Meeting Agenda

Meeting Title:	Market Advisory Committee (MAC)
Date:	Thursday 21 March 2024
Time:	9:30 AM – 11:30 AM
Location:	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	1 min
3	Minutes of Meeting 2024_02_08	Chair	Decision	2 min
4	Action Items	Chair	Noting	4 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) ERA Benchmark Reserve Capacity Price (BRCP) WEM Procedure Review	BRCPPWG Review Chair	Noting	5 min
	(c) Power System Security and Reliability (PSSR) Standards Review	PSSRSWG Chair	Noting	20 min
	(d) Demand Side Response (DSR) Review	DSSRWG Chair	Discussion	5 min
	(e) WEM Investment Certainty (WIC) Review	WICRWG Chair	Discussion	45 min
7	Rule Changes			
	(a) Overview of Rule Change Proposals	Chair/Secretariat	Noting	1 min
8	WEM Procedures Content Assessment	Chair/Secretariat	Discussion	20 min
9	General Business	Chair	Discussion	5 min
	Next meeting: 9:30am Thursday 2 May 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.

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Minutes

Meeting Title:	Market Advisory Committee (MAC)
Date:	8 February 2024
Time:	9:30am –11:28am
Location:	Microsoft Teams online meeting and Wyndham Room

Attendees	Representing in MAC	Comment
Sally McMahon	Chair	
Martin Maticka	Australian Energy Market Operator (AEMO)	Joined at 10.07am
Dean Sharafi	AEMO	
Zahra Jabiri	Network Operator	
Genevieve Teo	Synergy	
Noel Schubert	Small-Use Consumer Representative	
Christopher Alexander	Small-Use Consumer Representative	
Jacinda Papps	Market Participant	
Adam Stephen	Market Participant	
Paul Arias	Market Participant	
Peter Huxtable	Market Participant	
Geoff Gaston	Market Participant	
Patrick Peake	Market Participant	Left 10.24am
Tessa Liddelow	Market Participant	Proxy for Paul Arias
Rajat Sarawat	Observer appointed by the Economic Regulation Authority (ERA)	
Also in Attendance	**From**	**Comment**
Ms Guzeleva	EPWA	MAC Secretariat
Bronwyn Gunn	EPWA	MAC Secretariat
Shelley Worthington	EPWA	MAC Secretariat
Stephanie Hemsley	EPWA	MAC Secretariat
Ryan Dawson	Western Power	Presenter for Item 6
Dr Matt Shahnazari	ERA	Presenter for Item 7(b)

Tim Robinson	Robinson Bowmaker Paul (RBP)	Presenter for Item 7(e)

Apologies	From	Comment
Paul Arias	Market Participant	
Tim Edwards	Market Participant	
Noel Ryan	Observer appointed by the Minister	

Item	Subject	Action

1 Welcome

The Chair opened the meeting at 9:30am with an Acknowledgement of Country.

The Chair noted that she had no new conflicts to declare.

The Chair noted her role as Commissioner at the AEMC and 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 Objectives and members are to participate in the interests of the stakeholder group they represent. Any specific views pertaining to particular organisations can be provided through the applicable consultation processes.

The Chair noted that the minutes from the MAC and its working groups are very detailed and useful.

2 Meeting Apologies/Attendance

The Chair noted the attendance and apologies as listed above.

The Chair noted that this was Mr Sharafi's last MAC meeting and thanked him for his time and contributions to the MAC.

3 Minutes of Meeting

The MAC minutes of the 23 November 2023 meeting were approved out of session and published on the Coordinator's website on 21 January 2024.

4 Action Items

The Chair noted that the BRCP WEM Procedure Review Working Group had been established and closed item 18/2023.

The Chair noted that there was an update provided on item 19/2023.

- Mr Stephens noted his preference to have a review of the effectiveness of the market sooner rather than later.

Ms Guzeleva noted that it was too early to undertake a review of the effectiveness of the new market. She noted that she would speak with Mr Stephen offline to discuss the best way to get Market Participants

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	views on the operation of the new market, and how to structure the conversation to ensure the MAC adds value. • Mr Schubert noted that the publicly available data is limited and that AEMO's website states that the WEM data cannot be relied on. Ms Guzeleva advised that AEMO has been running a Real-Time Market Insights Forum that anyone is able to attend. She noted that it focuses on the operation of, and matters relating to, the WEM Real-Time Market (RTM) and the WEM Dispatch Engine (WEMDE) including providing Market Participants with analysis and insights regarding the operation and functionality of the RTM and WEMDE. She added that the details could be provided to the MAC.	
	ACTION: EPWA and Mr Stephen to discuss how an agenda item on the operation of the New WEM can be structured in a way that provides a benefit to both the MAC and the WEM more generally.	**EPWA**
	ACTION: EPWA to provide to the MAC the details of the next meeting of AEMO'S Real-Time Market Insights Forum.	**EPWA**
5	**Market Development Forward Work Program** The Chair noted the updates, and the paper was taken as read.	
6	**Western Power Update** Ms Jabiri advised that the intent of the presentation was to provide a high level overview on Western Power's infrastructure investment plans over the next few years. Mr Dawson introduced the presentation, noting that the North Region Energy Program (NREP) would be renamed to the Clean Energy Link North and that this was not new information being presented, but rather a refresh on information already announced. Mr Dawson presented Slide 2 Mr Dawson presented Slide 3, noting the four key regions identified by the South West Interconnected System Demand Assessment (SWISDA) that require investment. Mr Dawson presented slide 4. Ms Jabiri clarified that the transmission towers indicated new infrastructure required, while the spanner and screwdriver symbol indicated significant maintenance and upgrades required. Mr Dawson presented slides 5 – 7. Mr Dawson presented Slide 8 and noted the challenges associated with energising the new and upgraded lines by 2027 and that the priority project status would assist due to the amended timing of NFIT approvals. • Mrs Papps noted that the transfer capacities as depicted on slide 7 differ to those in Western Power's Transmissions System Plan (TSP) and sought to also understand the difference between the transfer capacity versus the quantum of generation that can connect.	

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Mr Dawson noted that the figures were the latest that he was aware of and took the question on notice.

- Mrs Papps asked if Western Power was available for one-on-one discussions about this.

Mr Dawson responded yes.

Mr Dawson presented Slide 9, noting that State and Commonwealth approvals were required, that community engagement had commenced and that overall timeframes were ambitious.

- Mr Schubert:
    - noted that he was strongly supportive of the Program as it was improving utilisation and the capacity of existing assets;
    - asked how a potential contingency would be treated with two 330 circuits on the same tower;
    - questioned who will pay for the new transmission infrastructure;
    - asked EPWA what was been done to manage peak demand, as shifting the peak to the middle of the day would negate the need to build so much infrastructure; and
    - stated that there was a need for demand side management outside of the WEM.

The Chair sought to clarify whether Mr Schubert comments related to the investments in the NREP or were in relation to future investment.

- Mr Schubert clarified that he considered that stage 1 made very good use of existing assets and improved their capacity, and that his comments pertained to stages 2 and 3.

Ms Guzeleva reminded the MAC that the work on implementing the Distributed Energy Resources (DER) Roadmap is considering these matters in relation to residential customers and that program of work is still underway. She added that the recently completed DSR Review considered demand response at the larger end of the market.

- Mr Schubert acknowledged the current work program and that there was not a need to discuss his comments right now, but considered that more focus was required otherwise it would be a missed opportunity.
- Mr Sharafi noted, in regard to the contingency risk, that the double circuit will only be considered the same contingency if there are unusual situations in the same area, such as a bushfire.
- Mr Stephen asked whether there was any forecast of potential disconnections during the construction process.

Mr Dawson noted that a detailed outage plan had not yet been developed but that Western Power was currently working with AEMO on this and further information would be provided when available. He noted that options such as live line stringing were being looked at to minimise the effect of outages.

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	The Chair noted that Western Power was open for members to continue the conversations one on one. • Following on from Mr Stephen's question with regard to outages, Mr Alexander noted that it was important to have consideration for people along the corridor who already have preexisting issues with reliability and noted opposition in the NEM states to transmission/generation investment in regional areas. Mr Dawson responded that Western Power was very mindful of the need for community engagement and the need to maintain social licence throughout the whole process. He added that many of the corridors are existing but in new ones Western Power recognises that community support is integral. Ms Jabiri invited MAC members to follow up with Western Power through their existing contacts or herself. • Mrs Papps asked whether, given the difference with what was presented and the TSP, Western Power intended publishing an updated TSP given it was meant to be the single source of truth for investment decisions. Ms Jabiri took that question on notice. • Mr Huxtable asked if work was proceeding as per the schedule in the slides. Mr Dawson confirmed that was the case.	
	ACTION: Western Power to advise the MAC on: • **the reason for the discrepancy between the figures presented and the TSP;** • **the difference between transfer capacity and the quantum of generation that can connect; and** • **whether the current TSP will be updated.**	**Western Power**
	ACTION: MAC Members to contact Western Power if they wish to discuss the matters in the presentation further.	**MAC**
7	**Update on Working Groups**	
	(a) AEMO Procedure Change Working Group (APCWG) The Chair noted the updates, and the paper was taken as read. The Chair asked for an update on the next step, noting that the paper had a commencement date of 12 December 2023. Mr Maticka responded that he will take that offline and respond.	
	ACTION: AEMO to provide an update on the next steps, if any, and indicative date for the Procedure Change Proposal AEPC_2023_03.	**AEMO**
	(b) ERA's BRCP (Benchmark Reserve Capacity Price) Procedure Working Group (BRCPPWG)	

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

Dr Matt Shahnazari, the Chair of the BRCPPWG, provided an update to the MAC and the next steps noting that:

- the ERA expects to commence formal consultation in April 2024 after publishing the Procedure Change Proposal.
- the intent is to have the new BRCP Procedure taking effect from July 2024, which would apply for the ERA's next BRCP determination (for the 2027-28 Capacity Year).
- the second meeting of the BRCPPWG was held on 6 February 2024, with feedback sought on:
  - battery chemistry;
  - rate of return;
  - cashflow profiles; and
  - what adjustments might be needed to the annualisation process.
- the third BRCPPWG meeting is expected to be held later this month and GHD had been engaged to provide advice on best cost parameters and technical specifications.

Dr Matt Shahnazari asked the MAC to contact him with any feedback.

(c) Power System Security and Reliability Standards Working Group (PSSRSWG)

The Chair noted the updates and minutes from the PSSRSWG meeting on 14 December 2023, and the papers for the 1 February 2024 PSSRSWG meeting.

Ms Guzeleva stated that a more formal update will be provided to the MAC once there are more substantive conclusions from the Stage 1 and Stage 2 work.

- Ms Jabiri noted that on 19 December 2023, Western Power withdrew a proposal it had submitted to the ERA to amend its Technical Rules.
- Ms Jabiri emphasised the importance of some of the proposed Technical Rules amendments relating to network reliability to be considered in the PSSR Standards Review. She added that some of those proposed amendments may influence Western Power's network investments and services to be delivered to the community. She noted the complexity and need to align timing for these decisions with the next Access Arrangement to optimise outcomes, and that Western Power was looking forward to working collaboratively to achieve this.

(d) Demand Side Response Review (DSRRWG)

The Chair noted that the Information Paper had been tabled at the MAC meeting for discussion, together with the Table of Outcomes in Attachment 1 to Item 7(d).

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Ms Guzeleva went through the proposals as outlined in the papers and asked for comments within the next week. She noted that an Exposure Draft of the Amending WEM Rules would be published shortly.

- Regarding Outcome 3, Mr Gaston asked whether consideration was given to having different market participants as the Financially Responsible Market Participant (FRMP) for separately registered components.

Ms Guzeleva said there had not been discussion on this matter, that views would be welcome through consultation on the Exposure Draft but that consultation with AEMO on whether systems and rules are set up to allow for that would be required.

The Chair noted that the work of the Australian Energy Market Commission on Consumer Energy Resources benefits may be a valuable source of additional information.

- Regarding Outcome 3, Ms Papps asked if participants will be allowed to have separate registrations for the facility components behind a common connection point.

Ms Guzeleva confirmed this, but noted that it will be limited to one separately registered component and welcomed comments on this through the consultation.

- Regarding Outcome 4, Mr Sharifi noted that the dynamic baseline does not contemplate weekend dispatch for DSPs and that this may become more common.

Ms Guzeleva agreed that EPWA needed to consider a separate arrangement for weekends.

- Regarding Outcome 4, Mr Gaston asked if there were measures to prevent gaming and/or double dipping on IRCR.

Ms Guzeleva confirmed that there were and outlined the measures to prevent gaming as discussed in the papers. She noted that double dipping on IRCR will be prevented anyway as a single load DSP won't be able to provide capacity and reduce its IRCR at the same time, but that this may not be that easy to prevent for DSP aggregations.

- Regarding Outcome 11, Mr Sharafi said that AEMO would like some clarity on the scope of this review.

Ms Guzeleva noted that advice from AEMO officers was that the review of telemetry requirements for Loads providing contingency reserve was progressing.

- Regarding Outcome 12, Mr Sharifi noted that AEMO considers that the rotation method should be defined in procedures.

Ms Guzeleva acknowledged AEMO's position but said that the rest of the DSRRWG members did not agree with AEMO's view.

The Chair stated that the minutes of the working groups are useful in helping people to further understand the discussions that took place on each Outcome. No further comments were received.

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	ACTION: Any further comments on the DSR Review Information Paper to be provided to EPWA by Wednesday, 14 February 2024.	**MAC**

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

The Chair noted that the MAC was asked to note the minutes and update on the WICRWG meetings and to provide comments on the proposals.

The Chair noted that Mr Peake had left the meeting but had earlier provided his support for the work undertaken thus far on the WIC Review via email.

Ms Guzeleva reminded the MAC of the following:

- that the intent of the review is to determine whether there are sufficient incentives and certainty for investment;
- the review has five initiatives, and the rationale for including the Reserve Capacity Price (RCP) curve is to ensure that, in the context of everything else, it sends sufficient signals for investment when there is a capacity shortfall, but that there are not perverse outcomes for consumers during a capacity oversupply;
- oversupply was unlikely to happen but that it had previously been an issue, such as prior to the 2018 RCP reforms;
- EPWA had reviewed what other markets are doing, particularly those with Reserve Capacity Mechanisms (RCM);
- the WICRWG was made up of over 20 members from all parts of the industry, including consumer representatives, and there were quite different views over the spectrum.

Mr Robinson presented Slides 12-17. He noted that options 2, 3 and 4 are variations of curves with inflection points and varying numbers of segments, and that option 7 had a smooth curve.

Mr Robinson presented slides 24 - 26.

Regarding slide 26, he noted that in the decision to retain gross-CONE, rather than move to net-CONE, there is some acknowledgement that there are infra-marginal rents being gained in the energy market by the BRCP reference technology. This balances off having the RCP at 100% of the BRCP, rather than higher than the BRCP, at the Reserve Capacity Target.

- Mr Stephen asked if infra-marginal rent meant that the cost of generating is lower than the market clearing price.

Mr Robinson confirmed this.

- Mr Schubert agreed that there is no need to support additional investment when the target is being met and indicated his support.

Mr Robinson presented Slide 27 – Absolute zero point. He emphasised that this is concerned with an oversupply of capacity

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credits, not of nameplate capacity, which is relevant when renewable generators are only getting a proportion of their nameplate capacity in capacity credits under the Relevant Level Method (RLM).

Mr Robinson referred to the international curves (slide 46) and highlighted the higher absolute zero point in the WEM compared to most other markets.

- Mr Maticka acknowledged the desire to avoid overbuild but noted that, in a very small market like the WEM, a 5% margin is very different compared with a 5% margin in some of the other much larger markets, as relatively small number of projects could move the RCP quite far along the curve, and asked Mr Robinson to elaborate on the choice of 5% over 15%.

Mr Robinson noted that the international comparison is 105 to 115, which was, as Mr Maticka noted, 250MW to 750MW in the WEM. What is proposed is to retain the absolute zero point at 130%, which is around 1,500MW in the WEM. Mr Robinson suggested that perhaps Mr Maticka was referring to the deadband, to which Mr Maticka agreed.

Mr Robinson moved to slide 28 and clarified that the proposal was for a 10% deadband, symmetrical around the target, noting that there were two alternatives to this:

- to have no deadband, with the curve sloped at all points but there was concern that a small change in capacity (in one project) could significantly change the price, which was the point to having the deadband in the first place; or
- to have no price curve and give everyone who enters a certain amount.

Mr Robinson noted that the intent was to achieve balance between providing certainty with providing investment signals.

Mr Robinson noted that with the 10% deadband that amounted to around 500MW and, when compared to the size of current plants in the SWIS, the loss of the largest Facility in the SWIS will still be within that dead band, The consensus of the group was that this seemed reasonable and that the dead band should be symmetric on either side of the target.

- Mr Maticka considered that anything less than that target is an issue, which would require AEMO to procure capacity to make up that difference. That would infer that the BRCP is not providing sufficient signal to build, resulting in a shortfall. Mr Maticka sought to understand why keeping the dead band symmetrical would ensure there is sufficient investment.

Mr Robinson explained that the WICRWG had considered the use of a dead band from an investment perspective and had indicated a preference for the certainty it provides. He noted that this comes back to the question of whether the capacity price on its own is the factor that draws in new investment and the WICRWG considered that this was not the case and that there are a range of factors.

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Clarifying why the dead band should be symmetric around the target, Ms Guzeleva noted that the intent is to make sure that the interest of consumers and investors are properly balanced.

- Mr Alexander noted that the curves depicted did not have a symmetrical deadband.

Mr Robinson agreed that the initial curves on slide 15 did not have a symmetrical deadband, but that the final proposal on slide 31 did.

- Mr Gaston provided his general support for the proposal and asked Mr Robinson to elaborate on the option to base the floor on the cost of debt.

Ms Guzeleva noted that this was not part of the proposal, rather that it was a suggestion made during the WICRWG discussion.

- Mr Gaston considered that going to absolute zero makes sense economically and is best for customers. However, a debt-based floor would provide more certainty for the new capacity that is needed now. Mr Gaston believed that if financiers see a chance of the RCP going to zero, this is what they will model scenarios on.

Ms Guzeleva noted that this proposal had the most discussion in the WICRWG and that it will go out for public consultation.

Mr Robinson added that in the WICRWG:

- some parties considered that it does not matter what the average is, if it can go to zero, that is what investors care about; and
- other parties considered that there is always an amount of risk in making an investment.

Mr Robinson continued that ability within the WEM Rules to lock in a fixed price for 5 years takes care of some of the potential downside risks. He added that one of the other initiatives to be considered within the WIC review was a 10-year fixed price for new technologies.

- Mr Schubert noted that the likelihood of a 30% excess in the next 5-10 years is low, and as such the risk of hitting absolute zero is low right now.
- Mr Alexander noted that he had some sympathy for the position of investors, but considered that:
    - there was a need for a curve that would endure in the future;
    - there needs to be an investment signal and protection for consumers and that absolute zero is very important;
    - there were other things required in this transition beyond the changes to the RCP; and
    - additional changes such as moving the target and a higher BRCP were all promoting investment.
- Mr Alexander pointed to the escalation of capacity payments per MW (slide 35) and noted the need for this to be sensitive to

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consumers. He strongly supported a sensible absolute zero, with a cap and dead bands set at appropriate points.

Ms Guzeleva noted that without a robust investment signal in the RCM, AEMO would have to procure Non-co-Optimised Essential System Service and Supplementary Reserve Capacity which were far more expensive.

Ms Guzeleva noted that the point is to bring capacity through the RCM because ad hoc mechanisms that are not designed for that purpose increase costs dramatically and that increases investment uncertainty for industry in Western Australia (i.e. industrial load customers). She noted that it is important for the system to stay reliable, and that there are other side mechanisms that are happening in WA and in other states to achieve this, and it's important to make the RCM work for everyone.

Ms Guzeleva noted that there was a desire to ensure that consumers do not pay for oversupply, and that at the start of the market the curve ensured that every MW of surplus translated to a commensurate reduction to consumer bills so we never paid, as a whole, for capacity that was not required.

The Chair summarised that Mr Alexander was stating that the market needs to be enduring through the transition and there might be extra support required.

Ms Guzeleva agreed that there are other things that needed to be done, but that this discussion was specially relating to the RCP curve.

- Mr Alexander added that the curve should not be doing too much of the work.

Ms Guzeleva agreed that the curve should not create a barrier for investment that needs to be fixed with other mechanisms.

- Mr Gaston agreed that equity should be at risk but that a debt floor provides some surety for the debt funders and he would prefer that over a 5 or 10 year guarantee.

The Chair noted that the points made had been picked and EPWA should consider how that was addressed prior to public consultation.

Mr Robinson discussed slide 29 (capacity shortfall at which the price cap is met), slide 30 (differentiating Peak and Flexible Capacity) and slide 31 (proposal summary). He noted that in the WICRWG meeting it was pointed out that the Flexible Capacity target should be lower than the Peak Capacity target and questioned the need for the deadband at all. He noted that the final proposal is seeking to maintain some signal for the Flexible Capacity product even if there are issues with getting enough Peak Capacity.

Setting the Peak Capacity cap at 1.5 and the Flexible Capacity cap at 1.6 is similar to what other jurisdictions are doing.

Mr Robinson presented slides 32-37, and summarised that the RCP curve is not the only thing influencing investment, but that it needed to be consistent in sending appropriate investment signals.

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Mr Robinson noted that the team was in the initial stages of modelling investment incentives, market revenues and consumer impacts.

The Chair summarised that the MAC was supportive of the proposals going out for public consultation.

- Mr Gaston noted the need to be mindful of the impact of increasing prices on demand destruction, either arising from industry shutting down or investing in generation behind the meter. Mr Gaston added that in the early 2000s entire industries left when gas prices in North America went to $16 per kilojoule.

The Chair asked if the modelling would look at the impact on prices.

Ms Guzeleva noted that all elements of the cost stack are going up, and that the modelling would only be looking at WIC initiatives.

Mr Robinson replied that the overall cost of electricity will be modelled, and that in the long run energy prices should come down precipitously and that will be modelled. He noted that the reason for the review is that previous modelling has shown that if the Reserve Capacity Target is met with renewable generation then the energy price would collapse.

Noting that residential prices are regulated by the Government, Ms Guzeleva added that the modelling will make some projection of how prices in the energy market would drop with the penetration of renewables, but she did not consider that this will address the issue that Mr Gaston has raised.

Mr Robinson noted that there was information in the appendix for MAC members to further understand the context for the proposals.

The Chair summarised that, aside from the few controversial issues that were likely to remain, there was general support from the MAC for the approach that is being taken. The Chair thanked Mr Robinson.

8 Rule Changes

(a) Overview of Rule Change Proposals

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

9 General Business

The Chair noted that the 21 March 2024 meeting will be an online and that the 2 May 2024 MAC will be held in person.

The meeting closed at 11:28am.

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Agenda Item 4: MAC Action Items

Market Advisory Committee (**MAC**) Meeting 2024_03_21

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
19/2023	AEMO and EPWA to discuss preparation of papers for discussion on the performance of the new WEM from 1 October 2023 to February 2024	AEMO and EPWA	2023_11_23	**Closed** • EPWA and AEMO have discussed this action and consider that a MAC discussion on the performance of the new WEM from 1 October is at this stage premature. • EPWA, AEMO and the ERA are meeting frequently to understand the underlying reasons for some of the price/cost outcomes in the New WEM. So far various potential reasons have been identified, which may lead to one or more different actions by either AEMO, EPWA or the ERA. • AEMO is responsible to the implementation of the new WEM Rules in its systems and processes, as well as the effective day-to-day operation of the WEM. If some of the price/costs outcomes are caused by AEMO's implementation or the actions

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				of AEMO, it will be responsible for adjusting its systems and processes. AEMO has already addressed a number of issues through such adjustments. • The ERA is responsible for monitoring the compliance of the Market Participants. If some of the price/costs outcomes relate to inappropriate Market Participant behaviour, the ERA will be responsible for taking actions to address and correct this behaviour. • EPWA is responsible to the effective operation of the WEM and the WEM Rules. If the current market outcomes are caused by deficiencies in the WEM design or the WEM Rules, EPWA will propose WEM Rule changes to correct the deficiencies. This is where the MAC has an important role to play, and the MAC will be engaged accordingly. • It is proposed to revisit this once the market has operated for 6 months.
1/2024	MAC Secretariat to publish the minutes of the 23 November 2023 MAC meeting on the Coordinator's Website as final	MAC Secretariat	2024_02_08	**Closed** The minutes were approved out of session and published on the Coordinator's Website on 21 January 2024
2/2024	EPWA and Mr Stephen to discuss how an agenda item on the operation of the New WEM can be structured in a way that provides a benefit to both the MAC and the WEM more generally.	EPWA	2024_02_08	**Open**

Item	Action	Responsibility	Meeting Arising	Status
3/2024	EPWA to provide to the MAC the details of the next meeting of AEMO's Real-Time Market Insights Forum	EPWA	2024_02_08	**Closed** On the 15 February 2024 EPWA forwarded the meeting invite to the AEMO Real-Time Market Insights Forum (RIF) on Tuesday 20 February 2024 and provided the AEMO email address for members to register for future meetings.
4/2024	Western Power to advise the MAC on: • the reason for the discrepancy between the figures presented and the Transmissions System Plan (TSP); • the difference between transfer capacity and the quantum of generation that can connect; and • whether the current TSP will be updated.	Western Power	2024_02_08	**Open**
5/2024	MAC members to contact Western Power if they wish to discuss the matters in the presentation further.	MAC members	2024_02_08	**Closed**
6/2024	AEMO to provide an update on the next steps, if any, and indicative date for the Procedure Change Proposal AEPC_2023_03.	AEMO	2024_02_08	**Open**
7/2024	MAC members to make any further comments on the Demand Side Response Review Information Paper to be provided to EPWA by Wednesday, 14 February 2024.	MAC members	2024_02_08	**Closed** Mr Noel Schubert provided comments via email to EPWA.

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Agenda Item 5: Market Development Forward Work Program

Market Advisory Committee (**MAC**) Meeting 2024_03_21

1. Purpose

- To provide an update on the Market Development Forward Work Program.
- Changes to the Market Development Forward Work Program since 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 Power System Security and Reliability (PSSR) Standards Review Working Group (PSSRSWG) will provide an update to the MAC on the progress of the PSSR Review - see Agenda Item 6(c);
    - the Chair of the Demand Side Response (DSR) Review will provide an update to the MAC on the progress of the DSR Review – see Agenda Item 6(d)
    - the Chair of the WEM Investment Certainty Review Working Group (WICRWG) will provide an update to the MAC on the progress of the WEM Investment Certainty (WIC) Review - see Agenda Item 6(e);

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);
		  • submissions on the RCM Review Consultation Paper (Stage 2);
		  • the RCM Review Information 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**
		• responses to stakeholder submissions on the Exposure Draft if the RCM Review WEM Amending Rules; and • the Wholesale Electricity Market Amendment (Reserve Capacity Reform) Rules 2023 available at Wholesale Electricity Market Amendment (Reserve Capacity Reform) Rules 2023 (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; and
		  • submissions on the CAR WEM Amending Rules Exposure Draft

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. EPWA has updated the Scope of Works to reflect the MAC discussions.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
		• The Scope of Work for the review, as approved by the Coordinator is available here Wholesale Electricity Market Procedure Change Process Review (www.wa.gov.au) • ACIL Allen has been appointed to assist with the Procedure Change Process Review.

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 Side Response (including as part of 'hybrid' facilities") as a result of their participation in the various market mechanisms.
		• 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;
		  • the list of DSRRWG members;
		  • meeting papers and minutes from the DSRRWG meeting on 10 May 2023, 7 June 2023, 5 July 2023, 2 August 2023 and 29 November 2023 and 7 February 2024.
		  • Meeting papers from the DSRRWG meeting on 15 February 2024.
		• 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;
		  • the Demand Side Response Review Consultation paper;
		  • the submissions received on the Demand Side Response Review Consultation paper; and
		  • the Demand Side Response Review Information Paper.

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;
		  • meeting papers and minutes from the 31 August 2023, 11 October, 8 November, the 6 December 2023, meeting papers and minutes from the 24 January 2024 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. EPWA has updated the Scope of Works to reflect the MAC discussions.
		  • The Scope of Work for the review, as approved by the Coordinator is available here Market Advisory Committee Review (www.wa.gov.au)
		  • ACIL Allen has been appointed to assist with the Procedure Change Process Review.

Review of the Power System 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.
		• The MAC has established the PSSR Standards Working Group (PSSRSWG). Information on the PSSRWG is available at Power System Security and Reliability (PSSR) Standards Working Group (www.wa.gov.au) including:
		  • the Terms of Reference for the PSSRSWG, as approved by the MAC;
		  • the Scope of Work
		  • the list of PSSRSWG members; and
		  • meeting papers and minutes from the 14 December 2023 PSSRSWG meeting; and
		  • meeting papers for the 1 and 29 February 2024 PSSRSWG meeting.

Forecast quality	Review of Issue 9 from the MAC Issues List (see Table 2).	• This review has been deferred.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
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).	• The timing for this review is to be determined.
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.

Table 2 – 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, 21 March 2024

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	21 February 2024 and 06 March 2024	As required
WEM Procedures for discussion	21 February 2024: • WEM Procedure: Indicative Facility Class • WEM Procedure: Frequency Co-Optimised Essential System Services • WEM Procedure: Certification of Reserve Capacity 06 March 2024: • WEM Procedure: Supplementary Capacity • WEM Procedure: Facility Dispatch Process • WEM Procedure: Dispatch Algorithm Formulation • WEM Procedure: Market Schedules	

3. AEMO PROCEDURE CHANGE PROPOSALS

The status of AEMO Procedure Change Proposals is described below, current as at 21 March 2024. 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_2024_01 WEM Procedure: Supplementary Capacity	AEMO initiated this Procedure Change Proposal to amend the WEM Procedure following amendments to the WEM Rules arising from Stage 2 of a review by the Coordinator into potential improvements in the procurement and activation of supplementary capacity. In response to the Amending Rules, gazetted on 18 July 2023, the amended WEM Procedure will: • clarify the role of Western Power in supporting AEMO to measure the performance of supplementary capacity services that have been activated in accordance with a Supplementary Capacity Contract and timelines for the provision of this information and assistance. • document the process and information requirements for those intending to respond to a call for expression of interest under clause 4.24.1A of the WEM Rules or intending to provide supplementary capacity in response to a call for tender or direct negotiation under clause 4.24.2 of the WEM Rules who request assistance or an assessment by Western Power.	Consultation closed	Commencement	1 April 2024

ID	Summary of changes	Status	Next steps	Indicative Date
Procedure Change Proposal AEPC_2024_02 WEM Procedure: Certification of Reserve Capacity	AEMO initiated this Procedure Change Proposal to amend the WEM Procedure following amendments to the WEM Rules in December 2023 to implement the outcomes from the RCM Review, affecting the 2024 Reserve Capacity Cycle. These amendments included: • Changes to the certification methodology for Demand Side Programmes. • Removal of Planned Outage rate calculations.	Out for consultation	Consultation closure	28 March 2024

WEM Procedures Prioritisation Schedule (March 2024)

On 14 September 2023, AEMO advised the Wholesale Electricity Market (WEM) Reform Implementation Group (WRIG) that it would be unable to publish 12 reform related WEM Procedures by 1 October 2023. Due to the significant number of new or amended Procedures required under the WEM reforms, the procedures that were critical to the operation of the new market were prioritised for completion. Since this time, 17 additional WEM Procedures have been identified for amendment to comply with the outcomes of further reform initiatives (e.g. Reserve Capacity Review) or to respond to operational needs.

AEMO acknowledges the importance of publishing these WEM Procedures and regrets any inconvenience this has created for Market Participants. As the WEM Reform Hypercare period approaches its conclusion, AEMO has renewed its focus on progressing these outstanding procedures as quickly as possible.

AEMO has developed the below prioritisation schedule for industry information, discussion and feedback. The schedule and AEMO's assigned priority level considers WEM Rules requirements, interdependencies with other WEM Procedures, availability of AEMO Subject Matter Experts, and other relevant project specific information.

The prioritisation and completion schedule is based on the best available information as at March 2024. This presents a significant body of work that AEMO is committed to complete, however the schedule may be subject to change if dependencies change, or other operational requirements take priority.

Table 1 WEM Procedure Prioritisation Schedule (as at March 2024)

WEM Procedure Name	Priority Level	Complexity	Est Publication Date	Reason for Change	In Progress	Additional Comments
Commissioning Tests	Medium	Medium	By 1 April 2024	WEM Reform	✓	Final stages in progress – progressed through transitional process
Frequency Co-optimised Essential System Services Accreditation	Medium	High	By 1 April 2024	WEM Reform	✓	Final stages in progress – progressed through transitional process
Certification of Reserve Capacity	High	Medium	By 1 April 2024	RCM Review	✓	Final stages in progress – progressed through standard process
Indicative Facility Class and RCM Facility Class	High	Low	By 1 April 2024	WEM Reform	✓	Final stages in progress – progressed through transitional process
Supplementary Capacity	Medium	Low	By 1 April 2024	SRC Review	✓	Final stages in progress – progressed through standard process
Dispatch Algorithm Formulation	High	Low	By 1 April 2024	WEM Reform	✓	Final stages in progress – progressed through transitional process
Market Schedules	High	Low	By 1 April 2024	WEM Reform	✓	Final stages in progress – progressed through transitional process
Facility Dispatch Process	Medium	Low	By 1 April 2024	WEM Reform	✓	Final stages in progress – progressed through transitional process
Real-Time Market Suspension	Medium	Low	May 2024	WEM Reform	✓	Progressing through AEMO's internal review process
Dispatch Compliance	Medium	Medium	May 2024	WEM Reform	✓	Progressing through AEMO's internal review process
Facility Registration Processes and NDL Association Process	Medium	High	May 2024	WEM Reform	✓	Currently being reviewed by AEMO legal
Reliability Standard Implementation	High	High	May/June 2024	WEM Reform	✓	First draft almost complete (AEMO is still able to operate while procedure is being developed)
Forecast Unscheduled Operational Demand	Medium	Medium	May/June 2024	WEM Reform	✓	First draft complete – progressing through AEMO's internal review process
SESSM Trigger	High	Medium	June 2024	WEM Reform	✓	Scoping in progress – dependent on the publication of the MT/ST PASA
Electric Storage Resource Obligation Intervals	Medium	Medium	June 2024	RCM Review	✓	Publication is subject to timing requirements of the Reserve Capacity Cycle

WEM Procedure Name	Priority Level	Complexity	Est Publication Date	Reason for Change	In Progress	Additional Comments
LT PASA	Medium	Medium	June 2024	RCM Review	✓	Publication is subject to timing requirements of the Reserve Capacity Cycle
ST PASA	Medium	Medium	June 2024	WEM Reform	✓	Scoping in progress – approach is dependent on MT PASA
MT PASA	Medium	High	June 2024	WEM Reform	✓	Procedure is high importance but assigned “Medium priority” as the relevant system is not complete
Low Reserve Conditions	Medium	Low	June/July 2024	WEM Reform	✓	First draft complete – finalisation is dependent on both ST/MT PASA (i.e. cannot be published until after this date)
Demand Side Programmes	Medium	Medium	June/July 2024	WEM Reform	✓	Scoping in progress – dependent on the Low Reserve Conditions Procedure
Direction of Registered Facilities in Scarcity Conditions	Medium	High	June/July 2024	WEM Reform	–	Drafting dependent on specific SME availability
SESSM Procurement (3.15A.46)	Medium	Medium	July/August 2024	WEM Reform	✓	Scoping in progress – dependent on MT PASA (as this is the mechanism used to identify the relevant shortfalls)
Network Access Quantity Model	Low	Medium	July/August 2024	RCM Review	–	Publication is subject to timing requirements of the Reserve Capacity Cycle
Declaration of Bilateral Trades	Low	Low	August 2024	RCM Review	–	Publication is subject to timing requirements of the Reserve Capacity Cycle
IMS Interface for Network Operators	Low	Medium	October 2024	WEM Reform	–	Dependent on multiple WEM Procedures still under development
Network Modelling Data	Low	Low	October 2024	WEM Reform	–	Drafting dependent on specific SME availability
Communications and Control	Low	Medium	October 2024	WEM Reform / DER Roadmap	–	Drafting dependent on specific SME availability
Facility Sub-metering	Low	Medium	October 2024	RCM Review	–	Publication is subject to timing requirements of the Reserve Capacity Cycle
Reserve Capacity Testing	Low	Low	October 2024	RCM Review	–	Publication is subject to timing requirements of the Reserve Capacity Cycle

If you have any further queries regarding these WEM Procedures or the schedule, please do not hesitate to contact us at WA.MarketDevelopment@aemo.com.au

High Priority	Required for AEMO to manage operational processes – without this either AEMO is required to breach or Market Participants are not given sufficient guidance as to how to remain compliant with WEM Rules obligations.
Medium Priority	Required for future WEM Rules obligations or is an obligation on AEMO that does not have a major impact on Market Participant's processes.
Low Priority	Required under the WEM Rules but no major impact on AEMO operational processes and potential impact to Market participants is considered low.

MARKET ADVISORY COMMITTEE MEETING, 21 March 2024

FOR DISCUSSION

SUBJECT: UPDATE ON ERA'S BENCHMARK RESERVE CAPACITY PRICE WEM PROCEDURE REVIEW

AGENDA ITEM: 6(B)

1. PURPOSE

Provide a status update on the activities of the ERA's Benchmark Reserve Capacity Price WEM Procedure Review Working Group.

2. ERA'S BENCHMARK RESERVE CAPACITY PRICE WEM PROCEDURE REVIEW WORKING GROUP (BRCPPWG)

	Most recent meetings	**Next meeting**
Date	22 February 2024	TBA

3. ERA PROCEDURE CHANGE PROPOSALS

The status of ERA Procedure Change Proposals is described below, current as at 5 March 2024. Changes since the previous MAC meeting are in red text.

ID	Summary of changes	Status	Next steps	Indicative date
Procedure Change Proposal EEPC_2024_01 WEM Procedure: Benchmark Reserve Capacity Prices	In the first meeting of the Working Group (18 December 2023), the ERA Secretariat summarised issues that the BRCP Procedure review will consider to complement the Coordinator's determination of Benchmark Capacity Providers: • Method to estimate costs of both Benchmark Capacity Providers • Cost recovery period • Discount rate • Transmission costs At the second meeting (5 February 2024), the ERA Secretariat sought feedback on its working approach to determine the annualisation components of the BRCP calculation method. This included analysis on an appropriate rate of return, annuity period and how the BRCP Procedure can address the effect of decreasing capital costs due to BESS technological advancements in the future. The ERA Secretariat engaged GHD to provide technical advice on BESS cost drivers and components. GHD presented its preliminary advice to the Working Group for feedback at the third meeting (22 February 2024). The ERA Secretariat also sought feedback on three options to determine transmission connection and land costs.	Pre-consultation	Working Group to provide feedback on proposed drafting of the BRCP Procedure out of session with a meeting convened if required. The draft BRCP Procedure will be published for consultation as part of the procedure change proposal following approval by the ERA Governing Body.	Procedure change proposal likely to be published in April 2024 for consultation.

Department of Energy, Mines, Industry Regulation and Safety
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Agenda Item 6(c): Update on the PSSR Standards Working Group

Market Advisory Committee (**MAC**) Meeting 2024_03_21

1. Purpose

- The Chair of the Power System Security and Reliability (PSSR) Standards Working Group (PSSRSWG) to provide an update on the activities of the PSSRSWG since the last MAC meeting.

2. Recommendation

That the MAC:

(1) notes the update from the PSSRSWG meetings on 1 and 29 February 2024;

(2) notes the draft Minutes of the 1 February 2024 PSSRSWG meeting in Attachment 1 (yet to be reviewed by the PSSRSWG members); and

(3) provides feedback on the high-level gaps as presented in Attachment 2.

3. Background

- The Coordinator of Energy is conducting a review of the Power System Security and Reliability (PSSR) standards in the South West Interconnected System (SWIS).
- The purpose of this review is to implement the Energy Transformation Taskforce's recommendation to develop a consistent, single end-to-end PSSR standard for the SWIS governed by centralised governance framework that will be implemented in the Electricity System and Market Rules (ESMR).
- The project is being conducted in four stages, as follows:
    1. Assess the existing PSSR framework (inclusive of governance arrangements and compliance frameworks) and standards;
    2. Identify any gaps, duplications, and inconsistencies in the existing framework (including the governance arrangements);
    3. Develop proposals for a single end-to-end PSSR standard and framework governed by the Coordinator under the Electricity System and Market Rules; and
    4. Draft rules to implement the recommended framework.
- The project is supported by the PSSR Standards Working Group (PSSRSWG).
- Given that the roles and responsibilities for managing PSSR standards are largely managed by AEMO and Western Power through their planning and operation processes, a Technical Working Group consisting of EPWA, AEMO and Western Power has also been established to provide input at each stage of this review.

- The Technical Working Group meets frequently to discuss the framework for analysis and other material and provide input on proposals prior to these being circulated to the PSSRSWG.
- The second PSSRSWG meeting was held on 1 February 2024. The working group discussed the framework for stage 1 including:
    - PSSR definitions;
    - boundaries of the PSSR project; and
    - existing framework for maintaining PSSR, including considerations over planning and operational timeframes and roles and responsibilities of AEMO and Western Power.

  as well as the approach to stage 2 of the project.
- At the third PSSRSWG meeting on 29 February 2024 discussion focused on the PSSR Standards contained within WEM Procedures and reaching an agreement on the final proposal for the stage 1 package (the PSSR Analysis Workbook). Discussion also commenced regarding high level gaps for stage 2.
- Stage 1 of the review was completed in early March. Outputs from this stage include:
    - draft chapter detailing the findings of this stage, which will be incorporated into the Consultation Paper under stage 3.
    - A PSSR Analysis Excel Workbook, detailing the existing PSSR standards mechanisms.
- Papers and minutes for the PSSRSWG meetings are available on the PSSRSWG webpage at Power System Security and Reliability (PSSR) Standards Working Group (www.wa.gov.au)
- Further information on the PSSR Standards Review, including all Papers are available on the PSSR Standards Review webpage at Power System Security and Reliability Standards Review (www.wa.gov.au)

4. Next Steps

Stage	Activity	Timing
2 - Gap analysis	Consultant to provide EPWA, Technical Working Group and PSSRSWG with final report detailing the findings	February – May 2024
	Chair to provide the MAC an update of the activities of the PSSRSWG	13 June 2024
3 - Develop design proposals	Consult with the MAC on draft Consultation Paper	5 September 2024
	Consult with the MAC on draft Information Paper	28 November 2024
4 - Develop amending rules	Exposure draft of Draft Amending WEM Rules	April 2025
	Amending WEM Rules submitted to Minister for Energy	August 2025

- The fourth PSSRSWG meeting is yet to be scheduled.

4. Attachments

(1) Agenda Item 6(c) - Attachment 1 – Draft minutes from 1 February 2024 PSSRSWG meeting.

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

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Minutes

Meeting Title:	Power System Security and Reliability Standards Working Group (PSSRSWG)
Date:	1 February 2024
Time:	9:30am to 11:00am
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair, Energy Policy WA	
Toby Price	AEMO	
Mena Gilchrist	AEMO	
Hugh Ridgway	Alinta Energy	
Aditi Varma	ERA	
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Rhiannon Bedola	Synergy	
Noel Schubert	WA Expert Consumer Panel	
Luke Skinner	WA Expert Consumer Panel	
Daniel Cassidy	Western Power	
Sabina Roshan	Western Power	Joined at 09.57am
Bronwyn Gunn	Energy Policy WA	
Sanna Pember	Energy Policy WA	
Stephanie Hemsley	Energy Policy WA	
Ashwin Maharaj	Mott MacDonald	
Analena Gilhome	Mott MacDonald	
Tyson Vaughan	Mott MacDonald	
Ed Chan	Mott MacDonald	
Jaden Williamson	Merz	
Geoff Glazier	Merz	
Apologies	**From**	**Comment**
Robert Ceic	Mott MacDonald	

Please note these are draft minutes that have not yet been endorsed by the members of the Power System Security and Reliability Standards Working Group.

Department of Energy, Mines, Industry Regulation and Safety
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Item	Subject
1	**Welcome and Agenda** The Chair opened the meeting at 9:30am with an Acknowledgement of Country.
2	**Meeting Attendance** As noted above.
3	**Competition and Consumer Law Statement**
4	**Minutes of the PSSRSWG meeting** The Chair noted that the PSSRSWG minutes of the 14 December 2023 meeting were approved and published on the Coordinator's website.
5	**Updates on the Technical Working Group** The Chair noted that the Technical Working Group has met twice (8 December 2023 and 18 January 2024) to discuss the framework for analysis for stage 1. The Chair added that Ms Roshan has provided EPWA with an excel document detailing some of the previous PSSR work under the Energy Transformation Taskforce. The Chair noted that EPWA has provided the Technical Working Group with a draft spreadsheet outlining the findings from stage 1 of this review. She added that this work will be discussed at the upcoming Technical Working Group meeting on 7 February 2024.
6	**Stage 1 Framework** The Chair noted that EPWA is still considering whether the end product for stage 1 will take the form of a report or an excel spreadsheet. She added that the PSSRSWG members will be updated on this shortly and the findings of stage 1 will be discussed at the next PSSRSWG meeting. The Chair outlined the purpose (slide 2) and the agenda for the meeting (slide 3). Mr Glazier presented the definitions of security and reliability in the Energy Industry (Distributed Energy Resources) Amendment Bill 2023 (DER Bill) (slide 5) and noted that: • At the last Technical Working Group meeting, members discussed the distinction between the definitions of security and reliability. • Historically security and reliability have been used interchangeably. For example, if a substation was lost, a customer's energy supply reliability would be impacted. However, this would not impact system security, i.e. the ability of the system to maintain supply through disruptions or disturbance. Mr Glazier presented the interplay between the definitions of security, reliability and quality (slide 6). He noted that most of the information outlined in this slide has been taken from public information and that the appendices contain a comparison of definitions. The Chair clarified that the definitions in the DER Bill must take precedence once that Bill is passed by the Parliament. Mr Glazier presented the boundaries for the security and reliability definitions (slide 7), emphasising the importance of not crossing over to areas managed by Energy Safety that deal with personal safety or safety of equipment. He added that protection of electrical equipment would be within scope of this project if the protection applies for PSSR purposes, such as the matters in 3.6.10 of the Technical Rules.

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Mr Glazier presented the system strength definition and system strength requirements (slide 8) and noted that this slide categorises the mechanisms in the way they are divided up in the regulatory instruments today. He added that the Technical Working Group members have discussed extending these definitions, but that this will be discussed in more detail during stage 2 of this review (gap analysis).

Mr Glazier presented a diagram illustrating different activities that are carried out to maintain security and reliability and their interactions (slide 10).

- Ms Varma stated that there are a few planning processes missing from slide 10. She gave the Transmissions Network Development Plan, that Western Power submits as part of its Access Arrangement, and the Transmission System Plan as examples. She emphasised the importance of recognising all the different planning activities across the entities, given they may need to be streamlined.
- Mr Skinner suggested adding 'known and expected changes in environmental risks to critical infrastructure' to the change triggers on slide 10.

The Chair noted that slide 10 outlines the context for maintaining security and reliability, acknowledging that a level of uncertainty, albeit significantly lower, exists even within the operational horizon.

- Mr Skinner clarified that environmental impacts should be explicitly listed as a change trigger, given that an environmental objective has been introduced through the new State Electricity Objective. He provided the example of power lines to Kalgoorlie, and the impact of environmental factors on them recently.

Mr Glazier agreed with Mr Skinner's point and noted that this will be discussed in detail during stage 2 (gap analysis).

The Chair and Ms Varma also agreed with Mr Skinner's point.

Mr Glazier presented slide 11 and noted that the process of maintaining a secure and reliable power system historically has been split up into these different functions, but that this breakdown may not be the best approach going forward. Mr Glazier noted the differences in risk assessments and the nature of information each of those functions works with, giving the following examples:

  - Infrastructure planning must be undertaken far in advance to ensure that the infrastructure needed is built and ready to meet future demands. The level of uncertainty is higher given technical advancements and forecasting.
  - Infrastructure implementation relates to a specific and defined project (i.e. network build), and includes decisions regarding the design and operation of that build.
  - Operational activities determine how to utilise existing infrastructure in a way that maintains a secure system at the most efficient cost.

- Mr Schubert asked whether EPWA should be included on slide 10, given its role of long-term forecasting through the Whole of a System Plan (WOSP) and through the SWIS Demand Assessment (SWISDA).

Mr Glazier agreed and stated that EPWA's role in these mechanisms will be included in future slides.

The Chair agreed with this and noted that this will be included in the report for stage 1.

- Ms Varma queried the accuracy of the timeframes outlined in slide 11, noting that planning can be over a timeframe of 20 years or more.

Mr Glazier clarified that there is a range of infrastructure planning projects dealing with different horizons. However, the 7 + years horizon trench is intended to include all the

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planning processes, such as the 20-year WOSP planning and Western Power's network planning.

- Ms Varma emphasised the importance of discussing the boundaries around planning and operational timeframes, given it's not always clear-cut. She noted that Western Power decisions and its interaction with AEMO changes over these time horizons and used the 5-year Access Arrangement period, the 10-year ESOO period and the Medium Term (MT) PASA as examples.

Mr Glazier acknowledged Ms Varma's point and noted that the existing mechanisms outlined in the slide focus on the distinction between planning to deliver infrastructure and planning how to manage the system with existing infrastructure. Mr Glazier clarified that future discussions should focus on whether this is the right distinction.

The Chair acknowledged Ms Varma's point and added that the level of certainty increases for infrastructure planning as you approach the investment decision stage. The Chair noted that a sentence could be added to indicate that certainty increases over time.

Mr Glazier noted that whether the boundaries between these mechanisms shall remain or not will be part of the discussion going forward.

Mr Glazier presented a table detailing the different activities involved in each time horizon to maintain PSSR (slide 12).

Mr Glazier presented the existing defined security and reliability outcome requirements (slide 13) and clarified that EPWA has created an excel spreadsheet outlining all the mechanisms listed, in addition to the relevant clauses within those mechanisms. Mr Glazier clarified that the intent of this framework is to ensure this review has identified all the relevant mechanisms and gaps to guide the evaluation of options and streamlining the process for stage 3 of this review.

Mr Glazier noted that the Technical Working Group will assess all the relevant clauses for the various mechanism to ensure nothing is left out going forward.

- Mr Schubert asked whether the term 'cyclic load shedding' has the same meaning as rotational load shedding, as this term is distinct from voluntary load shedding, in which customers are willing to have their demand curtailed as part of a Demand Side program.

Mr Glazier clarified that this term exists in the Wholesale Electricity Market (WEM) Rules and noted that the definition of reliability specifically refers to cyclic load shedding undertaken by AEMO. He suggested removing the word 'cyclic' given under frequency load shedding (UFLS) is also included.

- Mr Schubert agreed with this clarification.
- Mr Price acknowledged that slide 13 is made generic for discussion purposes but suggested also adding chapter 4 of the WEM Rules to the 'supply and implementation' box.

Mr Glazier clarified that the excel spreadsheet contains all of section 4.5 and parts of section 4.6 of the WEM Rules. He noted that the mechanisms for funding and financing infrastructure planning have been excluded. He provided the example of the pricing mechanism in the Electricity Networks Access Code 2044 (ENAC) for Western Power to fund infrastructure and the mechanisms in chapter 4 of the WEM Rules to establish the market and the procurement process.

- Ms Roshan joined the meeting.

The Chair agreed with Mr Price's suggestion and noted the importance of including chapter 4 of the WEM Rules and any relevant appendices containing rules in relation to the implementation of PSSR Standards.

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Mr Glazier agreed with this.

- Mr Price noted that if funding and financing mechanisms are out of scope, then the way that facilities are certified and the reserve capacity obligations may fall outside the scope.

The Chair noted that, in her view, requirements on specific capability classes should be considered a standard. She used the Availability Criteria and reserve capacity obligation intervals as examples.

Mr Glazier acknowledged the Chair's point and noted that the detailed excel spreadsheet covers a portion of these requirements. He noted that the amount of capacity to be installed will be a primary topic of discussion at the upcoming Technical Working Group meeting.

- Mr Schubert noted that slide 13 lacks references to the ENAC and the ERA's role in reliability requirements.

Mr Glazier clarified that the intent is that including Western Power's fifth Access Arrangement(AA5) on this slide is to cover that as well.

- Ms Varma returned to Mr Price's point (on slide 13) and noted that the slide is a mixture of standards and regulatory contracts. For example, service standard benchmarks, the New Facilities Investment Test (NFIT) and regulatory tests all fall under the Access Arrangement while matters in the Technical Rules, WEM Rules and NQRS Code are all regulated standards. She noted that, as the power system is evolving, it is appropriate to consider whether each 'standard' is in the right place in this context and what the compliance mechanisms are.
- Ms Varma used the Value of Customer Reliability (VCR) as an example of where there isn't a legislated value of customer reliability. She noted that if there was a legislated VCR the design and funding arrangements for the network would be significantly different.

Mr Glazier agreed with making this distinction and clarified that it will be important to consider how binding a mechanism should be during stage 3.

- Ms Varma noted that in the latest Access Arrangement determination, the ERA decided that the NQRS reliability standards should be met, while historically that had not been a case. She stated that this is a live example of the tension between a legislated standard and what can be negotiated in a regulatory contract.

Mr Glazier suggested discussing this matter later in the meeting, as this will be covered on slide 17 regarding deterministic versus probabilistic standards. He added that a risk of using a legislated deterministic standard is that it could drive costs up to a level customers are unwilling to pay for in terms of that service. He clarified that probabilistic standard processes ensure PSSR matters are considered with cost impact on customers in mind.

- Ms Varma agreed with Mr Glazier's clarification.

Ms Glazier added that there is often a desire to set prescriptive reliability standards, especially during outages, but that there is a need to ensure that this is not set up in a way that drives costs beyond customer willingness to pay.

The Chair noted that this aspect will be further elaborated on in the report.

Mr Glazier presented the existing PSSR responsibilities of the AEMO and Western Power (slide 14) and clarified that the box 'load and infrastructure planning' is about reflecting customer needs in the various planning processes.

- Mr Skinner noted that in the future more control will need to be exercised over load growth.

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Mr Glazier acknowledged Mr Skinner's point but noted that all the other planning mechanisms exist to meet customer needed. He added that the most effective way to deliver a secure and reliable power system at a low cost is increased control, and if customers are happy with that, then that could be the right path. However, this review needs to be mindful of the implications of increasing central control.

The Chair agreed with Mr Glazier's point and noted that this review is also covering the PSSR governance framework, which includes compliance monitoring, reporting and enforcement. She added that one objective of this review is also to establish a proper governance mechanism to ensure adherence to the standards.

- Mr Peake noted that the capacity target and the reserve margin set by the AEMO (clause 4.5.9 of the WEM Rules), is another significant cost driver.

The Chair acknowledged Mr Peake's point and noted that certainty for investment is important, and that these mechanisms should not be changed quickly or frequently.

- Ms Gilchrist asked whether there is a timeframe and process for managing provisions out of scope for this review. She used the quality element of the NQRS Code as an example.

The Chair clarified that quality will largely be covered by this review.

Mr Glazier noted that reliability and quality are interconnected, and quality is therefore within scope. He added that quality is reflected in the NQRS Code, the Technical Rules and in Appendix 12 in the WEM Rules. Mr Glazier clarified that a key question going forward will be how to consolidate those quality requirements into a single mechanism.

- Ms Gilchrist clarified that she was asking about the processes and timeframes to manage the elements of the relevant instruments that are not considered to be in scope for the PSSR project.

Ms Gunn clarified that another workstream within EPWA is looking at the ENAC more broadly and the provisions out of scope for the PSSR Standards Review, but the detail of that work is yet to be decided.

- Ms Gilchrist acknowledged that Ms Gunn's response addressed her question.
- Ms Varma asked whether to consider a no worse- off principle to be applied to the design of the standards, given this could create some boundaries around the cost impact.

The Chair noted that the focus of this review is to establish a minimum security and reliability standard, which should come at an efficient cost.

- Ms Roshan noted that the transfer of the ENAC, the Metering Code, most of the NQRS Code and the Small Use Customer Code into the Electricity System and Market Rules (ESMR) should be covered by the other policy streams within EPWA.

The Chair agreed about the Metering Code, but not the NQRS Code, noting that the Small Use Customer Code is not in scope to be bought into the ESMR.

Mr Glazier progressed to the stage 2 approach (gap analysis) and presented on infrastructure planning for reliability vs security (slide 16).

Mr Glazier presented the two broad forms of analysis used in infrastructure planning for reliability (deterministic and probabilistic) (slide 17).

- Mr Schubert noted that VCR, from his point of view, is very variable from one customer to another and can change seasonally or across the day. He added that there are other solutions that can be implemented as an alternative to network investment, such a standalone power systems. He clarified that there are many aspects to the use of VCR for making deterministic decisions.

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The Chair agreed with Mr Schubert's point.

Mr Glazier clarified that, while the probabilistic mechanisms require generalisations, they also consider the value to customers, unlike the deterministic standards. He added that this is the distinction to be made going forward.

- Mr Cassidy raised concerns regarding the definitions on slide 17. He clarified that Western Power does not plan for reliability and a more accurate way to phrase this would be to say that Western Power calculates expected benefits for customers. He clarified that there are mechanisms in place for probabilistic planning, but that these are resource intensive and sensitive to assumptions, and using these to determine timing of investment would be quite challenging.
- Ms Varma raised concerns regarding whether slide 17 accurately reflects current practice, as it takes a network centric view of reliability. She emphasised the importance of also discussing the concept of unserved energy as it is defined through the Reserve Capacity Mechanism. She added that this concept does not align with the value of costumer reliability modelled under the AA5.

Mr Glazier clarified that the intent of stage 2 (gap analysis) is to undertake some analysis to outline the extent to which these practices align or not.

- Ms Varma noted the importance of examining end-user experience in terms of reliability. She suggested working backwards from there to determine network requirements and the generation adequacy needed. She added that generation and network adequacy, in her view. are inseparable.

The Chair noted that, in her view, these are two distinct concepts, but unfortunately they are used interchangeably. She added that the next stage of this review will try to find concepts that can be homogeneously applied.

- Mr Price noted that this may be a function of how regularly deterministic standards are updated, and on what basis.

The Chair clarified that the first stage of this review is to gain a proper understanding of the current framework and that future work would include developing a common understanding of the definitions. She noted that the discussion around current network planning in practice is very important.

Mr Glazier agreed with the Chair's point and clarified the intent is not to put forward any recommendations or direction at this stage.

Mr Glazier presented the infrastructure planning for reliability (slide 18) and noted that this slide outlines the probabilistic vs deterministic definitions.

Mr Glazier presented infrastructure planning for security (slides 19 and 20) and noted the absence of any ride through requirements for networks in the same way as for generators. However, there is a requirement that the network must be designed consistent with good electricity industry practice. He clarified that, in his view, it makes sense that the network protective devices and the network remain operational during disturbances. He added that there is a financial incentive for Western Power to demonstrate ride-through in frequency events under the RoCoF market cost recovery mechanisms.

- Mr Schubert noted some ongoing discussion in energy forums on LinkedIn regarding the definition of system strength and the implementation of system strength standards in the National Energy Market (NEM). He asked whether this issue is open for debate, as the implementation of the system strength concept in the NEM may not be appropriate.

Mr Glazier responded that discussion about system strength will take place in stage 2 of this review and noted that the Technical Working Group already have touched on this topic. He added that questions about the framework for managing system strength when there is a RoCoF market and the need for system strength with current inverter

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technologies will be part of the discussion for stage 2. He clarified that slides 19 and 20 only outline the definition of system strength and system strength requirements in the existing rules.

The Chair clarified that system strength and resilience will be discussed in more detail at the next stage of this review, and that the NEM is evolving too. She noted that aligning the standards for the WEM and the NEM is ideal, given the increasing number of participants operating across markets, while keeping an open mind to improvements.

- Ms Varma noted that a Circuit Availability standard previously existed, which required Western Power to make transmission lines available to ensure reliability and inquired whether this standard still exists in the Technical Rules.
- Ms Roshan responded to Ms Varma's question by noting that this is outlined in Western Power's Access Arrangement and the service standard benchmarks.

The Chair clarified that this will be addressed going forward.

The Chair noted that the RoCoF example is outlined on slide 20. She added that the WEM Rules requirement also provides financial incentives to all the Market Participants, not only Western Power.

Mr Glazier agreed with the Chair and acknowledged the importance of recognising the alternative approaches to maintaining a secure system, giving the example of having network elements that can handle higher RoCoF or procuring more inertia to meet the needs of the network. He noted that consideration would need to be given in cases like this to the most economically efficient outcome.

- Mr Cassidy noted that in the recent Technical Rules Submission, Western Power had suggested clarifying how to design the network to limit the largest contingency. He noted that this has been guided by practice in Western Australia, and that other jurisdictions have been prescriptive on this.

The Chair responded to Mr Cassidy's comment by noting that Western Power's original proposal had a MW limit on generators. She noted that, in her opinion, suggesting an arbitrary fixed MW limit for new generators isn't ideal because it won't provide flexibility as the power system evolves.

- Mr Cassidy and Ms Roshan emphasised the importance of having a continued discussion around this issue.
- Ms Roshan noted that the proposal was based on the spinning reserve limit (around 300 MW), with an added reserve margin. She added that this has implications on how Western Power designs the network and noted that when a large generator connected to a busbar is lost it becomes an issue for the network as well.

The Chair clarified that proper mechanisms need to be put in place to provide the right financial incentives, rather than have absolute numbers. She added that there are already financial incentives in place and mentioned the new cost allocation causer-pays principles, in addition to the cost of connection. She added that, while there is currently no 'size standard', there are various mechanisms that provide those incentives.

Mr Glazier noted that there are pros and cons to each option – standards are simpler and clearer, while financial incentives allow room for more innovative and economic solutions.

The Chair agreed and noted that the Network Access Quantity (NAQ) framework is also meant to send a location signal about network availability and that there are economic efficiencies for larger facilities if they can be accommodated on the network. She also noted that, while the runway method currently applies to generators, there is a need to send signals to larger size connected loads.

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- Ms Roshan noted that the 'Circuit Availability' requirement is more for reliability rather than requiring a circuit to be available for security reasons.
- Mr Price noted that RoCoF ride-through is actually lower than 4 Hz/s (for network and other facilities) and provided the below accredited values.

Facility	Rate of Change of Frequency Ride-Through (Hz over 500ms)
WP_DX_NTWK	1.2
WP_TX_NTWK	1.2
WARRADARGE_WF1	1.5
YANDIN_WF1	1.5
ALINTA_WWF	1.5
BADGINGARRA_WF1	1.5
GREENOUGH_RIVER_PV1	1.5
TESLA_GERALDTON_G1	1.5
TESLA_KEMERTON_G1	1.5
TESLA_NORTHAM_G1	1.5
TESLA_PICTON_G1	1.5

- Ms Varma noted that, while there is a financial incentive for generators through the runway method, there isn't that incentives for the network. She added that the WEM Rules now consider network contingencies (in the planning criterion), and this is accounted for in the ESOO. However, there are no requirements or incentives in network planning to augment lines to reduce the potential contingency identified in this process.
- Mr Cassidy disagreed with Ms Varma' point and clarified that Western Power has obligations to invest if there is congestion on the network.
- Ms Varma clarified that the point she was making was in relation to particular lines and single points of failure if the failure of that line can create a larger contingency, and this is not necessarily a congestion issue
- Mr Cassidy responded that this would become a congestion issue as Western Power would not tolerate a vast amount of generation subject to a single contingency. He added that, instead, the network operator would constrain the generator on a pre-contingent basis and this would appear in the congestion information which would drive network investment.

The Chair agreed with both Ms Varma's and Mr Cassidy's points and noted that some incentives are being brought into the WEM Rules to ensure the network operator considers financial impacts of network performance (for example, in transmission system planning and NCESS procurement). However, she agreed with Ms Varma's point that there are no mechanisms that enforce these Rules in a timely manner. She noted that the standards and the compliance with these must be considered.

- Mr Cassidy agreed with the suggestion of making this more explicit.
- Mr Price noted the importance of finding the balance between providing clear guidance for design of Facilities/Interconnection and the real-time decisions relating to the credibility of a particular risk.
- Ms Varma and Mrs Bedola agreed with Mr Price's point.

Mr Vaughan recommended looking at the discussion in the Enhancing Operational Resilience in relation to Indistinct Events in the NEM Rule change when defining the single largest contingency.

The Chair and Mr Glazier agreed with Mr Vaughan's suggestion.

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Mr Glazier noted the lack of content in the existing mechanisms around resilience, adding that this will be discussed in detail during the gap analysis.

Mr Vaughan clarified that the Enhancing Operational Resilience in Relation to Indistinct Events NEM Rule change was primarily focused on expanding on and defining the largest credible contingency, and the powers the system operator must have to manage these events. He clarified that the main learning from this rule change is to be mindful of not constraining the system operator too much.

The Chair noted the spectrum of risk and conservatism, and emphasised the importance of evaluating whether a proposal is in fact a minimum standard.

Mr Glazier agreed with Mr Vaughan and the Chair, noting that during extremely low probability/extremely high impact events the position should be that the operator may use its discretion to manage PSSR. He noted that the Pilbara Network Rules are very clear that the Independent System Operator can do what they need to maintain PSSR in such events, but that the WEM Rules are less explicit.

Mr Vaughan clarified that the rule change in the NEM primary focused on the preparation the operator could undertake. He added that resilience can have a complex definition, and this review must assess whether resilience is actually additional to security and reliability or not.

Mr Glazier noted that the discussion regarding resilience must be centered around the ability to respond to changes in the market and the rapid advancement of technologies. He added that this feeds back into the considerations about how rigid the governance mechanism should be given the pace of change.

Mr Glazier presented slide 21 (implementation). He highlighted that the potential disconnect between the Technical Rules and the Generator Performance Standards (GPS) would be important to discuss during the gap analysis.

- Ms Roshan queried whether Mr Glazier was referring to distribution connected ‘large’ generators and noted that she considered this in scope.

The Chair clarified that the purpose of this review is to create an end-to end standard that covers transmission and distribution, where practicable, noting exceptions for some matters such as distributed energy resources (DER). She added that standards for distribution and transmission connected generators must be end-to-end and homogeneous to avoid incentivising inefficient behavior. She noted the division between transmission and distribution in the SWIS is arbitrary compared to other jurisdictions.

Mr Glazier presented slide 22 (operation) and noted that this slide is high level and that this section of the excel workbook has the most detail. He noted that consideration would need to be given to whether the customer notification and the financial penalty for outages longer than 12 hours outages are within scope.

- Mr Schubert noted that the NQRS Code requires Western Power to negotiate a solution with an individual customer if the reliability standards in the NQRS Code are not met. He added that this hasn’t been possible in a few cases.

Mr Glazier recognised that this is an important part of the operation of the system for the customers and clarified that the review will cover that.

The Chair invited members to provide any final comments or ask any additional questions, noting that the next step would be to compile this information into a report and finalise stage 1.

The meeting closed at 11:03am

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

GOVERNMENT OF WESTERN AUSTRALIA

Market Advisory Committee

PSSRSWG update

21 March 2024

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

Purpose

1. To provide the MAC with an overview of stage 1 and 2 of the PSSR Standards Review.
2. To seek feedback from the MAC on the preliminary Stage 2 (gap analysis) outputs.

PSSR Standard Review Workstream Background

PSSR Standard Review Workstream Background

The Coordinator of Energy is conducting a review of the Power System Security and Reliability (PSSR) standards in the South West Interconnected System (SWIS). The PSSR Standards review is being conducted in four stages:

- **Stage 1** - Assess the existing PSSR framework (inclusive of governance arrangements and compliance frameworks) and standards (Jan – March 2024);
- **Stage 2** - Identify any gaps, duplications, and inconsistencies in the existing framework (including the governance arrangements) (March – July 2024);
- **Stage 3** - Develop proposals for a single end-to-end PSSR standard and framework governed by the Coordinator under the Electricity System and Market Rules (July – December 2024); and
- **Stage 4** - Draft rules to implement the recommended framework (January – July 2025).

Definitions & Existing Instruments

Electricity Industry (Distributed Energy Resources) Amendment Bill 2023 (the DER Bill)

Reliability	Reliability means the ability of the electricity system to maintain or supply a consistent delivery of electricity to customers.
Security	Security includes the ability of the supply of 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: a) the regulations; and b) the electricity system and market rules; and c) Electricity Industry Amendment (Network Quality and Reliability of Supply) Code 2005;

Existing Regulation and Instruments governing PSSR Standards in the SWIS

- Western Power Technical Rules
- EIA
- ENAC & AA5
- NQRS
- WEM Rules & Subsidiary Procedures

Stage 1 (Assessment of Existing Standards) Outcome

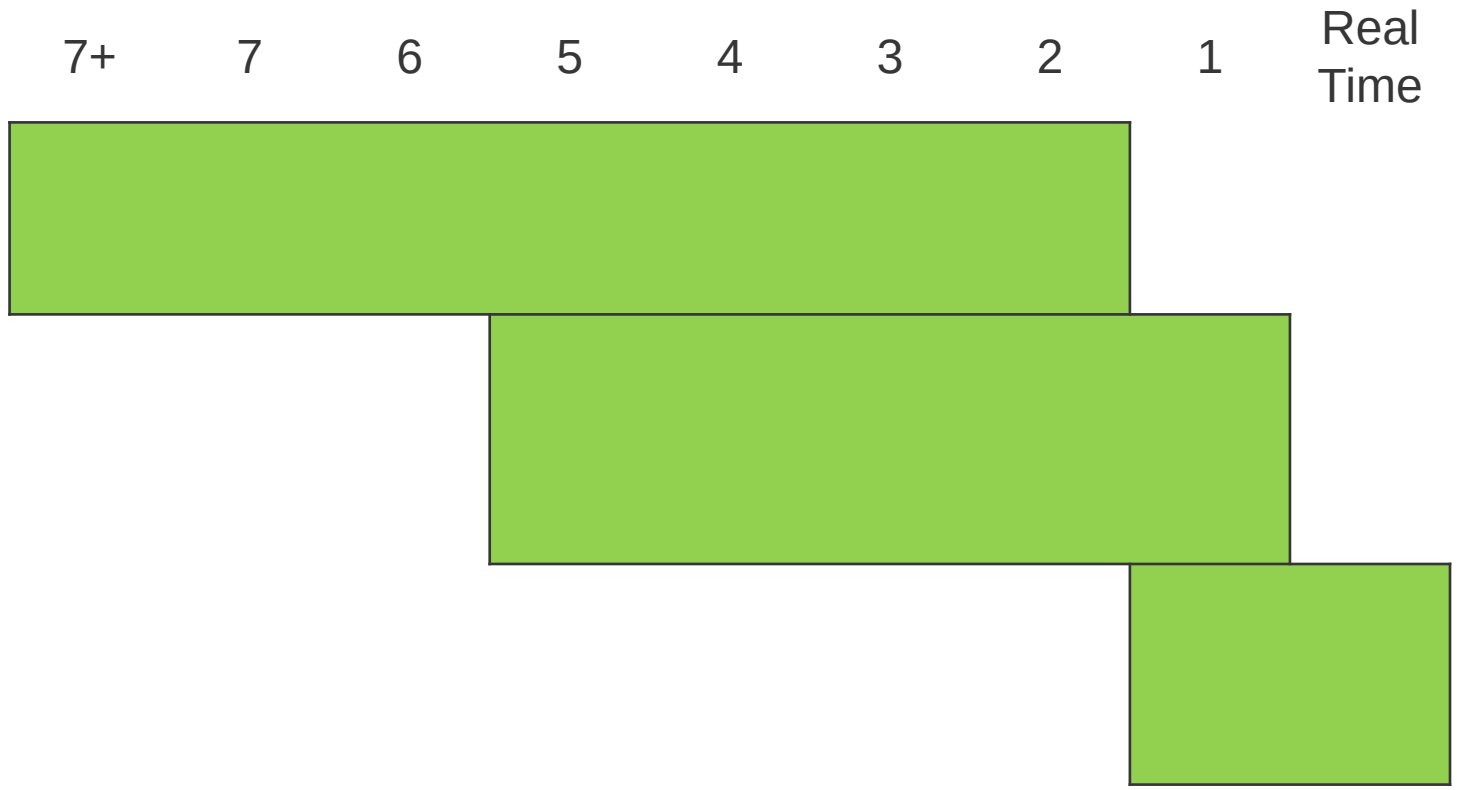
Time Horizon Tranches

Tranche

Infrastructure Planning
Long-term, high uncertainty due to forecasting long-term impacts.

Implementation
Design and construct, medium uncertainty, decreasing through the design and commission.

Operation
Short-term, lower uncertainty as inputs are better defined.



Infrastructure Planning activities define new infrastructure requirements, operational activities determine how to utilise existing infrastructure. There are several planning and operational horizons that are considered by each Western Power, AEMO and EPWA, and these differ across generation/transmission/distribution activities.

The framework presented here is generic for discussion purposes.

Existing defined security and reliability outcome requirements

	Infrastructure Planning (>1 year)	Implementation (5 to <1 year ahead)	Operation (<1 year)	Result
Supply	WEM Rules 4.5	WEM Rule Appendix 12 Technical Rules Section 3	WEM Rules Part 3 and 2.27A.	Adequate installed supply with correct capability operated economically.
Transmission	Technical Rules 2.5.2 Value Customer Reliability AA5	Technical Rules Section 2 NQRS Clause 9 ENAC NFIT / Reg Test	WEM Rules Part 3 and 2.27A	Adequate and economic installed Transmission infrastructure.
Distribution	Technical Rules 2.5.3	Technical Rules Section 2 NQRS Clause 6-13	NQRS Clause 10-11&16	Adequate and economic installed Distribution infrastructure.
Load	Customer driven	Technical Rules Section 3	WEM Rules DSM and AEMO Load Shedding	Load is supplied and does not adversely impact PSSR.
Result	Adequate installed infrastructure to supply loads within defined contingencies.	Installed infrastructure creates and transmits power of the correct quality and remains operational for defined system disturbances.	Installed infrastructure is used to maintain supply at the defined quality in a manner remains operational for credible system disturbances.	PSSR to customers at required standards consistent with the SEO

Notes:

- Power quality outcomes are most greatly impacted by generators and loads. Delivering against quality requirements defined in section 2 of the TR requires the application of section 3 of the TR.
- Power security outcomes are most greatly impacted by the capability of generators' automatic and high-speed response and the availability of sufficient reserve generation.

Stage 2 (Gap Analysis)
Update and input from the MAC

High Level Gaps Discussed with Working Groups

The following gaps have been identified and discussed with the Working Groups:

1. Different Infrastructure Planning Standards

- It is not clear how each planning standard should be applied, and customer value is not considered in all cases.

2. Application of the Technical Rules to PSSR investment and operation

- More clarity is required for when the TR should be applied as a guide to GEIP and when it the overrides economic optimisation required by the Access Code and specifically requires investment (capital or operating) in PSSR by the NSP at any efficient cost

3. No obligation on network to ride through system disturbances

- Network elements are not required to operate continuously through credible system disturbances.

4. Requirements, Ongoing Testing and Implications on non conformance across similar users

- No considered approach to compliance across classes of Users that can have a similar impact on PSSR.

5. Requirements on Energy Storage

- The requirements on Energy Storage facilities is spread across multiple mechanisms in the TR and the WEMR and additional clarity is required.

High Level Gaps Discussed with Working Groups

The following gaps have been identified and only discussed with the Technical Working Group and will be discussed with the PSSRS Standards Working Group at the next meeting.

6. Addressing limitations on fuel supply, storage and renewable location diversity on supply security.

- The existing security standards may not adequately consider future limitations in fuel supply, renewable location diversity and storage duration in the SWIS.

7. System strength and system resilience and their role in PSSR Standards.

- The difference between inertia and system strength and the clear delineation between the responsibilities for these.

8. Overlaps and gaps in roles and responsibilities for establishing and applying Constraint Equations and NCESS for maintaining PSSR.

9. The ability customers to negotiate or change their reliability outcomes could be better integrated into the standards.

10. Increasing speed of technology change may require more flexible governance requirements of technical requirements.

High Level Gaps Discussed with Working Groups

The following gaps have been identified and have yet to be discussed with either working group but will be discussed at the next meetings.

11. Opportunity to streamline GPS to be more aligned with the current requirements of the SWIS to reduce the cost of the energy transition.

- Opportunities to simplify the GPS process.
- Review of technical requirements to ensure they are relevant to the SWIS.

12. Consistency in approach to forecasting required to plan for Security and Reliability.

Input from the MAC

Does the MAC have any further comments on the gaps identified for stage 2?

Appendices

Context of maintaining reliability and security

How are the activities different?

Aspect	 Infrastructure Planning	 Implementation	 Operation
Security	Defined by expected performance of generators and load during new connections, loss of load and changes to network availability.	Detailed requirements on new facilities that increase in certainty through design and commissioning.	Achieved by dispatching sufficient energy, reserve and other services in correct locations.
Reliability	Through probabilistic or deterministic criteria in network investment planning and RCM process.	Timing of investment / planning of outages	By generation adequacy provisions.
Requirements	Defined with reference to long term planning process with high uncertainty.	Defined with reference to specific technologies.	Like Infrastructure planning but defined with more certainty due to shorter forecasting durations and less options as can only use installed facilities

Note that the Instruments have been developed to the traditional process for maintaining PSSR.

High Level Gaps Identified in initial assessments

	Infrastructure Planning (>1 year)	Implementation (5 to <1 year ahead)	Operation (<1 year)	Identified Gap
Supply	WEM Rules 4.5	WEM Rule Appendix 12 Technical Rules Section 3	WEM Rules Part 3 and 2.27A.	1. No clear articulation of the implementation obligations on the different Energy Storage connections across GPS and TR.
Transmission	Technical Rules 2.5.2 Value Customer Reliability AA5	Technical Rules Section 2 NQRS Clause 9 ENAC NFIT / Reg Test	WEM Rules Part 3 and 2.27A	1. Different planning standards that apply to network. 2. Unclear when TR should require investment and operational decisions and when they inform good practice around design activities.
Distribution	Technical Rules 2.5.3	Technical Rules Section 2 NQRS Clause 6-13	NQRS Clause 10-11&16	
Load	Customer driven	Technical Rules Section 3	WEM Rules DSM and AEMO Load Shedding	1. Some gaps when customer seeks to negotiate delivered reliability (TR, UFLS etc).
Identified Gap	1. Multiple and different planning standards. 2. Demonstration of net benefit in standards for network investment but not in generation investment. 3. No clear guidance on forecasting or maintenance of fault level / system strength.	1. No specific obligation for the network to ride through system disturbance requirements placed on generators.	1. Ongoing testing requirements and responses to non-compliances are different for GPS generators than other similar facilities.	

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Agenda Item 6(d): Demand Side Response Review – Working Group Update

Market Advisory Committee (MAC) Meeting 2024_03_21

1. Purpose

To provide the MAC with an update on the Demand Side Response Review (the Review).

Recommendation

That the MAC note:

- that the Information Paper for the Review has been published;
- that an Exposure Draft of the Amending WEM Rules (the Exposure Draft) to implement the Review Outcomes will be released for consultation shortly;
- the Minutes of the 8 February Demand Side Response Review Working Group (DSRRWG) meeting (Attachment 1); and
- the draft Minutes of the 15 February DSRRWG meeting (Attachment 2), which have been circulated but have not yet been endorsed by DSRRWG members.

Process

- The Coordinator of Energy (Coordinator), in consultation with the MAC, has reviewed the participation of DSR in the Wholesale Electricity Market (WEM) in Western Australia under clause 2.2D.1 of the WEM Rules.
- The purpose of this review is to ensure that DSR has adequate incentives to participate in the WEM and is compensated appropriately for the provision of its services.
- Following consideration by the MAC at the 8 February 2024 meeting, an Information Paper containing 12 Review Outcomes was released on the Energy Policy WA website.
- The sixth and seventh DSRRWG meetings were held on 7 and 15 February 2024. At these meetings members discussed the draft Amending WEM Rules to implement the majority of Review Outcomes (Outcome 4 and part of Outcome 1 will be implemented through changes to other regulatory instruments).
- Key areas of focus in these meetings were the Amending Rules relating to:
    - Information sharing between AEMO and Western Power on constrained loads (Review Outcome 1);
    - the arrangements for metering and registering a component of a Facility as a separate Facility in the WEM (Review Outcome 3);
    - various elements of the dynamic baseline for DSPs participating in the RCM (Review Outcome 4);
    - Demand Side Response Programme rotation method (Review Outcome 12).
- Energy Policy WA has taken into account the feedback by DSRRWG member in finalising the Exposure Draft.

- The Exposure Draft be open for consultation for four weeks.
- Following consultation, Energy Policy WA will publish a consultation summary and response document, make any amendments necessary the Amending WEM Rules and submit them to the Minister for Energy for Gazettal.
- Energy Policy WA will need to engage with AEMO to determine when the Amending WEM Rules should commence.
- The Terms of Reference, papers and minutes for the DSRRWG meetings are available on the DSRRWG webpage at: Demand Side Response Review Working Group (www.wa.gov.au)
- Further information on the DSR Review including the Scope of Works are available on the DSR Review webpage at Demand Side Response Review (www.wa.gov.au)

2. Next Steps

Step	Timing
(1) Publish DSR Review Information Paper	February 2024
(2) Publish the Exposure Draft of WEM Amending Rules	February 2024
(3) Consultation on the Exposure Draft	March 2024
(4) WEM Amending Rules submitted to Minister for approval	April 2024
(5) Gazettal of WEM Amending Rules	TBD
(6) Commencement	TBD

3. Attachments

(1) Agenda Item 6(d) – Attachment 1 – DSRRWG 2024_02_07 – Minutes

(2) Agenda Item 6(d) – Attachment 1 – DSRRWG 2024_02_15 - Draft Minutes

Minutes

Meeting Title:	Demand Side Response Review Working Group (DSRRWG)
Date:	7 February 2024
Time:	9:00 AM to 11:00 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	(Chair) EPWA	
Toby Price	AEMO	
Mena Gilchrist	AEMO	
Devika Bhatia	Economic Regulation Authority	
Scott Cornish	Enel X	
Bronwyn Gunn	EPWA	
Thomas Marcinkowski	EPWA	
Bobby Ditric	Lantau Group, Consultant	
Dave Carlson	Lantau Group, Consultant	
Tessa Liddelow	Shell Energy	
Graeme Ross	Simcoa Operations	
George Martin	Starling Energy	Left at 10:40am
Wayne Trumble	Newmont Mining	
Dimitri Lorenzo	Bluewaters Power	
Chris Alexander	Small-Use Consumer Representative	
Noel Schubert	Small-Use Consumer Representative	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Aaron Bowling	Western Power	Joined at 10:30am, left at 10:40pm
James Elliott	Horizon Power	Left at 10:20am
Rhiannon Bedola	Synergy	
Apologies	**From**	**Comment**
Mitch O'Neill	Grids	Apology
Jake Flynn	Collgar Wind Farm	Apology
Oscar Carlberg	Alinta Energy	Not in attendance
Michael Zammit	Integrated Management Services	Not in attendance

Item	Subject
1	**Welcome** The Chair opened the meeting with an Acknowledgement of Country.
2	**Meeting Apologies/Attendance** Noted as per the above.
3	**Competition Law Statement** The Chair asked attendees to note the Competition Law Statement provided with the meeting papers and invited attendees to raise any competition law concerns that might arise.
4	**Minutes** The Chair noted the minutes for the previous DSRRWG meeting of 29 November 2023 were approved and published out of session.
5	**Action Items** <u>Item 2 – Western Power to provide an overview of the extent to which the Eastern Goldfields Load Permissive Scheme (ELPS) has been successful:</u> The Chair invited Ms Kogon to address this with reference to the material Western Power had previously provided from this Item, which EPWA had circulated to working group members. • Ms Kogon noted the ELPS overview and video were circulated to the working group. • Mr Schubert noted that, while information had been provided on how this scheme operates, no information had been provided on how successful it was. • Ms Kogon stated that in Western Power's view, the ELPS had benefited customers by redistributing available capacity and therefore allowing customers to connect when they might not otherwise have been able to. • Mr Trumble disagreed with the conclusion that it had been successful. This Action was closed. <u>Item 3 – Western Power to confirm whether there is a size threshold above which new loads are required to contribute to network augmentation and, if so, what it is and whether it distinguishes between transmission and distribution:</u> The Chair introduced the Item and referred to previous email advice sent to EPWA by Western Power addressing it, which had not yet been discussed by the working group. • Ms Kogon stated that there is not a threshold per se, but Western Power has an obligation to offer access and it is up to the customer whether or not to accept that. The Chair confirmed that for a non-reference service, if a customer of any size wants to negotiate flexible access, Wester Power is required to negotiate under the Network Quality & Reliability of Supply (NQRS) Code. • Mr Schubert questioned what that means for the cost for customers who want to connect. • Ms Gunn stated that Western Power has confirmed that no matter the size of a customer, if their connection triggers the need for investment in the network, the customer will need to bear at least some of that cost irrespective of their size. • Ms Kogon noted that there are schemes in place that allow the costs to be distributed between scheme participants for eligible customers and, in some cases, it may end up being a very small cost.

Item	Subject

- Mr Trumble asked about the distinction between transmission and distribution as written in the action items.

Ms Gunn noted that given there is no threshold there is no distinction.

This Action was closed.

Item 4 – Synergy to provide feedback on Consultation Paper Proposal 3

- Ms Bedola stated that Synergy's view was that participation for both large loads and virtual power plans (VPPs) should be maximized. With regard to larger loads, a 10MW load may have a 1MW battery and the cost of Western Power submetering for that battery may be prohibitive, but there may be benefits to it participating.

The Chair reiterated that the *National Measurements Act 1960* (Cwth) prohibits anything other than Western Power metering being used for settlement in a market. Alternative submetering can only be used for reserve capacity certification, e.g. applying the Relevant Level Method (RLM) or testing , and the procedure under clause 2.29.15 of the WEM Rules sets requirements for such metering.

The Chair stated that Ms Bedola raised a valid concern that the Procedure does not go far enough in giving guidance on the arrangements in which a load is larger than other components of a facility and questioned whether this procedure could be changed to more effectively account for hybrid facilities in which the load is larger than other co-located components.

- Mr Price agreed that AEMO could clarify these arrangements in the procedure.

Action: EPWA to amend the Information Paper to incorporate this feedback.

- Mr Schubert said that the DER Roadmap is going to explore many options for aggregated batteries and loads, and that electric vehicles (EVs) could be the biggest battery on the system in aggregate, and that we want to get as much value out of whatever we have.
- Ms Bedola noted the complexities with market participation given EVs are mobile.

This Action was closed.

6 **DSR Review of the draft WEM Amending Rules Exposure Draft**

The Chair invited Mr Ditric to introduce each of the draft amending rules in the Exposure Draft.

Proposed clause 2.16.9(c) – Market monitoring of DSP loads

Mr Ditric noted this creates the explicit ability of the Economic Regulation Authority (ERA) to monitor whether a Demand Side Programme (DSP) has varied the consumption of its Associated Loads solely for the purpose of increasing its Relevant Demand.

The Chair invited comments on the proposed clause from the working group.

- Ms Gilchrist highlighted a typographical error and suggested making the wording of this clause consistent with 2.16A(3)(a) by using the language "with the intent of increasing its Relevant Demand".

The Chair agreed with Ms Gilchrist's suggestions.

Proposed clause 2.16A.3A – general trading obligations on DSPs not to increase Relevant Demand

- Ms Gilchrist asked whether the proposed clause would penalise an Electricity Storage Resource (ESR) in a hybrid facility that charges early in the day when prices are low to prepare for a DSP event later that day.

The Chair responded the clause was specifically to address a DSP varying its consumption or withdrawal specifically with the purpose of manipulating its baseline, not any other purpose.

- Mr Trumble stated it is difficult to prove intent.

The Chair stated that the purpose of the clause was to enable the regulator to monitor for gaming of the baseline and that the wording would be changed to clarify that the behaviour is "solely for this purpose".

Mr Carlson stated that:

- There are legitimate reasons a load would vary its demand, such as a large refrigeration load turning up to be able to sustain an upcoming curtailment.
- Intent is difficult to prove, and a regulator would want to see an explanation of why consumption was increased. If a participant can prove that it turned up for operational needs, that would normally be satisfactory to regulators.
- The ERA has implemented guidelines for trading conduct, so one option would be to expand those guidelines to provide guidance on this matter.

Mr Ditric clarified that the intent of this clause to is allow the ERA to interrogate the behaviour of the load and examine whether any variations in consumption are for legitimate operational reasons.

- Ms Gilchrist asked if there needed to be changes to data provision for market monitoring.

The Chair noted that the ERA **has the ability to ask for more data.**

- Mr Alexander suggested that in this clause the language of clause 2.16.9B could be mirrored, which refers to "anomalous" and "inappropriate" market behaviour.

The Chair responded that 'appropriateness' is too subjective a concept.

- Mr Huxtable expressed concern about the validity to increasing demand in preparation for curtailment in the examples discussed.

The Chair responded that the dynamic baseline is designed to avoid participants increasing demand just to turn down to a business-as-usual level.

- Mr Huxtable reiterated that this is what could be achieved using the examples discussed.
- Mr Schubert stated that this is a valid response if the increase in demand is before the event and for the purpose of preparing for the event, e.g. a battery charging or a refrigeration load over-cooling.

The Chair stated that the concept of 'intent' is not used elsewhere in the rules, so the language of 'with the intent of' in the draft clause 2.16A.3A could be changed to 'for the sole purpose of'.

- Ms Bedola raised a concern that certain categories of load (such as refrigeration loads) may receive a higher capacity credit allocation because unlike other loads, they increase relevant demand to be able to provide a service.
- She noted a refrigeration load may increase from 10MW to 20MW to pre-cool to provide a response, then just go back to 10MW and get paid for this, when it's not actually providing a benefit to the system.

Mr Carlson responded that the adjustment is done **prior** to a dispatch notice being issued so any actions taken following the dispatch notice would not be counted in the adjustment. If a load routinely tries to shift away from peak, that would appear in an unadjusted baseline and that would be reflected in how the baseline is calculated.

- Ms Bedola said that Mr Carlson's comment addressed her concern.
- Mr Martin commented that it is important to differentiate between gaming the baseline and taking steps to ensure the asset is prepared to provide a service during an activation.
- Mr Trumble asked if the language and intent of the Rules is consistent across Reserve Capacity, Supplementary Reserve Capacity (SRC) and Non-Cooptimised Essential System Services (NCESS).

Action: EPWA to redraft this clause to remove the concept of intent, look at the use of inappropriate/anomoulous behaviour and make the wording consistent with the rest of the rules as far as is practicable

Proposed clause 2.27B.9 - Congestion Information Resource (constrained access):

Mr Ditric introduced the draft amending rule, stating it required the Network Operator to provide information to AEMO regarding constrained access loads so AEMO can make use of this information in various processes.

- Ms Bedola said the clause refers to the Network Operator constraining the connection, but it is the customer behind the connection that is constraining.

Action: EPWA would redraft the clause to account for this feedback.

The Chair suggested referring to "user" and noted the need to find analogous rules referring to the same language and use that in the proposed drafting.

- Ms Kogon noted that the current wording of the clause could capture many arrangements at connection points because Western Power's Access Contract or ETAC contains terms that usually entitles Western Power to curtail the provision of the service for a range of factors including planned and unplanned outages, network security and stability issues and network constraints.

Ms Gunn asked if Western Power had any suggestions for re-drafting.

- Ms Kogon replied that Western Power need to consider that internally.
- Ms Kogon asked whether this drafting implies that the information will become public as it's under the Congestion Information Resource section.

Mr Ditric confirmed this.

- Ms Kogon reiterated her concerns that this will capture non-market loads that have standard provisions in their access contracts.

The Chair said that the purpose of the clause is to capture constrained access agreements with customers, not standard provisions that allow Western Power to constrain customers for security reasons or otherwise.

Action: EPWA and Western Power will consider how to limit the wording of the amending clause accordingly, and to refer to specific agreements or arrangements with the customer.

- Ms Gilchrist suggesting the following alternative wording: "Each Network Operator must provide information to AEMO relating to each connection point where non-standard arrangements exist for the Network Operator to constrain withdrawal at the connection point".
- Mr Price questioned whether the use of non-reference or non-standard was preferable.
- Ms Kogon said that the wording needed to be considered carefully by Western Power otherwise any contract could become "non-standard" as soon as there is any negotiation.

Mr Ditric suggested developing a defined term for constrained access load and referring to that.

- Mr Ross asked how this related to the Network Access Quantity process.

The Chair responded that AEMO would use the information provided by Western Power under this clause in its planning, including in the NAQ process.

- Ms Kogon asked if the clause would apply in real-time.

The Chair responded that it would apply in advance, for planning and other purposes. In real-time, there is limit advice the Network Operator will provide to AEMO, which AEMO will convert into constraint equations to indicate when a load has been, or will be, curtailed.

Item	Subject

Action: EPWA will consider whether clause 2.27B is the best place for this proposed clause, and will consider the wording proposed by Ms Gilchrist with tweaks as appropriate.

Amendment to clause 2.29.4 and proposed clause 2.29.4N(f) – Registration criteria for facility comprising load and another technology type

Mr Ditric said that a new clause 2.29.4N(f) has been drafted so circumstances in which a facility comprised of a load and another technology type is required to register as a Scheduled Facility are documented in a Procedure.

- Ms Gilchrist questioned whether clause 2.29.4 needs to be subject to 2.29.4N(f).

The Chair agreed with Ms Gilchrist.

- Mr Price questioned:
    - Why does the clause mention Scheduled facilities but not Semi-Scheduled facilities, considering the objective is to make those facilities subject to constraints
    - As there is already an obligation to register for generation above 10MW or storage above 5MW, would this clause apply only to smaller facilities

The Chair stated that the purpose is to allow a participant to register as a DSP instead of a Scheduled Facility, even if the facility has a storage component. Currently, there is a blanket requirement for a hybrid comprising of a storage facility above 5MW to register it as a Scheduled or Semi-Scheduled Facility, but it may be of greater benefit to the market and the participant to allow some discretion if the load is bigger than the storage component. She noted that subclause (f) is currently just a criteria, it does not give AEMO the ability to exercise discretion, and that this needs to be added.

Action: EPWA will draft an additional clause to provide AEMO with discretion to allow a facility to not comply with the 5MW/10MW threshold requirement to register as a Scheduled or Semi-scheduled Facility.

- Mr Price noted that he would want to understand the need for this.

Ms Guzeleva noted that responses to this proposal in the consultation paper were supportive.

Proposed clause 2.33.9 – Registration Application Forms

Mr Ditric said that this clause creates an obligation for the Network Operator to provide a standard contract for sub-meters to be installed, and information to be included in those contracts.

- Ms Bedola agreed that there needs to be a standard contract but she considered that there must be allowances for negotiations away from that.

The Chair noted that it is necessary to be absolutely clear about how liabilities, risks, etc. are to be distributed between Western Power and the relevant party.

The Chair suggested amending the wording to add ‘unless otherwise agreed by parties’.

- Ms Gilchrist said that the clause was missing some apostrophes and that this provision would fit better in the Metering Code.

The Chair noted that the Metering Code will eventually become part of the WEM Rules under the current governance reforms and that it is simpler to include it in the WEM Rules now.

Proposed clause 3.5.11 – DSP Rotation in an Emergency Operating State

Mr Ditric said that this clause would give AEMO the ability to direct DSPs as required, regardless of the proposed rotation method, when there is an emergency operating state.

- Ms Gilchrist asked if the wording meant that the list would not be adjusted when AEMO directed DSPs in an emergency operating state .

Item Subject

The Chair said that DSPs can be called out of order if AEMO have declared an Emergency Operating State.

- Mr Trumble asked what the definition of 'Emergency Operating State' is, and how it relates to Lack of Reserve (LOR) conditions.
- Mr Price said that the definition of 'Emergency Operating State' is broader than LOR.
- Mr Price said that it was unusual to have a carve-out that it is confined to the Emergency Operating State provision in 3.5.11, as AEMO's existing powers under 3.5.5 allow for various directions.

Mr Ditric cited clause3.5.1 of the WEM Rules that 'the SWIS is in an Emergency Operating State when AEMO considers that the circumstances exist on the SWIS that may impact the ability of AEMO to operate in the SWIS as intended in accordance with the WEM Rules'.

The Chair confirmed that calling LOR does not necessarily meant the SWIS is in an emergency operating state.

- Mr Trumble asked if the same definition applied to capacity under the RCM, SRC and NCESS programs, and how participants could be incentivised to offer their capacity as a DSP rather than under SRC or an NCESS contract.

The Chair noted that:

  - SRC is provided under contracts with standard terms and conditions that are published.
  - the terms and conditions of NCESS contracts are subject to negotiation between the parties.

- Mr Trumble noted that he was trying to work out how capacity could be attracted into the RCM if it could alternatively contract through SRC or NCESS.

The Chair agreed that the goal is for all capacity to be part of the RCM.

- Mr Trumble noted that he was looking at the risks and rewards of the RCM vis-à-vis other mechanisms.

Action: this amending clause will be removed as there should not be duplication with the powers of AEMO in an Emergency Operating State.

- Mr Trumble asked Mr Price how NCESS contracts are set.
- Mr Price responded that:
  - The majority of NCESS contracts are based on registered Facilities participating in the market, and dispatch is through the real time markets, but that this is not usually the case for loads participating in NCESS.
  - There are example contracts for registered and non-registered Facilities on AEMO's website.
  - There are provisions to activate contracts if other mechanisms will be insufficient to manage system conditions.
  - Unlike generators, loads participating in NCESS are not necessarily required to register as a facility or obtain capacity credits in the next cycle. This is because the contractual requirements for service activation for loads participating in NCESS is different to the RCM so they may not be eligible for capacity credits.
  - Mr Price said, in response to Mr Trumble's prior concern over a lack of incentive to participate as DSP over other services, that there is potential for people to withhold their capacity from that cycle and exacerbate the problem and that this is a tricky problem to manage. He noted that the intent is that there will be no ongoing NCESS processes.

The Chair noted that every effort should be made to ensure that capacity comes through the RCM, and that the question at hand is what can be done in the RCM to make sure it is attractive for demand side response to participate in.

- Mr Trumble noted that it was unclear what NCESS costs were.

The Chair noted that AEMO has already published the 2022 Reliability Services Contract data on NCESS, but that EPWA had received feedback that it is not clear from that information what the size and cost is associated with each contract.

- Mr Cornish said that in the Service Specification, NCESS providers capable of receiving reserve capacity are required to apply for that.

The Chair said an effort should be made to ensure any capable resource is part of the mainstream RCM, otherwise customers pay more because participants delay and then apply under emergency mechanisms.

The Chair asked the working group if any additional changes could be made to give a strong incentive for participants to be part of the main RCM rather than waiting for SRC or NCESS.

- Mr Trumble said that the characteristics of dispatch and timing need to be consistent across programs.

The Chair agreed that there needs to be a uniform approach between services to avoid a situation in which participants are potentially waiting for NCESS and SRC instead of entering the normal mechanism.

The Chair said that EPWA has already reviewed the Rules following the 2022/23 SRC, and has made changes to ensure SRC notice periods are uniform with those of similar services (such as DSPs) under the Rules.

The Chair asked members if they had further recommendations for making these services uniform.

- Mr Trumble said that dispatch requirements, notification requirements and reward information all need to be published for each service for transparency.

The Chair said that EPWA is reviewing the SRC again this year and will, to the extent practicable, create requirements to align SRC contractual service specification arrangements with those in the RCM.

- Mr Ross asked if normal DSP services and SRC withdrawal services could be included together so the list for rotation each year is a combined list. That approach might prevent DSPs always being selected first.
- Mr Price said that payments for SRC are much higher so dispatching them in this way would be equitable, but will impact on market cost.
- Mr Schubert said that the aim of unifying conditions for all the services is good, but questioned whether the need for DSPs to be available for more hours can be matched with the need for a service which is only called upon in situations in which there is capacity shortfall.

The Chair noted that the issue that needs to be solved is how to encourage participation in the RCM rather than having loads waiting for the SRC or NCESS processes. While steps have been taken towards this, including reducing the 200 hours, implementing dynamic baseline and rotation schedule, she sought feedback on what else can be done.

- Mr Alexander noted support for the measures taken so far to encourage loads waiting for SRC to enter the normal RCM, particularly where consistency and transparency have been encouraged. He noted that NCESS needs to be aligned with the main market, as the latter is better for consumers in terms of cost and affordability.
- Mr Schubert asked if the 12-hour availability requirement for DSPs still applied, and whether it is reflective of when they are required. He also noted that some services may

need more than a 2-hour notice period, and the requirement for this may be locking potential providers out.

- Ms Bedola commented that there is still a 12-hour requirement but it is not necessarily 8am-8pm, the time of day is determined by AEMO.

The Chair invited members to make further recommendations to EPWA either in the meeting or outside the meeting.

- Ms Gilchrist said that the proposed clause 4.4B.5(c) has a 10MW limit but this is not mentioned in clause 2.27B.9, which will that mean anything below 10MW will not be disclosed to AEMO.

Mr Ditric acknowledged that was not the intent and said that a separate subclause would be created which would then refer to clause 2.27B.9.

Proposed clause 4.5.2(g):

There were no comments on this item.

Proposed clause 4.5.10:

There were no comments on this item.

Proposed clause 4.5.13(a)viA

Mr Ditric noted that this clause sets out the information that must be included in the Electricity Statement of Opportunities (ESOO) report about the level of curtailment expected for loads.

- Ms Kogon suggested that the proposed drafting might be too broad as it refers to all connection points rather than specific connection points.

Ms Gunn said fixing clause 2.27B.9 will address this concern.

- Ms Kogon said that Western Power will review the drafting of this clause internally.

The Chair reminded the working group that there would be further consultation once the rules have been refined further.

Proposed clause 4.26.2CA

No comments

Proposed clause 7.3.5

Mr Ditric briefly introduced the proposed clause, noting that the purpose was for information on curtailment to be published in real time.

- Ms Kogon asked if the intent in the proposed clauses that have already been discussed was to provide the information ahead of time, and how ahead of time was this meant to be.

Mr Ditric noted that that requirement was to provide this on or before 12 June on year 1 of the capacity cycle. This requirement is for in, or near, real time and requires AEMO to publish information when a load has been curtailed.

- Ms Kogon noted that Western Power advises a curtailment as a forced outage as all current arrangements are post contingent. She questioned whether, moving forward, if loads are constrained in a pre-contingent scenario, provision of triggers ahead of time to AEMO would be sufficient. If Western Power has to advise this ahead of time and then advise again when the curtailment occurs it will essentially be advising AEMO twice.
- Mr Price said that it is unclear which information will be published, and the clause specifically refers to giving information to Market Participants rather than publishing but suggested continuing that discussion with EPWA offline.

The Chair moved the discussion on in the interests of time but invited members to comment on the draft Dynamic Baseline provisions separately.

Item	Subject

7 **Hybrid Facility Sub-metering**

Mr Ditric introduced this item and asked the working group what the objective of hybrid submetering was - to allow two facilities to operate separately, or to have a single facility with multiple meters but all settled separately.

- Mr Huxtable suggested that the intent is to operate the components as separate facilities.

The Chair said that this approach is extremely complex for more than one sub-metered component.

- Ms Bedola noted that initially it may be separating the load from other components, so that the load can be subtracted from the total at the NMI, and that this would be the lowest cost option. Down the line, it may become desirable to have multiple individual facilities behind the same connection. The nature of components behind the connection point would drive which option is more desirable.
- Mr Huxtable said that when the battery in a hybrid facility discharges and the load increases at the same time, the meter at the connection point will read as though a facility is not delivering what is expected.

The Chair confirmed that this would involve a Scheduled or a Semi-Scheduled facility behind the main meter that is separately metered for settlement purposes.

- Mr Huxtable said that this was his original intent, but there is added confusion if the load is a DSP.

The Chair confirmed that allowing this involved a lot of complexity.

- Mr Huxtable said that if allowing just one component to register as a separate facility was easier, then having this would be acceptable.
- Mr Price noted that it depends on the use case, and the feedback AEMO has had is as per Mr Huxtable's comments - that participants want to recognize the different capabilities of components behind the meter to perform different functions. He questioned whether this needed to be done through submetering, noting that in the NEM separate components behind the connection point can be dispatched separately, but are settled at a common metering point for energy. He stated that there could also be completely independent facilities with separate meters. However, this option raises questions about where the notional connection point is, and who is responsible for loss factors and network outages.

The Chair said that it could be cost prohibitive to establish two physical connections to the network to separate that facilities and noted that EPWA is trying to avoid the high cost of connecting facilities in such a way.

The Chair said that the current Rules already allow for metering to be on the site of the participant's network and queried why this could not also be done for two components of a different type.

The Chair said that having more than one separate facility will require a complete redraft of all the registration Rules, while the alternative was to simply allow one of the components to have a revenue meter and then subtract its metering data from that of the meter at the connection point.

- Mr Price said that the problem is that two components are not capable of withdrawing from or injecting into the network at the same time based on a common single connection point with Western Power. In that case, you would lose the direct link of a single facility to a single connection point.

The Chair asked if a solution was to single out one component of a facility that a participant wants to treat differently.

- Mr Price said potentially, but that option needed to be explored further.

Item	Subject
	The Chair asked the working group which of the following two options was preferred: • A special arrangement for more than one separate facility with separate submeters. • Isolate one component and calculate settlement amounts by subtracting its metering values from the main meter. **Action: EPWA to draft rules to separate one component and amend settlement calculations.** • Mr Schubert agreed. • Ms Bedola asked whether settlements could occur at a component level under the current rules. • Mr Price answered that not currently.
7	General Business • Mr Schubert commented that the draft Information Paper had been provided in the MAC papers but not the DSRRWG papers, and asked if the Chair was seeking comments on the Information Paper from the DSRRWG or just from the MAC. The Chair replied that EPWA was only seeking comments on the Information Paper from the MAC.
8	Next Steps EPWA to redraft the amending rules as discussed in today's meeting.

The meeting closed at 11:00AM

Minutes

Meeting Title:	Demand Side Response Review Working Group (DSRRWG)
Date:	15 February 2024
Time:	11:00 AM to 12:00 PM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	(Chair) EPWA	
Tom Butler	AEMO	
Allicia Volvricht	AEMO	
Devika Bhatia	Economic Regulation Authority	
Scott Cornish	Enel X	
Bronwyn Gunn	EPWA	
Thomas Marcinkowski	EPWA	
Bobby Ditric	Lantau Group, Consultant	
Dave Carlson	Lantau Group, Consultant	
Tessa Liddelow	Shell Energy	
Graeme Ross	Simcoa Operations	
Dimitri Lorenzo	Bluewaters Power	
Chris Alexander	Small-Use Consumer Representative	
Noel Schubert	Small-Use Consumer Representative	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Aaron Bowling	Western Power	
Rhiannon Bedola	Synergy	
Oscar Carlberg	Alinta Energy	
Apologies	**Company**	**Comment**
Mitch O'Neill	Grids	Not in attendance
Jake Flynn	Collgar Wind Farm	Not in attendance
Michael Zammit	Integrated Management Services	Not in attendance
James Elliott	Horizon Power	Not in attendance
George Martin	Starling Energy	Not in attendance
Wayne Trumble	Newmont Mining	Apologies sent

Please note these are draft minutes that have not yet been endorsed by the members of the Demand Side Response Working Group.

Item	Subject

1 **Welcome**

The Chair opened the meeting with an Acknowledgement of Country and noted that the minutes for the previous meeting had not been circulated.

2 **Review of the WEM Initial Amending Rules Exposure Draft**

Secondary metering:

Mr Ditric ran through clauses 2.30A.1 and 2.30A.2.

- Mr Huxtable asked if the word component needed to be defined.

The Chair clarified that it is already used extensively in the rules and not defined.

- Mr Schubert asked if proposed clause 2.30A.2(b) would pose a problem for a facility with two network connections.

The Chair responded that facilities behind multiple connections will not be eligible to participate in these arrangements, as the premise is that a secondary interval meter is netted off a single primary meter.

- Mr Carlberg asked if a facility with two connection points could register components separately anyway under the current WEM Rules.

The Chair stated this is not possible if the components are electrically connected at the site and noted that the complexity with allowing separately registered components, in the presence of multiple connection points, arises due to matters such as different loss factors at the different connection points. She noted that if there was a real-life use case for it and the benefits could be demonstrated that it could be considered, but as it stands the benefits do not appear to outweigh the complexities.

Action: EPWA to define the different component provided for by proposed section 2.30A as a component of a different technology type.

- Mr Schubert asked if a problem was created by proposed clause 2.30A.2(d) in the case of a DSP also providing interruptible load for contingency raise.

The Chair responded that the proposed rule only states that if a facility already has a component registered separately, they cannot separately register a second component.

- Mr Butler said that AEMO needed more time to consider the interaction between sections 2.31 and 2.30A.
- Mr Butler asked whether these new clauses would form part of the application process, or if it was intended to be a separate process before the application process.
- Mr Butler also asked how the proposed section 2.30A relates to existing facilities.

The Chair said that it is for both existing and new facilities and if a participant wants to remove its separate registration of a component and move back to a single facility, they need to update their current facility registration. She noted that the intent is to rely on existing processes in section 2.31 as much as possible.

- Mr Butler asked if that process would trigger a review of both the existing facility and the separately registered component so that AEMO must review both.

The Chair confirmed this.

Item	Subject

Action: EPWA to amend the proposed section 2.30A to clarify that once approval is provided under section 2.30A, a participant must utilise the normal registration process under section 2.31, and must both register the separate component and have the Facility Class for the remainder of the facility reassessed.

- Mr Butler asked if the 10 business days referenced in clause 2.30A.4 was enough time to liaise with the Network Operator and receive its feedback.

The Chair noted that this drafting was for discussion, and asked for feedback on the appropriate length of time.

- Mr Butler stated that AEMO needed to consider the alignment between the timeframes in this section and section 2.31.

The Chair clarified that section 2.30A is not prescribing the registration itself, only the process of AEMO notifying a participant that they can apply to register a separate component.

The Chair invited members to make submissions on whether 10 business days was sufficient.

Mr Ditric said that the consultation process under the proposed clause 2.30A.3 is limited to confirming whether there is a meter installed, which should not take too long.

- Mr Huxtable commented that he does not think that the proposed rule meets the intent but referring to different technology types seeking separate registration may be helpful.

- Mr Carlberg asked what the rationale is behind limiting registration as a separate facility to one component.

The Chair said that with more than one component there must be revenue meters on all components that are registered separately, which would be complex because settlement needs to be able to account for each one. This also needs to include allocation of losses and this may require significant rules and system changes.

- Mr Carlberg noted that there could be benefit in that this would allow for multiple facilities to connect behind a connection point if there is capacity for this, and avoid the need for more network investment.

The Chair asked whether, given that each component has to be a separate technology type, that there would be more than 3 technology types behind a connection point that a participant would want to register separately.

- Mr Carlberg said that this was more of an edge case and not something that should delay this change, and noted his support for the initiative overall.

- Mr Carlberg asked if the purpose of this change was to work around the restriction in the current rules that prevents multiple facilities behind a single connection point, and why this current restriction could not just be removed.

The Chair said that this rule will allow for what is akin to disaggregating a facility, but in a limited way and settlement values will still be calculated with reference to the main connection point, with just one component of a separately technology type registered separately, and reiterated that each facility needs to be associated with a connection point and a “master” meter.

Mr Ditric said the proposed approach involved netting off the secondary meter from the main meter so whatever is left is the main facility’s reading.

- Ms Volvricht commented that the process in clause 2.30A.7, in which a Rule Participant applies to AEMO to de-register a previously registered separate component does not specify whether AEMO has the ability to deregister it.

Item	Subject

- Ms Volvricht also highlighted that there was no minimum amount of time which a participant had to give AEMO in its notice of deregistration.

Action: EPWA to redraft proposed section 2.30A so it is clear that AEMO must deregister a separate component on application from a participant, and to specify a minimum time a Participant needs to give AEMO in a notice of de-registration (e.g. 5 business days).

Mr Ditric then provided a brief summary of the other proposed amendments that had been drafted regarding updated registration forms, capacity credit allocation for separately registered components and changes to the Metered Schedule.

The Chair moved discussion onto the Dynamic Baseline but encouraged members to keep providing comments and making submissions during the consultation process on these amending rules.

Dynamic Baseline.

Mr Carlson said that the design of the baseline is a 10 of 10 baseline similar to that of the CAISO and as used in the NEM. He discussed the elements of the baseline as presented in the papers.

- Mr Schubert said that the 10 qualifying days selected ideally will be the days most like the days on which capacity is needed, rather than the most recent days, to ensure the baseline is as accurate as possible.

Mr Carlson said that the purpose of the adjustment was to take into account the difference in the baseline on event days and other days.

- Mr Schubert said that, if the baseline excluded days when an event occurred, it might exclude similar days.

Mr Ditric said that the reason for exclusion was because demand will not be accurate on those days because it has been curtailed.

- Mr Schubert suggested that another method was to add the demand that was curtailed on those days.

Mr Carlson said that the baseline methodology was in two stages: first**,** forming a baseline taking account of trading intervals on similar business days and then, scaling the baseline to take account of special conditions of the day on which the event was called.

- Mr Cornish sought clarification on whether 'the hour before the DSP dispatch event' referred to the time dispatch instructions are given or when dispatch occurs.

The Chair confirmed that this was when the instruction is given, but the terminology could be changed if it caused confusion.

Mr Carlson said that the reason for measuring from when the notice is given was to not allow for variations in demand after the notice has been given.

- Mr Cornish said that the 1 hour adjustment window is short compared to the NEM's adjustment window and that, in the NEM, the adjustment window starts 4 hours before the event (when the demand side resource is actually curtailed) and 3 hours before notification goes out. This helps to smooth over any variance that might happen in a single hour. He recognized the need to balance between the smoothing effect and the accuracy benefits of having the adjustment window closer to dispatch.

The Chair stated that the timing could be revisited.

Mr Carlson noted that the notice period in the WEM can vary significantly and, while minimum notice of two hours is required, significantly more notice can be provided.

Item	Subject

Mr Ditric added that this means that the adjustment window can be some time before the dispatch occurs.

- Mr Cornish said that, if the notice is given very early in the day, it may be pushing the adjustment window to a time before all the businesses are ramping up for the day and losing some of the accuracy. He stated that a cap on the amount of notification time would limit that to some degree. For example, at least a minimum of 2 hours but no more than 4 hours.

The Chair noted that putting the adjustment window prior to the notice is required to prevent gaming.

- Mr Cornish agreed that this was necessary but, if that was 6-8 hours before dispatch, the accuracy would be compromised.

The Chair stated that **the drafting would be amended to limit the DSP dispatch instructions to no more than four hours before curtailment is required.**

Mr Carlson recalled that in the rules for testing of DSP curtailment there is a minimum of 2 hours but maximum of 3 hours, so perhaps the changes should be based on that.

- Mr Ross asked for clarification on the relationship between the dynamic baseline over the qualifying days and capacity credit allocation, and whether changes to the Relevant Demand would affect capacity credit allocation.

The Chair clarified that the dynamic baseline is not used for capacity certification, that it was only regarding relevant demand and not the required level.

Mr Ditric noted that the dynamic baseline only matters when a DSP is dispatched or tested, and that there is a separate process to look at Associated Loads as part of the certification.

- Mr Schubert noted that, if a participant is allocated a number of capacity credits, its ability to comply during an event is determined by this dynamic baseline, and it might not be able to comply in winter but can in summer.

The Chair said that a static baseline would carry more risk.

- Mr Schubert said that the issue is whether the allocation of capacity credits reasonably matches the dynamic baseline.

The Chair said that capacity credits are allocated 2 years in advance and they do not change as a result of the dynamic baseline, which just measures the performance of a DSP when called.

- Mr Ross asked whether capacity payments would be affected if a DSP's relevant demand is less than the required level.

The Chair said that it affects refunds, but not capacity credits.

- Mr Schubert noted that this means the allocation of capacity credits needs to be the lowest amount consistent with what a DSP can deliver. For example, a DSP that can deliver 25MW in winter and 50MW in summer would only be allocated 25 capacity credits.

The Chair responded that it is within a DSP's control how many capacity credits they ask for and that DSPs have also been called during winter recently.

The Chair said that she was willing to continue this discussion outside the meeting.

Mr Carlson continued summarising the rest of the dynamic baseline drafting.

Ms Gunn stated that the issue of the baseline for the weekends still needed to be discussed.

Mr Ditric said that the weekend baseline would be identical to the weekday baseline but would use a 4 of 4 methodology instead of a 10 of 10.

Item	Subject

Mr Carlson said that the NEM allows for four baselines, and the baseline for loads that operate differently on weekdays versus weekends is the 'composite level' baseline.

Mr Carlson said that the composite level baseline uses a 4 of 4 methodology for weekends, 10 of 10 for weekdays and different adjustments for each, depending on when an event is called.

- Ms Bedola said that she is concerned about how complex the composite baseline model is versus its value, and that there might not be much variance between how commercial loads that are participating in DSPs are operating during the peak, e.g. at 6pm, on the weekends and on weekdays.

The Chair considered that on weekends commercial load may be lower, and that the peak is defined as 4.30-8.30.

- Mr Schubert said that the issue is not so much about the difference in load on the weekend but is more to do with the DSP's load profile and how that changes between weekdays and weekends.

The Chair encouraged members to make submissions as part of consultation.

Department of Energy, Mines, Industry Regulation and Safety
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GOVERNMENT OF WESTERN AUSTRALIA

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

Market Advisory Committee (MAC) Meeting 2024_03_21

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 since the last MAC meeting.

2. Recommendation

That the MAC:

- reviews the draft WIC Review Consultation Paper (Attachment 2);
- notes that consultation paper is in a draft state and that Energy Policy WA is still working on the wording in the paper, and notes that:
  - the content and proposals in the consultation paper were presented at the MAC meetings on 23 November 2023 and 8 February 2024;
  - the draft consultation paper sets out the findings and recommendations arising from analysis on Initiatives 1, 2, 4 and 5. Initiative 3 is not included in this consultation paper as the interaction with the Commonwealth Capacity Investment Scheme (CIS) is still to be determined; and
  - work on the detailed modelling is in progress and will be included in the paper before its publication.
- provides any additional views on the draft proposals outlined in Attachment 1 and the draft consultation paper; and
- notes the minutes from the WICRWG meeting on 24 January 2024 (Attachment 3)

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 (RCM) Review and will consider the five specific reforms that were announced by the Minister for Energy on 9 May 2023.
- At the WICRWG meeting on the 8 November 2023 the final proposal to assess emissions using data specific to the WEM for all facilities discussed. It was proposed to:
  - measure a facility's emissions rate based on theoretical emissions at maximum generation; and
  - measure a facility's emissions quantity based on the metered generation at the theoretical emissions rate.

- The proposed formula for determining the emissions rate of a facility, would use the emissions rate at maximum output. This approach was considered to increase investment certainty and reduce price volatility while still allowing for the emissions threshold to be adjusted. Whilst using a theoretical emission rate was considered to be more stable, predictable and less complex while still signalling when facilities would no longer receive Capacity Credits.
- At the WICRWG meeting on the 24 January 2024 the final proposals for the Reserve Capacity Price (RCP) Curve were discussed. It was proposed that the RCM will continue to use an administered price curve to set the RCP in each cycle and:
  - to set the price cap for Peak Capacity at 150% of the Benchmark Reserve Capacity Price (BRCP);
  - to set the Peak RCP to 100% of the BRCP at the Peak Reserve Capacity Target;
  - to retain an absolute zero point at 130% of the capacity target;
  - to have a deadband between 95% and 105% of the Reserve Capacity Target and a price cap at 150% of the Reserve Capacity Target for the Peak RCP; and
  - for the Flexible RCP curve to have a deadband between 100% and 105% of the Flexible Reserve Capacity Target and a price cap at 160% of the Reserve Capacity Target.
- The following proposals had been previously generally agreed on by the WICRWG and noted as final:
  - to regularly review the price curve during the BRCP capacity provider review;
  - to not including special transitional provisions for Facilities commissioned since 2019; and
  - to amending the cap and floor inflation provisions for existing Transitional Facilities.

No further WICRWG meetings have been held on these Initiatives.

- The draft proposals are specified in the text boxes throughout the draft consultation paper and included in Attachment 1 for ease of access. A table in Attachment 1 also provides a high-level summary of the rationale for each proposal.
- 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

A meeting of the WICRWG was scheduled for the 27 March 2024, this has been postponed to the 24 April 2024.

5. Attachments

(1) Agenda Item 6(e) – Attachment 1 - Summary of WIC Review Draft Proposals

(2) Agenda Item 6(e) – Attachment 2 – draft WIC Review Consultation Paper

(3) Agenda Item 6(e) – Attachment 3 – WICRWG 2024_01_24 – Minutes

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Attachment 1: Summary of WIC Review Draft Proposals

Emissions thresholds for Reserve Capacity Mechanism participation	
Proposal 1 – Type of emissions thresholds Introduce an emission intensity threshold and an emission quantity threshold into the WEM Rules and only provide Capacity Credits to facilities with emissions below the applicable threshold. Assess emissions for all facilities, both existing and new, using an emission intensity based on theoretical emissions at the level of Certified Reserve Capacity. Calculate the annual emissions quantity for each new facility based on its metered output at its theoretical emissions rate. Require AEMO to test the accuracy of emissions intensity parameters using production and fuel usage data, by observation or in Reserve Capacity Tests.	The new State Electricity Objective explicitly requires balancing reliability and price with environmental impact. Introducing emissions thresholds for RCM participation provides a path to a zero-emissions electricity sector. Actual emission intensity depends on how hard a facility runs. Using theoretical data will reduce volatility in emissions intensity values and allow clearer forecasting of whether a facility would breach the threshold. This increases investment certainty while still allowing the threshold to be adjusted over time to reduce carbon emissions.
Proposal 2 – Timing of introduction Introduce emissions thresholds in the 2026 capacity certification process (for Capacity Credits issued for the 2028 Capacity Year).	Early introduction is needed to support emissions reduction in the SWIS. AEMO is already implementing significant change in the 2024 and 2025 Reserve Capacity Cycles, so the 2026 cycle is the earliest reasonable date for implementing emissions thresholds. This timeframe together with the emission threshold commencing value will also align with the government announcements for retirement of state-owned fossil fired facilities (from 2027). Any Facility that had received Capacity Credits before the 2026 capacity cycle would be classed as an existing Facility.

Proposal 3 – Emissions threshold values for new Facilities Set an emission intensity threshold of 0.55 tCO2e/MWh to apply to all new facilities. Set an emissions quantity threshold of 1,000 tCO2e/MW to apply to all new facilities. Exclude emissions from generation while under AEMO direction from the calculation of facility emissions quantities.	This intensity threshold would preclude the highest emitting generation from receiving Capacity Credits, but would still allow a new efficient gas plant to enter the RCM. This recognises that efficient gas-fired generation has an important firming role in the power system in the period before 2050. An emissions quantity threshold of 1,000tCO2e/MW would allow a new efficient gas plant to operate up to 20% of the time. A 20% capacity factor would allow gas plant to run for 4.8 hours every day of the year or 9.6 hours during the high demand seasons (winter and summer).
Proposal 4 – Future reductions in emissions thresholds Reduce the emissions quantity threshold for new facilities by 100 tCO2e/MWh per year from 2041, to reach zero in 2050. Review emissions thresholds every five years, including determining the final thresholds to be used for the following five capacity cycles. For the ten years following commissioning of a facility that holds Flexible Capacity Credits, determine RCM participation based on the emission thresholds that applied for the Capacity Year for which the facility first received Capacity Credits.	As the SWIS gets closer to 2050, the net-zero target means that the proportion of fossil-fired capacity must further reduce. These proposals provide an indicative profile that reaches net zero in 2050, certainty in each five year period, and an opportunity to adjust based on developments over time.
Proposal 5 – Emissions threshold values for existing Facilities Set an emissions intensity of 0.95 tCO2e/MWh to apply to all existing facilities in the same capacity year that emissions thresholds are introduced for new facilities. Decrease the threshold for existing facilities by 0.05 tCO2e/MWh in each subsequent year, until the threshold is the same for new and existing facilities.	If the proposed thresholds for new facilities were applied to existing facilities immediately, many would no longer be eligible for capacity credits, and retirement would likely follow. This would have significant consequences for power system reliability. Applying a transitional emissions intensity threshold to existing facilities allows a clear forecast of when particular facilities may exit the market.

Proposal 6 – Treatment of existing Facilities with Flexible Capacity Credits Postpone emissions intensity threshold reduction for ten years for existing facilities holding Flexible Capacity Credits. Reduce the emissions intensity threshold for existing facilities holding Flexible Capacity Credits to 0.75tCO2e/MWh ten years after introduction, and then by 0.05tCO2e/MWh each year until the threshold is the same as other facilities. Postpone emissions quantity threshold application until ten years after commissioning for any new facility which holds Flexible Capacity Credits and is commissioned in the first ten years after emissions thresholds are introduced. Reduce the emissions quantity threshold for new facilities holding Flexible Capacity Credits to be the same as other new facilities ten years after commissioning.	Until significant volumes of dispatchable renewables are built and/or sufficient flexible demand becomes available, flexible fossil fuelled generation is likely to be needed to maintain system reliability. The proposed profile will allow the exit of inflexible high emission generators from the RCM, while maintaining the presence of efficient gas generation and reliability in the SWIS.
Proposal 7 – Treatment of cogeneration facilities Exempt cogeneration facilities from the emissions threshold regime.	Cogeneration facilities use fossil fuels to generate both electricity and heat or steam for use in industrial processes. Because a large proportion of the fuel goes towards creating energy that is not output as electricity, the inherent emissions rate would be unfairly high if only the electricity production was taken into account. The additional complexity required to determine and apply a heat to electricity split for cogeneration facilities is unnecessary given that cogeneration facilities will remain covered by the Safeguard Mechanism, on a site specific basis
Ten-year Reserve Capacity Price guarantee for new technologies	

Proposal 8 – Eligibility for price guarantee Allow any new facility that provides Flexible Capacity using a renewable source to receive (on request) a fixed RCP for ten years. Require gas-fired facilities seeking the ten-year fixed price to provide in each capacity cycle evidence of 100% renewable fuel supply.	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. A period of fixed pricing provides investors with certainty of capacity revenue for a longer period than under the existing WEM Rules. Requiring a facility to be of a technology type not already present in the SWIS would be inconsistent with the goal of facilitating increased renewable build. Similarly, allowing new fossil-fuelled facilities would be inconsistent with the desired outcome of decarbonising the SWIS.
Proposal 9 – Duration requirement Require a facility requesting the ten-year fixed price to provide evidence that it can provide firm output for at least 120% of the prevailing ESR Duration Requirement.	Currently, ESR facilities are assigned Capacity Credits based on their ability to deliver firm output for a four-hour period. An ESR facility that can provide firm capacity over longer duration will support the replacement of fossil-fuelled generation by renewables. Facilities that only exceed the prevailing requirement by a very short time do not provide significant additional flexibility. EPWA considers that a 20% buffer is a reasonable representation of a duration that exceeds the standard requirement.
Proposal 10 - Implementation Group proposed longer duration ESR facilities requesting a ten-year fixed RCP with proposed floating price facilities for Network Access Quantities (NAQ) purposes.	In the current RCM, Facilities can request a 5-year fixed RCP, but only receive NAQs (and hence Capacity Credits) if there would otherwise be a capacity shortfall. Treating longer-duration firming facilities seeking a 10 year fixed price in the same way as inflexible floating price facilities would defeat the purpose of the policy.
Reserve Capacity Price curve	

Proposal 11 – Price at Reserve Capacity Target Set the Peak RCP to 100% of the Peak BRCP if the number of Peak Capacity Credits issued equals the Peak Reserve Capacity Target.	The BRCP is set based on the expected cost of new entry (CONE) of the marginal new entrant capacity provider. If the RCP is set higher than the BRCP at the Reserve Capacity Target, the marginal new entrant will receive more revenue that it needs. Because the BRCP is based on gross CONE, the marginal new entrant capacity will receive more revenues than what it needs to break even in the energy and ESS markets. This proposal would align the WEM with almost all other jurisdictions and set RCP to equal BRCP when the Reserve Capacity Target is exactly met.
Proposal 12 – Price deadband Set the Peak RCP to 100% of the Peak BRCP when the number of Peak Capacity Credits provided is between 95% and 105% of the Peak Reserve Capacity Target.	The relatively small size of the SWIS means that the RCP can be changed significantly by a single retirement or a single new plant addition. A deadband will reduce RCP volatility. With a Reserve Capacity Target around 5,000 MW, a deadband of around 500 MW would mean that a single build or retirement decision alone would not move the price, at least when the available capacity was near to the target.
Proposal 13 – Price cap Set a maximum Peak RCP at 150% of the Peak BRCP, when the number of Peak Capacity Credits issued is 85% of the Peak Reserve Capacity Target.	This increased price cap will provide a sharper signal for investment when there is a capacity shortage, and is in line with the low end of the range used for RCP caps internationally.

Proposal 14 – Price floor Set a minimum Peak RCP at 50% of the Peak BRCP, when the number of Peak Capacity Credits provided is greater than or equal to 115% of the Peak Reserve Capacity Target.	Some working group and MAC members were concerned that having a price floor of zero meant less certainty for investors. Members considered that some investors look at the worst-case scenario (e.g. zero capacity payments) when choosing whether to invest. As a relatively small, isolated power system, it is appropriate that the WEM has a higher price floor than larger interconnected markets. The proposal sets a price floor at a level of oversupply above the Reserve Capacity Target that is reciprocal to the level of undersupply that sets the price cap. This is expected to balance the interests of consumers and investors.
Proposal 15 – Flexible Capacity price curve Set a maximum Flexible RCP at 160% of the Flexible BRCP, when the number of Flexible Capacity Credits issued is 85% of the Flexible Reserve Capacity Target. Set the Flexible RCP to 100% of the Flexible BRCP where the number of Flexible Capacity Credits issued is 100% of the Flexible Reserve Capacity Target. Set the minimum Flexible RCP on the same basis as the Peak RCP.	The Flexible RCP curve needs to be differentiated from the Peak RCP curve to allow a shortage of Flexible Capacity to result in an investment signal, even when there is a shortage of Peak Capacity. The proposed price cap for Flexible Capacity is at the high end of the range used in international capacity mechanisms. Flexible Capacity payments are additional to the peak capacity payment, so it is less critical to mitigate volatility in the Flexible Capacity Price.
Proposal 16 – Review of price curve parameters Include review of the RCP curves in the Coordinator's regular review of the BRCP reference technology.	The RCP curves must be considered in light of the BRCP arrangements, including whether the BRCP is set using gross CONE or net CONE.

Proposal 17 – Transitional pricing arrangements Adjust existing transitional pricing arrangements to include a lookback adjustment for actual inflation. There will be no new transitional arrangements for existing facilities not already subject to transitional pricing arrangements.	Some existing facilities operate under transitional pricing arrangements. These facilities have a cap and floor applied to their RCP. The transitional cap and floor are inflation adjusted each year, using forecasts made by the Reserve Bank of Australia. Forecasts must be used due to the timing of the price calculation, but there is no mechanism to reflect actual inflation, even when it differs significantly from the forecast, as it has in recent years. There is no need for transitional arrangements for facilities commissioned since 2019.

GOVERNMENT OF WESTERN AUSTRALIA

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

WEM Investment Certainty Review

Consultation Paper

April 2024

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

An appropriate citation for this paper is: WEM Investment Certainty Review – Consultation Paper

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Abbreviations

Term	Definition
AEMO	Australian Energy Market Operator
BRCP	Benchmark Reserve Capacity Price
CCGT	Combined Cycle Gas Turbine
CONE	Cost of New Entry
CRC	Certified Reserve Capacity
EPWA	Energy Policy WA
ERA	Economic Regulation Authority
ESOO	Electricity Statement of Opportunities
ESR	Electric Storage Resource
HEGT	High Efficiency Gas Turbine
MAC	Market Advisory Committee
NAQ	Network Access Quantity
OCGT	Open Cycle Gas Turbine
RCM	Reserve Capacity Mechanism
RCP	Reserve Capacity Price
RCT	Reserve Capacity Target
RLM	Relevant Level Methodology
SWIS	South West Interconnected System
WEM	Wholesale Electricity Market

Executive Summary

The WEM Investment Certainty Review

Concerns have been raised over the ability of the Wholesale Electricity Market (WEM) to provide sufficient and sustainable incentives that drive timely investment in renewable generation capacity. The risk that sufficient revenue will not be available to make these investments viable is due to:

- the potential decrease in energy market prices when renewable generators with low operating costs set the market price more frequently in the future; and
- the lack of a mechanism to price the market externality associated with greenhouse gas emissions.

This risk could stall investment in new renewable generation capacity at the required scale and in the required timeframe to meet the State decarbonisation targets.

As a result, the Coordinator of Energy is considering a package of specific WEM reform initiatives aimed at enhancing investment certainty for renewable generation and storage proponents. Investment in new flexible energy technologies will help meet emission reduction targets while maintaining reliability in the SWIS.

The Coordinator is conducting the WEM Investment Certainty (WIC) Review, in consultation with the Market Advisory Committee (MAC), under clause 2.2D.1 of the WEM Rules. The MAC constituted the WEM Investment Certainty Review Working Group (WICRWG) to support the WIC Review's work.

The review is considering five specific reforms that were announced by the Minister on 9 May 2023:

1. reviewing the Reserve Capacity Price (RCP) curve to determine if it needs to be adjusted to send 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 emission thresholds for existing flexible gas plants that qualify to provide the new flexibility service.

Call for Submissions

Stakeholder feedback is invited on the WIC Review proposals that are outlined in this paper. Submissions can be emailed to energymarkets@dmirs.wa.gov.au. Any submissions received will be published on www.energy.wa.gov.au, unless requested otherwise. The consultation period closes at **5:00pm WST on Friday 3 May 2024**. Late submissions may not be considered.

Design Proposals and Rationale

Table 1 lists the proposals arising from the WIC Review, along with a summary of the rationale for each proposal.

Table 1: WIC Review Proposals

Proposal	Rationale
Emissions thresholds for Reserve Capacity Mechanism participation	
Proposal 1 – Type of emissions thresholds Introduce an emission intensity threshold and an emission quantity threshold into the WEM Rules and only provide Capacity Credits to facilities with emissions below the applicable threshold. Assess emissions for all facilities, both existing and new, using an emission intensity based on theoretical emissions at the level of Certified Reserve Capacity. Calculate the annual emissions quantity for each new facility based on its metered output at its theoretical emissions rate. Require AEMO to test the accuracy of emissions intensity parameters using production and fuel usage data, by observation or in reserve capacity tests.	The new State Electricity Objective explicitly requires balancing reliability and price with environmental impact. Introducing emissions thresholds for RCM participation provides a path to a zero-emissions electricity sector. Actual emission intensity depends on how hard a facility runs. Using theoretical data will reduce volatility in emissions intensity values and allow clearer forecasting of whether a facility would breach the threshold. This increases investment certainty while still allowing the threshold to be adjusted over time to reduce carbon emissions.
Proposal 2 – Timing of introduction Introduce emissions thresholds in the 2026 capacity certification process (for Capacity Credits issued for the 2028 Capacity Year).	Early introduction is needed to support emissions reduction in the SWIS. AEMO is already implementing significant change in the 2024 and 2025 reserve capacity cycles, so the 2026 cycle is the earliest reasonable date for implementing emissions thresholds. This timeframe together with the emission threshold commencing value will also align with the government announcements for retirement of state-owned fossil fired facilities (from 2027). Any Facility that had received Capacity Credits before the 2026 capacity cycle would be classed as an existing Facility.
Proposal 3 – Emissions threshold values for new Facilities Set an emission intensity threshold of 0.55 tCO2e/MWh to apply to all new facilities. Set an emissions quantity threshold of 1,000 tCO2e/MW to apply to all new facilities. Exclude emissions from generation while under AEMO direction from the calculation of facility emissions quantities.	This intensity threshold would preclude the highest emitting generation from receiving capacity credits, but would still allow a new efficient gas plant to enter the RCM. This recognises that efficient gas-fired generation has an important firming role in the power system in the period before 2050. An emissions quantity threshold of 1,000tCO2e/MW would allow a new efficient gas plant to operate up to 20% of the time. A

Proposal	Rationale
	20% capacity factor would allow gas plant to run for 4.8 hours every day of the year or 9.6 hours during the high demand seasons (winter and summer).
Proposal 4 – Future reductions in emissions thresholds Reduce the emissions quantity threshold for new facilities by 100 tCO2e/MWh per year from 2041, to reach zero in 2050. Review emissions thresholds every five years, including determining the final thresholds to be used for the following five capacity cycles. For the ten years following commissioning of a facility that holds Flexible Capacity Credits, determine RCM participation based on the emission thresholds that applied for the Capacity Year for which the facility first received Capacity Credits.	As the SWIS gets closer to 2050, the net-zero target means that the proportion of fossil-fired capacity must further reduce. These proposals provide an indicative profile that reaches net zero in 2050, certainty in each five year period, and an opportunity to adjust based on developments over time.
Proposal 5 – Emissions threshold values for existing Facilities Set an emissions intensity of 0.95 tCO2e/MWh to apply to all existing facilities in the same capacity year that emissions thresholds are introduced for new facilities. Decrease the threshold for existing facilities by 0.05 tCO2e/MWh in each subsequent year, until the threshold is the same for new and existing facilities.	If the proposed thresholds for new facilities were applied to existing facilities immediately, many would no longer be eligible for capacity credits, and retirement would likely follow. This would have significant consequences for power system reliability. Applying a transitional emissions intensity threshold to existing facilities allows a clear forecast of when particular facilities may exit the market.
Proposal 6 – Treatment of existing Facilities with Flexible Capacity Credits Postpone emissions intensity threshold reduction for ten years for existing facilities holding Flexible Capacity Credits. Reduce the emissions intensity threshold for existing facilities holding Flexible Capacity Credits to 0.75tCO2e/MWh ten years after introduction, and then by 0.05tCO2e/MWh each year until the threshold is the same as other facilities. Postpone emissions quantity threshold application until ten years after commissioning for any new facility which holds Flexible	Until significant volumes of dispatchable renewables are built and/or sufficient flexible demand becomes available, flexible fossil fuelled generation is likely to be needed to maintain system reliability. The proposed profile will allow the exit of inflexible high emission generators from the RCM, while maintaining the presence of efficient gas generation and reliability in the SWIS.

Proposal	Rationale
Capacity Credits and is commissioned in the first ten years after emissions thresholds are introduced. Reduce the emissions quantity threshold for new facilities holding Flexible Capacity Credits to be the same as other new facilities ten years after commissioning.	
Proposal 7 – Treatment of cogeneration facilities Exempt cogeneration facilities from the emissions threshold regime.	Cogeneration facilities use fossil fuels to generate both electricity and heat or steam for use in industrial processes. Because a large proportion of the fuel goes towards creating energy that is not output as electricity, the inherent emissions rate would be unfairly high if only the electricity production was taken into account. The additional complexity required to determine and apply a heat to electricity split for cogeneration facilities is unnecessary given that cogeneration facilities will remain covered by the Safeguard Mechanism, on a site specific basis
Ten-year Reserve Capacity Price guarantee for new technologies	
Proposal 8 – Eligibility for price guarantee Allow any new facility that provides Flexible Capacity using a renewable source to receive (on request) a fixed Reserve Capacity Price for ten years. Require gas-fired facilities seeking the ten-year fixed price to provide in each capacity cycle evidence of 100% renewable fuel supply.	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. A period of fixed pricing provides investors with certainty of capacity revenue for a longer period than under the existing WEM Rules. Requiring a facility to be of a technology type not already present in the SWIS would be inconsistent with the goal of facilitating increased renewable build. Similarly, allowing new fossil-fuelled facilities would be inconsistent with the desired outcome of decarbonising the SWIS.
Proposal 9 – Duration requirement Require a facility requesting the ten-year fixed price to provide evidence that it can provide firm output for at least 120% of the prevailing ESR Duration Requirement.	Currently, ESR facilities are assigned Capacity Credits based on their ability to deliver firm output for a four-hour period. An ESR facility that can provide firm capacity over longer duration will support the replacement of fossil-fuelled generation by renewables.

Proposal	Rationale
	Facilities that only exceed the prevailing requirement by a very short time do not provide significant additional flexibility. EPWA considers that a 20% buffer is a reasonable representation of a duration that exceeds the standard requirement.
Proposal 10 - Implementation Group proposed longer duration ESR facilities requesting a ten-year fixed RCP with proposed floating price facilities for NAQ purposes.	In the current RCM, Facilities can request a 5-year fixed Reserve Capacity Price, but only receive Network Access Quantities (and hence Capacity Credits) if there would otherwise be a capacity shortfall. Treating longer-duration firming facilities seeking a 10 year fixed price in the same way as inflexible floating price facilities would defeat the purpose of the policy.
Reserve Capacity Price curve	
Proposal 11 – Price at RCT Set the Peak Reserve Capacity Price to 100% of the Peak Benchmark Reserve Capacity Price if the number of Peak Capacity Credits issued equals the Peak Reserve Capacity Target.	The BRCP is set based on the expected cost of new entry (CONE) of the marginal new entrant capacity provider. If the RCP is set higher than the BRCP at the RCT, the marginal new entrant will receive more revenue that it needs. Because the BRCP is based on gross CONE, the marginal new entrant capacity will receive more revenues than what it needs to break even in the energy and ESS markets. This proposal would align the WEM with almost all other jurisdictions and set RCP to equal BRCP when the Reserve Capacity Target is exactly met.
Proposal 12 – Price deadband Set the Peak Reserve Capacity Price to 100% of the Peak Benchmark Reserve Capacity Price when the number of Peak Capacity Credits provided is between 95% and 105% of the Peak Reserve Capacity Target.	The relatively small size of the SWIS means that the RCP can be changed significantly by a single retirement or a single new plant addition. A deadband will reduce RCP volatility. With a Reserve Capacity Target around 5,000 MW, a deadband of around 500 MW would mean that a single build or retirement decision alone would not move the price, at least when the available capacity was near to the target.
Proposal 13 – Price cap Set a maximum Peak Reserve Capacity Price at 150% of the Peak Benchmark Reserve	This increased price cap will provide a sharper signal for investment when there is a capacity shortage, and is in line with the low end of the

Proposal	Rationale
Capacity Price, when the number of Peak Capacity Credits issued is 85% of the Peak Reserve Capacity Target.	range used for reserve capacity price caps internationally.
Proposal 14 – Price floor Set a minimum Peak Reserve Capacity Price at 50% of the Peak Benchmark Reserve Capacity Price, when the number of Peak Capacity Credits provided is greater than or equal to 115% of the Peak Reserve Capacity Target.	Some working group and MAC members were concerned that having a price floor of zero meant less certainty for investors. Members considered that some investors look at the worst-case scenario (e.g. zero capacity payments) when choosing whether to invest. As a relatively small, isolated power system, it is appropriate that the WEM has a higher price floor than larger interconnected markets. The proposal sets a price floor at a level of oversupply above the RCT that is reciprocal to the level of undersupply that sets the price cap. This is expected to balance the interests of consumers and investors.
Proposal 15 – Flexible Capacity price curve Set a maximum Flexible Reserve Capacity Price at 160% of the Flexible Benchmark Reserve Capacity Price, when the number of Flexible Capacity Credits issued is 85% of the Flexible Reserve Capacity Target. Set the Flexible Reserve Capacity Price to 100% of the Flexible Benchmark Reserve Capacity Price where the number of Flexible Capacity Credits issued is 100% of the Flexible Reserve Capacity Target. Set the minimum Flexible Reserve Capacity Price on the same basis as the Peak Reserve Capacity Price.	The Flexible RCP curve needs to be differentiated from the Peak RCP curve to allow a shortage of Flexible Capacity to result in an investment signal, even when there is a shortage of Peak Capacity. The proposed price cap for Flexible Capacity is at the high end of the range used in international capacity mechanisms. Flexible Capacity payments are additional to the peak capacity payment, so it is less critical to mitigate volatility in the Flexible Capacity Price.
Proposal 16 – Review of price curve parameters Include review of the reserve capacity price curves in the Coordinator's regular review of the BRCP reference technology.	The RCP curves must be considered in light of the BRCP arrangements, including whether the BRCP is set using gross CONE or net CONE.
Proposal 17 – Transitional pricing arrangements Adjust existing transitional pricing arrangements to include a lookback adjustment for actual inflation.	Some existing facilities operate under transitional pricing arrangements. These facilities have a cap and floor applied to their Reserve Capacity Price. The transitional cap and floor are inflation adjusted each year, using forecasts made by the Reserve Bank of

Proposal	Rationale
There will be no new transitional arrangements for existing facilities not already subject to transitional pricing arrangements.	Australia. Forecasts must be used due to the timing of the price calculation, but there is no mechanism to reflect actual inflation, even when it differs significantly from the forecast, as it has in recent years. There is no need for transitional arrangements for facilities commissioned since 2019.

1. Introduction

1.1 Background

1.1.1 Context

Electricity markets around the world are undergoing a major transition in the move to net zero emissions energy sectors. The South West Interconnected System (SWIS) continues to experience a significant uptake of distributed photovoltaic and large scale wind generation, as well as firming technologies such as Electric Storage Resources.

As indicated in the SWIS Demand Assessment that was released by the Minister for Energy on 9 May 2023[1], a number of factors are likely to influence demand growth in the SWIS in the coming decade, including the electrification of major industrial processes.

The electricity supply mix in the SWIS is rapidly changing with:

- the planned exit of baseload coal generators, followed by the progressive exit of the rest of the fossil fuelled fleet;
- the current and continued entry of renewable intermittent generation (wind and solar); and
- the uptake of Electric Storage Resources (ESR).

Significant network, renewable generation and ESR investment will be required in the SWIS over the next decade and beyond to continue to deliver on the energy trilemma of reliable, affordable and environmentally responsible electricity supply.

The Coordinator of Energy (Coordinator) has carried out a number of electricity market reviews since the start of 2022 to address issues associated with this transformation, including:

- the Reserve Capacity Mechanism (RCM) Review[2];
- the Cost Allocation Review[3];
- the Market Power Mitigation Strategy review[4];
- the Supplementary Reserve Capacity (SRC) Review[5];

[1] https://www.wa.gov.au/system/files/2023-05/swisda_report.pdf

[2] Information on the RCM Review is available at Reserve Capacity Mechanism Review (www.wa.gov.au). The MAC established an RCM Review Working Group (RCMRWG) to assist with this review. Information on the CARWG is available at Reserve Capacity Mechanism Review Working Group (www.wa.gov.au).

[3] Information on the Cost Allocation Review is available at Cost Allocation Review (www.wa.gov.au).The MAC established a Cost Allocation Review Working Group (CARWG) to assist with this review. Information on the CARWG is available at Cost Allocation Review Working Group (www.wa.gov.au).

[4] Information on the Market Power Mitigation Strategy is available at Market Power Mitigation Strategy (www.wa.gov.au).

[5] Information on the SRC Review is available at Supplementary Reserve Capacity Review (www.wa.gov.au).

- the Demand Side Response (DSR) Review[6]; and
- The Review of the Benchmark Reserve Capacity Price Reference Technologies[7].

These reviews address a number of issues associated with the transformation of the SWIS, but have also highlighted the need for further WEM reforms to incentivise investment in new renewable energy facilities and to help the Government achieve its decarbonisation targets, while maintaining system security and reliability and without unduly increasing costs to consumers.

1.1.2 The Need for Review

Concerns have been raised about the ability of the WEM to deliver price signals that drive efficient investment in renewable generation capacity because of an increased risk that sufficient revenue will not be available to make the investments viable due to:

- the potential decrease in energy market prices when renewable generators with low operating costs set the market price more frequently in the future; and
- the lack of a mechanism to price the market externality associated with greenhouse gas emissions.

Energy Policy WA (EPWA) conducted some preliminary economic modelling as part of the RCM Review to forecast the financial viability of new intermittent renewable generation and ESR developments[7]. While this modelling was based on conservative assumptions, it indicated the following:

- ESR: Revenues from the RCM (both the peak and flexible capacity products), the energy market and Essential System Service (ESS) markets are likely to be sufficient to support entry of ESR for the whole modelling horizon (to 2050).
- Wind: Revenues from the RCM (the peak capacity product only), the energy market and Large-Scale Generation Certificates (LGCs) under the Renewable Energy Target (RET) are likely to be sufficient to support entry of new wind generation until around 2030.
- Building sufficient new wind generation to meet the Planning Criterion past 2030 will likely result in decreasing energy prices to the point that total WEM revenues may be insufficient to cover their fixed and capital costs.
- Solar: Revenues from the RCM (the peak capacity product only), the energy market and LGCs are likely insufficient to support entry of new utility scale solar generators for the whole modelling horizon.

[6] Information on the DSR Review is available at Demand Side Response Review (www.wa.gov.au). The MAC established a Demand Side Response Review Working Group (DSRRWG) to assist with this review. Information on the DSRRWG is available at Demand Side Response Review Working Group (www.wa.gov.au).

[7] See section 9 of the *Reserve Capacity Mechanism Review Information Paper (Stage 1)* and *Consultation Paper (Stage 2*), which is available at epwa_reserve_capacity_mechanism_review_information_and_consultation_paper.pdf (www.wa.gov.au). The economic modelling under the RCM Review was deliberately conservative on the participation of renewables in non-energy services, so the revenue adequacy for renewables would likely improve with more realistic assumptions.

This risk of non-recovery of the full costs could stall investment in new renewable generation capacity at the required scale and in the required timeframe to meet the State decarbonisation targets.

As a result, EPWA is considering a package of specific WEM reform initiatives aimed at enhancing investment certainty for renewable and storage proponents. Better certainty for investors in new flexible energy technologies will help meet emission reduction targets while maintaining reliability in the SWIS. These initiatives were announced by the Minister for Energy on 9 May 2023.

1.1.3 Scope of the Review

The Coordinator is conducting the Wholesale Electricity Market (WEM) Investment Certainty (WIC) Review, in consultation with the Market Advisory Committee (MAC), under clause 2.2D.1 of the WEM Rules.

The WIC Review aims to ensure that the WEM will provide incentives for sufficient new renewable capacity, while maintaining system security and reliability and without unduly increasing the cost to consumers. The WIC Review will address issues that were recognised in the RCM Review.

The review[8] is considering five specific reforms that were announced by the Minister on 9 May 2023:

6. reviewing the Reserve Capacity Price (RCP) curve to determine if it needs to be adjusted to send sharper signals for investment when demand for new capacity is stronger;
7. a 10-year RCP guarantee for new technologies, such as long-duration storage;
8. 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;
9. emission thresholds for existing and new high emission technologies in the WEM; and
10. a 10-year exemption from the emission thresholds for existing flexible gas plants that qualify to provide the new flexibility service.

The MAC has constituted the WEM Investment Certainty Review Working Group (WICRWG) to support the WIC Review's work. More information on the review is available from the EPWA website[9], including the Scope of Works for the review, the Terms of Reference for the WICRWG, papers for WICRWG and MAC meetings, and detailed minutes for each meeting.

1.2 Purpose and Structure of this Paper

This consultation paper sets out the findings and recommendations for four of the five WIC Review initiatives. It presents proposals to:

- Introduce emissions thresholds for participation in the WEM RCM;

8 Wholesale Electricity Market Investment Certainty Review (www.wa.gov.au).

9 https://www.wa.gov.au/government/document-collections/wholesale-electricity-market-investment-certainty-wic-review-working-group

- Provide a 10-year exemption from the emission thresholds for existing flexible gas plants that qualify to provide the new flexibility service
- Provide a ten-year RCP guarantee for new technologies;
- Amend the RCP curve.

This paper is structured as follows:

- Chapter 2 discusses emissions thresholds for participation in the RCM, including the exemptions for flexible gas plants;
- Chapter 3 covers the price guarantee for new technologies;
- Chapter 4 covers the RCP Curve;
- Chapter 5 presents a projection of the effects of the WIC changes on the commercial viability of new and existing facilities.

2. Emissions Thresholds for RCM Participation

2.1 Background

The new State Electricity Objective explicitly requires balancing reliability and price with environmental impact.

Currently, there are two national schemes to incentivise emissions reductions: the Safeguard Mechanism and the Renewable Energy Target (RET). The Safeguard Mechanism applies a sectoral baseline to electricity, which has not bound since inception and is not expected to bind in future. The RET is due to cease in 2030. At that point there will be no specific mechanism to directly incentivise emissions reductions by electricity generators in Western Australia.

The Commonwealth government introduced the Capacity Investment Scheme (CIS) in 2023. The CIS is a national framework to encourage new investment in renewable and clean dispatchable capacity. It provides revenue underwriting for selected projects through an auction mechanism, focusing on new capacity rather than direct emissions reductions. Initial procurement rounds have been conducted for New South Wales, Victoria, and South Australia, and the Commonwealth is currently developing an approach for the CIS in Western Australia.

In mid-2022, the Minister for Energy identified the need for a policy to impose a financial penalty on existing and new high emission technologies, and directed the Coordinator to investigate policy options to so implement this[10].

[10] The draft Policy Statement was tabled for discussion by the MAC on 13 October 2022 (https://www.wa.gov.au/system/files/2022-08/Out-of-Session%20Meeting%20Papers.pdf) and a revised draft on 13 December 2022 (https://www.wa.gov.au/system/files/2022-12/MAC%202022_12_13%20%20-%20Combined%20Meeting%20Papers.pdf).

While not part of the original scope for the RCM Review, EPWA developed and analysed policy options during the RCM Review[11]. In March 2023, EPWA identified a preferred option to apply emission thresholds for participation in the RCM, similar to the one used in the UK and Europe.

The MAC accepted that implementing the penalty on high emissions technologies by establishing two emissions thresholds – an emissions rate threshold (tCO_2e/MWh) and an emissions quantity threshold (tCO_2e/MW) – and only providing Capacity Credits to Facilities that are below the thresholds was the preferred option.

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 examined options;
- Has lower requirement to monitor and mitigate market power issues regarding cost pass-through; and
- Received the most support from MAC and RCMRWG members.

EPWA did not arrive at a final design for this threshold arrangement as part of the RCM Review, which is now complete.

The WIC Review has continued the development of this policy, focusing on:

- the type(s) of thresholds that are to apply to existing and new Facilities
- the level of the thresholds for existing and new Facilities at the commencement of the scheme;
- the rate of decline for the thresholds over time; and
- timing for commencement of the arrangements.

2.2 Emissions Thresholds

EPWA proposes to introduce emission thresholds into the WEM Rules for both existing and new generators and to only provide Capacity Credits to facilities with emissions below these thresholds. Two types of emissions threshold would apply:

- An emissions intensity threshold

  The emissions intensity threshold is a measure of the emissions directly linked to each unit of electricity produced by a generation facility. It is measured in tonnes of carbon dioxide equivalent from fossil fuel origin per MWh of electricity generated (tCO2e/MWh)

- An emissions quantity threshold

  The emissions quantity threshold is a measure of the total emissions produced by a generation facility for each Capacity Credit it holds. It is measured in tonnes of carbon dioxide equivalent from fossil fuel origin per capacity credit per year

[11] The MAC and RCMRWG discussed development of a penalty on high emissions technologies, identified six options, and recommended an emissions threshold as the preferred approach. For more information, see the papers for the MAC meetings on 9 August 2022, 13 December 2022, 2 February 2023 and 16 March 2023; and the papers for the RCMRWG meetings on 13 October 2022, 24 November 2022, 2 March 2023 and 22 March 2023.

(tCO2e/MW/yr). An emissions quantity threshold effectively restricts the annual output of higher emission intensity facilities.

The thresholds would be applied as part of the capacity certification process, based on the previous year's emissions. A facility that had exceeded the emissions quantity threshold in the most recent measurement period would be ineligible for capacity credits in the capacity cycle being assessed. A facility that loses Capacity Credits in one capacity cycle can reapply in the next cycle if its running profile changes.

Existing facilities (those which held Capacity Credits in the Reserve Capacity Cycle immediately prior to the first cycle in which the emissions thresholds apply) will be subject to the intensity threshold only, with transitional arrangements to phase it in over time.

2.2.1 Determining Facility Emission Performance

EPWA initially considered using National Greenhouse Emissions Register (NGER) data to assess performance against emissions thresholds. However:

- Some facilities don't produce enough energy to be required to disclose emissions under the NGER scheme.
- 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.
- 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 used 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.
- The NGER reporting period runs from 1 July – 30 June. This data is not published until the 28th of February in the following year. The data would be a year old by the time it was used to determine RCM participation.

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, and a WEM-specific regime will be required.

There are two broad approaches to determining emissions intensity and emissions quantity for a generation facility:

1. Using historical data, where:
    a. emissions intensity is based on actual historical emissions and actual historical output;
    b. emissions quantity is based on actual historical emissions and historical capacity credits.
2. Using theoretical data, where:
    a. emissions intensity is based on theoretical emissions at a specific point on the facility's heat rate curve;
    b. emissions quantity is based on metered output and the theoretical emissions intensity.

Actual emission intensity depends on how hard a facility runs. For example, facilities operating at minimum generation use more fuel (and produce more emissions) per MWh than facilities operating at near maximum capacity. There is potential for significant volatility from year to year if using historical actuals to calculate emissions. Using theoretical data

would reduce volatility in emissions intensity values and allow clearer forecasting of whether a facility would breach this threshold.

Historical data is not available for new facilities, so they would be based on theoretical emissions intensity under either approach. 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 determining emissions intensity using the efficiency at an output level equal to Certified Reserve Capacity 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 be stable and predictable from year to year;
- Reduces complexity (compared to using actual emission figures);
- Requires reliance on expert reports for all facilities; and
- Provides clarity on when facilities will exit the RCM.

The formula to determine the emission intensity for a facility would be:

$$EmissionIntensity(facility) = \frac{EmissionFactor(fuel) \times ConsumptionRate(facility) \times EnergyContent(fuel)}{CRC(facility)}$$

Where:

- EmissionFactor(fuel) is the fossil source emission content (in tCO2e/GJ) of the fuel used[12]
- ConsumptionRate(facility) is the rate (in t/h) at which the facility consumes fuel when injecting at its level of Capacity Credits
- EnergyContent(fuel) is the net calorific value (in GJ/t) of the fuel
- CRC(facility) is the Certified Reserve Capacity (in MW) of the facility.

The formula to determine the emissions quantity for a facility would be:

$$EmissionQuantity(facility) = \frac{EmissionIntensity(facility) \times MeteredInjection(facility)}{CRC(facility)}$$

Where:

- EmissionIntensity(facility) is the emission intensity (in tCO2e/MWh) of the facility as determined for the relevant capacity year
- MeteredInjection(facility) is the metered output (in MWh) of the facility in the relevant capacity year
- CRC(facility) is the Certified Reserve Capacity (in MW) of the facility.

[12] 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.

Using a theoretical approach would mean that actual measured emission data is not required, but actual performance should be compared with standing data heat rate curves. Fuel used at CRC level could be assessed alongside reserve capacity tests, or by observation.

Proposal 1:

Introduce an emission intensity threshold and an emission quantity threshold into the WEM Rules and only provide Capacity Credits to facilities with emissions below the applicable threshold.

Assess emissions for all facilities, both existing and new, using an emission intensity based on theoretical emissions at the level of Certified Reserve Capacity.

Calculate the annual emissions quantity for each new facility based on its metered output at its theoretical emissions rate.

Require AEMO to test the accuracy of emissions intensity parameters using production and fuel usage data, by observation or in reserve capacity tests.

Consultation Questions:

(1)(a) Do stakeholders support emissions intensity being determined using theoretical emissions at maximum output?

2.2.2 Timing of Introduction

Several factors favour the introduction of emissions thresholds sooner rather than later:

- To provide incentives for existing and new generators to reduce their greenhouse gas emissions;
- To align with the new state electricity objective[13] by starting to incorporate environmental considerations into the WEM;
- To align with government announcements for retirement of state-owned fossil fired facilities (from 2027);
- To align with the change in reference technology for the Benchmark Reserve Capacity Price, which will apply for the 2025 Reserve Capacity Cycle;
- To provide certainty for project developers and investors.

However, the RCM Review resulted in significant changes to the RCM, which are to be implemented in the 2024 and 2025 reserve capacity cycles. Commencing new emissions assessment regime at the same time is likely to be difficult.

EPWA therefore proposes to introduce the emissions thresholds in the 2026 Reserve Capacity cycle, to apply to Capacity Credits issued for the 2028 Capacity Year.

Any Facility that had received Capacity Credits before the 2026 capacity cycle would be classed as an existing Facility.

Proposal 2:

[13] https://www.wa.gov.au/government/document-collections/energy-and-governance-legislation-reform

Introduce emissions thresholds in the 2026 capacity certification process (for Capacity Credits issued for the 2028 Capacity Year).

Consultation Questions:

(2) Do stakeholders support the proposed timing for introducing the emissions thresholds? If you have any concerns regarding the proposed commencement date, please outline the reason for those concerns.

2.3 Emissions Threshold Values for New Facilities

New facilities will be subject to both thresholds.

Any new facility with emissions higher than the intensity threshold will not be entitled to receive Capacity Credits. Depending on where the threshold is set, different technologies will be able to participate in the RCM. Europe and the UK use a threshold of 0.55tCO2e/MWh. This threshold:

- is less than the emission intensity of almost all existing fossil-fuelled generators on the SWIS (see figure Figure 3);
- would preclude new generators fired on coal or diesel;
- is greater than the emission intensity of new CCGT gas fuelled facilities[14] and therefore would not preclude a new (efficient) gas plant from participating in the RCM.

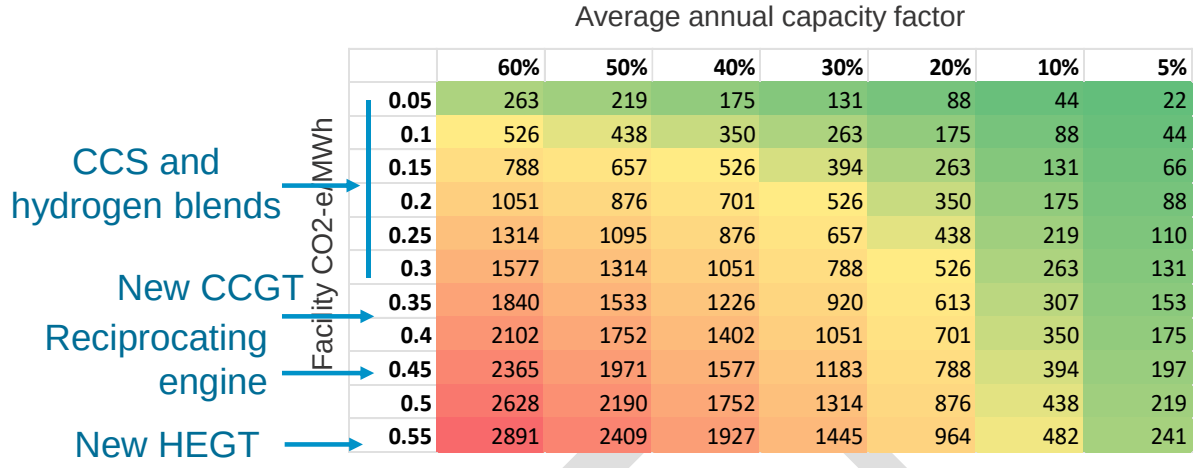
The emissions quantity threshold will effectively cap the annual GWh output for certain facilities. While the goal of net zero emissions by 2050 is not compatible with a quantity threshold which would allow a new baseload fossil fuelled facility to receive capacity credits, efficient new gas-fired generation has an important role in the power system in the period before 2050.

It is therefore important to consider the interaction between the intensity threshold and the quantity threshold for new facilities.

[14] For example, the 15 year old Tallawara CCGT in New South Wales has an emissions intensity of around 0.375 tCO2e/MWh in recent NGER data.

Figure 1 shows the quantity of emissions produced per MW of installed capacity at various capacity factors.

Figure 1: Emissions Intensity vs Capacity Factor



	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

Current peaking facilities in the WEM operate at a capacity factor of less than 10%. EPWA considers that some buffer should be included to account for year-to-year fluctuation as well as for the potential that the capacity factors of new efficient gas plant would be higher as they displace older less efficient generators in the dispatch merit order during the transition.

An emissions quantity threshold of 1,000tCO2e/MW would allow a new HEGT peaking plant to operate up to 20% of the time. A 20% capacity factor would allow gas plant to run for 4.8 hours every day of the year or 9.6 hours during the high demand seasons (winter and summer). The modelling carried out for chapter 5 indicates that in 2026 some existing peaking facilities may exceed this capacity factor.

As emission mitigation technology (such as carbon capture and storage or co-firing on hydrogen) matures, a new gas-fired facility could receive capacity credits while operating as a mid-merit facility.

In certain circumstances, AEMO may direct a facility to operate in a way that is not consistent with its Real Time Market offers. Such a direction is outside market participant's control, and should be accounted for when calculating facility emissions quantities.

Proposal 3:

Set an emission intensity threshold of 0.55 tCO2e/MWh to apply to all new facilities.

Set an emissions quantity threshold of 1,000 tCO2e/MW to apply to all new facilities.

Exclude emissions from generation while under AEMO direction from the calculation of facility emissions quantities.

Consultation Questions:

(3) Do stakeholders support the proposed thresholds for new facilities? If you have any concerns regarding the proposed thresholds, please outline the reason for those concerns.

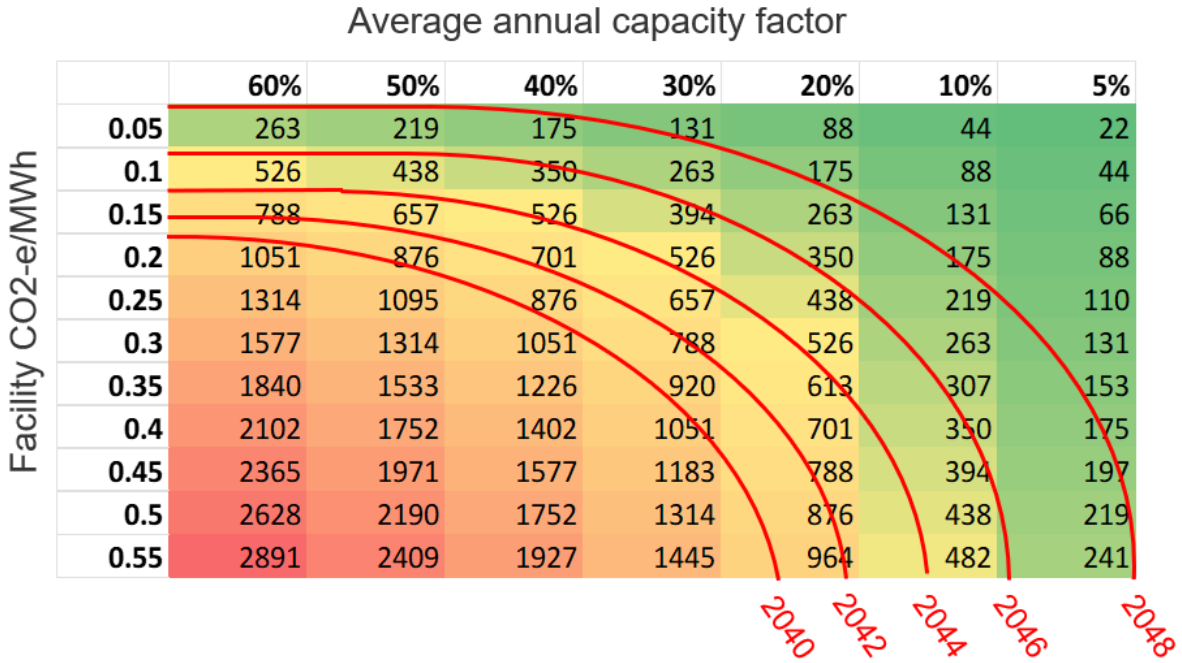
2.4 Future Reductions in Emissions Thresholds

As the SWIS gets closer to 2050, the net-zero target means that the proportion of fossil-fired capacity must further reduce. This means that the thresholds for new facilities need to 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. Figure 6 shows what capacity factor would be allowed if:

- The emissions intensity threshold was retained at 0.55tCO2e/MWh;
- The emissions quantity threshold was retained at 1000tCO2e/MW until 2040, and then reduced linearly from there.

Figure 2: Linear emissions quantity threshold reduction reaching zero in 2050



EPWA considers that it is appropriate to review the threshold levels every five years, but that it is important for investment certainty and power system reliability that new facilities providing Flexible Capacity are to be allowed to participate in the RCM for at least ten years, as long as they continue to meet the thresholds that applied when they were commissioned.

Signalling the emissions thresholds years in advance will provide increased certainty to AEMO of the ongoing viability of existing thermal generators and when existing generators are likely to no longer be available to contribute to the Reserve Capacity Target. This would also create opportunity for low emission technologies, such as renewable generators and other firming technologies, to enter the market once fossil fuelled facilities lose their Capacity Credits. EPWA proposes to:

- maintain the initial thresholds set according to proposal 3 for at least five years
- reduce the emissions quantity threshold by 100 tCO2e/MWh each year from 2041 to 2050 (so that the emissions quantity threshold is 0 in 2050)
- review future emissions thresholds every five years, setting the final emissions thresholds to apply for the following five capacity cycles.

This provides certainty for each five year period, an indicative profile that reaches zero in 2050, and opportunity to adjust based on developments over time.

Proposal 4:

Reduce the emissions quantity threshold for new facilities by 100 tCO2e/MWh per year from 2041, to reach zero in 2050.

Review emissions thresholds every five years, including determining the final thresholds to be used for the following five capacity cycles.

For the ten years following commissioning of a facility that holds Flexible Capacity Credits, determine RCM participation based on the emission thresholds that applied for the Capacity Year for which the facility first received Capacity Credits.

Consultation Questions:

(4) Do stakeholders support reducing new facility thresholds over time? If you have any concerns, please outline the reason for those concerns.

2.5 Emissions Threshold Values for Existing Facilities

2.5.1 Transitional Approach for Existing Facilities

A facility which becomes ineligible for capacity payments is much more likely to retire. Most existing WEM Facilities have either emissions intensity or emissions quantity above the thresholds proposed in section 2.2.2. Figure 2 and Figure 3 show emissions quantity and emissions intensity for existing facilities[15].

[15] Source: NGER reporting data, average over 2017/18 to 2021/22

Figure 4: Estimated emissions quantity for existing facilities

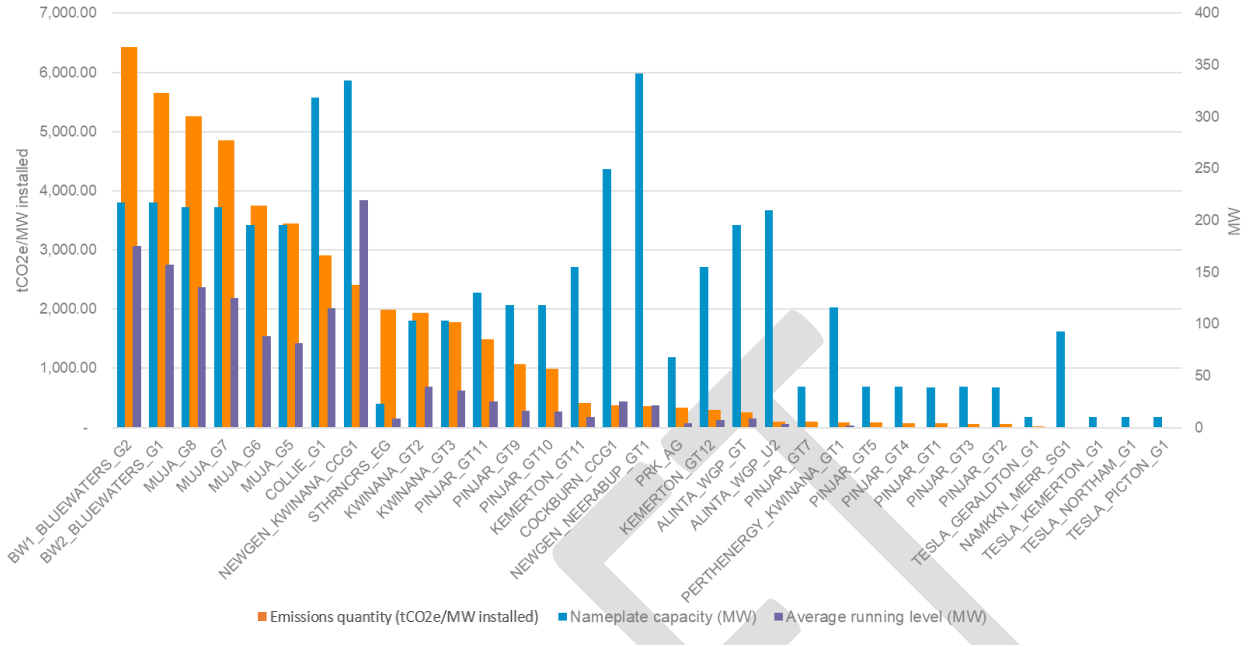
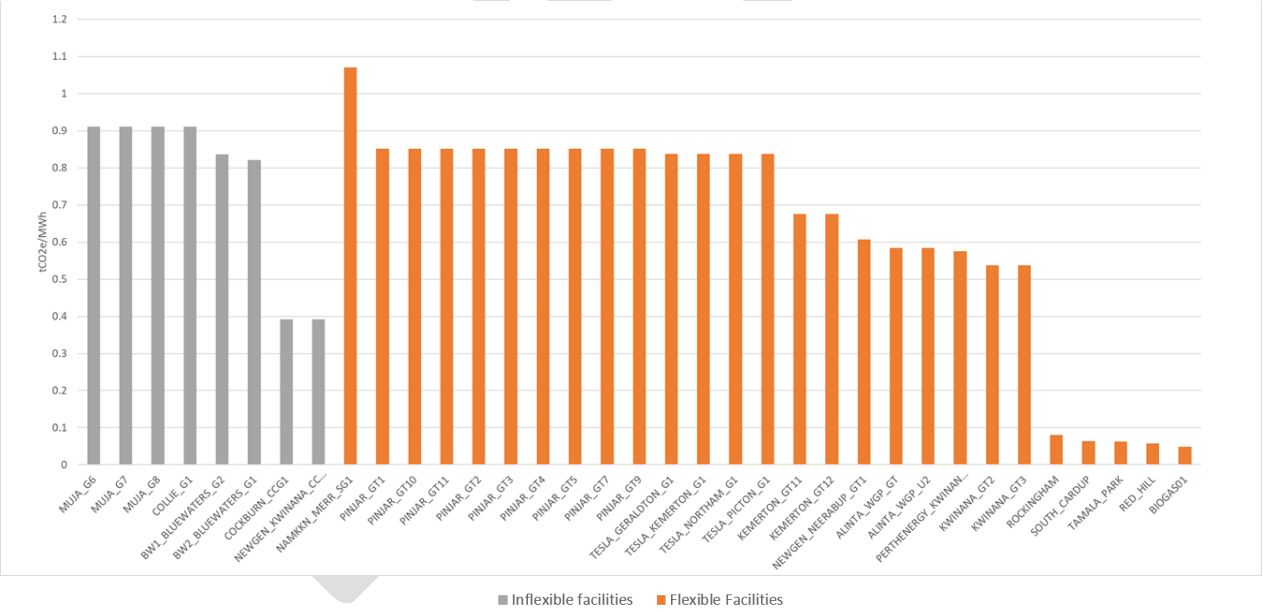


Figure 3: Estimated emissions intensity of existing facilities

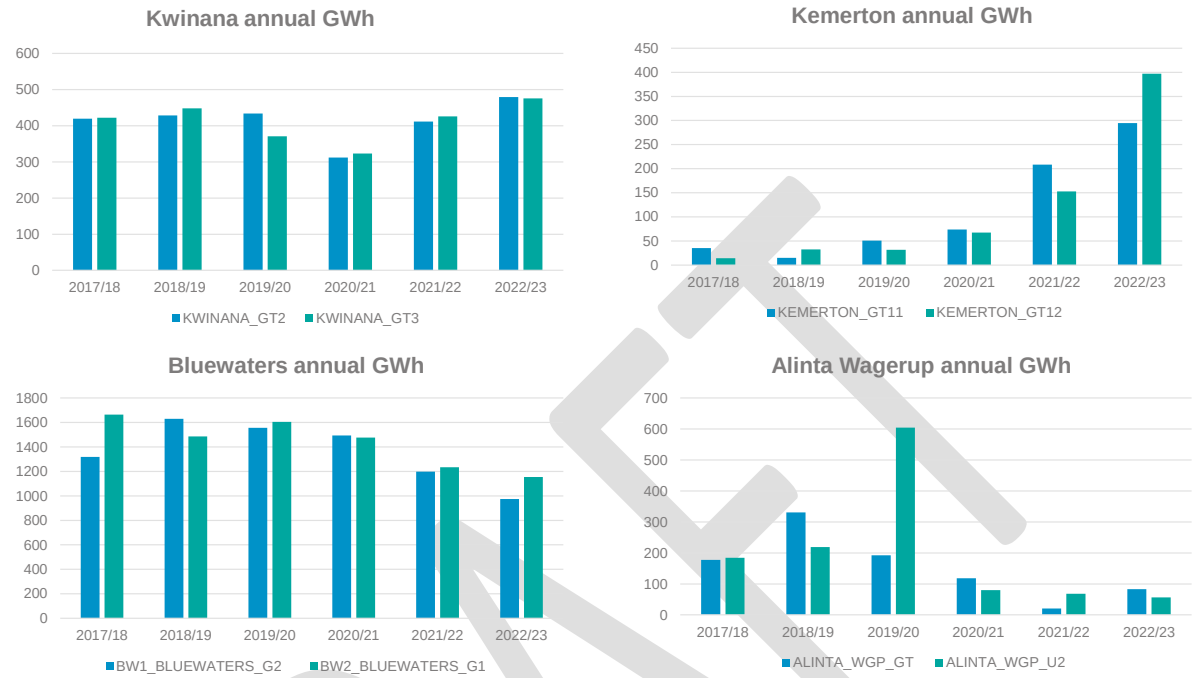


If the proposed thresholds for new facilities were applied to existing facilities immediately, many would no longer be eligible for capacity credits, and retirement would likely follow. This would have significant consequences for power system reliability. Therefore, a different threshold must be applied to existing facilities to facilitate an orderly exit of existing fossil-fuelled facilities as the SWIS moves closer to net zero in 2050. The threshold for existing facilities would be gradually lowered over time until it is the same as for new facilities. A key goal of the transitional profile is to allow a clear forecast of when particular facilities may exit the market.

EPWA initially considered applying an emissions quantity threshold to existing facilities, as this would allow existing facilities to continue operating at lower capacity factors. However,

the annual dispatch quantity of facilities (and hence their annual emissions) can be highly variable, as shown in Figure 4. Therefore, the date when a facility would be excluded from the RCM is difficult to predict.

Figure 5: Annual generation - selected facilities



Applying an emissions quantity threshold to existing facilities would lead to:

- Uncertainty for participants around when their existing facilities would no longer be eligible to participate in the RCM;
- Difficulty for new project developers to predict when existing capacity may exit the market;
- Challenges for AEMO in forecasting system reliability and potential capacity shortfalls;
- Incentives for inefficient bidding behaviour due to interactions between emission thresholds and market power mitigation measures;
- seldom-used high emission intensity facilities continuing to receive Capacity Credits in perpetuity.

d

Proposal 5:

Set an emissions intensity of 0.95 tCO2e/MWh to apply to all existing facilities in the same capacity year that emissions thresholds are introduced for new facilities.

Decrease the threshold for existing facilities by 0.05 tCO2e/MWh in each subsequent year, until the threshold is the same for new and existing facilities.

Consultation Questions:

(5) Do stakeholders support the proposed emission intensity and transition profile for existing facilities? If you have any concerns, please outline your reasons.

2.5.2 Treatment of Facilities with Flexible Capacity Credits

Until significant volumes of dispatchable renewables are built and/or sufficient flexible demand becomes available, some fossil fuelled generation is likely to be needed to maintain system reliability. EPWA estimates that around 2 GW of existing capacity is likely to be eligible for Flexible Capacity Credits.

To ensure that the flexible gas plant that is required to maintain reliability does not prematurely exit the market, any existing facility that receives Flexible Capacity Credits will be exempt from the emission thresholds for a ten-year period.

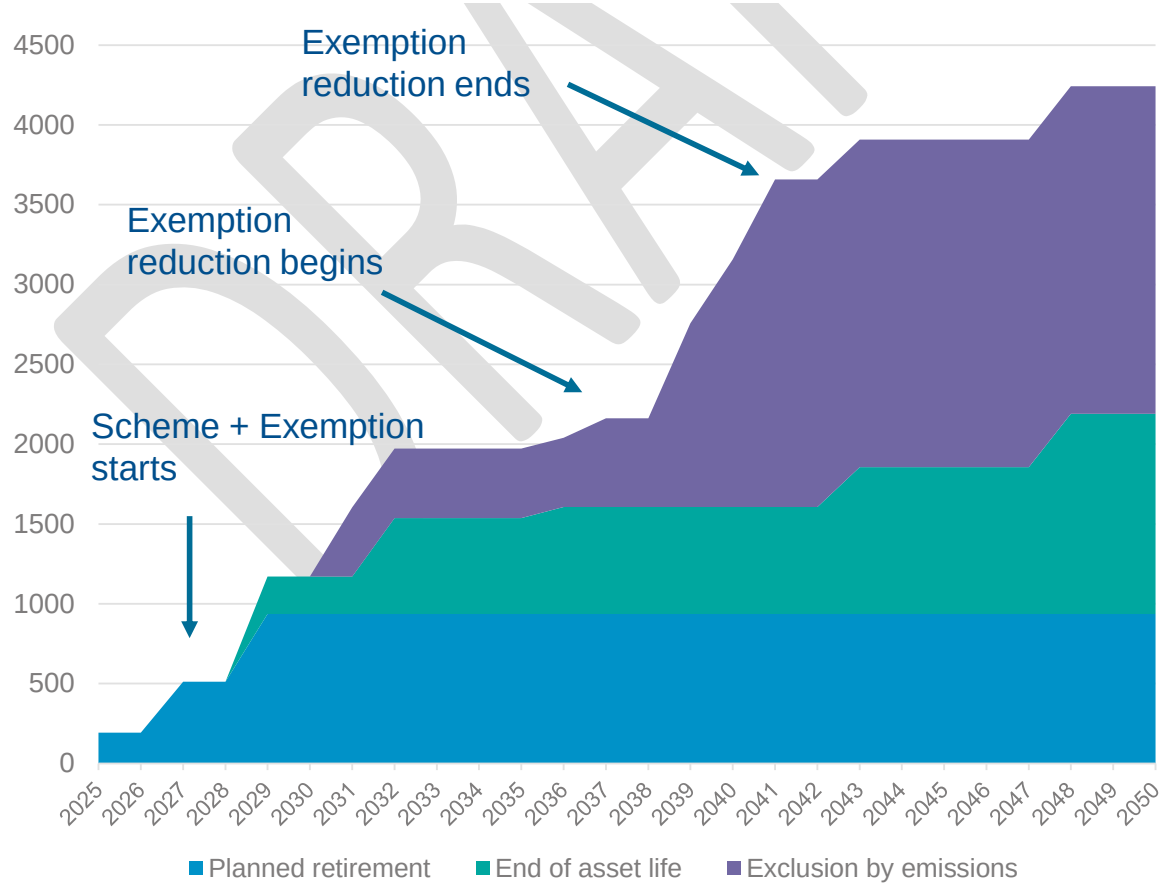
Any new facility that receives Flexible Capacity Credits will need to meet both emissions thresholds, but will be able to seek a ten-year fixed RCP as discussed in Chapter 3.

This will allow the exit of inflexible high emission generators from the RCM, while maintaining the presence of efficient gas generation and reliability in the WEM.

If the emissions threshold were to revert directly to the default rate at the expiry of the ten-year exemption, this could result in more than 1,000 MW exiting the SWIS at the same time. This would have significant reliability impact. Therefore EPWA proposes to reduce the threshold for existing facilities over time, to spread this effect over multiple years.

If every existing facility retired immediately when it became ineligible to participate in the RCM, the retirement profile would be as shown in Figure 5.

Figure 6: Projected retirement schedule



Proposal 6:

Postpone emissions intensity threshold reduction for ten years for existing facilities holding Flexible Capacity Credits.

Reduce the emissions intensity threshold for existing facilities holding Flexible Capacity Credits to 0.75tCO2e/MWh ten years after introduction, and then by 0.05tCO2e/MWh each year until the threshold is the same as other facilities.

Postpone emissions quantity threshold application until ten years after commissioning for any new facility which holds Flexible Capacity Credits and is commissioned in the first ten years after emissions thresholds are introduced.

Reduce the emissions quantity threshold for new facilities holding Flexible Capacity Credits to be the same as other new facilities ten years after commissioning.

Consultation Questions:

(6) Do stakeholders support the proposed threshold and transition profile for existing Facilities holding Flexible Capacity Credits? If you have any concerns, please outline your reasons.

2.6 Treatment of Cogeneration Facilities

Currently cogeneration facilities use fossil fuels to generate both electricity and heat or steam for use in industrial processes. 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 production was taken into account. These facilities are captured under the Safeguard Mechanism outside the electricity sector aggregate baseline.

In European jurisdictions which apply emissions thresholds to 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 separating the proportion of energy produced for steam generation from the 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.

If a heat-to-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 some of the cogeneration is registered for participation in the RCM. Presently, cogeneration provides a total of 346.9 MW of Capacity Credits.

Most cogeneration facilities are fuelled by 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 available alternatives. Replacement equipment will either be:

- New fossil fuelled 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 to electricity split for cogeneration facilities is unnecessary given that cogeneration facilities will remain covered by the Safeguard Mechanism, on a site specific basis.

Proposal 7:

Exempt cogeneration facilities from the emissions threshold regime.

Consultation Questions:

(7) Do stakeholders support excluding cogeneration facilities from the emissions threshold regime? If you have any concerns, please outline your reasons.

2.7 Impact of Emissions Thresholds

EPWA has assessed the expected emissions with the emissions thresholds in place in the modelling described in Chapter 5, and compared them against the expected emissions in a counterfactual in which no emissions thresholds apply. In the counterfactual scenario, existing facilities retire according only to technical lifespan, and new peaking facilities are built instead of some of the emission-free firming technologies.

Emission profiles are shown in figure XXX, and the policy reduces emissions by an estimated XXX tCO2 equivalent over the period to 2050.

3. Ten-year RCP guarantee for new technologies

As announced by the Minister on 9 May 2023, the WIC review has included developing a policy that provides a ten-year period of fixed reserve capacity pricing 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. A period of fixed pricing provides investors with certainty of capacity revenue for a longer period than under the existing WEM Rules.

The WIC review considered:

- Which "new" technologies should be eligible for a 10-year RCP guarantee; and
- What does "long duration" storage mean in the application of this initiative and should the definition of this change over time.

3.1 Eligibility

One interpretation of "new" is a type of technology that does not exist in the SWIS, such as pump-storage hydro, compressed air storage, concentrated solar power, or supercritical coal. This reading would have the policy apply to the first instance of a particular technology receiving capacity credits.

Requiring a facility to be of a technology type not already present in the SWIS would be inconsistent with the goal of facilitating increased renewable build. Similarly, allowing new fossil-fuelled facilities would be inconsistent with the desired outcome of decarbonising the SWIS.

EPWA therefore proposes to allow any new facility that provides firming services (as evidenced by holding Flexible Capacity Credits) using renewable sources to be eligible for a reserve capacity price fixed for ten years.

A facility running on gas produced only from renewable sources (for example biogas or green hydrogen) would be eligible. Applicants would need to provide evidence of eligibility when applying for capacity certification. At first application, this could be in the form of fuel supply contracts for future periods, while for subsequent applications, it could relate to fuel actually used.

Proposal 8:

Allow any new facility that provides Flexible Capacity using a renewable source to receive (on request) a fixed Reserve Capacity Price for ten years.

Require gas-fired facilities seeking the ten-year fixed price to provide in each capacity cycle evidence of 100% renewable fuel supply.

Consultation Questions:

(8) Do stakeholders support the proposed new fixed price option? If you have any concerns, please outline your reasons.

3.2 Duration requirement

Currently, ESR facilities are assigned Capacity Credits based on their ability to deliver firm output for a four-hour period. One outcome of the RCM Review is that this required duration of storage facilities will be extended over time, as a result of a growing Availability Duration Gap.

Given this availability duration requirement, it seems reasonable to allow the ten-year price guarantee for ESR facilities that can provide firm output over a period longer than the prevailing ESR Duration Requirement. An ESR facility that can provide firm capacity over longer duration will support the replacement of fossil-fuelled generation by renewables.

Facilities that are only exceed the prevailing requirement by a few minutes do not provide significant additional flexibility. EPWA considers that a 20% buffer is a reasonable representation of a duration that exceeds the standard requirement. That would mean that if the prevailing ESR Duration Requirement is 4 hours, facilities with an output duration of 5 hours and above would be eligible for the ten-year fixed price.

Similarly, the assessment would be based on the design capability of a facility. For a storage facility, it would be determined as MWh stored divided by nameplate injection capacity, regardless of whether the participant chooses to seek certification of its facility at a level lower than its nameplate capacity.

Proposal 9:

Require a facility requesting the ten-year fixed price to provide evidence that it can provide firm output for at least 120% of the prevailing ESR Duration Requirement.

Consultation Questions:

(9)(a) Do stakeholders support the proposed duration requirement for the new fixed price option? If you have any concerns, please outline your reasons.

3.3 Implementation

In the current RCM, Facilities can request a 5-year fixed Reserve Capacity Price. If successful, they fix the prevailing Reserve Capacity Price as their Facility Capacity Price for the current and subsequent four capacity cycles.

However, these facilities only receive Network Access Quantities (and hence Capacity Credits) if there would otherwise be a capacity shortfall. That is, if there are sufficient existing and proposed Facilities prepared to receive the floating Reserve Capacity Price (which can change from year to year) to meet the reserve capacity target, no new fixed price Facilities will be eligible for capacity payments.

Under this new ten-year guarantee, eligible Facilities would be considered along with non-fixed price proposed facilities for NAQ purposes, and eligible for NAQ if there were insufficient existing and committed facilities to meet the RCT.

If successful, the prevailing RCP for the current capacity cycle would be fixed as the Facility capacity price for the current and subsequent nine capacity cycles.

Where a new facility has a longer development process than the standard capacity cycle, it would still have the opportunity to seek early certification.

Proposal 10:

Group proposed longer duration ESR facilities requesting a ten-year fixed RCP with proposed floating price facilities for NAQ purposes.

Consultation Questions:

(10) Do stakeholders support the proposed treatment of Facilities with the new fixed price option? If you have any concerns, please outline your reasons.

4. The Reserve Capacity Price Curve

The Reserve Capacity Price (RCP) curve, together with the Benchmark Reserve Capacity Price (BRCP) and the Reserve Capacity Target (RCT), determines the price paid to Market Participants for each MW of capacity.

Ideally, the RCP should provide:

- A price signal for investment when there is insufficient capacity;
- Appropriate allocation of risk for capacity suppliers and the consumers who pay for it;
- Signals for capacity withdrawal or retirement when there is significant surplus capacity.

During the RCM Review, stakeholders identified issues with the existing RCP curve, and the WIC Review included an initiative to propose any necessary amendments.

4.1 The Current RCP Curve

The current approach to setting the RCP curve has applied since the 2019 Reserve Capacity Cycle.

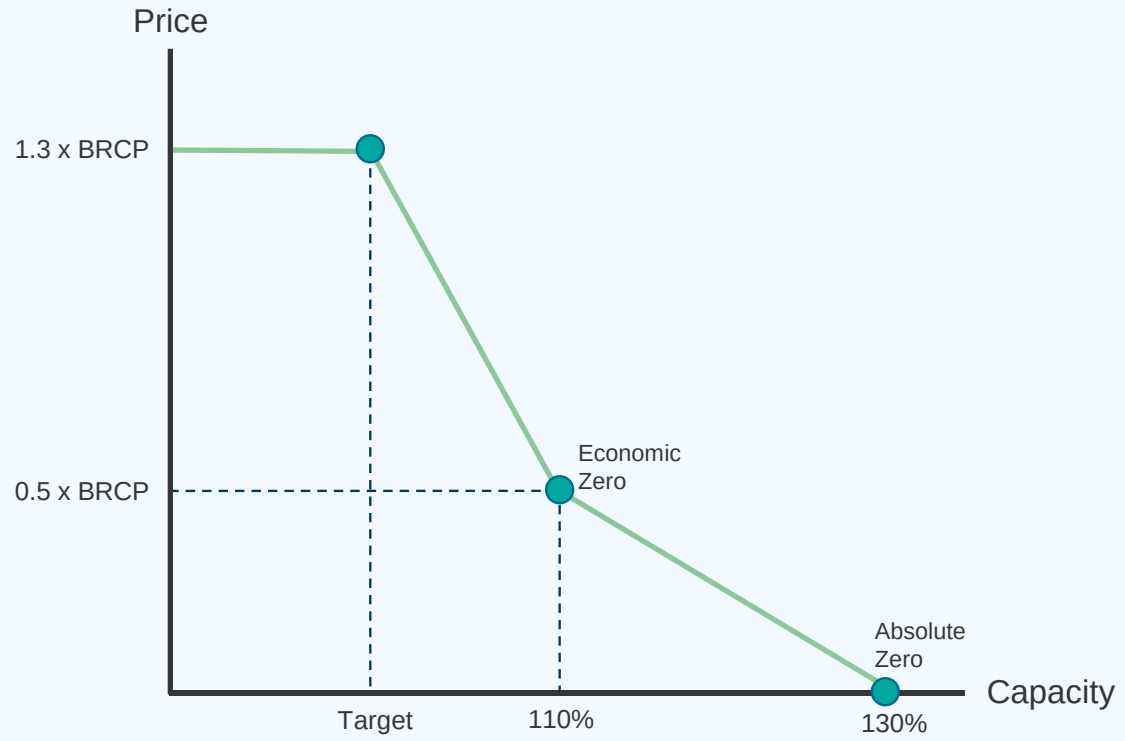
Before 2019, the price curve was set based on a calculation that effectively divided a fixed amount of capacity payments among all eligible capacity. This approach provided only muted investment signals, either in favor of investment in times of shortfall or against it when there was significant excess capacity.

A 2018 review by the then Public Utilities Office decided to continue the administered pricing approach with an amended price curve, rather than replacing it with a capacity auction or a reliability obligation.

The current price curve is defined using three points:

- *The price cap*. At the Reserve Capacity Target or below, the capacity price will be 1.3 times the BRCP.
- *The economic zero point*. A “level of capacity surplus and price at which no additional resources will enter the system under a very wide variety of market conditions”. This is set at 50% of the BRCP and a 10% surplus above the Reserve Capacity Target.
- *The absolute zero point*. The “point where the amount of excess capacity is deemed to be sufficiently high for the capacity price to be zero”. This is set at a 30% surplus above the Reserve Capacity Target.

Existing RCP curve



Price Curve: based on lines joining the following price points:

- Price cap equal to 1.3 times BRCP at the RC Target
- Absolute Zero point at 30% excess capacity
- Economic Zero point at Price of 50% of BRCP and Capacity of 10% excess capacity.

Formula is given as: $Max(Segment\ 1,\ Segment\ 2,0) * BRCP$

- $Segment\ 1 = \left(\frac{EZ\ BRCP\ Factor - BRCP\ Cap\ Factor}{EZ} \times Excess\ Capacity + BRCP\ Cap\ Factor\right)$
- $Segment\ 2 = \left(\frac{EZ\ BRCP\ Factor}{EZ - AZ}\right) \times (Excess\ Capacity - AZ)$

Reference Price: CONE

Price at Capacity Target: Price Cap

Maximum Price: 1.3 × BRCP at zero excess capacity

Minimum Price: 0 at 30% of excess capacity.

The RCM Review:

1. Identified that the absolute zero point used is relatively high compared to other jurisdictions;
2. Noted that, because the price is set at the cap at the Reserve Capacity Target, the investment signal does not change when there is a shortfall; and
3. Proposed to use the same parameters to set the price curves for both Peak and Flexible Capacity

The Benchmark Capacity Providers (BRCP Reference Technology) Review identified that, if there is no difference between the reference technology for Peak Capacity and Flexible Capacity, then a peak capacity shortfall will mean a zero price uplift for Flexible Capacity, even if there is also a shortfall of Flexible Capacity.

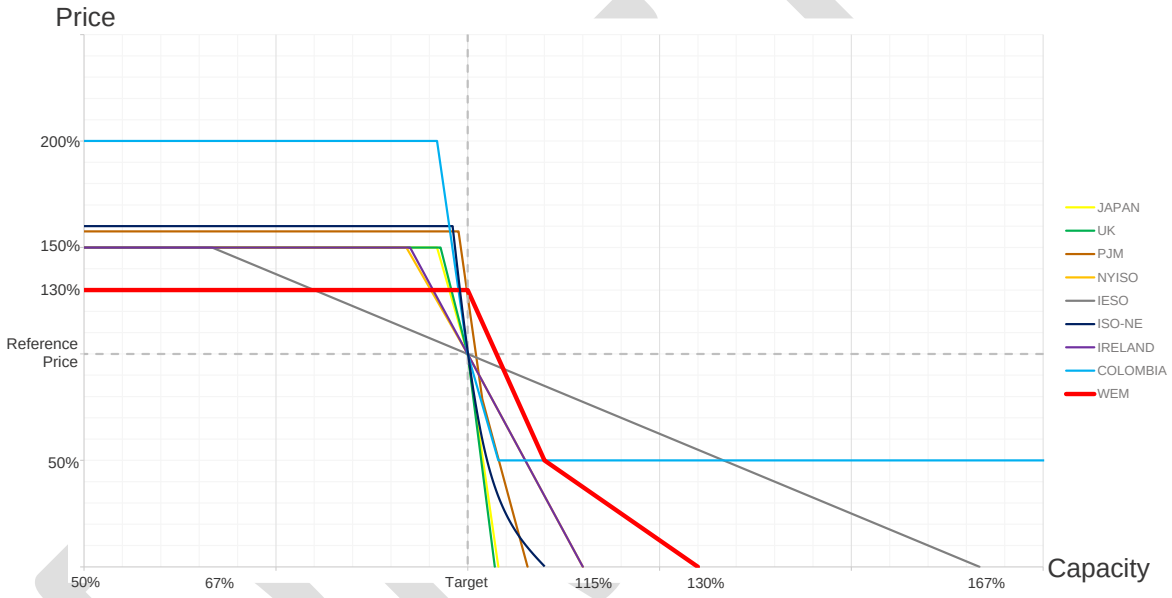
4.2 International scan

EPWA has revisited the analysis of international price curves conducted during the RCM Review. Some of the jurisdictions covered in that review do not have a price curve, as they do not use central procurement, so these were supplemented with additional jurisdictions which do.

The jurisdictions with capacity mechanisms considered were: Colombia, Ireland, ISO-NE, Japan, NYISO, Ontario, PJM, and UK. Figure 7 presents the price curves, and a fuller description for the arrangements in each jurisdiction is included in Appendix A.

While these curves are used in capacity auctions, they provide the same function as in the WEM, defining the maximum and minimum prices paid for capacity, and their relation to the capacity target.

Figure 7: International capacity price curves



The international comparison highlights several points:

- Most of the other jurisdictions use Net CONE, while the WEM uses gross CONE.
- The WEM price cap (1.3 x the benchmark price) is lower as a percentage of the reference price than in other jurisdictions, which range between 1.5x and 1.6x the benchmark price, except Colombia at 2x.
- All other markets except PJM set the capacity price at the reference price when capacity procured exactly equals the target, while the WEM sets the price at the cap at the capacity target.
- The WEM has a four-part curve. Most other markets have a three-part curve, with a straight line from the cap to the floor.
- Colombia and ISO-NE have convex curves (like the WEM) that send a sharper signal when in shortage than when in surplus.
- Ontario has a higher absolute zero point than the WEM, and Colombia has no absolute zero point, rather a price floor at 50% of the benchmark price.

4.3 Proposed price curve

The RCM will continue to use an administered price curve to set the RCP in each reserve capacity cycle.

EPWA explored a variety of options with the WIC Review working group, including:

- Adjustments to the existing four segment curve;
- Addition of a deadband around the target point;
- A smooth curve with no absolute zero point, like the pre-2019 curve.

This section discusses the parameters and inflection points that make up the proposed curve:

- The price at the Reserve Capacity Target;
- A “deadband” zone around the Reserve Capacity Target in which the price does not change;
- The price cap as a proportion of the benchmark price, and the proportion of the capacity target at which the price cap is reached;
- The price floor (which may be zero), and the proportion of the capacity target at which the price falls to the floor;
- Differences between the Peak RCP curve and the Flexible RCP curve.

4.3.1 Peak Reserve Capacity Price at Target

In the current RCP curve, the price is set at 130% of the BRCP at the Reserve Capacity Target. This means that there is no additional investment signal in times of shortfall, as the price is already at the price cap.

Other jurisdictions studied match the capacity target with the benchmark price, as did the pre-2019 price curve. This aligns with the nature of the two parameters:

- The reserve capacity target is the level of capacity required to meet the planning criterion. It includes allowance for ESS requirements and contingencies.
- The BRCP represents the capital and fixed cost of the marginal new entrant capacity provider, enabling that provider to break even (including a return on investment) even if it receives no profit in the energy and ESS markets.

Working group members representing generators expressed concern that reducing the capacity price at the capacity target would weaken the signal for new capacity at a time when new capacity is needed.

EPWA notes that the various price parameters all need to work together. The review of the Benchmark Capacity Providers[16] has determined that:

- The reference technology will change from a diesel-fired OCGT to a 4-hour lithium ion battery ESR
- That for a number of years ESR facilities are likely to receive infra-marginal rents in the energy market.
- It is still appropriate to use gross CONE to set the BRCP.

[16] https://www.wa.gov.au/government/document-collections/coordinator-determinations#determination-of-the-benchmark-capacity-providers

This dynamic means that the marginal new entrant capacity provider is likely to more than break even in the energy and ESS markets, and the WEM can reasonably align with almost all other jurisdictions and set RCP to equal BRCP when the Reserve Capacity Target is exactly met.

Proposal 11:

Set the Peak Reserve Capacity Price to 100% of the Peak Benchmark Reserve Capacity Price if the number of Peak Capacity Credits issued equals the Peak Reserve Capacity Target.

Consultation Questions:

(11) Do stakeholders support setting the price to the BRCP at the RCT? If you have any concerns, please outline your reasons.

4.3.2 Deadband

Some working group members were concerned that the relatively small size of the SWIS means that a few tens of MW can make a material difference to the capacity price, meaning that the price can be changed significantly by a single retirement or a single new build addition. For example, if the largest generator on the SWIS were to retire, the capacity margin would change by around 5% compared to it not retiring.

If the available capacity is:

- at the target, the price will be 130% of the BRCP;
- 105% of the target, the price will be 90% of the BRCP;
- 110% of the target, the price will be 50% of the BRCP.

Working group members also noted that other factors affect the price as well. For example, the Reserve Capacity Target for the 2025-26 capacity year is 20% higher than for the 2024-25 capacity year. This means that there can be significant change in the capacity price from year to year.

Both the working group and the MAC generally supported having a flat priced region around the Reserve Capacity Target to reduce year-to-year volatility, and assist investment certainty.

Members considered that if there were to be a deadband, it should be symmetrical both above and below the capacity target, to balance the costs to consumers with the interests of investors.

The deadband needs to be sufficiently large to cope with volatility in the target. With a Reserve Capacity Target around 5000 MW, a deadband of around 500 MW would mean that a single build or retirement decision alone would not move the price, at least when the available capacity was near to the target.

Proposal 12:

Set the Peak Reserve Capacity Price to 100% of the Peak Benchmark Reserve Capacity Price when the number of Peak Capacity Credits provided is between 95% and 105% of the Peak Reserve Capacity Target.

Consultation Questions:

(12)(a) Do stakeholders support including a deadband in the Peak RCP curve?

(12)(b) Do stakeholders support the proposed settings for the deadband?

4.3.3 Peak Reserve Capacity Price Cap

In the current RCP curve, the price cap is set at 130% of the BRCP. In the 2022 and 2023 reserve capacity cycles, the price was above the BRCP, but no significant new facilities entered the RCM. The working group considered that other factors, particularly network access issues, have probably contributed more to the lack of investment certainty in recent years.

However, while most other jurisdictions use net cost of new entry (CONE) to set their reference price, all but Colombia have a price cap between 150% and 160% of the reference price.

EPWA considers that it is appropriate to provide a sharper signal for investment when there is a capacity shortage, and proposes to adjust the price cap to the low end of the international range.

Almost all international jurisdictions reviewed have their price cap at between 92% and 98% of the capacity target. With a WEM deadband starting at 95% of the capacity target, the price cap needs to apply at a lower percentage of the target to avoid an extremely steep slope, and the potential volatility that entails, while still signaling an increased need for new capacity.

Setting the price cap to apply at 85% of the Reserve Capacity Target would mean the same slope as the portion between 105% and 115% of target (see section **Error! Reference source not found.**). With the current reserve capacity target, the peak capacity price would change from 100% of BRCP to 150% of BRCP over a capacity reduction of around 500 MW.

Proposal 13:

Set a maximum Peak Reserve Capacity Price at 150% of the Peak Benchmark Reserve Capacity Price, when the number of Peak Capacity Credits issued is 85% of the Peak Reserve Capacity Target.

Consultation Questions:

(13) Do stakeholders have any concerns about the proposed parameters for the Peak RCP cap?

4.3.4 Price Floor

In the current RCP curve, the price will be zero at 130% of the Reserve Capacity Target. This means that if there is a capacity surplus of 30% above the Reserve Capacity Target, the capacity price will be zero.

Almost all international comparators have an absolute zero point between 105 and 115%. Ontario's absolute zero point is 167% of the target, and Colombia has a price floor at 50% of the reference price rather than an absolute zero point.

Some working group and MAC members were concerned that having a price floor of zero meant less certainty for investors. Members considered that some investors look at the

worst-case scenario (e.g. zero capacity payments) when choosing whether to invest. While the option to apply for a five-year fixed price does provide some certainty, no proponent has yet sought this option. Some working group members representing generators preferred the pre-2019 approach under which the capacity price fell away much more gradually (noting that this reduces the signal for retirement during oversupply).

Some working group and MAC members suggested a floor price based on debt-servicing costs – that is, payments of interest and principal for the portion of capital costs funded by debt. This value would change depending on the level of gearing, prevailing interest rates, and the expected term of the loan all of which are considered in the ERA's Market Procedure: Benchmark Reserve Capacity Price. With the currently projected BRCP, this would translate to a price floor of:

- around 30% of the BRCP to cover both interest and principal payments;
- around 10% of the BRCP to cover interest payments only.

The price floor could be determined each year as an absolute value, like the BRCP, or set at a fixed proportion of the BRCP.

EPWA considers that:

- for a relatively small, isolated power system, it is appropriate that the WEM has a higher absolute zero point than larger, interconnected markets;
- there may be a case for a non-zero price floor, for example if proponents are unable to obtain a fixed capacity price;
- it is important to have some protection for consumers in the case of oversupply;
- oversupply is unlikely to occur in the near future, as new generation is likely to primarily be intermittent renewables. Under the Relevant Level Method, these facilities will receive Capacity Credits to a relatively low proportion of nameplate capacity, especially where output is highly correlated with existing facilities;
- EPWA considers that changing the floor price each year may not provide the certainty investors are looking for. EPWA proposes to set the price floor at a level of oversupply above the RCT that is reciprocal to the level of undersupply that sets the price cap. This is expected to balance the interests of consumers and investors where available capacity is less than 200% of the RCT.

Proposal 14:

Set a minimum Peak Reserve Capacity Price at 50% of the Peak Benchmark Reserve Capacity Price, when the number of Peak Capacity Credits provided is greater than or equal to 115% of the Peak Reserve Capacity Target.

Consultation Questions:

(14)(a) Do stakeholders support a non-zero price floor?

(14)(b) Do stakeholders consider that a non-zero price floor should be recalculated each year or set based on a fixed proportion of the BRCP?

(14)(c) Do stakeholders consider that a non-zero price floor should allow for principal repayments, interest payments, or be symmetrical with the price cap?

4.3.5 Flexible Capacity RCP Curve

The Coordinator has determined the same Benchmark Capacity Provider for both capacity services. This means that the BRCP for each will be the same.

In the RCM Reform Rules (commencement date yet to be confirmed), providers of Flexible Capacity will be paid a supplement reflecting the value of Flexible Capacity over and above the value of Peak Capacity. However, if the new Flexible Capacity product has the same price curve parameters as the existing Peak Capacity product, and there is a shortage of Peak Capacity, there will be no price premium for Flexible Capacity, and thus no investment signal, even if there is also a shortfall of Flexible Capacity.

The two curves need to be differentiated to allow potential for a shortage of Flexible Capacity to result in an investment signal, even when there is a shortage of Peak Capacity. EPWA proposes to set a higher price cap for Flexible Capacity than Peak Capacity, at the high end of the range used in international capacity mechanisms.

The Flexible Reserve Capacity Target is expected to be significantly smaller than the Peak Reserve Capacity Target – in the order of 2000 MW rather than above 5000 MW for Peak Capacity. This means that a deadband would have to be at least 25% of the target to perform the same function as the deadband in the Peak Capacity price curve. EPWA considers that it is less critical to mitigate volatility in the Flexible Capacity Price because Flexible Capacity payments are additional to the peak capacity payment. Therefore a deadband in the Flexible Capacity Price curve is not necessary.

Proposal 15:

Set a maximum Flexible Reserve Capacity Price at 160% of the Flexible Benchmark Reserve Capacity Price, when the number of Flexible Capacity Credits issued is 85% of the Flexible Reserve Capacity Target.

Set the Flexible Reserve Capacity Price to 100% of the Flexible Benchmark Reserve Capacity Price where the number of Flexible Capacity Credits issued is 100% of the Flexible Reserve Capacity Target.

Set the minimum Flexible Reserve Capacity Price on the same basis as the Peak Reserve Capacity Price.

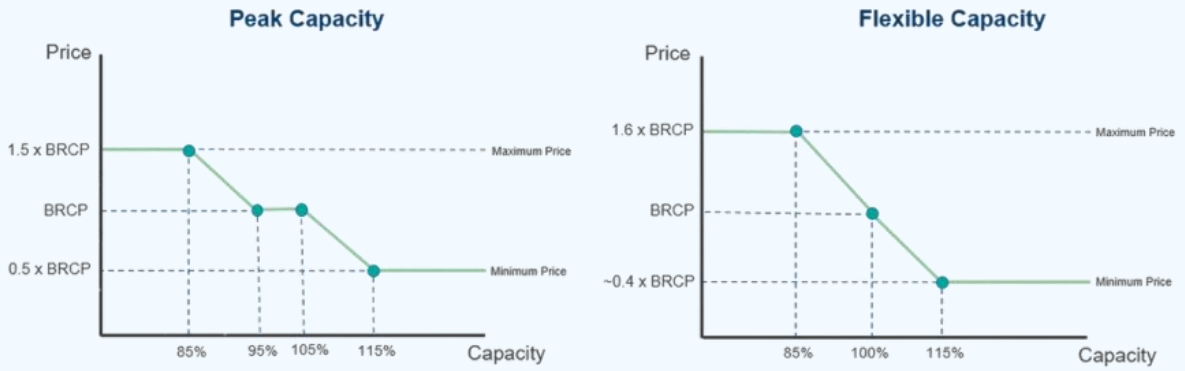
Consultation Questions:

(15)(a) Do stakeholders support a higher price cap for Flexible Capacity than Peak Capacity?

(15)(b) Do stakeholders consider that the Flexible Capacity Price curve should have a deadband?

(15)(c) Do stakeholders consider that Flexible Capacity should have a non-zero price floor?

Proposed Reserve Capacity Price Curves



Peak Capacity

- *Maximum Price*: 1.5 × BRCP at 85% of Target Capacity
- *Price at Capacity Target*: BRCP (CONE)
- *Deadband***:** BRCP at 95% - 105% of Target Capacity
- *Minimum Price*: 0.5 × BRCP at 115% of Target Capacity

Flexible Capacity

- *Maximum Price:* 1.6 × BRCP at 85% of Target Capacity
- *Price at Capacity Target*: BRCP (CONE)
- *Deadband:* None
- *Minimum Price:* 0.4 × BRCP at 115% of Target Capacity

4.4 Impact of price curve changes

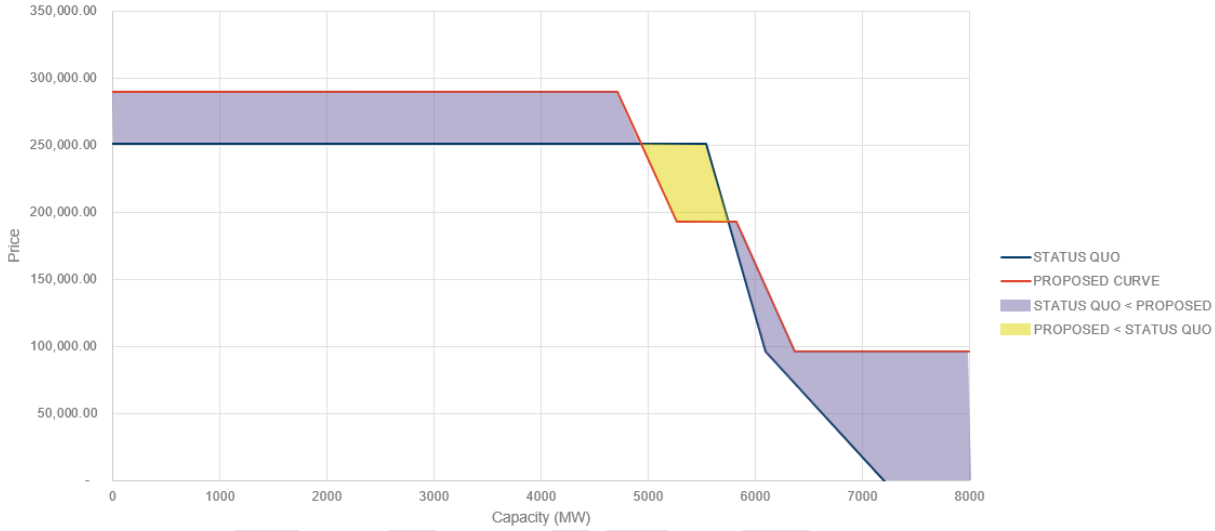
The RCP has increased significantly in recent years, as shown in Table 2. This increase has been driven by an increase in underlying costs, a decreasing quantity of installed capacity, and in the most recent cycle, a step-change in the Reserve Capacity Target.

Table 2: Historical Reserve Capacity Prices

Capacity Year	Reserve Capacity Target (MW)	Capacity Credits Issued (MW)	Reserve Capacity Price ($/MW)
2021	4,482	4,925	78,573
2022	4,421	4,807	85,294
2023	4,396	4,727	105,949
2024	4,526	4,596	194,783

Capacity Year	Reserve Capacity Target (MW)	Capacity Credits Issued (MW)	Reserve Capacity Price ($/MW)
2025	5,543	4,717	251,420

The proposed changes to the price curve are likely to see an increase in the Reserve Capacity Price in the short term. Changes compared to the current price curve are illustrated in Figure 8, with shaded areas representing relative ranges of higher or lower prices given the same BRCP and RCT.



Other factors are also likely to see continuation of a high capacity price:

- Announced retirement of existing coal plant affecting the capacity margin
- A new benchmark technology used to set the BRCP (changing from OCGT to lithium storage)
- The continued use of gross CONE to set the BRCP
- Continuing demand growth rates
- The step-change in reserve margin in the Reserve Capacity Target
- Lack of investment driven by uncertainty around the timing and design of National greenhouse initiatives

Recent increases in the RCP have not yet driven significant new investment in the SWIS. The working group considered that the RCP is only one factor in project developers' decision to invest. In recent years, development decisions have also been influenced by:

- Access to the Western Power network and its interaction with the RCM certification mechanism
- Energy transition outcomes, including the 1 Oct 2023 market commencement and the RCM Review outcomes
- Commonwealth energy transition policies, including the future of the Renewable Energy Target (RET), and the new Capacity Investment Scheme (CIS).

As such, it is not clear that the proposed changes in the price curve would be sufficient – on their own – to drive necessary investment in the SWIS. The changes must be considered in context of the wider investment landscape. Chapter 5 includes analysis of potential impacts on investment and on customers[17].

4.5 Adjustments and reviews

4.5.1 Review of price curve parameters

As noted in section 4.3.1, the price curve must be considered in light of the BRCP arrangements, including whether it is set using gross CONE or net CONE.

In the current WEM Rules:

- Clause 2.26.3 requires the ERA to review the BRCP method every five years
- Clause 2.26.3A extends this to the price curve parameters (including the cap, the economic zero point and the absolute zero point)
- Clause 4.16.9 requires the ERA to review its BRCP procedure at least every five years

The WEM Amending Rules implementing the outcomes of the RCM Review will consolidate ERA BRCP review activities into section 4.16 of the WEM Rules, including triggering an ERA review of the BRCP method if the benchmark technology changes.

EPWA proposes to add a review of the price curve to the Coordinator's regular review of the BRCP reference technology. As a result, the ERA review of the BRCP method would not include the price curve parameters.

Proposal 16:

Include review of the reserve capacity price curves in the Coordinator's regular review of the BRCP reference technology.

Consultation Questions:

(16) Do stakeholders agree that the price curves should be considered in conjunction with the BRCP reference technology? If you have any concerns, please outline your reasons.

4.5.2 Transitional pricing arrangements

In the 2019 reform, transitional pricing arrangements were implemented for existing facilities, which had operated under the previous pricing arrangements.

These facilities have a cap and floor applied to their Reserve Capacity Price. The transitional cap and floor are inflation adjusted each year, using forecasts made by the Reserve Bank of Australia. Forecasts must be used due to the timing of the price calculation, and there is no mechanism to reflect actual inflation, even when it differs significantly from the forecast, as it has in recent years.

EPWA proposes to add a lookback adjustment in future capacity price calculations to reflect differences between forecasts and actuals, as follows:

[17] Note that WEM cost drivers do not directly flow through to non-contestable customer tariffs.

$$\text{Trans\_Ceiling} = \text{Trans\_Ceiling}_{[\text{previous}]} \times \max\left(1,\ (1 + \text{ForecastCPI} + \text{ActualCPI}_{[\text{previous}]} - \text{ForecastCPI}_{[\text{previous}]})\right)$$

The first year would adjust for the period since 2019, with subsequent years adjusting for the previous year only. Prices already published for previous capacity cycles would not be adjusted.

Facilities commissioned since 2019 have operated under a regime with a zero price floor. The proposed new price curve decreases the downside risk and increases the upside risk compared to the price curve at the time these facilities invested. As shown in Figure 8, these facilities could receive higher or lower prices due to the new curve, so EPWA considers there is no need for transitional arrangements for these facilities.

Proposal 17:

Adjust existing transitional pricing arrangements to include a lookback adjustment for actual inflation.

There will be no new transitional arrangements for existing facilities not already subject to transitional pricing arrangements.

Consultation Questions:

(17)(a) Do stakeholders agree that existing transitional pricing arrangements should consider actual outcomes in addition to forecasts?

(17)(b) Do stakeholders agree that new transitional pricing arrangements are not necessary?

5. Revenue Support for Renewable Generators

5.1 Introduction

Meeting the Reserve Capacity Target means building significant volumes of renewable capacity. That means being oversupplied with renewables and storage much of the time.

As conventional generation retires, renewable generators with low variable costs will more frequently set the Real-Time Market (RTM) energy price, driving prices close to zero most of the time.

If renewable project fixed costs per MW are higher than the technology used to set the BRCP, they will not recover all fixed costs through capacity payments, as they only get Capacity Credits for 15-30% of their nameplate capacity.

EPWA and the WIC Review Working Group have begun to consider potential mechanisms to “top-up” WEM revenues for renewable generators to address the risk that they may not recover enough revenue to justify investment.

This programme would need to be aligned with the Commonwealth Capacity Investment Scheme (CIS), which will provide additional revenue for some facilities but not for others. It is not yet clear how the scheme will apply in the SWIS, and EPWA (with the support of the working group) has paused work on this initiative to allow time for the CIS mechanism to be developed.

This chapter provides financial modelling to forecast the financial viability of potential new storage and intermittent renewable generation developments, given the design changes proposed under the WIC Review. This analysis supports the need for a top-up, and illustrates the potential volume of top-up needed.

5.2 Methodology

Appendices

Appendix A. International reserve capacity price curves

This appendix describes the capacity price curves used in the UK, Ireland, Ontario, New York, PJM, ISO-NE, Colombia and Japan.

A.1 UK[18]

The Secretary of State sets the methodology for calculating the demand curve used for capacity auctions. There are two key parameters for this curve – the target capacity level and the net cost of new entry (Net CONE). The target capacity is the estimated optimal level of capacity needed to meet the reliability standard, taking into account the capacity expected to be available outside the Capacity Market. Net CONE is calculated by taking the cost of a newly built combine cycle gas turbine (CCGT) plant less the contribution to profit from expected electricity market and ancillary market services revenue.

The UK's main capacity auctions are done four years ahead of the delivery year and the demand curve is published by the government four and a half years ahead. Another auction is done one year ahead of delivery year to enable the participation of Demand Side Response and to provide the opportunity to refine the level of capacity previously issued in capacity agreements. The demand curve for this auction is published one and a half years prior to the delivery year.

Price Curve: Consists of a horizontal line at price cap, and a negatively sloping line from minimum to maximum capacity. The slope crosses through the point where the Target Capacity meets Net CONE

Reference Price: Net CONE

Price at Capacity Target: Net CONE

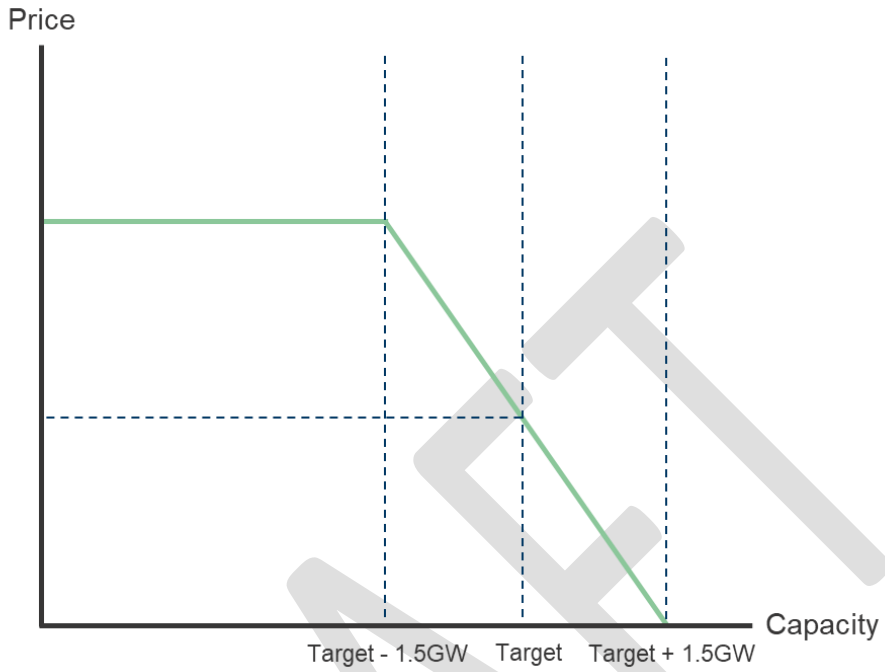
Maximum Price: $1.5 \times \text{Net CONE}$ from 0 to minimum capacity (Target Capacity less 1.5GW)

Minimum Price: 0 at maximum capacity (Target Capacity plus 1.5GW)[19]

[18] Implementing Electricity Market Reform (EMR) – Finalised policy positions for implementation of EMR; Capacity Market Parameters.

[19] 1.5GW is approximately 3.54% of UK's current Target Capacity. Thus, minimum capacity is 96.46% of Target Capacity while maximum capacity is about 103.54% of Target Capacity.

Figure 9: UK Reserve Capacity Demand Curve



A.2 Ireland

The parameters for capacity market auctions, including the demand curve methodology and values, are published by the Single Electricity Market (SEM) in the Initial Auction Information Pack. Participants can, then, submit their responses to these proposed parameters. All final parameters in the auction are set and approved by the Regulatory Authorities (Irish Commission for Regulation of Utilities and the Northern Ireland Authority for Utilities Regulator) consistent with the Capacity Market Code.

The Capacity Year 2026/27's Net CONE value was initially set to reflect the lowest cost CCGT in Ireland. After feedback from participants that that the estimate was too low to encourage investment, the SEM Committee revised the assumptions to set Net CONE based on an Open Cycle Gas Turbine (OCGT) plant.[20]

The latest capacity auction (2027/28 T-4) follows the following parameters[21]:

Price Curve: Consists of a horizontal portion at Auction Price Cap from 0MW to 92.5% of adjusted Capacity Requirement, and a negatively sloping straight line to 115% of adjusted Capacity Requirement. The line should pass through the point where Target Capacity is priced at Net CONE.

Reference Point: Net CONE

Price at Capacity Target: Net CONE

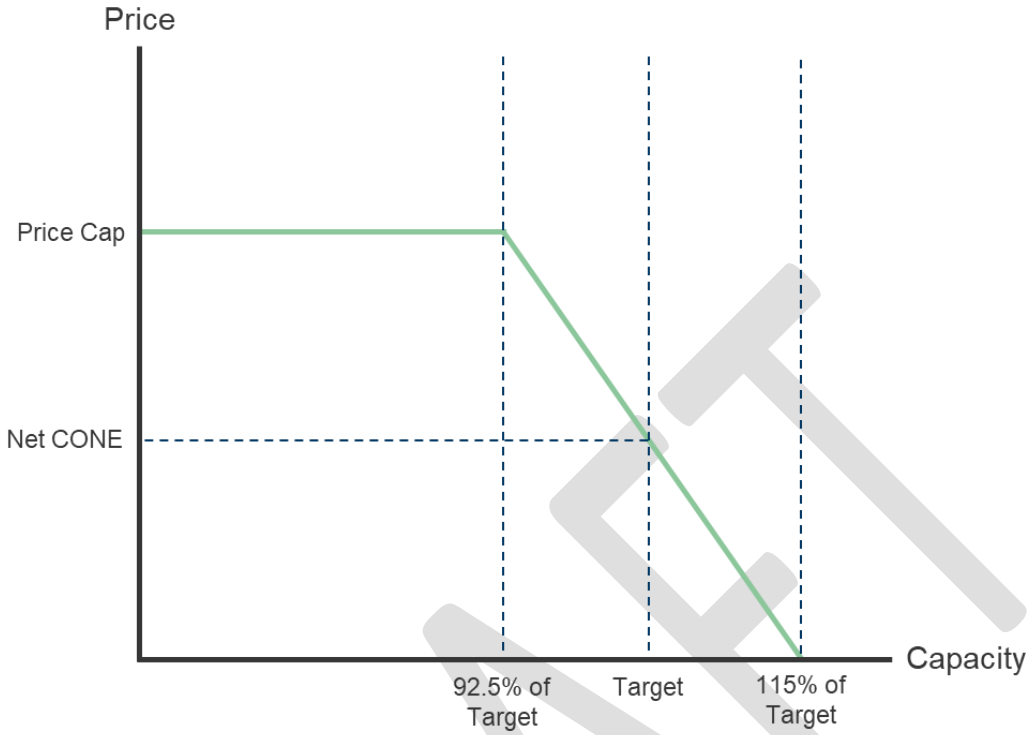
Maximum Price: $1.5 \times \text{Net CONE}$ from 0 to 92.5% of Target Capacity

Minimum Price: 0 at 115% of Target Capacity

[20] CRM Best New Entrant New Cost of New Entrant, 2026/27 Decision Paper

[21] CRM 2027/28 T-4 Capacity Auction Parameters Decision Paper

Figure 10: Ireland Reserve Capacity Demand Curve



A.3 Ontario Independent Electricity System Operator[22]

IESO has recently updated the Reference Price and the Maximum Auction Clearing Price (MACP) of their demand curve for the 2023 Capacity Auction. This was done to ensure that the demand curve reflects the current economic conditions while taking into account the need to procure sufficient capacity for Resource Adequacy needs, provide a stable and appropriate price signal, and drive competition and ratepayer value.

The previous demand curve was established in 2015. Its reference price was based on the 2019 Brattle calculation using Installed Capacity. The 2023 Reference Price enhancement was estimated to account for inflation and the transition to using unforced capacity rather than installed capacity.

The MACP of the previous curve was equal to 1.25 times the Reference Price. The new MACP is set at 1.5 times the Reference Price. The Maximum Auction Limit at the MACP was also changed from 80% of target capacity to 66.7%, while the maximum auction capacity limit decreased from 180% to 167.7% of target capacity.

Price Curve: Consists of a horizontal portion at maximum auction clearing price up to the minimum capacity, and a downward sloping straight line from the maximum auction clearing price at minimum capacity to maximum capacity at minimum auction clearing price. The line passes through the point where Target Capacity is priced at Reference Price.

Reference Price: Net CONE

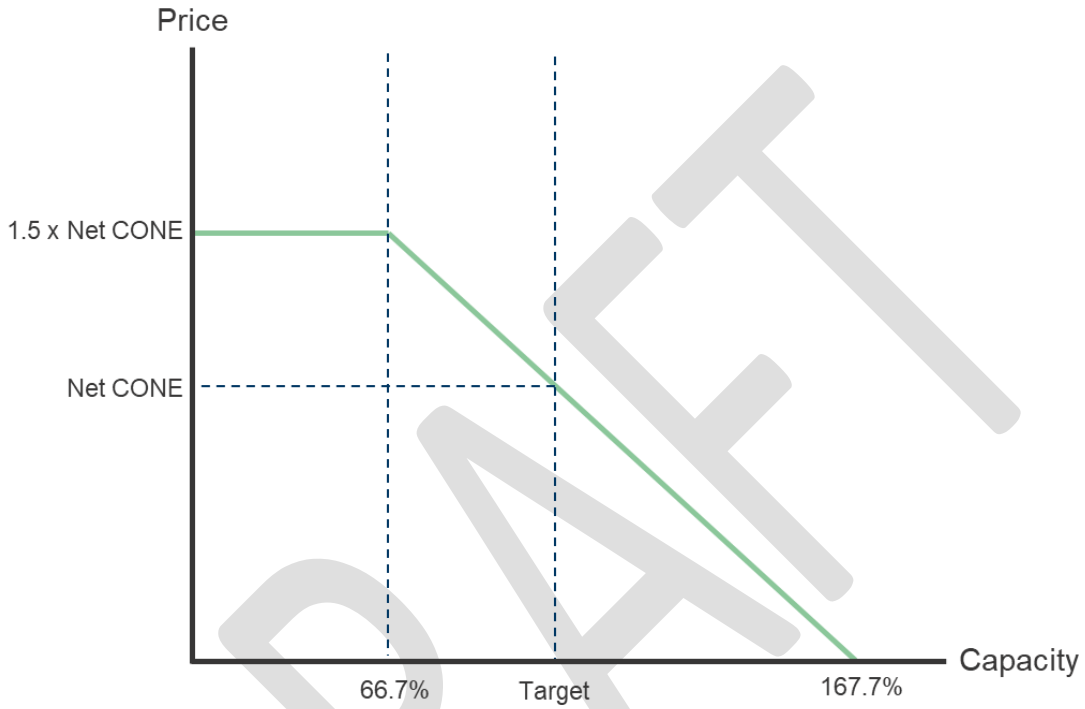
Price at Capacity Target: Net CONE

[22] Capacity Auction Design Memo 7.1

Maximum Price: 1.5 × Reference Price from 0 to Minimum Capacity Limit (66.7% of Target Capacity)

Minimum Price: 0 at Maximum Capacity Limit (167.7% of Target Capacity)

Figure 11: IESO Reserve Capacity Demand Curve



A.4 New York ISO[23]

The NYISO accounts for location in establishing its Installed Capacity (ICAP) Demand Curves:

- Separate installed capacity demand curves are set to determine the unforced capacity obligation for each locality and the total unforced capacity obligations for all load serving entities in the New York Control Area.
- The New York State Reliability Council sets the capacity auction's installed reserve margin. This is used by the NYISO to determine the minimum installed capacity requirement (ICR) for the capacity auction and the locational minimum installed capacity requirement (LICR) based on the region or locality.

The reference price is based on the estimated cost for a peaking plant for the rest-of-state region or locality, called the annual reference value, less an estimate of energy and ancillary services annual net revenue.

Price Curve: ICAP Price curve consists of three segments:

[23] Manual 4: Installed Capacity Manual

1. Horizontal segment where price is 1.5 times estimated localized levelized cost to develop a new peaking plant or CONE
2. Negative sloped segment that passes through a point where minimum installed capacity requirement or locational minimum installed capacity requirement meets the reference price and on to the zero crossing point.
3. Horizontal segment for all quantities above the zero crossing point, at which the price is zero.

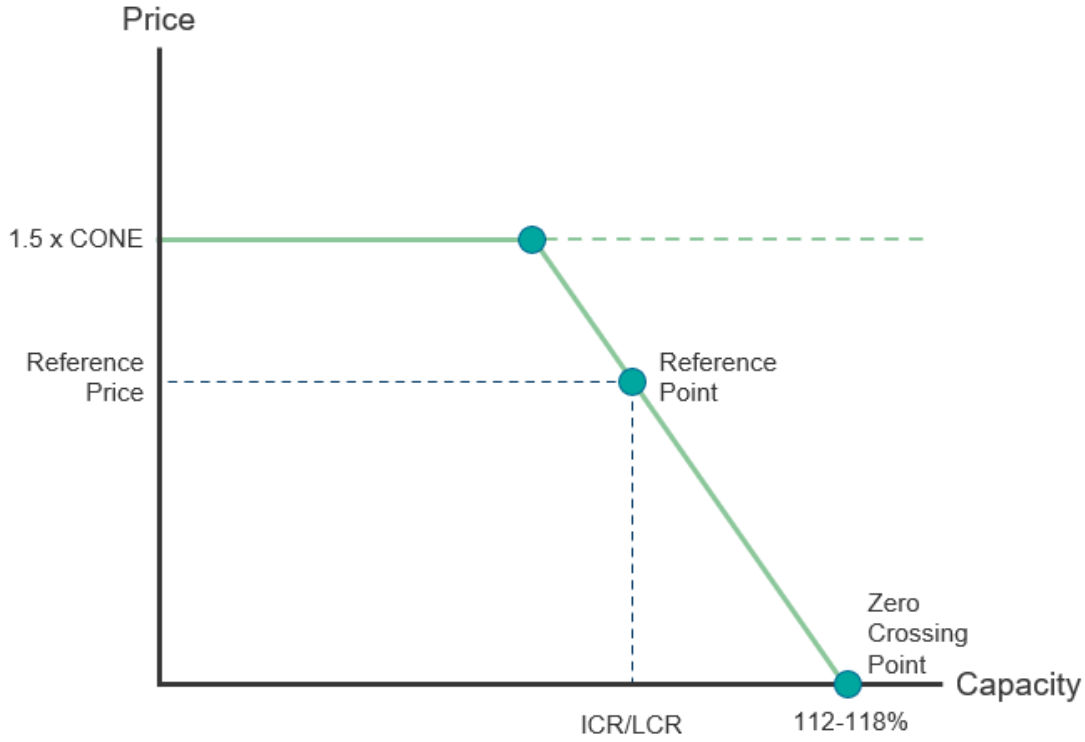
Reference Price: Gross CONE

Price at Capacity Target: Gross CONE

Maximum Price: $1.5 \times \text{Gross CONE}$

Minimum Price: 0 at Zero Crossing Point (112-118% of ICR/LCR depending on location)

Figure 12: NYISO Reserve Capacity Demand Curve



A.5 PJM[24]

The PJM Capacity Market is a forward mechanism with a base residual auction (held three years prior to the beginning of the delivery year) and three incremental auctions. It is based on the reliability pricing model with the following key elements:

- Locational capacity pricing
- Variable resource requirement mechanism (VRR).
- Forward commitment of supply by generation, demand resources, energy efficiency resources, and qualified transmission upgrades
- Reliability backstop mechanism

[24] PJM Manual 18: PJM Capacity Market

The base residual auction demand curve is downward sloping and based on the VRR. The VRR is a family of price/quantity points that provide price to a corresponding level of resource procured relative to the installed reserve margin. A VRR curve is expected to reflect that additional capacity has value even above the target installed reserve margin.

One of the parameters of the VRR curve is the value of CONE. The reference resource for CONE from delivery year 2025/2026 to subsequent delivery years is a combined cycle generating station. The gross CONE is the average of the gross CONE for the four CONE areas.

Price Curve: The variable resource requirement curve is plotted by combining a horizontal line from y-axis to point (a) and using a straight line to connect points (a), (b), and (c). The points are computed as follows:

Point	Price	Quantity
a	$\frac{Greater\ of\ [CONE,\ 1.5 \times NetCONE]}{1 - PoolWide\ EFORd}$	$ReliabilityReq \frac{(100\% + IRM - 1.2\%)}{(100\% + IRM)}$
b	$\frac{(0.75 \times NetCONE)}{1 - PoolWide\ EFORd}$	$ReliabilityReq \frac{(100\% + IRM + 1.9\%)}{(100\% + IRM)}$
c	0	$ReliabilityReq \frac{(100\% + IRM + 7.8\%)}{(100\% + IRM)}$

- The Reliability Requirement $(\mathrm{ReliabilityReq})$ used in calculating the unforced capacity quantities excludes any adjustment for price responsive demand (PRD) and energy efficiency (EE) resources. The resulting curve will be adjusted leftward based on the PRD impact, and rightward based on the impact of EE.
- The Current IRM is 14.7%; and
- The Current EFORd is 4.81%.

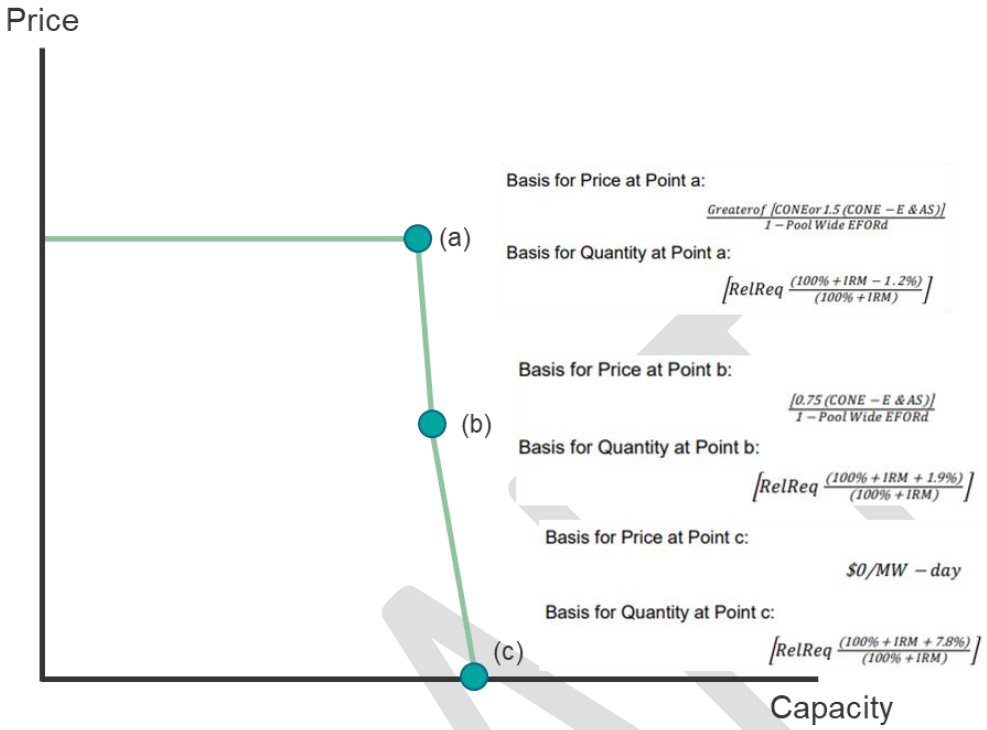
Reference Price: Net CONE

Price at Capacity Target: Net CONE

Maximum Price: $\frac{\mathrm{Greater\ of\ [CONE,\ 1.5 \times NetCONE]}}{\mathrm{1 - PoolWide\ EFORd}}$

Minimum Price: 0 at point (c)

Figure 13: PJM Reserve Capacity Demand Curve



A.6 ISO New England[25]

In 2016, ISO-NE amended its curve to better reflect the locational reliability impact of capacity. Each zone now has different prices proportional to the marginal reliability impact values at each capacity level. This design addressed price volatility and market power concerns raised by the regulator in relation to the previous vertical curves.

The System-Wide Capacity Demand Curve is based on the reliability impact of adding incremental capacity that is cost-efficient across all zones.

Price Curve: Marginal Reliability Impact as a function of capacity with a scaling factor that produces a price of Net CONE equal to the Net Installed Capacity Requirement (ICR) level.

Reference Point: Net CONE

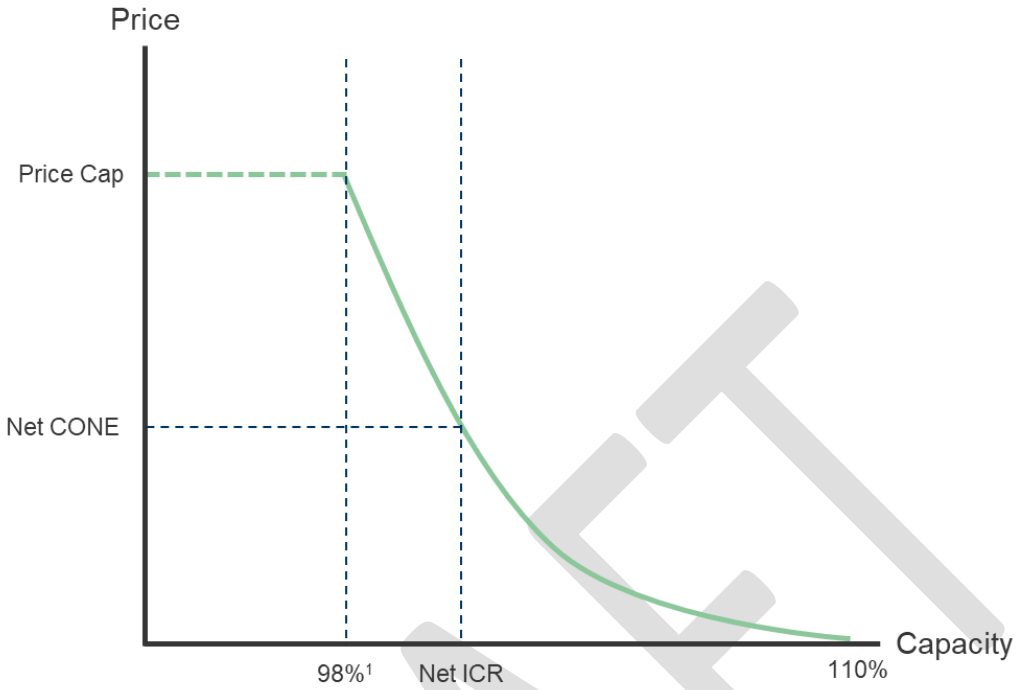
Price at Capacity Target: Net CONE

Maximum Price: $\mathrm{Max}[1.6 \times \mathrm{Net\ CONE}, \mathrm{CONE}]$ at 98% of ICR

Minimum Price: 0 at Capacity greater than 110% of ICR

[25] Demand Curve Design Improvements

Figure 14: ISO-NE Reserve Capacity Demand Curve



A.7 Colombia[26]

80% of Colombia's energy and about two-thirds of its capacity is from hydro generation. Thus, there is a need to ensure sufficient capacity to meet the demand, especially in dry periods. The firm energy auction is a forward market conducted three to four years prior to the commitment period.

The Colombian capacity market follows a descending clock auction where the price starts at the cap and generators offer as much capacity as they are prepared to supply at that price. If there is excess supply, the price will be reduced, and the participants can resubmit their offers. This continues until the supply quantity and the clearing price are determined.

Secondary Markets – reconfiguration auctions and monthly auctions – are sealed-bid clearing-price auctions. Reconfiguration auctions are held annually for buyers and sellers to balance their position for the coming commitment year. A monthly auction is also held during the commitment year to further balance positions.

Price Curve: At CONE, load purchases its firm energy target (100% of estimated firm energy demand). At higher prices, load purchases slightly less than the target quantity; at lower prices load purchases slightly more than the target quantity

Reference Point: CONE

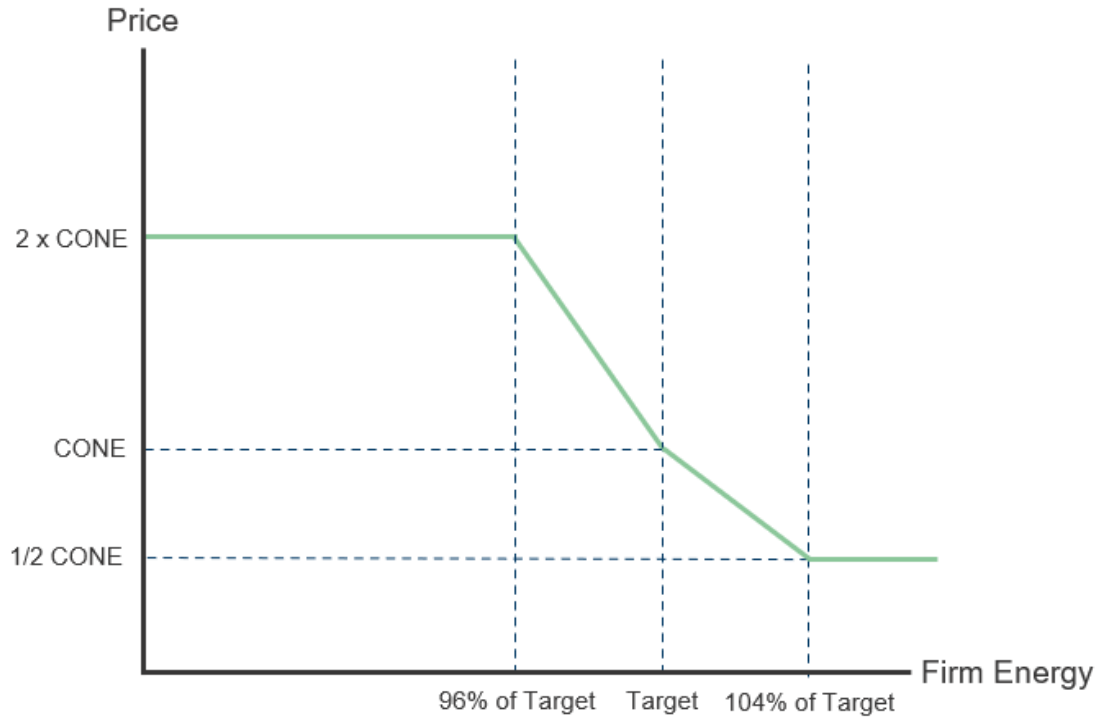
Price at Capacity Target: CONE

Maximum Price: $2 \times \mathrm{CONE}$ from 0 to 96% of Target Capacity

Minimum Price: ${}^{1}/_{2} \times \mathrm{CONE}$ at 104% of Target Capacity

[26] Colombia Firm Energy Market

Figure 15: Colombia Reserve Capacity Demand Curve



A.8 Japan[27]

The main auction is held 4 years prior to the delivery year. An additional 1-year ahead auction is also done to adjust the forecast demand and supply capacity decrease due to generator outage.

The demand curve is set to be "convex" where price rises steeply for capacity offers smaller than the target. The price at the target is valued by the cost of new entry of combined cycle gas turbine thermal power plant selected based on economic efficiency.

The price when there is a capacity surplus is a linearization of a theoretical convex "trade-off curve" which plots the value of additional capacity compared to avoided outage costs.

Price Curve: A horizontal segment at the price cap from the y-axis to the maximum capacity at price upper limit. A negatively sloping line connecting maximum capacity at price upper limit to the target capacity. Another straight line from target capacity to capacity at zero-price linearizes the convex trade-off curve such that the area below (a) is equal to the area above (b).

Reference Point: Net CONE

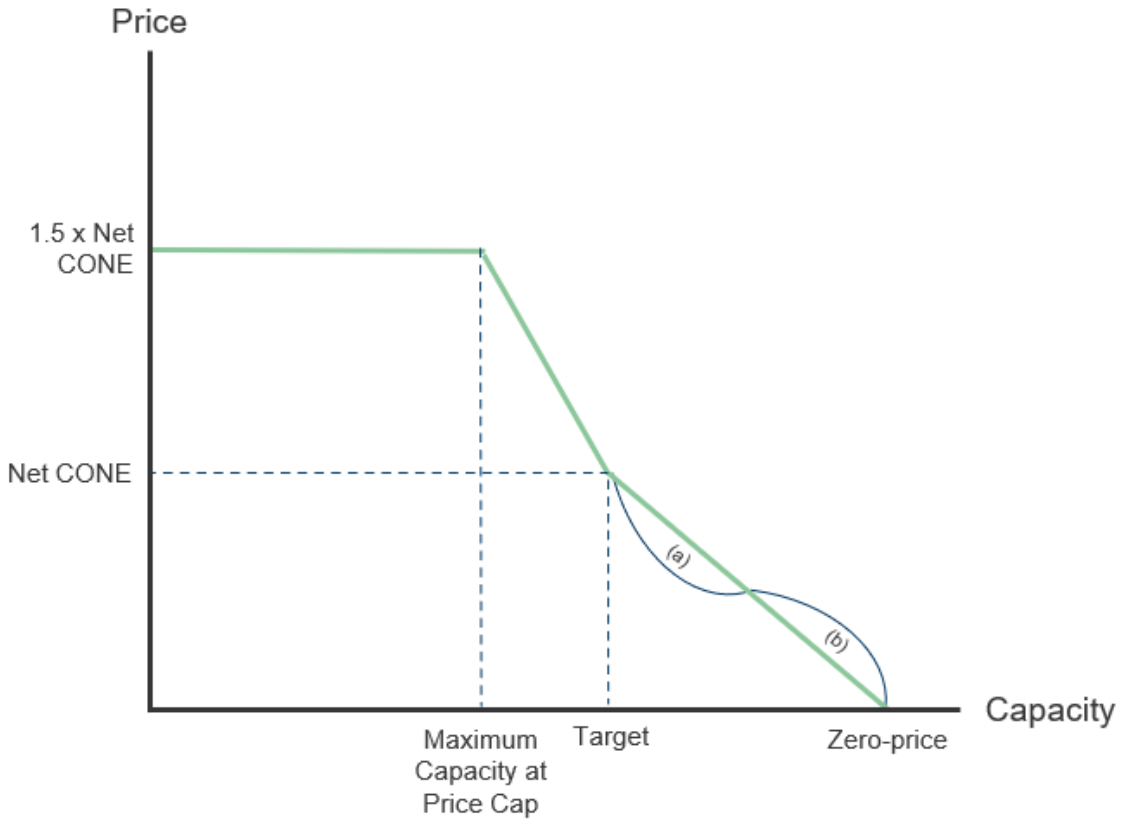
Price at Capacity Target: Net CONE

Maximum Price: $1.5 \times \text{Net CONE}$ from 0 to 96% of Target Capacity

Minimum Price: 0 at 104% of Target Capacity

[27] Toward Deregulated, Smart and Resilient Power Systems with Massive Integration of Renewable Energy in Japan

Figure 16: Japan Reserve Capacity Demand Curve



Appendix B. Example price curves

This appendix shows how RCP curves and prices would have looked for recent years using actual input parameters. Figure 26, Figure 27, and Figure 28 show the curves, while Table 3Table 4Table 5

Figure 17: RCP curves for historical years (current rules)

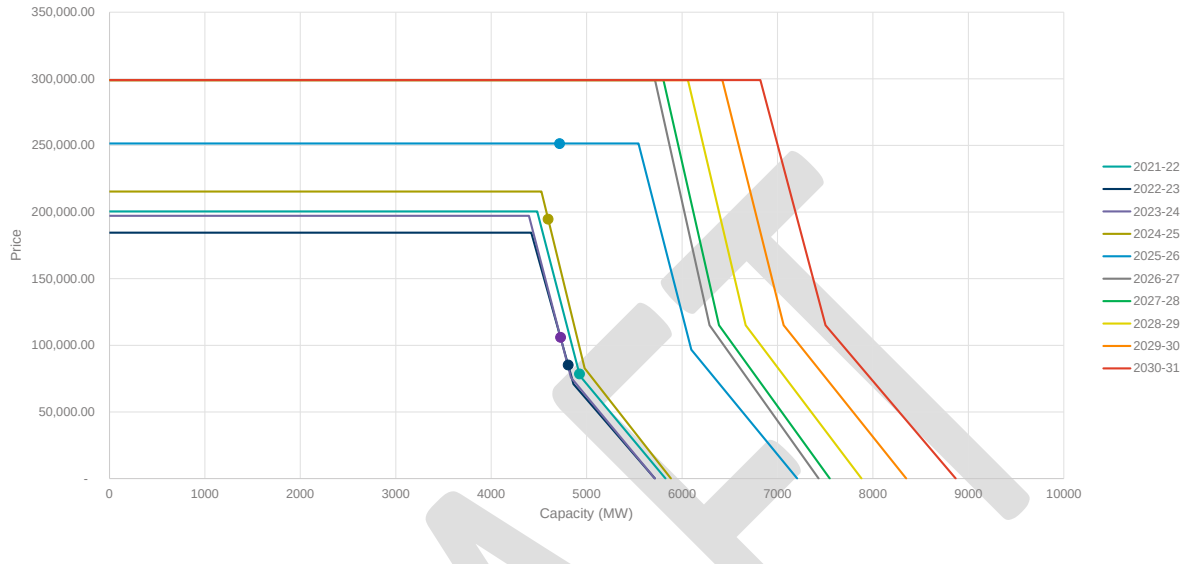


Figure 18: Peak RCP curves for historical years (proposed rules)

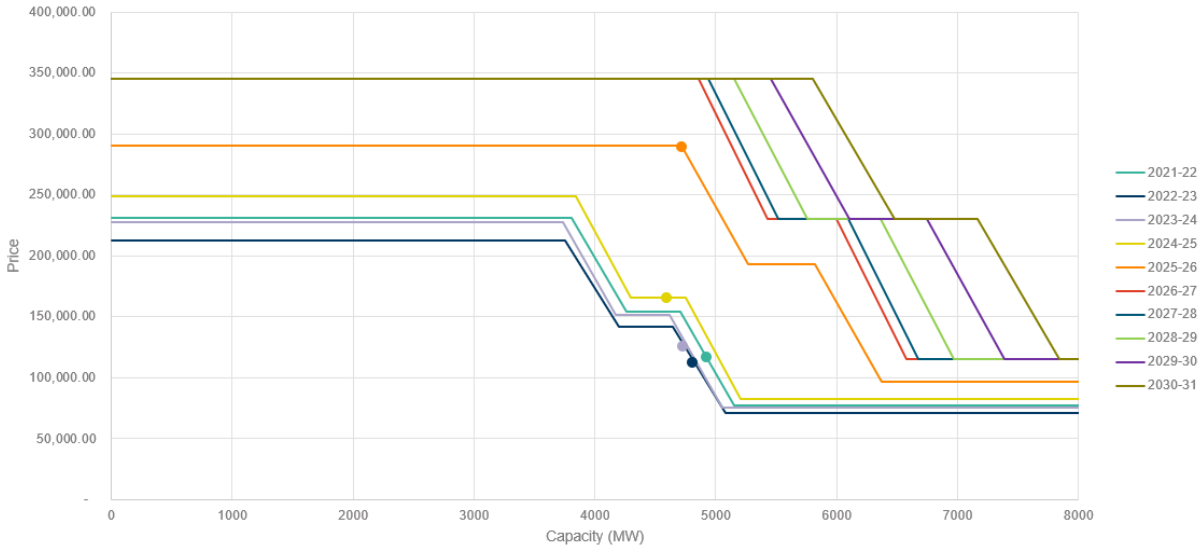


Figure 19: Flexible RCP curves for historical years (proposed rules)

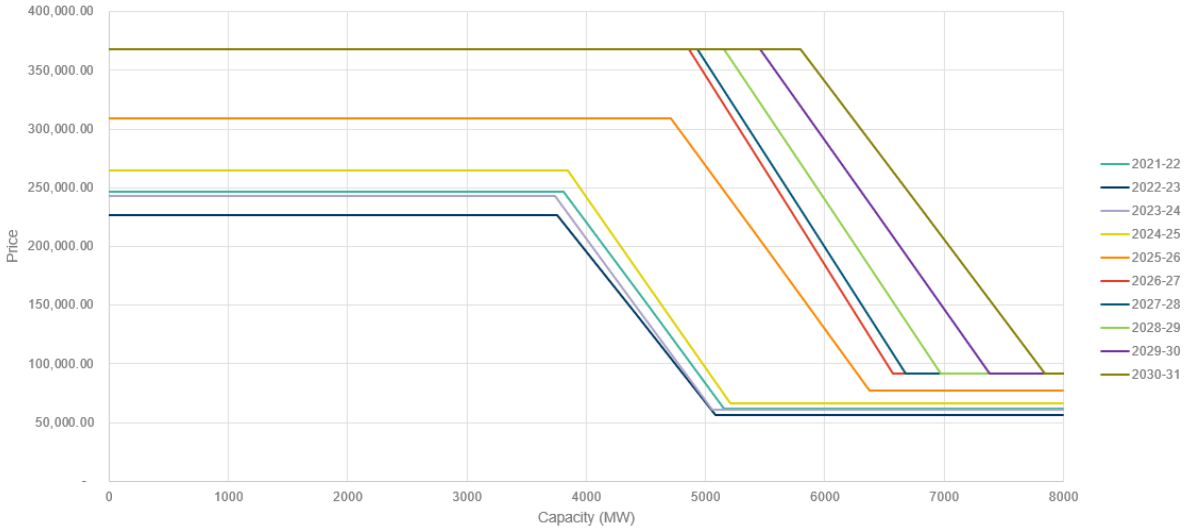


Table 3: Peak RCP curve parameters and results (current rules)

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap ($)	200,460.00	184,470.00	197,210.00	215,410.00	251,420.00	299,000.00	299,000.00	299,000.00	299,000.00	299,000.00
Target (MW)	4,482.00	4,421.00	4,396.00	4,526.00	5,543.00	5,716.00	5,806.00	6,061.00	6,422.00	6,821.00
Economic Zero ($)	77,100.00	70,950.00	75,850.00	82,850.00	96,700.00	115,000.00	115,000.00	115,000.00	115,000.00	115,000.00
110% of Target (MW)	4,930.20	4,863.10	4,835.60	4,978.60	6,097.30	6,287.60	6,386.60	6,667.10	7,064.20	7,503.10
Absolute Zero ($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130% of Target (MW)	5,826.60	5,747.30	5,714.80	5,883.80	7,205.90	7,430.80	7,547.80	7,879.30	8,348.60	8,867.30
Reserve Capacity Price ($)	**78,573**	**85,294**	**105,949**	**194,783**	**251,420**	**-**	**-**	**-**	**-**	**-**
Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	**-**	**-**	**-**	**-**	**-**

Table 4: Peak RCP curve parameters and results (proposed rules)

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap	231,300.00	212,850.00	227,550.00	248,550.00	290,100.00	345,000.00	345,000.00	345,000.00	345,000.00	345,000.00
85% of Target	3,809.70	3,757.85	3,736.60	3,847.10	4,711.55	4,858.60	4,935.10	5,151.85	5,458.70	5,797.85
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	230,000.00	230,000.00	230,000.00	230,000.00	230,000.00
95% of Target	4,257.90	4,199.95	4,176.20	4,299.70	5,265.85	5,430.20	5,515.70	5,757.95	6,100.90	6,479.95
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	230,000.00	230,000.00	230,000.00	230,000.00	230,000.00
105% of Target	4,706.10	4,642.05	4,615.80	4,752.30	5,820.15	6,001.80	6,096.30	6,364.05	6,743.10	7,162.05
Price Floor ($)	77,100.00	70,950.00	75,850.00	82,850.00	96,700.00	115,000.00	115,000.00	115,000.00	115,000.00	115,000.00
115% of Target	5,154.30	5,084.15	5,055.40	5,204.90	6,374.45	6,573.40	6,676.90	6,970.15	7,385.30	7,844.15
Reserve Capacity Price ($)	**124,097**	**120,692**	**136,410**	**165,700**	**290,100**	**-**	**-**	**-**	**-**	**-**
Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	**-**	**-**	**-**	**-**	**-**

Table 5: Flexible RCP curve parameters and results (proposed rules)

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap	246,720.00	227,040.00	242,720.00	265,120.00	309,440.00	368,000.00	368,000.00	368,000.00	368,000.00	368,000.00
85% of Target	3,809.70	3,757.85	3,736.60	3,847.10	4,711.55	4,858.60	4,935.10	5,151.85	5,458.70	5,797.85
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	230,000.00	230,000.00	230,000.00	230,000.00	230,000.00
100% of Target	4,482.00	4,421.00	4,396.00	4,526.00	5,543.00	5,716.00	5,806.00	6,061.00	6,422.00	6,821.00
Price Floor ($)	61,680.00	56,760.00	60,680.00	66,280.00	77,360.00	92,000.00	92,000.00	92,000.00	92,000.00	92,000.00
115% of Target	5,154.30	5,084.15	5,055.40	5,204.90	6,374.45	6,573.40	6,676.90	6,970.15	7,385.30	7,844.15
Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	**-**	**-**	**-**	**-**	**-**
Reserve Capacity Price ($)	**124,097**	**120,692**	**136,410**	**165,700**	**290,100**	**-**	**-**	**-**	**-**	**-**

Energy Policy WA
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Minutes

Meeting Title:	WEM Investment Certainty Review (WIC Review)
Date:	24 January 2024
Time:	9:30 AM to 12:20 PM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Mena Gilchrist	AEMO	
Graham Pearson	Australian Energy Council	
Oscar Carlberg	Alinta Energy	
Daniel Kurz	Bluewaters Power 1 Pty Ltd	
Francis Ip	BLT Energy Pty Ltd	
Tom Frood	Bright Energy Investments	
Jake Flynn	Collgar Wind Farm	
Liz Aitken	Empire Carbon and Energy	
Dr Matt Shahnazari	ERA	
Noel Schubert	Expert Consumer Panel	
Luke Skinner	Expert Consumer Panel	
Patrick Peake	Perth Energy	
Paul Arias	Shell Energy	
Shane Cremin	Summit Southern Cross Power Pty Ltd	Joined 10:15am
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Eija Samson	RBP	
Shelley Worthington	EPWA	
Tonia Curby	EPWA	

Item	Subject	Action
1	**Welcome** The Chair opened the meeting with an Acknowledgment of Country and welcomed members.	

Item	Subject	Action

2-3 Meeting Attendance and Minutes

The meeting attendance was as listed above.

The Chair noted that the Minutes from 6 December 2023 were approved and published.

4 RCP Curve – final proposals

Mr Bowmaker presented the final proposals for the Reserve Capacity Price (RCP) curve and summarised discussion from previous WICRWG meetings.

- Mr Carlberg noted that there are factors outside of price which pose barriers to entry, and noted the delayed response to a capacity price signal due to project timelines.
- Mr Schubert asked whether EPWA plans to consider roadblocks outside of the RCP for new facilities entry.
- Mr Skinner responded that this is the role of PoweringWA.

The Chair responded that this is the purpose of the WIC Review and noted other initiatives including discussions with the Commonwealth on the Capacity Investment Scheme (CIS) which seek to address these roadblocks.

- Mr Skinner considered that shortfalls in capacity may be due to broader uncertainty, which may not be mitigated through RCP changes.
- Mr Frood noted the high degree of risk with new investment and considered that the government's grid augmentation commitments, Electricity Statement of Opportunities and SWIS Demand Assessment have provided stronger investment signals. He noted that it is unclear how investors can account for risk and that the offer construction guideline could include this.

The Chair responded that the offer construction guideline applies to entities which have market power.

- Dr Shahnazari did not agree that the cost of managing risk is unaccounted for in the ERA's calculations and noted that risk-adjusted rate of return is included in the BRCP.
- Ms Aitken noted that the return on investment is in the Weighted Average Cost of Capital of the BRCP. She raised the issue that this does not apply to wind as the Relevant Level Method dilutes the volume of capacity for those investments.

Mr Robinson presented the proposal to set the Peak RCP to 100% of the BRCP at the Peak Reserve Capacity Target (RCT).

- Mr Arias noted that members previously expressed concern regarding the weakening of the investment signal and that gross Cost of New Entry (CONE) was chosen due to the uncertainty of net CONE.

The Chair clarified that there were views both for and against the proposal from members.

Mr Robinson presented the proposal to retain the absolute zero point at 130% of the RCT, noting the importance to protect consumers from oversupply.

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- Mr Flynn questioned whether low energy prices would be a natural protection to consumers and noted the material risk of a zero-price floor to investors.

Mr Robinson acknowledged the risk to investors and noted that risk needs to be balanced between investors and consumers.

The Chair noted that the BRCP is likely to increase and, along with the proposed deadband, will increase certainty.

- Mrs Bedola did not agree that new generation will primarily be renewables noting the requirement for flexible and firm capacity to respond to the peak. She considered that this should be 'storage and renewables'. She also noted that, if there is a surplus and the price is zero, existing capacity is still providing a value which is not zero.

The Chair asked whether zero-price at 130% of the target is too low.

Mr Robinson noted that most other markets go to zero at 5-10% surplus.

- Mr Skinner considered that because the RCT is recalculated every year, the 130% point should not present a real problem for investors.
- Mr Carlberg considered that zero at 130% is an excessive signal which would prohibit investment. He also considered the price drop outside of the deadband poses risk to investors. He considered that there should be another mechanism to hedge against these risks.

The Chair noted that the zero-price signal is for a year and is consistent with international comparison. She also noted that investors can lock in a price for 5 years if they foresee a risk.

Mr Schubert noted the current capacity shortfall and considered that we keep the zero-point at 130%, and as we get closer to having excess capacity we can revisit, if necessary, whether 130% is appropriate.

- The Chair did not consider year-on-year adjustments to be a good approach to incentivise investment.
- Mr Carlberg, Mrs Bedola and Ms Aitken agreed that we should refrain from year-on-year adjustments.

Dr Shahnazari considered that absolute zero at 130% is too generous and that other jurisdictions typically use a steeper curve.

Ms Aitken considered that there are more effective ways to address issues with battery revenue shortfalls than in the capacity market.

- Mr Skinner agreed.

Mr Peake considered that customers can be protected by having a cap on total cost for all capacity and spreading this across investors.

- The Chair responded that this is one of the RCP curve options.

Mr Robinson presented the following proposals:

- The Peak RCP is to have a deadband between 95% and 105% of the RCT and a price cap at 150% of the RCT;
- The Flexible RCP curve to have a deadband between 100% and 105% of the Flexible RCT and a price cap at 160% of the RCT; and

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He noted that:

- these proposals have been amended to reflect the discussion in the previous working group meeting; and
- the Flexible Capacity price curve is slightly steeper than the Peak Capacity curve in a shortfall to provide a stronger signal for flexible capacity.

- Mr Carlberg considered the curves to be too steep on both sides and thinks a shorter-term lock-in would be beneficial, noting the potential for price swings with changes in capacity or the target.
- Mrs Bedola asked what the size of the deadband is for the Flexible Capacity and considered the deadband should be bigger, given the volume of flexible capacity is smaller than the volume peak capacity.

Mr Robinson responded the deadband range would be smaller than that for peak capacity and that EPWA will give this more consideration.

- Mr Schubert asked whether multipliers were appropriate when sudden increases to the RCT may be policy related (e.g. increases in forecast and change to the reserve margin from the single largest unit to the largest three).

The Chair noted that this will be consulted on and should be considered in the context of several things, including the reserve margin and the gross CONE.

Mr Robinson presented the forecast RCP curve and noted that at the target the RCP curve will result in a lower price than the current curve, while at the low and high end this will be a higher price.

- Mr Carlberg asked the graph to include the estimated decrease in the price of lithium for the capacity price over time.

Mr Robinson noted that the following proposals were previously generally agreed on by the WICRWG:

- regularly reviewing the price curve during the BRCP capacity provider review;
- not including special transitional provisions for Facilities commissioned since 2019; and
- amending the cap and floor inflation provisions for existing Transitional Facilities.

5-7 Support for renewable investment – introduction, options and recap

Mr Robinson presented the scope for initiative 3 and noted that as renewable energy build increases and conventional generation retires, the average Real-Time Market (RTM) price will decrease.

- Dr Shahnazari considered that if renewables will be the price setter/marginal entrant, renewables would receive sufficient revenue through the RCM.

Mr Robinson responded that, if capacity is required only at the peak and the capacity credits a renewable facility receives are discounted, batteries will

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likely be less expensive than wind and would be the price setter/marginal entrant.

- Dr Shahnazari considered that in this situation, batteries would not be the reference technology because they are unable to charge, resulting in renewables being the BRCP reference technology. He noted that in this case, renewables would receive sufficient revenue.

The Chair noted this point but acknowledged that the analysis undertaken during the RCM review highlighted the renewables revenue shortfall issue.

- Mr Carlberg asked whether this assumed no new thermal generation, like flexible gas, and therefore more renewable overbuild.

The Chair responded that the model assumes some new gas, and that this modelling was undertaken prior to the SWISDA. She noted that this was done in line with the existing plants retirement schedule at the time of modelling.

- Mr Schubert considered that renewable proponents would firm up their capacity to ensure they get capacity credits if they anticipate the price decreasing.

Mr Robinson responded that the forecast assumes storage is required to meet the target, regardless of who is building the storage.

- In response to earlier discussion, Mr Frood noted that some investors have to assume they will be 100% merchant during some of their life.
- Mrs Bedola supported this view and noted that any off-taker will also want to be able to recover costs and these would be passed on through the Power Purchase Agreement (PPA).
- Mr Peake noted that renewables only receive Capacity Credits equal to a portion of their nameplate rating. If renewables set the RCP, they will only recover a portion of their capital cost.
- Dr Shahnazari disagreed, as the BRCP sets the cost per Capacity Credit.
- Mr Frood noted that the forecast requirement for capacity would result in a 15% capacity factor which undercuts ongoing revenue and affects the Relevant Level. He considered that there is an underlying problem to be addressed.

The Chair considered that the purpose of this initiative is to identify potential gaps and potential solutions to fill these.

Mr Robinson presented the design criteria for initiative 3 noting that the approach should address the three limbs of the review objective including maintaining market signals, avoiding double dipping and not increasing end-user prices compared to current levels.

- Mr Carlberg asked what the outcome of this overbuild would be on the RCM.

The Chair responded that this is an overbuild in nameplate capacity only, not certified capacity.

- Mrs Bedola did not consider that a PPA should be part of the assessment.

The Chair considered it is important to prevent double-dipping.

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- Mrs Bedola considered that renewables may need additional revenue from the market. For example, in the event of differences between forecast and actual generation. She was also concerned that facilities may not be able to enter into PPAs because there was not enough money.

The Chair was concerned that topping up costs locked in a PPA may create the wrong incentive when developing PPAs.

- Mr Carlberg noted that the market is net settlement which avoids double-dips.
- Dr Shahnazari considered that PPAs do not need to be considered as they are written based on expected energy prices.

Mr Robinson noted that the fundamental approach to initiative 3 is to add a revenue stream rather than amending an existing stream.

- Mr Peake asked EPWA to consider when the risk should be shared. He considered that project development cost risks should be worn by the developer, and risk posed by weather and ensuring sufficient capacity should be worn by customers.
- Ms Aitken disagreed and considered that customers already carry some of this risk through Synergy. She also questioned why customers should wear weather risk without being placed to manage it.

The Chair clarified that it is inappropriate for all risk to be on customers.

- Mr Schubert considered that whoever is best placed to manage the risk should bear it.
- Mr Frood considered that one cannot manage weather risk, only forecast it.

Mr Robinson discussed the interaction of initiative 3 with other schemes. He noted that this new scheme would be needed only if these other schemes do not provide sufficient revenue to support new firm renewable investment.

- Ms Aitken noted that the Renewable Electricity Guarantee of Origin (Cth) should help with battery revenue shortfalls.

Mr Robinson presented three broad options for discussion:

  - Approach A: an energy purchaser obligation:
  - Approach B: a capacity-based revenue top-up;
  - Approach C: a price guarantee linked to pricing in a trigger year with a cap and a floor; and
  - Approach D (not on slide): amending the BRCP definition to provide the top up.

- Dr Shahnazari noted the potential problems with administering the scheme and the overlap with the several other revenue streams. He noted his support to manage this issue within the RCM or through an auction.
- Ms Aitken disagreed and considered this to be an energy revenue problem not an installed capacity problem. She considered that energy-based options would appropriately incentivise renewable energy and supported linking this to the proposed emissions thresholds through a contract for

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differences which would discontinue if a facility is above a given emissions threshold.

- Dr Shahnazari considered that if renewable energy becomes abundant and the incremental cost of energy is almost zero, the market should move away from revenue streams for products without value, and instead provide compensation where the cost/value lies.
- Ms Gilchrist considered that if existing revenue streams are amended, we need to be careful not to undermine the integrity of those schemes. She noted, as a general principle, she prefers a separate revenue stream.
- Mr Peake disagreed with Ms Aitken because, if a windfarm is needed for years when wind is low, it may not run in a year when wind is high but still needs to meet its fixed costs.
- Mrs Bedola considered that Essential System Services (ESS) costs need to be considered as these can be significant.
- Ms Aitken responded that the facility will still receive capacity revenue, not just the top up.
- Mr Frood considered that the reserve capacity drops, because the relevant level drops, together with the lower generation revenue.
- Dr Shahnazari disagreed because, if renewables become marginal and set the BRCP, they would not receive less revenue because the BRCP increases.

The Chair noted the need to discuss when renewables might become the marginal new entrant.

- Mr Skinner noted that what we are trying to achieve is to design the period between now and when we have the abundancy of renewables.

The Chair agreed and noted that we are likely looking to plan for a period of the next 10 years rather than the next 50 years.

- Mrs Bedola asked whether the expectation is that the BRCP is updated each year for variances in the RLM which would add more volatility.

The Chair did not think renewables will set the BRCP in the next 10 years as the firming technologies would remain the most efficient new entrant.

- Dr Shahnazari considered that the RCM can manage any set of technologies and noted that there are other mechanisms to meet a renewable target, including requirement for renewables to firm, leave it open to the market or design another capacity product.
- Mr Carlberg noted that another option could be an upfront capital contribution.

The Chair responded that this is out of scope as government/consumers would need to pay this upfront capital.

- Mr Frood considered that another option could be to pay facilities at a floored price if technical or economic constraints exceed a certain amount.

Mr Robinson presented approach A noting that:

  - energy purchases would be obliged to purchase certificates;

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- a central body would certify and operate the scheme; and
- this approach would not guarantee revenues as revenue is only received if generating, however there is potential to adopt aspects of the RET.

- Ms Aitken considered that approach A is a lot of admin work for a small market like the WEM and may lead to perverse outcomes.
- Mr Peake considered that 'firmed renewables' would need to be properly defined to ensure a balance between storage and renewables.
- Mr Schubert suggested another option - the offer construction guideline could be modified to allow some recovery of capital cost for firmed renewables that do not receive adequate revenue from energy only.

The Chair responded that this guideline applies to those with market power.

- Mrs Bedola considered that the requirement for firming may add complexity and barriers.
- Mr Shahnazari agreed with Mr Frood noting that even energy only markets would have a problem when energy service is abundant, and price is negligible. He noted that eventually we will end up with procurement of services other than energy.

Mr Robinson presented approach B and the Capacity Investment Scheme:

The Chair clarified that the CIS proposal has been extended to include renewables and firmed renewables.

- Mr Schubert wished to avoid paying for things they would have already done ("free riders"), for example facilities which have already paid off their capital.

The Chair noted that the CIS is only available for new facilities. She noted the importance of ensuring new facilities outside the CIS are on equal footing.

- Dr Shahnazari considered that, if the revenue requirement is compared with the actual revenue and the difference is compensated, this looks like a riskless investment.

Mr Robinson responded that the CIS deals with this by providing a net revenue floor and allowing some exposure to upside.

- Mr Carlberg noted that approach B is preferable to approach A.
- Mr Peake noted that the advantage of approach B is bringing Federal money into the market.
- Ms Aitken asked who will pay for the top-up.

The Chair clarified that this is available for those who miss out on the Federal scheme and would be paid for by customers. However, if sufficient incentive for investment remains, this scheme would not be applied.

Mr Robinson noted the importance of encouraging facilities to apply for the CIS funding.

- Mr Skinner agreed with making the approach less complex, but noted the possibility for the Commonwealth to change the CIS and that then the top-up scheme would need to change as well.

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Mr Robinson presented approach C:

- facilities would be provided with a top-up payment based on their actual output and capture price compared to a reference price;
- the reference price could be regularly updated, or updated on a trigger;
- the trigger could be linked to conventional generation retirement or CIS margin, noting the key is to set it before investment collapses; and
- this approach would not require detailed revenue information and would deal with price risk but not with volume risk.

- Mrs Bedola asked about WEM CIS timeframes.

The Chair responded that EPWA is in ongoing discussions with the Commonwealth and is seeking to get clarity in the next month. She also noted that EPWA is investigating how transparency in the CIS is ensured.

- Mr Carlberg considered that only approach B covers volume risk.

Mr Robinson clarified that this is the only option where the top-up would increase with lower output, while it would decrease in A and C if output decreases.

- Mr Carlberg considered that some volume risk should be borne by the facility, for example, if the windfarm is falling apart. He also questioned if the signal from the RCM is sufficient to stop facilities building on top of each other.

The Chair agreed that the incentive to generate should not be removed.

- Ms Aitken asked whether volume risk should be covered by the developer.
- Mr Peake disagreed, as this would place significant reliability risk onto customers as developers would not build enough.
- Ms Aitken considered that this is why approaches A and C have more appropriate risks for the market to bear.
- Mr Peake suggested that when funding capital for a solar or wind farm, whether or not the electricity is used does not change the cost. He noted that in the context of abundant renewables, we do not actually need all the energy. He noted that these facilities would be running at their marginal cost and the revenue would be swallowed up by the operating cost.

The Chair noted that competition is required in the market.

- Ms Aitken considered that incentivising location diversity should remove the concept of ‘low wind years and high wind’ years. She considered that giving developers fixed payments without taking risk is not appropriate.
- Mr Carlberg suggested that the revenue top up could be qualified for shortfalls produced by certain types of disruptions.
- Mrs Bedola considered that network augmentation must be considered.
- Mr Schubert noted that the market price ‘curtails’ renewables almost every day in the middle of the day.

The Chair asked members whether approach A should be considered.

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- Ms Aitken, Dr Shahnazari, Mr Skinner and Mr Kurz agreed to discard approach A.
- Mr Peake noted the difficulty with transferring customers between retailers and the potential to end up with insufficient capacity if retailers decide to sell less electricity to decrease their obligation.
- Mrs Bedola did not think approach A can be excluded without an understand of how the CIS will work in the WEM.
- Mr Huxtable, Mr Ip and Mr Carlberg agreed to consider approach A later.

The Chair asked members whether approach B should be considered noting it is important to ensure the incentive to generate is not removed.

- Mr Carlberg agreed to consider this noting that it covers volumetric risk and that we do not want to protect generators from all risk otherwise they may not locate the facility in the correct places.
- Mr Skinner agreed to consider option B and to look at risks associated with it.

The Chair asked members whether approach C should be considered.

- Ms Aitken, Mr Ip and Mr Kurz agreed to consider option C.
- Mr Carlberg considered that option C is the simplest.
- Mrs Bedola agreed to consider options B and C.

The Chair summarised that EPWA will continue to define options B and C and option A will be considered at a later date.

Mr Robinson sought to capture any other options not already suggested, which included Dr Shahnazari's option of looking at the BRCP and Mr Peake's option of adjustments that deal with constraint risk.

- Mr Peake considered that Dr Shahnazari's idea is worth pursuing and considered that developers will not take on much weather risk as they cannot control this.

The Chair noted that developers could firm their capacity.

- Ms Aitken considered that they can buy a wind derivative to manage risk.
- Mr Carlberg considered Dr Shahnazari's option could manage constraint risk.

8 General business

No general business was discussed.

9 Next steps

Mr Robinson noted the next session on 28 February 2024 will benefit from members reading through appendix slides. He noted the goal of the meeting is to determine a final proposal for support for renewable technologies.

The Chair encouraged members to provide any further suggestions.

The meeting closed at 12:20 pm

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Agenda Item 7(a): Overview of Rule Change Proposals (as of 14 March 2024)

Market Advisory Committee (**MAC**) Meeting 2024_03_21

- 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
None				

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						
None						
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 Report presented at the last MAC Meeting

Gazette	Date	Title	Commencement
None			

Rule Changes Made by the Minister and Awaiting Commencement

Gazette	Date	Title	Commencement
2023/165	12/12/2023	Wholesale Electricity Market Amendment (Reserve Capacity Reform) Rules 2023	• Schedule 2, 3 and 4 will commence at a time specified by the Minister in a notice published in the Gazette
2023/96	18/07/2023	Wholesale Electricity Market Amendment (Supplementary Capacity No. 2) Rules 2023	• Schedule B will commence on 1 April 2024

Agenda Item 8: WEM Procedure Content Assessment

Market Advisory Committee (**MAC**) Meeting 2024_03_21

1. Purpose

- To provide a Scope of Work (SoW) for the Wholesale Electricity Market (WEM) Procedure Content Assessment.
- To request that the MAC approves:
  - the establishment of the WEM Procedure Content Assessment Group (PCAWG); and
  - the Terms of Reference (TOR) for the PCAWG.

2. Recommendation

That the MAC:

1. notes the SoW for the WEM Procedure Content Assessment (Attachment 1);
2. approves the establishment of the PCAWG; and
3. considers and approves the TOR for the PCAWG (Attachment 2).

3. Background

3.1 The WEM Procedure Content Assessment

- At the commencement of the WEM in 2006, the WEM Rules were designed to cover governance matters and any matter that had a material policy, strategic or financial impact on consumers or Rule Participants, while procedural or administrative details were delegated to Procedures. This was done to reduce the length and complexity of the WEM Rules, and to enable a faster and more flexible change process for procedural or administrative matters.
- More recently, the Energy Transformation Strategy has driven significant changes to the WEM and the requirements for several new WEM Procedures have been established by various sets of WEM Amending Rules that came into effect progressively in the lead up to the New WEM Commencement Day (1 October 2023). As a result of this, Procedure Administrators have been required to develop or update several WEM Procedures to include matters beyond procedural or administrative nature.
- The Scope of Work for the WEM Procedures Content Assessment (Attachment 1) aims to assess the content of the existing WEM Procedures to determine, using the set of criteria developed by the Procedure Change Review (see item 3.2), whether there are any matters included in them to that should be elevated to the WEM Rules or vice versa.

3.2 Related projects

- The Coordinator is currently undertaking a review of Procedure Change Process. An output of this Review will be a set of clear and appropriate criteria for when a matter

should be addressed in the WEM Rules or the WEM Procedures. These criteria will be used by the WEM Procedure Content Assessment.

- The review is supported by an independent consultant to satisfy the requirements of clause 2.16.13F of the WEM Rules.

3.3 The WEM Procedure Content Assessment Working Group

- Energy Policy WA is proposing to establish the WEM Procedures Content Assessment Working Group (PCAWG) to assist with this project.
- Energy Policy WA has developed draft Terms of Reference for the PCAWG (Attachment 2) for consideration by the MAC.
- The Cost Allocation Review Working Group, the RCM Review Working Group and the Demand Side Response Review Working Group have already been wound up. The proposed PCAWG will therefore be operational at the same time as the:
    - WEM Investment Certainty Review Working Group (finishing September 2024)
    - Power System Security and Reliability Standards Working Group (finishing September 2024)
    - AEMO's Procedure Change Working Group (ongoing)

4. Next Steps

Following approval by the MAC of the Terms of Reference:

- the MAC Secretariat will establish the PCAWG;
- an PCAWG webpage will be created on the Coordinator's Website; and
- the MAC Secretariat will advise stakeholders that they may nominate representatives.

5. Attachments

(1) Agenda Item 8 - Attachment 1 - Scope of Work for the WEM Procedure Content Assessment

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

Department of Energy, Mines, Industry Regulation and Safety
Energy Policy WA
GOVERNMENT OF WESTERN AUSTRALIA

Scope of Works for the WEM Procedure Content Assessment

1. Introduction

Clause 2.2D.1(h) of the Wholesale Electricity Market (WEM) Rules confers the function on the Coordinator to consider and, in consultation with the Market Advisory Committee (MAC), progress the evolution and development of the Wholesale Electricity Market (WEM) and the WEM Rules.

The Coordinator is reviewing the content of existing WEM Procedures as part of its functions under clause 2.2D.1(h) of the WEM Rules. This review will be supported by a Working Group established under the Market Advisory Committee.

This project aims to assess the content of the existing WEM Procedures to determine, using a set of criteria established through the Procedure Change Process Review (see section 2.3), whether there are any matters included in them to that should be elevated to the WEM Rules.

2. Background

2.1 Purpose and use of WEM Procedures

At the commencement of the WEM in 2006, the WEM Rules were designed to cover governance matters and any matter that had a material policy, strategic or financial impact on consumers or Rule Participants, while procedural or administrative details were delegated to Procedures. This was done to reduce the length and complexity of the WEM Rules, and to enable a faster and more flexible change process for procedural or administrative matters.

More recently, the Energy Transformation Strategy has driven significant changes to the WEM and requirements for several new WEM Procedures have been established by various sets of WEM Amending Rules that came into effect progressively in the lead up to the New WEM Commencement Day (1 October 2023). As a result of this, Procedure Administrators have been required to develop or update several WEM Procedures to include matters beyond procedural or administrative nature.

2.2 Current WEM Procedures

The WEM Rules provide a head of power for numerous WEM Procedures, including:

1) 53 WEM Procedures are currently published on AEMO's website,[1] including:
   - 3 relating to administrative matters;
   - 1 relating to Distributed Energy Resources;

[1] https://www.aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem/procedures-policies-and-guides/procedures.

- 16 relating to market operations;
- 19 relating to dispatch and planning;
- 14 relating to the Reserve Capacity Mechanism;

At the 14 September 2023 WEM Reform Implementation Group (WRIG) meeting, AEMO advised that 12 WEM Procedures are under review or under development and will be published after the commencement of the new WEM on 1 October 2023;

2) 4 WEM Procedures are currently published on the Coordinator's website;[2]

3) 4 WEM Procedures are currently published on the ERA's website;[3] and

4) 3 WEM Procedures are currently published on Western Power's website.[4]

A list of the WEM Procedures that are in place since the commencement of the new market is provided in the Appendix A.

2.3 Related projects

The Coordinator is currently undertaking a review of Procedure Change Process. The review of Procedure Change Process (as set out in section 2.9-2.11 of the WEM Rules) aims to:

1) review the effectiveness of the current Procedure Change Process, including the process set out in section 2.10 of the WEM Rules and the WEM Procedure Administration Procedure established under clause 2.9.5 of the WEM Rules, and recommend any changes necessary to ensure that the Procedure Change Process:
   a) is fit for purpose given the changes to the nature and content of WEM Procedures and the changes to the Procedure Administrators;
   b) ensures stakeholders have an appropriate opportunity to initiate Procedure changes and provide input into Procedure Change Proposals;
   c) provides clear and appropriate responsibilities to Procedure Administrators in processing requests for changes by stakeholders;
   d) is simple, clear and inclusive; and
   e) has a prescribed timeframe and clear criteria for decisions on Procedure Change Proposals; and
2) develop a Procedure Change Process that addresses the findings of the review conducted under (1) and which meets the above objectives (a) to (e).

An output of this Review will be a set of clear and appropriate criteria for when a matter should be addressed in the WEM Rules or the WEM Procedures. These criteria will be used by the WEM Procedure Content Assessment.

3. Project Scope

3.1 Objective

The objective is to assess the content of the existing WEM Procedures to determine, using the set of criteria developed by the Procedure Change Process Review (see section 2.3), whether there are any matters included in them to that should be elevated to the WEM Rules.

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2 https://www.wa.gov.au/government/document-collections/wem-procedures.

3 https://www.erawa.com.au/electricity/wholesale-electricity-market/market-procedures.

4 Manuals, guides & standards | Western Power

3.2 Guiding Principles

The guiding principles for the WEM Procedure Content Assessment are that WEM Procedures must:

- meet the new State Electricity Objective that is expected to become operational during 2024; and
- contain content aligned with the criteria that is expected to be developed through the Procedure Change Process Review (see section 2.3).

3.3 Stakeholder engagement

WEM Procedure Content Assessment will include stakeholder consultation through:

- one-to-one meetings with Procedure Administrators and interested parties;
- meetings with Working Group established under the MAC; and
- MAC meetings.

4. Project Schedule

The following is a preliminary high-level project schedule for the WEM Procedure Content Assessment.

Tasks/Milestones	Timing
Preparation	
Consult with the MAC on the scope of work for the WEM Procedure Content Assessment and Terms of reference for the WEM Procedure Content Assessment Working Group (PCAWG)	21 Mar 2024
WEM Procedures' content assessment	
Assess content of current WEM Procedures against the defined criteria, in consultation with PCAWG members and Procedure Administrators	1 Jun 2024 to 31 Oct 2024
Report proposed recommendations to the MAC	28 Nov 2024
Information Paper on WEM Procedure content assessment	5 Dec 2024
Amending Rules and Procedure Changes, if required	
Develop Exposure Draft of Amending WEM Rules and consequential WEM Procedure changes	Dec 2024
Publish Exposure Draft and proposed changes to WEM Procedures for consultation	Dec 2024
Consultation closes	Feb 2025
Publish Consultation Summary	Feb 2025
Final Amending WEM Rules to Minister and finalise consequential WEM Procedure changes	Feb 2025

Appendix A: WEM Procedures

Procedure Administrator	Rule	Title	Purpose
Administrative matters			
AEMO	1.6.2, 3.5.1A, 7.11.8	Notices and Communications	To outline how notices and communications are to be given to or by the AEMO. This procedure also describes the conditions under which AEMO may declare an Emergency Operating State and provides a description of events that AEMO would consider significant for the purposes of clause 7.11.5(j).
Coordinator	1.6.1	Notices and Communications	To outline how notices and communications are to be given to or by the Coordinator of Energy.
Coordinator	2.9.5	Procedure Administration	To outline the process to develop and amend WEM Procedures.
AEMO	2.36.5	Data and IT Interface Requirements	To document the data and IT interface requirements, including security standards in respect of systems required for Market Participants to operate in the WEM.
AEMO	2.15.4(a), 2.15.4(c), 2.15.4(d), 2.15.4(e), 2.15.4(f),	Monitoring and Reporting Protocol	To outline the processes by which AEMO monitors Rule Participants' compliance to the WEM Rules and WEM Procedure, and the process that AEMO support the ERA's monitoring requirements.
ERA	2.15.1 2.15.3	Monitoring Protocol	To outline the processes by which the ERA monitors Rule Participants' compliance to the WEM Rules and WEM Procedures.
Coordinator	10.5.2	Dispute Resolution Mechanism for the release of Market Information	To document the process for resolving a dispute regarding the disclosure of Market Information.
Distributed Energy Resources			
AEMO	3.24.8	DER Register Information Procedure	To describe the obligations of AEMO and Network Operators in relation to the submission, storage and reporting of data for the DER Register.

Procedure Administrator	Rule	Title	Purpose
Market operations			
AEMO	7.13.3, 7.13.8(a), 7.13.8(b), 7.13.8(c)	Dispatch Settlement and Monitoring Data	To document the procedure to be followed by Rule Participants in providing settlement and monitoring data to AEMO. This procedure also outlines the methods that AEMO will use and the requirements to determine estimates.
AEMO	4.30.12	Capacity Credit Allocation Procedure	To outline the process and information required for a Market Participant to make a Capacity Credit Allocation Submission
AEMO	7.8.9	Determination of Market Schedules	To document the processes for determining Market Schedules.
AEMO	7.11C.1	Identification of Affected Dispatch Intervals	To document procedures for the automatic identification of Affected Dispatch Intervals, and the conditions or circumstances that would identify a Dispatch Interval as an Affected Dispatch Interval.
AEMO	8.6.2	Meter Data Submissions	To outline the process to be followed by Meter Data Agents to submit Meter Data to AEMO.
AEMO	7.1.2(a), 7.1.3	Real Time Market Timetable	To documents the Real-Time Market Timetable.
AEMO	2.31.25(a), 2.28.21	Rule Participant Registration Processes	To document the criteria AEMO will use to determine whether to exempt persons from Rule Participant registration requirements and the processes to be followed by a person in applying for an exemption.
ERA	2.16A to 2.16E	Portfolio Determination	To outline the methodologies, processes, and requirement to be followed by the ERA in determining portfolios and monitoring price offers in the Real-Time Market.
AEMO	7.4.21, 7.4.38, 7.4.57A, 7.4.62, 7.4A.12, 7.4A.20, 7.4A.24	WEM Submissions	To outline the Real-Time Market Acceptance Horizon, and documents processes relating to Real-Time Market Submissions and DSP Withdrawal Profiles Submissions.
AEMO	9.2.1, 9.2.2	Settlements	To describe the settlement processes for publishing the Settlement Timeline; calculating the Metered Schedule and settlement amounts, performing the Adjustment Process, providing Settlement Statements and Invoices, payment of Invoices, settlement in Payment Default situation, settlement in Repaid Amount situation, the application of taxes and interest to settlement transactions, the collection and distribution of Financial Penalties and the processes to be followed in relation to

Procedure Administrator	Rule	Title	Purpose
			Notices of Disagreement and Notices of Dispute.
AEMO	9.2.1	Settlement Procedure	To outline the financial settlement of trading through the WEM.
AEMO	4.28.12	Individual Reserve Capacity Requirements	To describe the processes to be followed in calculating Indicative Individual Reserve Capacity Requirements and Individual Reserve Capacity Requirements.
AEMO	4.26.2CE, 4.28.9E	Consumption Deviation Applications	To outline the process and information required for a Market Participant to submit a Consumption Deviation Application, and the process AEMO must follow when assessing an application.
AEMO	7.4.53	Adjustment of Real-Time Inputs	To document the information and processes, including the application of any formula, AEMO will use in making a determination and the circumstances in which AEMO will adjust inputs.
AEMO	2.43.1	Prudential Requirements	To describe the processes for determining Credit Limits, assessing persons against the Acceptable Credit Criteria, Credit Support arrangements, where and how AEMO will hold Security Deposits and how the costs and fees of holding Security Deposits will be met, the circumstances that may require Credit Support to be replaced and the application of monies drawn upon from Credit Support in respect of amounts owed by the relevant Rule Participant to AEMO, calculation of Trading Margins, the list of factors to be taken into account for assessing the expected value of transactions and issuing of Margin Calls.
AEMO	1.47.12, 1.54A.2(b)	Transitional Registration Processes	To document the information to be provided to AEMO and the process to be followed by Market Participant and AEMO.
AEMO	2.31.23, 2.30.11, 2.30A.6	Facility Registration, De-Registration and Transfer Procedure	To outlines the process to register, de - register or transfer Facilities, and the process to assess applications.
AEMO	2.31.23	Rule Participant Registration and De-Registration Procedure	To outline the process for new participant registration and existing Market Participant de-registration.
Dispatch and planning			

Procedure Administrator	Rule	Title	Purpose
AEMO	3.18.4, 3.18C.12, 3.18E.10, 3.21.10	Outages	To outline the steps for submission, evaluation and approval of Outage Plans. Describes Rule Participants requirements to notify or seek consent to commence or complete an Outage. Outline Outage coordination.
AEMO	3.21A.27	Commissioning Tests	To document a description of the activities that AEMO consider would constitute a Commissioning Test, and therefore require submission of a Commissioning Test Plan.
AEMO	2.27A.10(b)(i)(1), 2.27A.10(b)(i)(2), 2.27A.10(b)(ii), 2.27A.10(cA), 2.27A.10(cB), 2.27A.10(cC), 2.27A.10(d),	Constraint Formulation	To outline the processes to be followed by AEMO and the matters it must consider in formulating and updating Constraint Equations.
AEMO	2.27A.10(a)(i), 2.27A.10(a)(ii)(1), 2.27A.10(a)(ii)(2), 2.27A.10(d)	Limit Advice Requirements	To document the information and data to be provided by each Network Operator to AEMO; and the processes to be followed for the provision of and updates to such information.
Western Power	2.27A.9, 2.27A.11, 4.4B	Limit Advice	To describes the processes followed by Western Power and the matters it must consider in developing and updating Limit Advice provided to AEMO.
AEMO	7.5.4(a), 7.5.4(b), 7.6.3, 7.6.18(a), 7.6.18(b)	Facility Dispatch Process	To outline the processes AEMO and Market Participants must follow in issuing, recording, receiving, confirming, and responding to Dispatch Instructions.
AEMO	3.11.7, 7.2.5(a)I, 7.2.5(b)iii, 7.2.5(a)ii, 7.2.5(b)iv, 7.2.5(b)v, 7.2.5(b)I, 7.2.5(b)ii, 7.2.5(b)vii,	Essential System Service Quantities	To document the methodologies and processes to be followed by AEMO in determining, for each Pre-Dispatch Interval and Dispatch Interval: the quantity of Regulation to schedule and dispatch and the method by which the quantity of Regulation required is calculated; the combination of Contingency Reserve and RoCoF Control Service required to maintain the frequency of the SWIS within the Credible Contingency Event Frequency Band and the expected quantities of any other Frequency Co-optimised Essential System Services required in each Dispatch Interval or Pre-Dispatch Interval to meet the Essential System Service Standards', the Dispatch Algorithm used by AEMO for the purpose of the Central Dispatch Process and setting

Procedure Administrator	Rule	Title	Purpose
			Market Clearing Prices and the mathematical formulation of the Dispatch Algorithm; and the calculation of Minimum RoCoF Control Requirement and Additional RoCoF Control Requirement, the methodology AEMO uses to determine: Contingency Raise Offsets; Contingency Lower Offsets; Facility Performance Factors; the Minimum RoCoF Control Requirement; the Additional RoCoF Control Requirement; and the RoCoF Upper Limit.
ERA	3.15A.5	Economic Regulation Authority triggering the SESSM	To outline the process that the ERA will undertake to identify inefficient Real-Time Market outcomes to decide whether to trigger the Supplementary Essential System Services Mechanism (SESSM)
AEMO	7.6.33	Verification of Dispatch Inflexibility	To document the forms of independent verification to be used to support a reason given under clause 7.6.31(b).
AEMO	2.27B.8, 2.27B.4, 2.27B.6(d)	Congestion Information Resource	To describe the information in the Congestion Information Resource. Outlines the processes to be followed by AEMO in maintaining, publishing and updating the information, and in preparing the annual congestion report.
AEMO	7.2.5(a)(iii), 7.2.5(a)(iv), 7.2.5(a)(v), 7.2.5(a)(vi), 7.2.5(a)(vii), 7.2.5(c), 7.2.8, 7.6.24, 7.6.27, 7.11C.11	Dispatch Algorithm Formulation	To document the Dispatch Algorithm used by AEMO for the purpose of the Central Dispatch Process and setting Market Clearing Prices and the mathematical formulation of the Dispatch Algorithm.
AEMO	2.27A.10(b), 2.27A.10(c), 2.27A.10(cA), 2.27A.10(cB), 2.27A.10(d)	RCM Constraint Formulation	To document the processes for AEMO to use to determine RCM Constraint Equation terms and coefficients for Network Constraints.
AEMO	3.2.7	Power System Security	To document the process to be followed by Rule Participants in providing Equipment Limit information to AEMO, the process to be followed by AEMO in establishing and modifying the Technical Envelope, and to ensure the SWIS operates according to the Technical Envelope. This procedure also outlines the process to be followed by AEMO to determine Inertia Requirements and the

Procedure Administrator	Rule	Title	Purpose
			process to be followed by AEMO to assess and maintain Power System Stability.
AEMO	2.34A.13(a)(iv), 2.34A.13(a)(v), 2.35.4, 2.36A.1, 2.36A.2, 2.36A.3, 2.36A.4, 2.36A.4A, 2.36A.5.(a), 2.36A.5.(b), 2.36A.5.(c), 2.36A.5.(d), 2.36A.5.(e), 2.36A.6	Communications and Control Systems	To describe the communication and control system requirements necessary to support the dispatch process and enable AEMO to remotely monitor the performance of the SWIS.
AEMO	3.8A.4(a), 3.8A.4(b), 3.8A.4(c), 3.8A.4(d), 3.8A.4(e), 3.8A.4(f), 3.8A.6(b), 3.8A.7	Credible Contingency Events WEM Procedure	To outline the process for determination and classification of Credible Contingency Events, the Contingency Reclassification Conditions and requirements, and the procedures for notifying affected Rule Participants.
AEMO	1.41.6, 3A.6.2, 3A.9.1	GPS Compliance Tests and Generator Monitoring Plans	to document the requirements under clauses 1.41.6, 3A.6.2 and 3A.9.1 of the WEM Rules.
Coordinator	1.42.10	Dispute Resolution Mechanism for Existing Transmission Connected Generating Systems	To outline the arbitration process as it relates to section 1.42 of the WEM Rules
Western Power	1.36.4, 1.40.30 and 3A.4.2	Generation System Model Submission and Maintenance	To outline the procedure for the provision of modelling data by existing or prospective Market Participants with new or modified Transmission Connected Generating Systems
Western Power	1.40.30	Generator Performance Standards for Existing Transmission Connected Generating Systems	To describe the process to be followed when submitting and assessing Generator Performance Standards for Existing Transmission Connected Generating Systems.
AEMO	1.49.5, 1.49.4, 1.49.1, 1.49.2, 2.34A.13.	Frequency Co-optimised Essential System Services Accreditation	to describe the processes for accreditation for a Frequency Co-optimised Essential System Service (FCESS), the FCESS Performance Requirements and Accreditation Parameters, RoCoF Ride-

Procedure Administrator	Rule	Title	Purpose
			Through Capability accreditation, setting the RoCoF Ride-Through Cost Recovery Limit and transitional processes for the accreditation of FCESS.
AEMO	2.13.6A, 2.15.6A, 2.28.3A, 2.36A.1, 2.36A.5, 3.2.2, 3.2.4, 7.13.1, 7A.3.7, 7A.3.7A	IMS Interface	To outline the requirement to be followed by Network Operators and AEMO when exchanging information.
AEMO	3.2.2, 3.2.4, 3.2.6, 3.2.7, 3.3.3, 3.4.9, 3.5.11	Network Modelling Data	To describe the information that a Network Operator must provide to System Management for each of its Networks. Outlines the processes to be followed by Network Operators and AEMO, and the technical and communication criteria that must be met.
AEMO	3.7.40(a), 3.7.40(b), 3.7.40(c), 3.7.40(d), 3.7.40(e), 3.7.40(f)	System Restart	To document the methodology and processes AEMO uses to determine the System Restart Standard and System Restart Plan. Outlines requirements for System Restart Service provision or operation.
AEMO	2.13.6K, 3.2.2, 3.3.3	Tolerance Ranges	To document the process for determining and reviewing the annual Tolerance Range and any Facility Tolerance Ranges.
Reserve Capacity Mechanisms			
AEMO	4.13.8, 4.13A.23	Reserve Capacity Security	To outline how Market Participants holding Certified Reserve Capacity must submit Reserve Capacity Security.
AEMO	4.25.14	Reserve Capacity Testing	To describe the procedure to be followed in performing Reserve Capacity Tests.
AEMO	4.27.12	Reserve Capacity Performance Monitoring	To describe the procedure to be followed by Market Participants and AEMO when conducting Reserve Capacity performance monitoring and list the documents and other items that may be required by AEMO as supporting evidence.
AEMO	4.24.18	Supplementary Capacity	To document the process to be followed by AEMO and requirements in acquiring Eligible Services, entering Supplementary Capacity Contracts.
AEMO	4.9.10(a), 4.9.10(b), 4.9.10(c)(i), 4.9.10(c)(iii)(1), 4.9.10(c)(iii)(2),	Certification of Reserve Capacity for the 2023 Reserve Capacity Cycle	To outline the steps that Market Participants must follow when applying for Certified Reserve Capacity, and that AEMO must follow when processing applications. This procedure also describes the methodology

Procedure Administrator	Rule	Title	Purpose
	4.10A.6, 4.10A.11, 4.28C.15		AEMO uses for determining Planned Outage rates and Forced Outage rates.
AEMO	4.9.10(a), 4.9.10(b), 4.9.10(c)(i), 4.9.10(c)(iii)(1), 4.9.10(c)(iii)(2), 4.10A.6, 4.10A.11, 4.28C.15	Certification of Reserve Capacity for the 2022 Reserve Capacity Cycle	To outline the steps that Market Participants must follow when applying for Certified Reserve Capacity, and that AEMO must follow when processing applications. This procedure also describes the methodology AEMO uses for determining Planned Outage rates and Forced Outage rates.
AEMO	4.9.10(a), 4.9.10(b), 4.9.10(c)(i), 4.9.10(c)(iii)(1), 4.9.10(c)(iii)(2), 4.28C.15	Certification of Reserve Capacity for the 2021 Reserve Capacity Cycle	To outline the steps that Market Participants must follow when applying for Certified Reserve Capacity, and that AEMO must follow when processing applications. This procedure also describes the methodology AEMO uses for determining Planned Outage rates and Forced Outage rates.
AEMO	4.11.3A(c)	Electric Storage Resource Obligation Intervals	To document the processes to be followed by AEMO for determining changes to the Trading Intervals that will be classified as Electric Storage Resource Obligation Intervals. Outlines publication requirements. This procedure also describes the circumstances that allow AEMO to classify a Trading Internal as Electric Storage Resource Obligation Intervals without consultation with Market Participants.
AEMO	4.15.17, 4.28C.15	Network Access Quantity Model	To document the processes, methodologies, inputs, parameters and assumptions to be applied in the Network Access Quantity Model under Appendix 3 of the WEM Rules. The processes to be followed by AEMO in determining the facility dispatch scenarios and Network Access Quantities for a Reserve Capacity Cycle. This procedure also outlines requirements for publication, and provision of information from Market Participant or Network Operator to AEMO.
AEMO	4.14.11	Declaration of Bilateral Trades	To outline the process Market Participants must follow to submit a Bilateral Trade Declaration and the process AEMO must follow to assess and approve or reject a Bilateral Trade Declaration.
AEMO	2.27A.4, 2.27A.6(a)iii, 2.27A.10(a)(i), 2.27A.10(a)(ii)1,	RCM Limit Advice Requirements	To outline the data and information to be provided by a Network Operator to AEMO under clause 2.27A.2, the processes to be followed by the Network Operator and AEMO

Procedure Administrator	Rule	Title	Purpose
	2.27A.10(a)(ii)(2), 2.27A.10(bA)		in providing information to each other under clauses 2.27A.4 and 4.4B.
AEMO	4.8A.1(a), 4.8A.1(b), 4.8A.2, 4.8A.3, 4.8A.5(a), 4.8A.5(b), 4.8A.5(c), 4.8A.6, 4.8A.7(a), 4.8A.7(b), 4.8A.7(c), 4.8A.7(d), 1.45.4, 1.45.5, 1.45.6, 1.45.8, 1.45.9	Indicative Facility Class and RCM Facility Class Assessment	To document the processes to be followed by a Market Participants in applying, and by AEMO in determining and assigning: • an indicative Facility Class and an indicative Facility Technology Type to a new Facility or Facility upgrade under clause 4.8A or an unregistered Facility under clause 1.45.9; and • an RCM Facility Class and Facility Technology Type to a Registered Facility under clause 1.45.
AEMO	2.29.12, 2.29.13, 2.29.14, 2.29.15.(a), 2.29.15.(b), 2.29.15.(c), 2.29.15.(d), 4.9.3, 4.13.10B, 4.25, Appendix 9	Facility Sub-Metering	To outline the characteristics and requirements of Facility Sub-Metering, including accuracy requirements and audit requirements. This procedure also describes the communication requirements and protocols between Market Participants and AEMO.
AEMO	4.5.14.	Undertaking the LT PASA	To describe the procedure AEMO follows in conducting the Long Term PASA.
ERA	4.16.3	Benchmark Reserve Capacity Price	To describes the methodology that AEMO must use and the steps that AEMO must undertake in determining the Benchmark Reserve Capacity Price in each Reserve Capacity Cycle.

Terms of Reference
WEM Procedure Content Assessment Working Group

1. Background

Clause 2.2D.1(h) of the Wholesale Electricity Market (WEM) Rules confers the function on the Coordinator to consider and, in consultation with the Market Advisory Committee (MAC), progress the evolution and development of the Wholesale Electricity Market (WEM) and the WEM Rules.

The Coordinator is reviewing the content of existing WEM Procedures as part of its functions under clause 2.2D.1(h) of the WEM Rules. This review will be supported by a Working Group established under the Market Advisory Committee.

This project aims to assess the content of the existing WEM Procedures to determine, using a set of criteria established through the Procedure Change Process Review (see below), whether there are any matters included in them to that should be elevated to the WEM Rules.

A Scope of Work has been developed for the WEM Procedure Content Assessment and is available on the Coordinator of Energy's website. The scope of works for the WEM Procedures Content Assessment includes:

- project purpose and guiding principles;
- stakeholder engagement; and
- the project schedule.

The MAC has established the Procedure Content Assessment Working Group (PCAWG) under clause 2.3.17(a) of the WEM Rules and section 9 of the MAC Constitution to assist the Coordinator with the WEM Procedures Content Assessment.

1.1 Related projects

The Coordinator is currently undertaking a review of Procedure Change Process. An output of this Review will be a set of clear and appropriate criteria for when a matter should be addressed in the WEM Rules or the WEM Procedures. These criteria will be used to guide the WEM Procedure Content Assessment.

1.2 Scope of the PCAWG

The PCAWG has been established to provide expert technical, regulatory and consumer advice on all aspects of the WEM Procedures Content Assessment outlined in the Scope of Work. This includes assessing the content of current WEM Procedures against the defined criteria and drafting of WEM Amending Rules and Procedure Change Proposals, as necessary.

2. Membership

Energy Policy WA will Chair the PCAWG.

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

All members of the PCAWG 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 PCAWG members. The Chair of the PCAWG may only approve one member from each organisation.

The Chair of the PCAWG 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. It is likely that this will be necessary due to the technical and varied nature of the WEM Procedures that will be discussed.

Energy Policy WA will provide administrative support to the PCAWG.

3. Documentation

Energy Policy WA will establish a PCAWG 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 by subscribing to RulesWatch Newsletter here to receive email communications regarding the PCAWG, including notices of publication of papers on the PCAWG webpage.

4. Responsibilities of Meeting Attendees

A person attending a PCAWG meeting is expected to:

- have suitable knowledge and experience to engage in and contribute to discussions relevant to the specific meeting, or to;
- 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 PCAWG.
- if relevant, to update the member of the Market Advisory Committee within their organisation on the meeting discussions and outcomes.

5. Administration

Energy Policy WA will provide secretariat support for the PCAWG.

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

The Chair will convene meetings of the PCAWG in accordance with the timelines in the Scope of Work for the Procedure Content Assessment Project as outlined in Section 8 of these Terms of Reference.

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

6. Reporting Arrangements

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

- details of all PCAWG 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 PCAWG to the MAC.

7. Project Schedule

Tasks/Milestones	Timing
Preparation	
Consult with the MAC on the scope of work for the WEM Procedure Content Assessment and Terms of reference for the WEM Procedure Content Assessment Working Group (PCAWG)	21 Mar 2024
WEM Procedures' content assessment	
Assess content of current WEM Procedures against the defined criteria, in consultation with PCAWG members and Procedure Administrators	1 Jun 2024 to 31 Oct 2024
Report proposed recommendations to the MAC	28 Nov 2024
Information Paper on WEM Procedure content assessment	5 Dec 2024
Amending Rules and Procedure Changes, if required	
Develop Exposure Draft of Amending WEM Rules and consequential WEM Procedure changes	Dec 2024
Publish Exposure Draft and proposed changes to WEM Procedures for consultation	Dec 2024
Consultation closes	Feb 2025
Publish Consultation Summary	Feb 2025
Final Amending WEM Rules to Minister and finalise consequential WEM Procedure changes	Feb 2025

8. Contact Details

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