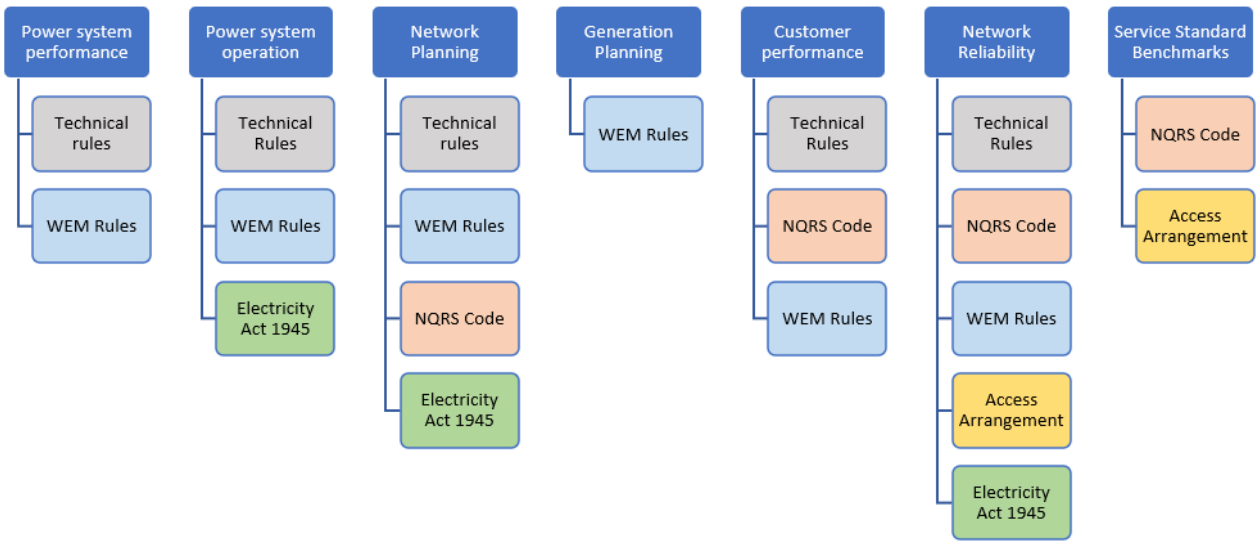
3.1 Stage 1 - Assess existing instruments

The PSSR standards for the SWIS are fragmented with requirements and obligations spread across several regulatory instruments, including:

- Instruments made under Part 8 of the EI Act, which relate to the various technical codes that are required for the purposes of access to services (such as Western Power's Technical Rules).
- Instruments made under section 39 of the EI Act, relating to the quality and reliability of electricity supply (such as the Network Quality and Reliability of Supply Code (NQRS Code)).
- Instruments made under Part 9 of the EI Act, which provides for the WEM (and system operations) and the WEM Rules.
- Other instruments or requirements dealing with power system security and reliability standards, including the requirements that set limits for power system "pressure" (voltage) and frequency.

The diagram below illustrates the fragmentation of the PSSR standards across different instruments, each with their own objectives, change processes and decision makers.

Figure 2: Instruments governing power system security and reliability in the SWIS



The first step in the analysis will be to undertake a comprehensive assessment of the various PSSR related provisions in each of the above regulatory instruments. This should include identifying:

- the relevant standards;
- their governance arrangements (i.e. how are they set and/or changed);
- the role of AEMO and Western Power in implementing each standard across planning and operational timeframes; and
- the monitoring, compliance and enforcement framework.

3.2 Stage 2 - Gap analysis

The next stage in the process will be to determine if existing standards are effective to ensure power system security and reliability can be maintained as the energy transition continues.

The following issues with the current PSSR standards will be covered by the analysis.

- The current standards do not provide an overarching minimum standard for reliability and security that captures all electricity production and network requirements, and that balances the competing objectives of energy trilemma – sustainability, affordability and reliability.
- Some standards are no longer fit-for-purpose to meet the fast, emerging changes to the power system characterised by inter-related risk factors such as frequent changes in weather patterns, changing consumption profiles, and decentralised production of electricity. For example, there is no universal set of metrics with associated targets, incentives, and reporting to account for both generation and network operations, particularly where they are inter-dependent.
- There is overlap in standards between instruments, for example between the NQRS and Access Arrangement.
- The current PSSR standards support direct connection of energy producing systems to the transmission network in a way that facilities WEM participation, however the framework for connecting to the distribution network in a way that facilities market participation (which is required to enable the energy transition to DER and to support the potential role of the Distribution System Operator (DSO)), requires enhancement.

Consideration will need to be given to

- the gaps, overlaps and inconsistencies in the existing standards and their governance arrangements;

- the transparency and technical oversight of the PSSR standards; and
- the suitability of each of the standards with reference to a power system in transition that is characterised by increasing levels of DER and intermittent generation sources.

3.3 Stage 3 - Develop proposals

A single end-to-end PSSR standard governed by the Coordinator of Energy under the ESMR will need to be developed. It will need to be appropriate for:

- Both energy production and network assets, and new technologies that work together to deliver the services required for efficient and effective operation of the system and the services required for all energy producing systems and load.
- Distribution connections to enable the use of DER devices to increase the flexibility of the power system.
- A broader range of conditions, to ensure reliability and resilience given the increasing volatility in climate and market conditions.
- The significant increase in demand for DER and new technologies and services, including the emerging role of the DSO, two-way energy flows and other business models.
- Effectively managing the impact of multiple contributors to system operation such as decentralised generation, storage, and demand response.
- Ensuring versatility and resilience to continuing reforms to the electricity market and plant closures.

A universal set of metrics with associated targets and supporting reporting requirements is likely to be required. Consideration of the application and coordination of standards across the different planning and operational timeframes will be needed to ensure required outcomes are achieved.

The following matters will need to be considered in developing the governance arrangements for the new PSSR standard:

- Given the expanded role of the Coordinator, additional mechanisms may be warranted to support transparency of decision making.
    - While the Taskforce recommended a Reliability and Security Advisory Panel, consideration must be given to the most efficient governance arrangements for a standing body that can provide independent technical advice to the Coordinator.
    - Arrangements for independent advice to the Coordinator (from the Market Advisory Committee (MAC)) already exist under the WEM Rules, and EPWA considers these can be adapted to be fit-for-purpose for PSSR related matters.
    - A review of the structure of the MAC to ensure it is fit for purpose to provide advice on the expanded ESMR, including PSSR related matters, will be undertaken parallel to this project.
- Streamlined change processes or additional criteria when assessing changes to those parts of the ESMR that deal with the PSSR standards such as the impact and allocation of risks, assessing costs and benefits, consistency with market objectives and implementation and transition issues.
- Although the ERA will remain responsible for compliance and enforcement, there may be a need to enhance these arrangements, or introduce different roles and arrangements in relation to requirements that were previously contained in guidelines governed by Western Power.

The aim of the revised governance framework to support the PSSR standard should be to provide:

- A consistent and streamlined process for changing PSSR standards, underpinned by robust and transparent decision making, creating a framework that is better able to respond to change.

- A timelier and coordinated evolution of the PSSR standards, ensuring that the interests of energy consumers are protected and advanced.
- Standards and rules that are simpler and easier to navigate, streamlining entry requirements and reducing compliance costs for participants, making it easier to engage with the framework, participate in the market and to innovate for the benefit of consumers.

3.3.1 Transitional arrangements

It is unlikely that the changes being proposed can be given effect all at once. Therefore, consideration must be given to ensuring a smooth transition of the obligations and requirements. This may include a multiple step process for transferring the standards, requirements and obligations into the single instrument, a staged approach to imposing any new obligations and enforcement of the obligations, safety net provisions and streamlined change management arrangements to ensure that revealed issues and gaps can be dealt with in a timely manner.

The nature and form of transition will be informed by the changes to the systems and processes required to implement the recommendations and have regard to the cost and impact on stakeholders.

3.4 Stage 4 - Drafting amending Rules and other regulatory changes

The final step will be to draft and consult on the rules to give effect to the policy positions and detailed design.

Changes will also be required to the relevant subsidiary instruments, which will have their own change management processes.

4. Stakeholder consultation

Successful completion of this project will require extensive consultation, with all key stakeholders, and importantly with AEMO and Western Power, who will be responsible for managing the power system within the single end-to-end PSSR standard that is ultimately set out in the ESMR.

4.1 Market Advisory Committee Working Group

Given the implementation of this end-to-end standard will be through the ESMR, consultation with the MAC will be required. A MAC working group (the Power System Security and Reliability Standards Working Group (PSSRSWG) will be established, comprising of technical experts from industry, AEMO, Western Power and consumer representatives.

The PSSRSWG will meet at least monthly during stages 1-3 of the project, and more often as required. It will also assist with the detailed development of the rules.

4.2 Technical working group with AEMO and Western Power

Given the roles and responsibilities for managing PSSR standards largely fall to AEMO and Western Power to manage through their planning processes and on an operational basis, close consultation will be required throughout the project to ensure the framework that is developed is fit-for-purpose. A technical working group will be formed consisting of EPWA, AEMO and Western Power to manage this close consultation. It is expected this group will meet at least fortnightly, and more often as required.

It is expected that this group will prepare analysis and other materials for the PSSRSWG. Given AEMO and Western Power's operational understanding of the PSSR standards, there will be a heavy reliance on analysis from this group at each stage of the project to understand issues, draw conclusions and develop proposals. It will also be expected that issues are resolved between EPWA, AEMO and Western Power prior to PSSRSWG meetings or other stakeholder consultations and that an agreed view is put forward in external consultation forums.

Some examples of the type of input that will be required by Western Power and AEMO at each stage is detailed below, although this list is not exhaustive.

Table 1: Input required by Western Power and AEMO

Stage	Examples AEMO/Western Power input at each stage
Stage 1	• Identify/confirm standards managed by each party; • Identify/confirm planning and operational processes that involve consideration of each standard.
Stage 2	• Identify gaps and duplications in standards based on operational experience; • Identify changing characteristics of the power system that warrant new standards being developed; and • Identify shortcomings in governance frameworks, and framework for managing standards between Western Power and AEMO.
Stage 3	• Develop proposals for change, and provide feedback on suitability and feasibility of design proposals developed by EPWA or their consultants; • Identify impact of proposals on business operational costs; • Identify impact of proposals on market costs; • Provide input on any transitional arrangements required;

Stage	Examples AEMO/Western Power input at each stage
	• Provide input on appropriate governance arrangements; and • Provide input on monitoring, compliance and enforcement proposals
Stage 4	• Provide input on detailed design matters; and • Together with EPWA, develop and review draft amending rules.

4.3 Public consultation

A formal, public consultation paper will be released at the end of Stage 3, followed by an Information Paper with the final design proposals and responses to submissions. There will be public consultation on the draft amending rules at the end of Stage 4.

5. Project schedule

The project schedule is detailed in Table 1 below.

Table 2: Project Schedule

Tasks/Milestones	Timing
Project establishment	
Consult with Western Power and AEMO on Scope of Work	September 2023
Internal approval of Scope of work	October 2023
Engage a consultant(s) to assist with the review	November 2023
Consult with the MAC on Terms of Reference for Power System Security and Reliability Standards Working Group (PSSRSWG)	23 November 2023
Call expressions of interest for PSSRSWG	Late November 2023
PSSRSWG kick-off meeting to discuss scope	Early December 2023
Stage 1 – Assess existing standards	
Review of existing instruments to identify all relevant standards and governance arrangements, including compliance and enforcement provisions.	November – January 2024
Finalise initial assessment of standards	Mid-February 2024
MAC update	21 March 2024
Stage 2 – Gap analysis	
Identify any gaps, overlaps or inconsistencies in the existing standards, and assess suitability of existing standards	February – April 2024
Jurisdictional comparison of standards and governance frameworks	February – April 2024
Finalise gap analysis	Mid-May 2024
MAC update	13 June 2024
Stage 3 – Develop proposals	
Develop design proposals, including proposals for: • a single end-to-end comprehensive standard; • governance framework for the PSSR standard, including change management processes; • the provision of advice to the Coordinator on the evolution of the PSSR standard; • roles and responsibilities for AEMO and Western Power to coordinate and manage the PSSR in accordance with the PSSR standard over planning and operational timeframes; • and • the compliance monitoring and enforcement framework for the PSSR standard.	May - August 2024
Consult with MAC on a draft consultation paper	5 September 2024
Publish the consultation paper	Mid-September 2024

Tasks/Milestones	Timing
Submissions on the consultation paper close	Mid-October 2024
Develop Information Paper with consultation summary and final proposals	November 2024
Consult with MAC on a draft Information paper	28 November 2024
Publish Information Paper	December 2024
Stage 4 – Develop amending rules	
Develop draft amending rules	January – April 2025
Publish draft amending rules for consultation	May 2025
Finalise amending rules	June – July 2025
Submit amending rules for consideration and approval by the Coordinator and the Minister	August 2025 (must be made and gazetted by 1 October 2025)
Commencement of rule changes	TBD

Energy Policy WA
Level 1, 66 St Georges Terrace, Perth WA 6000
Locked Bag 100, East Perth WA 6892
Telephone: 08 6551 4600
www.energy.wa.gov.au

Terms of Reference
Power System Security and Reliability Standard for the SWIS

16 November 2023

1. Background

The Power System Security and Reliability (PSSR) standards are a set of technical rules intended to maintain power system security and reliability. The existing PSSR standards for the South West Interconnected System (SWIS) are fragmented, with requirements and obligations spread across several regulatory instruments, each with its own objectives, change processes and decision makers.

As part of the Energy Transformation Strategy (ETS), the ETS Taskforce (the Taskforce) identified deficiencies with the existing regulation and governance of the current PSSR standards and oversaw a number of changes to the existing regulatory instruments to make urgent and critical improvements. In April 2021, the ETS Taskforce made the following determination for more comprehensive reform:[1]

> *A centralised framework will be implemented to provide for the regulation and governance of a single end-to-end PSSR standard for the SWIS, including the establishment of:*
>
> - *a single instrument containing all relevant PSSR standards;*
> - *a centralised governance framework under the Coordinator of Energy, supported by a Reliability and Security Advisory Panel.*
>
> *Legislative reform should be recommended to the Minister by Energy Policy WA to enable the implementation of the centralised framework in an appropriate regulatory instrument.*
>
> *An interim Joint Agreement Framework for specific PSSR standards will be established through changes in WEM Rules and Technical Rules to ensure security and reliability is maintained during the development of a longer term, single set of PSSR standards under a centralised governance.*

Legislative reform to enable the implementation of a centralised instrument entered Parliament in August 2023.[2] Following the passage of this legislation, the scope of the Wholesale Electricity Market (WEM) Rules will be expanded and they will be renamed as the Electricity System and Market Rules (ESMR). All of the current PSSR standards will be reviewed and bought together in an effective, single end-to-end standard that will be implemented in the ESMR.

Energy Policy WA developed a Scope of Work for the PSSR Standards project in consultation with Western Power and Australian Energy Market Operator (AEMO) and will be made available on the Coordinator's Website. It includes information on work to date, the stages of work required to complete the project, stakeholder engagement that will be undertaken and the project schedule.

The MAC has established the Power System Security and Reliability Standards Working Group (PSSRSWG) under clause 2.3.17(a) of the WEM Rules to assist the Coordinator with the PSSR Standards project.

[1] https://www.wa.gov.au/system/files/2021-04/Power%20System%20Security%20and%20Reliability%20Standards%20Framework_0.pdf
[2] https://www.parliament.wa.gov.au/parliament/bills.nsf/BillProgressPopup?openForm&ParentUNID=E35776BF096674C348258A1A001F9711

2. Scope of the PSSRSWG

The PSSRSWG has been established to provide expert technical, regulatory and consumer advice in developing the single end-to-end PSSR standard and its centralised governance framework outlined in the Scope of Work, including:

- review of the various PSSR related provisions in the instruments governing power system security and reliability in the SWIS (assessment of existing instruments);
- assessment if the combination of existing standards is effective to ensure power system security and reliability can be maintained (gap analysis);
- development of proposals for a single end-to-end PSSR standard and a centralised governance framework; and
- drafting of amending Rules and other regulatory changes, as necessary.

3. Membership

Energy Policy WA will Chair the PSSRSWG.

Market Participants and other interested stakeholders may nominate a person for membership on the PSSRSWG for approval by the Chair.

All members of the PSSRSWG are required to contribute their time and resources to complete specific analysis and other tasks as requested by the Chair.

There are no restrictions on the number of PSSRSWG members. However, the Chair of the PSSRSWG may only approve one member from each organisation, with the exception of Western Power and AEMO who may have two members.

The Chair of the PSSRSWG will have discretion to allow additional subject matter experts or consultants to attend specific meetings or workshops, either generally or on a case-by-case basis.

Energy Policy WA will provide administrative support to the PSSRSWG.

4. Documentation

Energy Policy WA will establish a PSSRSWG webpage on its website. Any discussion papers, meeting papers and meeting minutes will be posted to this page.

Market Participants and other stakeholders may register with Energy Policy WA to receive email communications regarding the PSSRSWG, including notices of publication of papers on the PSSRSWG webpage.

5. Responsibilities of Meeting Attendees

A person attending a PSSRSWG meeting is expected to:

- have suitable knowledge and experience to engage in and contribute to discussions relevant to the specific meeting;
- prepare for the meeting, including by reading any meeting papers distributed before the meeting;
- participate as a general industry representative rather than representing their company's interests; and

- complete actions requested by the Chair, which may include undertaking of analysis or preparation of papers for discussion by the PSSRSWG.
- if relevant, to update the member of the Market Advisory Committee within their organisation on the meeting discussions and outcomes.

6. Administration

Energy Policy WA will provide secretariat support for the PSSRSWG.

Energy Policy WA will ensure contact details for the PSSRSWG are maintained on the PSSRSWG webpage.

The Chair will convene meetings of the PSSRSWG in accordance with the timelines in the Scope of Work for the PSSR Standards Project as outlined in Section 8 of these Terms of Reference.

Energy Policy WA will prepare and distribute all meeting correspondence to the PSSRSWG via email. Energy Policy WA will endeavour to provide the following documentation by email to the PSSRSWG members:

- notices of meetings, agendas, and relevant meeting papers at least 5 Business Days prior to the meeting; and
- key outcomes and actions emerging from each meeting no more than 10 Business Days following the meeting.

All meeting documentation will be published on Energy Policy WA's website as soon as practicable after it has been sent to the PSSRSWG members.

Meetings will generally be held online via Microsoft Teams but may sometimes be held in person. Meeting minutes are to record meeting attendance, main outcomes of discussion, agreed recommendations to the MAC and action items. Meetings will be recorded to assist with writing minutes.

7. Reporting Arrangements

The PSSRSWG Chair must provide a report to the MAC on the PSSRSWG's activities at each MAC meeting. The reports must include, at a minimum:

- details of all PSSRSWG meetings since the last report to the MAC, including the date of the meeting and the key outcomes of each meeting;
- the date of the next meeting and the issues to be considered (if known); and
- any recommendations from the PSSRSWG to the MAC.

8. Project Timeline

Tasks/Milestones	**Timing**
Project establishment	
Consult with Western Power and AEMO on Scope of Work	September 2023
Internal approval of Scope of work	October 2023
Engage a consultant(s) to assist with the review	November 2023

Tasks/Milestones	Timing
Consult with the MAC on Terms of Reference for Power System Security and Reliability Standards Working Group (PSSRSWG)	23 November 2023
Call expressions of interest for PSSRSWG	Late November 2023
PSSRSWG kick-off meeting to discuss scope	Early December 2023
Stage 1 – Assess existing standards	
Review of existing instruments to identify all relevant standards and governance arrangements, including compliance and enforcement provisions.	November – January 2024
Finalise initial assessment of standards	Mid-February 2024
MAC update	21 March 2024
Stage 2 – Gap analysis	
Identify any gaps, overlaps or inconsistencies in the existing standards, and assess suitability of existing standards	February – April 2024
Jurisdictional comparison of standards and governance frameworks	February – April 2024
Finalise gap analysis	Mid-May 2024
MAC update	13 June 2024
Stage 3 – Develop proposals	
Develop design proposals, including proposals for: • A single end-to-end comprehensive standard; • governance framework for the PSSR standard, including change management processes; • the provision of advice to the Coordinator on the evolution of the PSSR standard; • roles and responsibilities for AEMO and Western Power to coordinate and manage the PSSR in accordance with the PSSR standard over planning and operational timeframes; • and • the compliance monitoring and enforcement framework for the PSSR standard.	May - August 2024
Consult with MAC on a draft consultation paper	5 September 2024
Publish the consultation paper	Mid-September 2024
Submissions on the consultation paper close	Mid-October 2024
Develop Information Paper with consultation summary and final proposals	November 2024
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Publish Information Paper	December 2024

Tasks/Milestones	Timing
Stage 4 – Develop amending rules	
Develop draft amending rules	January – April 2025
Publish draft amending rules for consultation	May 2025
Finalise amending rules	June – July 2025
Submit amending rules for consideration and approval by the Coordinator and the Minister	August 2025 (must be made and gazetted by 1 October 2025)
Commencement of rule changes	TBD

9. Contact Details

Rule Participants and other stakeholders may contact the PSSRSWG Secretariat at energymarkets@dmirs.wa.gov.au. Documentation and information related to the PSSRSWG will be published on Energy Policy WA's website.

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Energy Policy WA

Agenda Item 9: Benchmark Reserve Capacity Price WEM Procedure Review Working Group

Market Advisory Committee (**MAC**) Meeting 2023_11_23

1. Purpose

- The Economic Regulation Authority (ERA) to request that MAC approves:
  - the establishment of a Benchmark Reserve Capacity Price (BRCP) WEM Procedure review Working Group (BRCPPWG); and
  - the Terms of Reference (TOR) for the BRCPPWG.

2. Recommendation

That the MAC:

(1) approves the establishment of the BRCPPWG; and

(2) considers and approves the TOR for the BRCPPWG (Attachment 1).

3. Background

- Review Outcome 9 of the Reserve Capacity Mechanism (RCM) Review provided for the introduction of a requirement for the Coordinator to review the BRCP reference technologies. This review had to be conducted to set the reference technologies before the ERA reviews the BRCP methodology.
- The Wholesale Electricity Market (WEM) Rules require the ERA to review the WEM Procedure for determining the BRCP at least once every five years. In addition, the WEM Amending Rules implementing the outcomes of the RCM Review will require the ERA to review the BRCP methodology within one year of the Coordinator changing the BRCP reference technology.
- To assist with its review, the ERA proposes to establish a Working Group under the MAC and consult with the MAC throughout the project.
- The ERA has developed draft Terms of Reference for the proposed BRCPPWG, including a Scope of Work for the project (Attachment 1).
- Subject to MAC's approval of the Terms of Reference:
  - the ERA will provide secretariat support for the Working Group;
  - the ERA Secretariat will establish the BRCPPWG;
  - a BRCPPWG webpage will be created on the Coordinator's MAC Website;
  - the ERA Secretariat will advise stakeholders that they may nominate representatives on the BRCPPWG;
  - Market Participants and other interested stakeholders may nominate a person for membership on the BRCPPWG for approval by the Chair; and
  - the BRCPPWG will commence operation in December 2023.

4. Attachments

(1) Agenda Item 9 - Attachment 1 – BRCPPWG - Draft Terms of Reference

(2) Agenda Item 9 - Attachment 2 - WEM Procedure: BRCP Determination Method - Presentation

Economic Regulation Authority

WEM Procedure: Benchmark Reserve Capacity Price, Review Working Group

Terms of Reference (DRAFT)

November 2023

1. Background

The need for a Working Group

The Wholesale Electricity Market (WEM) Rules require the Economic Regulation Authority (ERA) to review the WEM Procedure for determining the BRCP at least once every five years.[1]

The Market Advisory Committee (MAC) has established the BRCP Review Working Group (Working Group) in accordance with clause 2.3.17 of the WEM Rules and clause 5.1(b) and section 9 of the MAC Constitution to inform the ERA's review of the BRCP determination method and engage in the procedure change process.

The BRCP procedure review

The BRCP is an input into the calculation of the reserve capacity price, which is the price paid to generators for each megawatt (MW) of reserve capacity that they make available in that year. The BRCP is an integral part of the reserve capacity mechanism (RCM), which aims to ensure sufficient capacity in the SWIS so that electricity is available when required. It provides price signals for capacity providers, like generators, to enter the market. The revenue from reserve capacity payments adds to other revenues from generating electricity and providing essential system services to provide an overall return for investors.

The ERA annually determines the BRCP for a capacity year two years in advance using the method and procedure outlined in the WEM Rules and WEM Procedure.[2,3] The current method requires the BRCP to be an estimate of the annualised cost to build and connect a hypothetical 160 MW liquid fuelled open cycle gas turbine generator to provide reserve capacity to the SWIS. The WEM Procedure sets out the size, type of generator and technical method and parameters to determine the BRCP.

As part of the ongoing WEM reforms, Energy Policy WA (EPWA) is reviewing the RCM, which includes review of the reference technology the BRCP is based on.[4] The outcomes of EPWA's review of the BRCP reference technology is a key dependency and input into the ERA's review of the BRCP procedure. This Terms of Reference should be read in conjunction with papers

1 Wholesale Electricity Market Rules (WA), 3 November 2023, cl. 4.16.9, (online).

2 Wholesale Electricity Market Rules (WA), 3 November 2023, cl. 4.16, (online).

3 ERA, 2020, *Market Procedure: Benchmark Reserve Capacity Price*, version 7, (online).

4 All papers on EPWA's review of the reserve capacity mechanism are available on its website (online).

from EPWA's review of the BRCP reference technology and the exposure draft of the Amending Rules.[5]

EPWA has proposed the following elements of the RCM in its review that will affect the ERA's BRCP procedure review:[6]

- The introduction of Flexible Capacity Products requiring the BRCP to be determined for two products: the Peak Capacity Product and Flexible Capacity Product.
- The BRCP reference technology to be a 200 MW/800 MWh lithium battery energy storage system (BESS) for both Peak Capacity Product and Flexible Capacity Product.

2. Purpose and scope of work

The Working Group has been established to assist the ERA with its review of the BRCP procedure which includes assessing the:

a. appropriateness of the method used to determine the WACC, including values of the underlying variables and how often those variables are to be reviewed;

b. appropriate fixed O&M costs and capital costs that would apply to the Peak Benchmark Capacity Provider and Flexible Benchmark Capacity Provider, including components of these costs, how to determine forecasts to escalate costs into the future, and the method to estimate these cost items;

c. method to annualise fixed operation and maintenance (O&M) costs and the capital costs of the Flexible and Peak Benchmark Capacity Providers, including the appropriate length of time for the costs to be annualised over;

d. assessment of the effect of the Network Access Quantities (NAQ) framework on capacity credits for the Benchmark Capacity Provider;

e. purpose, readability and interpretation of the Procedure.

3. Membership

1. The Working Group has a Chair appointed by the ERA. The ERA may replace the Chair at any time and must advise the MAC Chair as soon as practicable.

2. The Working Group has no permanent members apart from its Chair. The Minister for Energy, the ERA, the Coordinator of Energy, the MAC Chair and each Rule Participant may:

   a. nominate a representative to attend a Working Group meeting by advising the Working Group secretariat in advance of that meeting, which may be a standing nomination that applies until the Working Group secretariat is advised to the contrary;

---

5 All papers on EPWA's review of the BRCP reference technology are available on its website (online). The latest exposure draft of the Amending Rules is on EPWA's website (online).

6 EPWA, 2023, *BRCP Reference Technology Review – Consultation Paper*, (online). EPWA anticipates to complete its review and have amending WEM Rules take effect in January 2024.

b. with the permission of the Working Group Chair, send additional representatives to a Working Group meeting; and

c. register to receive information relating to the activities of the Working Group, including notification of upcoming meetings, meeting papers and documents distributed out-of-session, by providing an email address for such correspondence to the Working Group Chair.

3. Other stakeholders may attend Working Group meetings or register to receive information relating to the activities of the Working Group if the Working Group Chair approves.

4. Responsibility of meeting attendees

A person attending a Working Group meeting is expected to:

a. have suitable knowledge and experience to engage in and contribute to discussions relevant to the specific meeting;

b. prepare for the meeting, including by reading any meeting papers distributed before the meeting;

c. participate as a general industry representative rather than solely representing their company's interests; and

d. carry out actions if and as agreed.

5. Administration

1. The ERA will provide secretariat support for the Working Group.

2. The ERA will prepare meeting minutes that record meeting attendance, main points of discussion, agreed recommendations and action items.

3. The ERA will work with the MAC Secretariat to ensure contact details for the Working Group are maintained on the Working Group website.

4. The Working Group Chair will convene the Working Group upon request from the ERA or the MAC Chair.

5. The ERA will prepare and distribute all meeting correspondence to the Working Group via email.

6. The ERA will provide the following documentation by email to its Working Group stakeholder list in respect of a Working Group meeting:

   a. notice of meeting and agenda at least 10 Business Days prior to the meeting;

   b. relevant meeting papers at least 5 Business Days prior to the meeting; and

   c. draft minutes no more than 5 Business Days following the meeting.

7. Except for draft minutes (which will only be emailed to attendees for comment), meeting documentation will be published on the MAC's website as soon as practicable after issuance to the Working Group stakeholder list.

8. Attendees will be expected to:

    a. advise the Working Group secretariat of their intent to attend a Working Group meeting at least 5 Business Days prior to the meeting; and

    b. provide any feedback or endorsement to the draft minutes no more than 5 Business Days following distribution of the draft minutes.

6. Reporting arrangements

The Working Group Chair will provide an update to the MAC on the Working Group's progress at each MAC meeting. The update must include:

a. details of the most recent Working Group meeting, including the date of the meeting and a list of the issues or proposals considered;

b. the date of the next meeting and the issues or proposals to be considered (if known); and

c. an indicative forward agenda.

7. Projected timeline

No.	Milestone	Date
1	Identify and prioritise issues	Mid Dec 2023
2	Discuss issues and provide recommendations	Feb/Mar 2024
3	Provide feedback on Procedure Change Proposal	Mar/Apr 2024
4	Review stakeholder feedback received during public consultation period	End April 2024
5	Update on ERA decision on Procedure Change Report	End May 2024
6	New WEM Procedure takes effect	June 2024

8. Contact details

1. Rule Participants and other stakeholders may contact the Working Group secretariat at Market.Monitoring@erawa.com.au.

2. Documentation and information related to the Working Group will be published on the Working Group website.

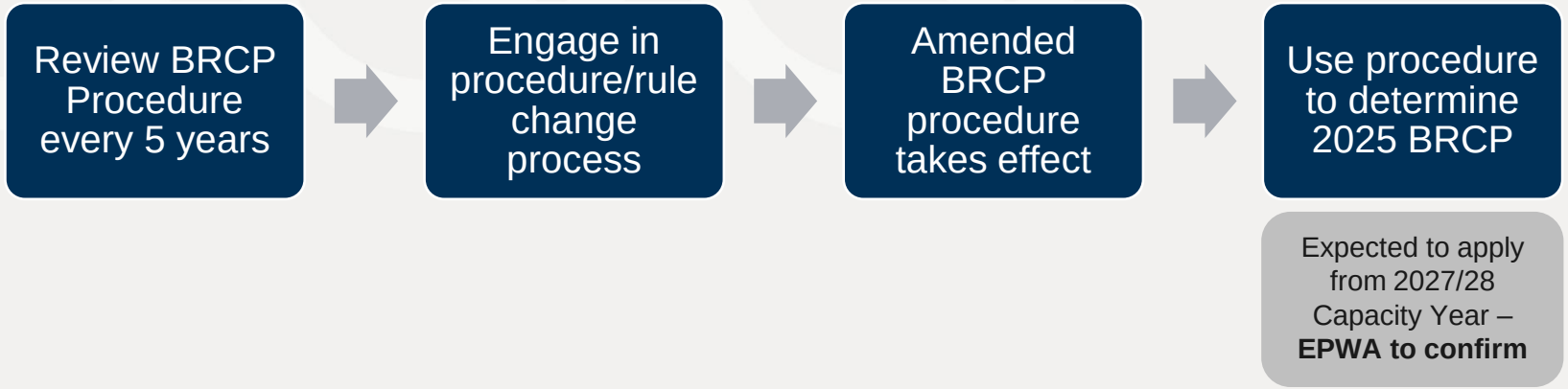
Economic Regulation Authority

WEM Procedure: BRCP determination method

Scoping the ERA's BRCP procedure review 2024

Rajat Sarawat, Executive Director Energy Markets, ERA | 23 November 2023

The ERA's obligation



- EPWA reviewing BRCP reference technology – **key dependency**
- MAC may provide advice on procedure change
- Short timeframe to enact updated procedure in time for 2025 BRCP determination

Economic Regulation Authority

MAC can provide advice

- Method to reflect changes to reference technology
- Determination of Flexible BRCP
- Appropriateness of the WACC elements
- Cost components of Benchmark Capacity Provider (capital and fixed O&M)
- Length of period to annualise costs over
- Cost escalation factors
- Capacity credit allocation to Flexible and Peak Capacity Products
- Effect of NAQ
- Granularity of detail in BRCP Procedure

Economic Regulation Authority

Call for a MAC Working Group

There are benefits in receiving regular MAC feedback through a WG:

Tight project timeframe; technical subject matter; overlap with existing reviews and reforms; and MAC may engage in procedure change process.

Question: Would the MAC consider establishing a BRCP Review Working Group?

If so, seek endorsement from MAC:

- ERA to provide WG secretariat and Chair
- ERA to circulate draft WG terms of reference and scope of works **(out of session)**
- MAC members to nominate for WG **(out of session)**

Economic Regulation Authority

Proposed timeline

MAC Meeting
Advise MAC and establish WG
23 Nov

MAC Meeting
Update on initial findings
8 Feb

MAC Meeting
Present PCP
21 Mar

MAC Meeting
Present PCR and close WG
13 Jun

Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2023		2024					

Consultation period: **4 weeks**

Amended procedure takes effect

Monthly WG meetings or as required

Economic Regulation Authority

thank you

Ask any questions

08 6557 7900

info@erawa.com.au

L4, Albert Facey House
469-489 Wellington St
Perth WA 6000

Economic Regulation Authority