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

Meeting Agenda

Meeting Title:	Market Advisory Committee (MAC)
Date:	Thursday 8 February 2024
Time:	9:30 AM – 11:30 AM
Location:	In person & 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 2023_11_23 *Approved out of session, published 22.01.24	Chair	Noting*	1 min
4	Action Items	Chair	Noting	2 min
5	Market Development Forward Work Program	Chair/Secretariat	Discussion	5 min
6	Western Power: Update on Transmission Network Infrastructure	Western Power	Discussion	10 min
7	Update on Working Groups			
	(a) AEMO Procedure Change Working Group	AEMO	Noting	2 min
	(b) ERA Benchmark Reserve Capacity Price (BRCP) WEM Procedure Review	BRCPPWG Review Chair	Noting	2 min
	(c) Power System Security and Reliability (PSSR) Standards Review	PSSRSWG Chair	Noting	2 min
	(d) Demand Side Response (DSR) Review	DSSRWG Chair	Discussion	30 min
	(e) WEM Investment Certainty (WIC) Review	WICRWG Chair	Discussion	60 min
8	Rule Changes			
	(a) Overview of Rule Change Proposals	Chair/Secretariat	Noting	N/A
9	General Business	Chair	Discussion	5 min
	Next meeting: 9:30am Thursday 21 March 2024			

Please note, this meeting will be recorded.

Competition and Consumer Law Obligations

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

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

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

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

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

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

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

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

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

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

Sensitive Information means and includes:

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

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

Guiding Principle – what not to discuss

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

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

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

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

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

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

Compliance Procedures for Meetings

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

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

Minutes

Meeting Title:	Market Advisory Committee (MAC)
Date:	23 November 2023
Time:	9:30am –11:34am
Location:	Microsoft Teams online meeting

Attendees	Company	Comment
Sally McMahon	Chair	
Martin Maticka	Australian Energy Market Operator (AEMO)	
Zahra Jabiri	Network Operator	Left at 10.10am
Genevieve Teo	Synergy	
Noel Schubert	Small-Use Consumer Representative	
Jacinda Papps	Market Generator	
Adam Stephen	Market Generator	
Paul Arias	Market Generator	
Peter Huxtable	Contestable Customer	
Timothy Edwards	Market Customer	
Geoff Gaston	Market Customer	
Patrick Peake	Market Customer	
Noel Ryan	Observer appointed by the Minister	
Dr Matt Shahnazari	Observer appointed by the Economic Regulation Authority (ERA)	Proxy for Rajat Sarawat
Also in Attendance	**From**	**Comment**
Ms Guzeleva	EPWA	MAC Secretariat
Bronwyn Gunn	EPWA	MAC Secretariat
Shelley Worthington	EPWA	MAC Secretariat
Tim Robinson	Robinson Bowmaker Paul (RBP)	Presenter for Item 6(c)
Apologies	**From**	**Comment**
Dean Sharafi	AEMO	
Rajat Sarawat	ERA	

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1	**Welcome** The Chair opened the meeting at 9:30am with an Acknowledgement of Country. The Chair noted she had no new conflicts to declare. The Chair noted 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.	
2	**Meeting Apologies/Attendance** The Chair noted the attendance and apologies as listed above.	
3	**Minutes of Meeting** The MAC minutes of the 12 October 2023 meeting were approved out of session and published on the Coordinators website on 15 November 2023.	
4	**Action Items** No open actions	
5	**Market Development Forward Work Program** The Chair noted the updates, and the paper was taken as read.	
6	**Update on Working Groups**	
	(a) AEMO Procedure Change Working Group (APCWG) The Chair noted the updates, and the paper was taken as read.	
	(b) Reserve Capacity Mechanism Review Working Group (RCMRWG) Update The Chair noted that the MAC was asked to note the update on the consultation and implementation timetable, and the work underway on the analysis of gross versus net cost of new entry and next steps. Ms Guzeleva noted that: • the RCM WEM Amending Rules are undergoing legal review; • the Rules will go to the Minister in early December for his approval and gazettal before Christmas;	

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- many submissions were received on the Exposure Draft and consideration was given to the matters raised;
- Consultation on the BRCP Review closes on 30 November 2023.

(c) 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 Working Group meetings and to provide comments on the proposals. The Chair noted that the key issues were:

- the emissions thresholds; and
- the 10 year Reserve Capacity Price (RCP) guarantee.

Ms Guzeleva noted that there were some updates to the slides that were sent in the combined papers due to ongoing analysis.

Ms Guzeleva presented Slide 2 and noted that:

- two of the five initiatives in the WIC Review have been considered;
- the proposals would go out for public consultation in 2024; and
- final decisions would not be made until after the consultation and proper assessment of submissions.

Ms Guzeleva presented Slide 4 and noted that:

- Initiatives that have already been discussed by other working groups have been considered first, and the outcomes of those discussions have been the basis for the WIC Review;
- Initiatives 4 and 5 are related and were considered together;
- Existing plant for the purposes of initiative 5, in effect, would include new plant once commissioned.

Ms Guzeleva presented Slide 6.

Mr Robinson presented Slide 7, noting that there were a number of options to impose penalties on high-emitting technologies and an emissions threshold through the RCM was the preferred option.

Mr Robinson presented Slide 8, noting that, with regard to the interaction between dispatch availability obligations and emissions limit, if there are two thresholds (one for the inherent emissions rate and one for overall quantity of emissions per installed megawatt), that will have the effect of placing a cap on output.

Mr Robinson presented Slide 10.

Mr Robinson presented Slide 11, noting that there was further analysis in the appendix to the slides demonstrating the variation in annual dispatch quantities for each Facility year-on-year.

Mr Robinson presented Slide 12. He noted that inherent emissions intensity is something that cannot be easily changed, and that basing the treatment of existing Facilities on the inherent intensity, rather than using a quantity threshold, provides a clearer signal about when a Facility will no longer be eligible for Capacity Credits and, therefore,

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will provide for a smoother path with more certainty. It may mean some peaking plant, even if it runs very infrequently, will be excluded immediately but that this option was generally preferred by the WICRWG.

The Chair asked how the rate threshold differed to the emissions intensity threshold.

Mr Robinson responded that the terms are interchangable.

- Mrs Papps sought to clarify that there is a one tonne threshold.

Mr Robinson clarified that there was a rate threshold and that the proposal for new Facilities is 0.55 tonnes of carbon dioxide equivalent per MW hour produced based on a theoretical heat rate.

- Mrs Papps supported the proposal, subject to the proposal being based on a theoretical heat rate.
- Mr Gaston asked if it had been determined which or how many plants would be first affected by the proposal.

Mr Robinson noted that there was a chart included in the appendix (slide 38) that showed the projected impacted quantities of MW.

Ms Guzeleva added that the premise is to align with the government retirement schedule for the coal Facilities and in response to a comment by Mr Gaston, she clarified that diesel Facilities would be captured too.

- Mr Schubert considered that this was a pragmatic approach, but noted his disappointment that it does not provide an incentive to modify existing plant to reduce emissions.
- Mr Arias asked whether the timing would align with the proposed coal retirement schedule.

Ms Guzeleva responded that the starting point was that which was presented to MAC on 16 March 2023, but that dates are subject to ongoing analysis and feedback in consultation. As the threshold type is changed from quantity to intensity, that affects the dates as well.

- Mr Maticka, Ms Teo, Mr Edwards and Mr Huxtable and Mr Stephen supported the recommendation.

The Chair confirmed there was broad support for taking a pragmatic approach and that there was a great deal of interest in what this means in practice and for timelines.

Mr Robinson presented Slide 15, noting the need for a pragmatic solution and recognising there will always be translation issues.

Mr Robinson presented Slide 16.

The Chair asked for feedback from MAC members.

- Mrs Papps confirmed support with the theoretical approach.
- Mr Alexander noted that there was need to make sure that there was rigor and accountability around the proposed methodology, sighting the Volkswagen emissions scandal. He noted that community and consumer trust in the energy market is low.

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- Mr Maticka noted that AEMO supports the recommendation. He asked whether the use of the maximum output was taking a conservative view that avoided the need for physical measurements.

Mr Robinson agreed that maximum output is the most efficient place for most Facilities to run, and where the emissions intensity rate would be the lowest.

- Mr Maticka noted that there would need to be a framework to get the required information to verify the rates and the ability to do testing, but that would happen in the next stage of work.
- Mr Peake supported the proposal.
- Mr Stephen agreed with Mr Maticka's comments and noted support for the proposal but asked why the most efficient point on every Facilities curve was not chosen.

Mr Robinson responded that the maximum output is already a piece of Standing Data, and that determining the most efficient point for each Facility would increase complexity.

The Chair added that using maximum output reduces the scope for interpretation and discretion as well.

- Mr Schubert supported the proposal but noted that there may be debate about measurement and which level of output to use to measure the rate. He noted that a Facility can't be tested at maximum output if its declared sent out capacity (DSOC) constrains it from doing this.
- Mr Arias supported the proposal and agreed with Mr Schubert's comments.

Ms Guzeleva noted that Standing Data is already transparent, and avoids AEMO having to collect or asses additional data.

- Mr Arias noted that he considered simplicity and transparency to be good guiding principles. He added that the decisions made here will have really significant impacts, so a balance was required between simplicity and the ability to cater for the circumstances of Facilities that are close to retirement.
- Mr Edwards noted his support for the use of Standing Data as it can be updated easily and quickly.

The Chair summarised that there was general support from the MAC for the proposal provided there was enough rigour and governance around measurement and review.

Mr Robinson returned to slide 13 and presented that. He noted that this was related to initiative 5 in the WIC review and is required to ensure fossil fuel plant is not excluded too quickly as this would present a risk to system reliability. He noted that a phased introduction of the threshold is required after 10 years for similar reasons.

Mr Robinson noted that separating the production of electricity and heat for cogeneration Facilities is complex, and that, while it has been

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done in other jurisdictions, the analysis indicated that it wasn't warranted in the WEM.

Ms Guzeleva noted that these Facilities would be captured by other mechanisms such as the Federal Safeguard Mechanism while conventional plant wouldn't be.

- Mr Peake asked about diesel fuel plant and sought to clarify if the exemption meant that it would still remain in service for 10 years, noting the optics of that given coal stations would be closing.

Mr Robinson responded that if diesel plant has Flexible Capacity Credits then, under this policy, it would be exempted from the emissions thresholds,

Ms Guzeleva requested feedback from members on that point during the consultation period.

- Mr Alexander noted that he was interested in the emissions implications around that exemption and agreed the optics of diesel remaining online was not great.

Mr Robinson noted that over the next few WICRWG meetings there would be discussion on the modelling to understand all of the implications of this on revenue adequacy. He noted that the review will need to consider investment certainty but also emissions outcomes.

Ms Guzeleva added that this was subject to discussion in the RCMRWG, the concern was raised with Facilities retiring too early and risking reliability and this proposal emerged out of that. She noted that if there was a need to tweak the proposal, especially with respect to diesel plant, that would be considered.

- Mr Edwards noted that cogeneration Facilities can often be retrofitted to gas plants later down the track and asked if this would allow for Facilities to retrofit to enable them to keep operating for longer.

Mr Robinson replied that if there was evidence of that, there may be a need to review the exemption framework.

Ms Guzeleva added that a definition of cogeneration would need to be included in the WEM Rules. The current definition of Intermittent Loads may not continue to be sufficient.

- Mr Edwards added that cogeneration has many benefits, it can help industry to reduce emissions and, depending on the configuration, it can be fitted with things like synchronous condensers which can assist the grid.
- Mrs Papps declared her conflict of interest as Alinta does have a cogeneration plant. She agreed that, because of the complexity, the proposal is appropriate and noted that Alinta had made substantial improvements to its plant to enable it to operate at quite significantly low loads, which does have a flow on effect on emissions.

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- Mr Alexander asked whether it was clear modifications would not cause an existing Facility to be considered a new Facility.

Ms Guzeleva responded that it may be when a Facility has to re-register, but that the detail would be determined in the next stage of work.

- Mr Edwards noted that currently if an existing Facility changes, it is treated as an existing Facility with an upgrade and this is already accounted for in the WEM Rules.

The Chair agreed with Ms Guzeleva that it was important that this matter was considered as part of the implementation.

- Mr Arias provided support for the proposal and considered that the point raised by Mr Alexander was important, as was the need for transparency around the design of the exemption framework.

Ms Guzeleva advised that there would be at least two more WICRWG meetings to discuss detailed design matters and updates would be provided to the MAC.

Mr Robinson presented Slide 18. He noted there would be a quantity and an intensity threshold for new Facilities and the impact of this was discussed at length in the WICRWG. He explained that there are decisions to be made in both investment timeframes and operational timeframes. The signals being considered in this review are designed to influence investment, with a view to incentivising new generation in the SWIS that reduces emissions. However, this can have operational implications.

Mr Robinson noted, with regard to the scenario on Slide 18, that removing a Facility in a year when it is already running hard could have a detrimental impact on system reliability. He noted that allowing AEMO discretion about whether the quantity threshold should be exempted could be complex.

Mr Robinson presented Slide 19.

Ms Guzeleva noted that 20% is a very generous threshold for peaking plant, as it would allow a plant to run for 4.8 hours every day of the year or 9.6 hours every day in winter and summer.

- Mr Gaston noted
    - his concern that the focus is on emissions reduction but that not enough focus was on low-cost energy;
    - the wholesale price of electricity would be passed on to consumers who are already struggling;
    - this would have an impact on the ability to enter into bilateral contracts; and
    - more consideration needs to be given to people who will be paying for low emissions energy.

Mr Robinson noted that Mr Gaston's comment related to the third limb of the energy trilemma.

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Ms Guzeleva noted that peaking plant is the most expensive on the system, and that modern peaking plant may be able to run above the typical 5-10% for peaking plant but that fuel supply would be a concern for smaller units.

- Mr Gaston queried what replaces a peaking Facility if it exits the market – does it need to lead to an Non-Cooptimised Essential System Services (NCESS) or Supplementary Reserve Capacity (SRC) procurement.

The Chair noted that there was an opportunity to consider the impact on price versus the incentive for the fleet to provide low emissions peaking capacity.

- Mrs Papps considered that, if a Facility was dispatched more than 20% of the time due to unanticipated scarcity in the WEM, there should be carve outs to avoid perverse outcomes. She pointed to the extreme weather experience recently in Perth and that planned outages have been cancelled because of lower reserve margin.
- Mrs Papps also noted that an implied 20% capacity factor would require the 14 hour fuel requirement to be revisited and that having a fuel requirement closer to the load duration would be more appropriate.

Ms Guzeleva agreed with Mrs Papps, that with restrictions placed on plant it may be appropriate to revisit the requirement.

- Mr Stephen noted that he was uncertain whether the assumed capacity factor was realistic and supported Mrs Papps comments with regard to revisiting the fuel requirement. He also noted that the concept appears to assume that businesses may find it acceptable that they may lose Capacity Credits. He did not consider that to be the case and noted that this may affect investment decisions.

Mr Robinson noted Mr Stephens comments, adding that investment decisions require a number of assumptions, and this would be another parameter to consider (how long a Facility is likely to run for and how likely is that it will breach the threshold). This would discourage Facilities at the margins, which may consider it likely they will breach the threshold, which is the intent.

Ms Guzeleva added that there was already a guidance by the Environmental Protection Authority imposing limits on Facilities and the aim is to provide some certainty about how this operates in practice.

- Mr Alexander added that cost needs to be front and centre throughout this whole process, noting that:
    - the objective is not for emissions reduction at any cost but to determine the most efficient way to satisfy the new objective, which includes emissions;
    - the WIC Review is designed to increase investment certainty and make the RCM more attractive for investors, but the balance and accountability to ensure that what is being paid

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for is delivering emissions reductions is an important consideration; and

- there is a difference of opinion around the scenarios around capacity withdrawal and what that actually means, and that understanding the price implications of each is important.

Ms Guzeleva noted that consumer representatives on the WICRWG have made very strong representations that new base load plant should not be allowed to come into the system.

Mr Robinson noted that the impact on prices and costs and what the result is, in terms of reduced emissions, would be explored through the modelling.

The Chair noted the importance of being transparent about the actual cost of emissions reductions and the importance of understanding the effects of these decisions on participation in the market.

- Mr Arias considered that achieving emissions reductions would come through existing Facilities retiring as new Facilities would be relatively efficient. He noted that one of the guiding principles is price certainty, and that Facilities coming in and out of the RCM doesn't provide this.
- Mr Maticka noted concerns that AEMO may end up in a situation without enough capacity that then requires an NCESS or SRC process.

Ms Guzeleva advised that this was all subject to consultation and all points would be taken into account.

Mr Robinson presented Slide 21 and noted that the intensity threshold in dot point three has been changed to 0.9tCO_2e/MWh to align better with the announced coal retirements, as a result of changing the quantity threshold to intensity threshold.

- Mr Huxtable asked whether the change is reflected through the slide pack, including in graphs, to understand the implications of the change.
- Mr Arias asked whether the threshold would be changed if there is a change to coal retirement dates.

Ms Guzeleva noted that the only reason for the change is because it was previously aligned with the retirement schedule when the proposal was for a quantity threshold. She noted that if retirement dates do change, there would be a need to re-consider the alignment.

- Mr Peake asked if the change brought the whole curve forward by two years thereby pushing plant out of service two years faster.

Ms Guzeleva responded that this should not change in comparison to the quantity threshold.

Mr Robinson clarified that it does bring the curve forward, but that the 0.1 did not catch anybody in the first year anyway.

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	Ms Guzeleva added that the change will be noted in the consultation paper, but that there had been misalignment between the impact of the quantity threshold and the intensity threshold. • Mrs Papps asked for clarification on when the thresholds for new Facilities commenced. Mr Robinson noted that by 2050 the threshold will likely be zero but that there would be 5 year reviews to set those over time. Mr Robinson presented Slide 24 and 25. • Mr Schubert noted that the requirements should encourage meaningful increases in duration. • Mr Edwards noted that stand-alone Energy Storage Resource (ESR) operators rely on third parties for their fuel source if they don't build it themselves. This could make it difficult for smaller companies to guarantee a renewable fuel source. Ms Guzeleva noted that the renewable fuel requirement doesn't' include ESR Facilities, it is designed to capture scenarios such as gas Facility converting to run on hydrogen. She clarified that the next initiative to be discussed will look at the relationship between intermittent generators and firming components. • Mr Edwards noted that was an important clarification and that this wasn't noted in the WICRWG meeting, and asked for the text in brackets on Slide 25 to be highlighted. • Mr Alexander noted that it was important to have a clear definition of a renewable fuel source. Mr Robinson presented Slide 27. Ms Guzeleva noted that the consultation paper will be shared with the MAC prior to being released.	
7	**Rule Changes** **(a) Overview of Rule Change Proposals** The Chair provided an overview and the paper was taken as read.	
8	**Power System Security and Reliability (PSSR) Standards Review** The Chair noted that the MAC was asked to note the Scope of Work for the PSSR Standards Review and to approve the establishment of a MAC working group and the associated Terms of Reference. Ms Guzeleva noted that one of the last decisions of the Energy Transformation Taskforce (Taskforce) was to establish an end-to-end PSSR standard supported by a centralised governance framework. Implementing this required legislative change which is now being progressed through Parliament. Ms Guzeleva added that the Taskforce also recommended that there should be a standing committee responsible for the standards. She noted that:	

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- Given the MAC would need to review any work by this group as it would result in changes to the market rules, it is recommended a MAC working group be established rather than having a separate process; and
- the WEM Rules already have quite a significant number of PSSR related matters that the MAC is already required to consider.

Ms Guzeleva advised that Western Power had sent an email to the Chair of the MAC indicating that, as this was a very specialized area, the working group should be comprised of technical experts and engineers.

Ms Guzeleva noted that there are technical security and reliability aspects, but also cost and emissions implications, and that EPWA considers that wider representation would be beneficial. She added that there is a detailed Scope of Work and a technical consultant will be appointed to assist with the work.

The Chair noted that Ms Jabiri from Western Power had left the meeting and she had not yet had a chance to review the email.

- Mr Alexander strongly supported diversity in the working groups, noting that there was a need to be inclusive about representation in the MAC working groups to ensure advice being put to the MAC is not too narrow.
- Mr Edwards agreed and noted comments in forums such as LinkedIn about the transparency of the MAC and its working groups, and the need for this working group to be open to observers at a minimum.
- Mr Peake agreed and noted a need to consider the level of reliability that people are willing to pay for.

Ms Guzeleva noted that Ms Jabiri had a good point regarding the question of whether additional technical representation is required at the MAC to aid with more technical discussion and that this will be considered through the MAC review in 2024.

The Chair summarised that there was a recognition that some of the issues to be dealt with will be highly technical, but there may be some other issues that need broader skills, particularly around the impact on the costs of the system.

The Chair noted that members of working groups generally respect each other's area of skill and expertise.

- Mr Schubert provided his support and noted that PSSR Standards have a consumer impact.

The Chair noted the general support for establishing the PSSR Standards working group and the Terms of Reference. She noted that while recognising the importance of technical skills, the MAC also wanted the working group to include broader expertise.

9	**Benchmark Reserve Capacity Price (BRCP) WEM Procedure Review**	

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	The Chair noted that Dr Shahnazari was presenting on behalf of Rajat Sarawat on the ERA's request to establish a BRCP WEM Procedure Working Group and the associated draft Terms of Reference. Dr Shahnazari presented Slide 2 in the ERA slide pack and noted that EPWA's finalisation of the reference technologies, which is expected by the end of the year, is a key dependency. Mr Shahnazari presented Slide 3-5 in the ERA slide pack. The Chair noted that there was general support for the formation of a MAC working group and the draft terms of reference. Dr Shahnazari confirmed that any amendments to the Terms of Reference could be considered out of session.	
	Action: MAC members to consider providing nominations to the ERA for the BRCP WEM Procedure Review and to provide any comment on the Terms of Reference.	**MAC members**
10	**General Business** • Mr Stephen proposed a general discussion on how the new market was progressing at the February 2024 MAC meeting. The Chair asked Ms Guzeleva for views on how to manage that agenda item. Ms Guzeleva suggested that AEMO would be better placed to present on market operation. • Mr Maticka noted that an update would be given at the WA Electricity Consultative Forum (WAECF) and that if any further information was required that could be provided. He asked if the question was more about whether the market was meeting the objectives. • Mr Stephen confirmed that it was the latter. The Chair noted that Mr Maticka would provide a presentation and that if MAC members have particular questions, they should send an email to AEMO and include EPWA in that communication. • Mr Maticka noted that most MAC members would attend the WAECF and proposed that following that, if MAC members wanted further information, he could go into further detail, but he did not want to reproduce the same presentation for the MAC. Ms Guzeleva advised that EPWA could provide a cover paper with some key questions, but that the assessment of the effectiveness of the market based on such a short period since the start of the new WEM may be premature. • Mr Arias noted that consideration should be given to expanding the Hot Season to November given demand during recent weather events. • Mr Maticka agreed. The Chair summarised that a short, focussed session from AEMO at the next MAC in February would be welcome and proposed that Mr	

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	Maticka and Ms Guzeleva discuss the approach to that, noting that members can also contact AEMO and EPWA directly. The Chair noted that the MAC secretariat would be in contact to determine availability for a face-to-face meeting in February 2024 and thanked MAC members for their contributions to the MAC throughout the year.	
	Action: 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**

The meeting closed at 11:34am.

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_08_02

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
17/2023	MAC Secretariat to publish the minutes of the 12 October 2023 MAC meeting on the Coordinator's Website as final.	MAC Secretariat	2023_11_23	**Closed** The minutes were approved out of session and published on the Coordinator's Website on 15 November 2023.
18/2023	MAC members to consider providing nominations to the ERA for the BRCP WEM Procedure Review and to provide any comment on the Terms of Reference	MAC member	2023_11_23	**Open**

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	**Open** • 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 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.

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_02_08

1. Purpose

- To provide an update on the Market Development Forward Work Program.
- Changes to the Market Development Forward Work Program provided at the previous MAC meeting are shown in red font in the Tables below.
- Shaded sections in the Tables below are items that are closed and will be removed from the Tables following this MAC meeting.

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 7(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 7(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 7(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); and
		  • submissions on the RCM Review Consultation Paper (Stage 2).
		  • the RCM – WEM Amending Rules Exposure Draft.
		  • submissions on the RCM – WEM Amending Rules Exposure Draft.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
		• responses to stakeholder submissions on the Exposure Draft if the RCM Review WEM Amending Rules

Benchmark Reserve Capacity Price (BRCP) Reference Technology Review	• The RCM Review will introduce a provision in the WEM Rules that will require the Coordinator to review the BRCP reference technologies.	• The RCMRWG is supporting the Coordinator in the review of the BRCP reference technologies. Information on the Working Group is available at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group, including:
		  ○ meeting papers and minutes from the RCMRWG meeting on 21 September and 19 October 2023.
		• The following papers have been released and are available on the RCM Review webpage at Benchmark Reserve Capacity Price Reference Technology Review (www.wa.gov.au)
		  • the Consultation Paper; and
		  • submissions on the Consultation Paper
		• The Determination of the Benchmark Capacity Providers has been published and is available on Coordinator Determinations (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) • EPWA is currently seeking a consultancy service to assist with the Procedure Change Process Review.
Forecast quality	Review of Issue 9 from the MAC Issues List (see Table 4).	• This review has been deferred.
Network Access Quantity (**NAQ**) Review	Assess the performance of the NAQ regime, including policy related to replacement capacity, and address issues identified during implementation of the Energy Transformation Strategy (ETS).	• This review will be commenced after completion of the RCM Review.
Short Term Energy Market (**STEM**) Review	Review the performance of the STEM to address issues identified during implementation of the ETS.	• This review has been deferred.

Review of the Participation of Demand Side in the Wholesale Electricity Market (**WEM**)	The scope of this review is to:
	• identify the different ways that Loads/Demand Side Response can participate across the different WEM components;
	• identify and remove any disincentives or barriers for Loads/Demand Side Response participating across the different WEM components; and
		• 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.

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

	• 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 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; and
		  • the submissions received on the Demand Side Response Review Consultation 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 and the 6 December WICRWG meeting; and
		  • meeting papers 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)
		  • EPWA is currently seeking a consultancy service to assist with the MAC 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 February 2024 PSSRSWG meeting.

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

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

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

Table 3 – Issues to be Addressed in the Cost Allocation Review			
Id	**Submitter/Date**	**Issue**	**Status**
2	Shane Cremin November 2017	Allocation of market costs – who bears Market Fees and who pays for grid support services with less grid generation and consumption?	Closed – Considered in the Cost Allocation Review. Refer to the Cost Allocation Review Information Paper.
16	Bluewaters November 2017	BTM generation is treated as reduction in electricity demand rather than actual generation. Hence, the BTM generators are not paying their fair share of the network costs, Market Fees and ancillary services charges. Therefore, the non-BTM Market Participants are subsiding the BTM generation in the WEM. Subsidy does not promote efficient economic outcome. Rapid growth of BTM generation will only exacerbate this inefficiency if not promptly addressed. Bluewaters recommends changes to the WEM Rules to require BTM generators to pay their fair share of the network costs, Market Fees and ancillary services charges. This is an example of a regulatory arrangement becoming obsolete due to the emergence of new technologies. Regulatory design needs to keep up with changes in the industry landscape (including technological change) to ensure that the WEM continues to meet its objectives. If this BTM issue is not promptly addressed, there will be distortion in investment signals, which will lead to an inappropriate generation facility mix in the WEM, hence compromising power system security and in turn not promoting the Wholesale Market Objectives.	Closed – Considered in the Cost Allocation Review. Refer to the Cost Allocation Review Information Paper.
23	Bluewaters	Allocation of Market Fees on a 50/50 basis between generators and retailers may be overly simplistic and not consider the impacts on economic efficiency.	Closed – Considered in the Cost Allocation Review. Refer to the Cost

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

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

North Region Energy Program (NREP1)

Market Advisory Committee
February 2023

EDM: 67216504

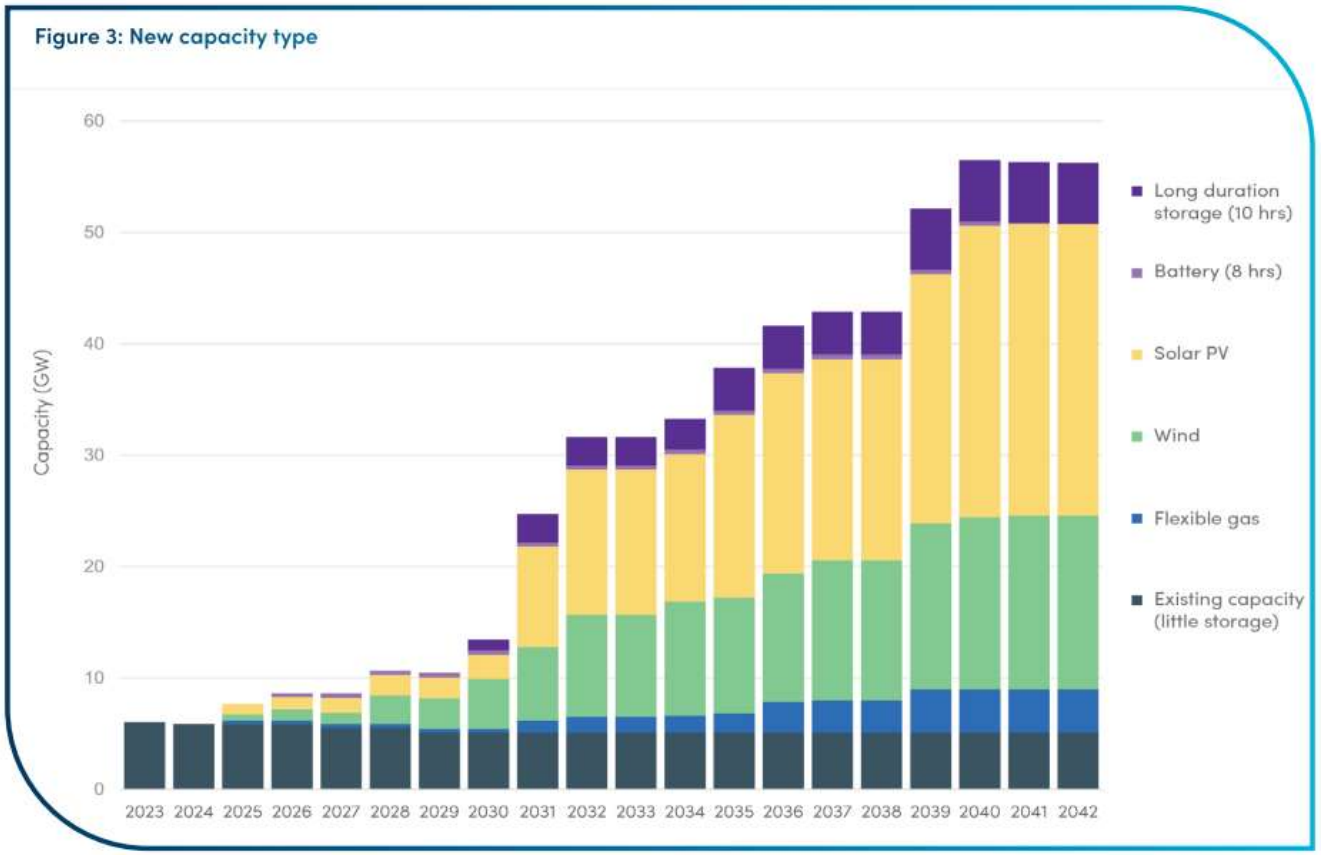
Purpose

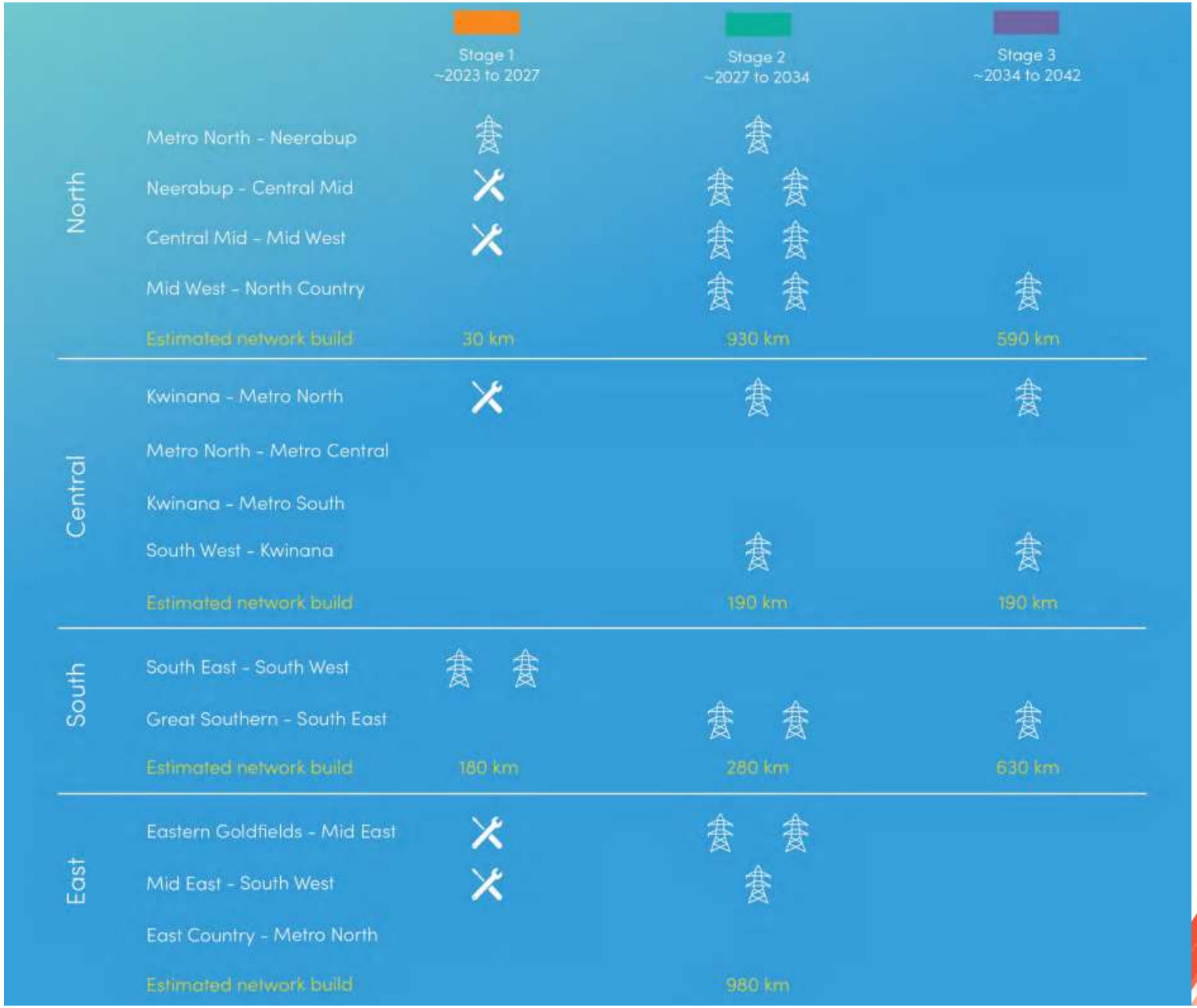
- Update following State Government announcement
- Begin discussion on how we can collaborate to facilitate State decarbonisation agenda and support upcoming projects.

Disclaimer: Information shared is current at time of presentation and subject to change. It should not be relied upon for future planning.

Generation & Loads

Figure 3: New capacity type




Stage 1
~2023 to 2027
Stage 2
~2027 to 2034
Stage 3
~2034 to 2042
North
Metro North - Neerabup
Neerabup - Central Mid
Central Mid - Mid West
Mid West - North Country
Estimated network build
30 km
930 km
590 km
Central
Kwinana - Metro North
Metro North - Metro Central
Kwinana - Metro South
South West - Kwinana
Estimated network build
190 km
190 km
South
South East - South West
Great Southern - South East
Estimated network build
180 km
280 km
630 km
East
Eastern Goldfields - Mid East
Mid East - South West
East Country - Metro North
Estimated network build
980 km

What was announced?

$575 million (Total $655) – NREP1

- NREP1 – Commitment to upgrade the network between Northern Terminal and Three Springs

Focus for today

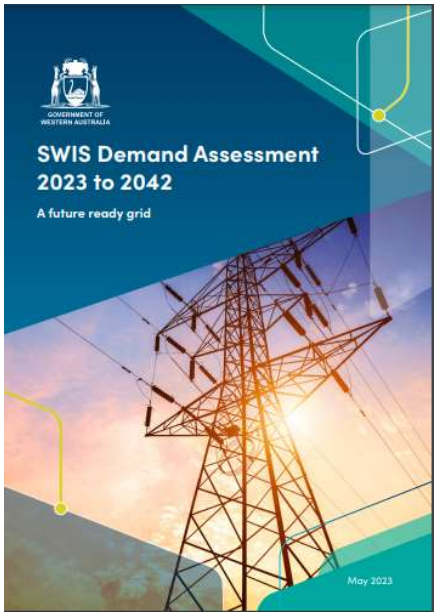
$133 million – SWISDA

- North Region
- Central Region
- South Region
- East Region

Scoping, planning and LLC works for all regions include:
- Grid planning works and studies, engineering preliminary designs and studies
- Environmental/heritage survey, land access and permit securing works
- Setting up of procurement panels and verification of suppliers, and ordering long lead primary plant
- Procurement of land for terminals at selected locations
- Program risk management, planning and scheduling, change management

PoweringWA

- Body in EPWA to coordinate the build of transmission, renewable generation, and storage infrastructure.



$655 million to strengthen the northern network for increase in renewable energy capacity expansion

Background

In support of the State Government Decarbonisation Strategy, Western Power has begun enhancing the existing network to enable future connection of large-scale renewable generation and load in the north region of the SWIN.

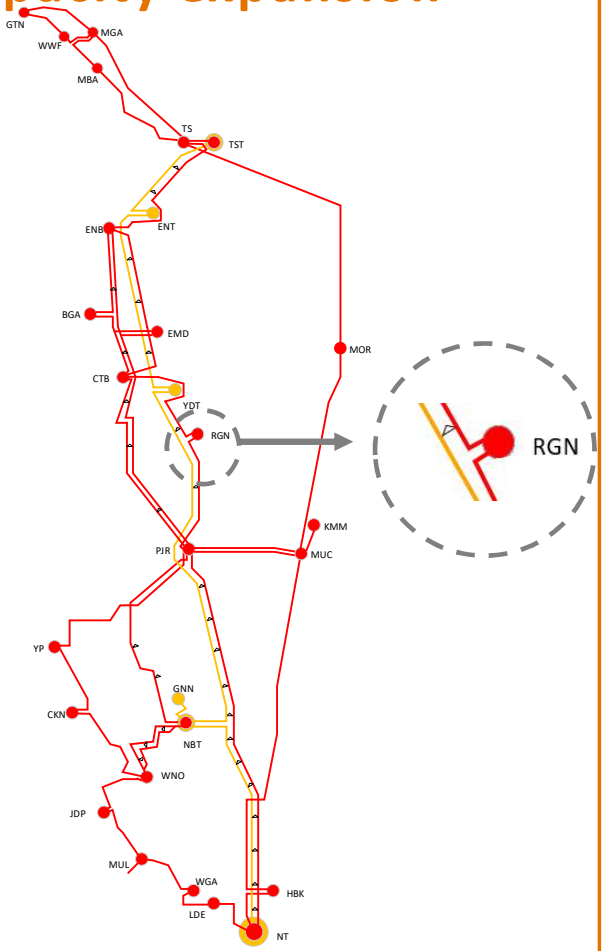
High level Scope

- Convert the existing 132kV transmission line from Northern Terminal (NT) to Three Spring Terminal (TST) to 330kV
- Build a new 330kV double circuit transmission line from NT to Neerabup Terminal (Neerabup)
- Reinforce and de-mesh existing 132kV network

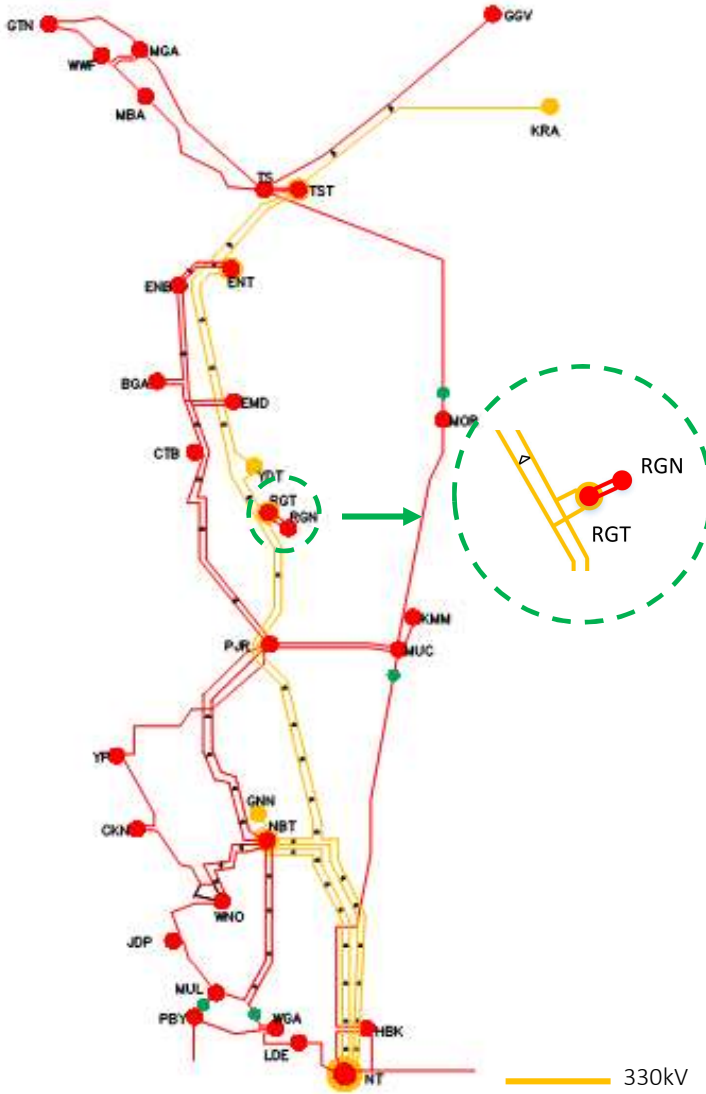
Benefits

Transmission network growth

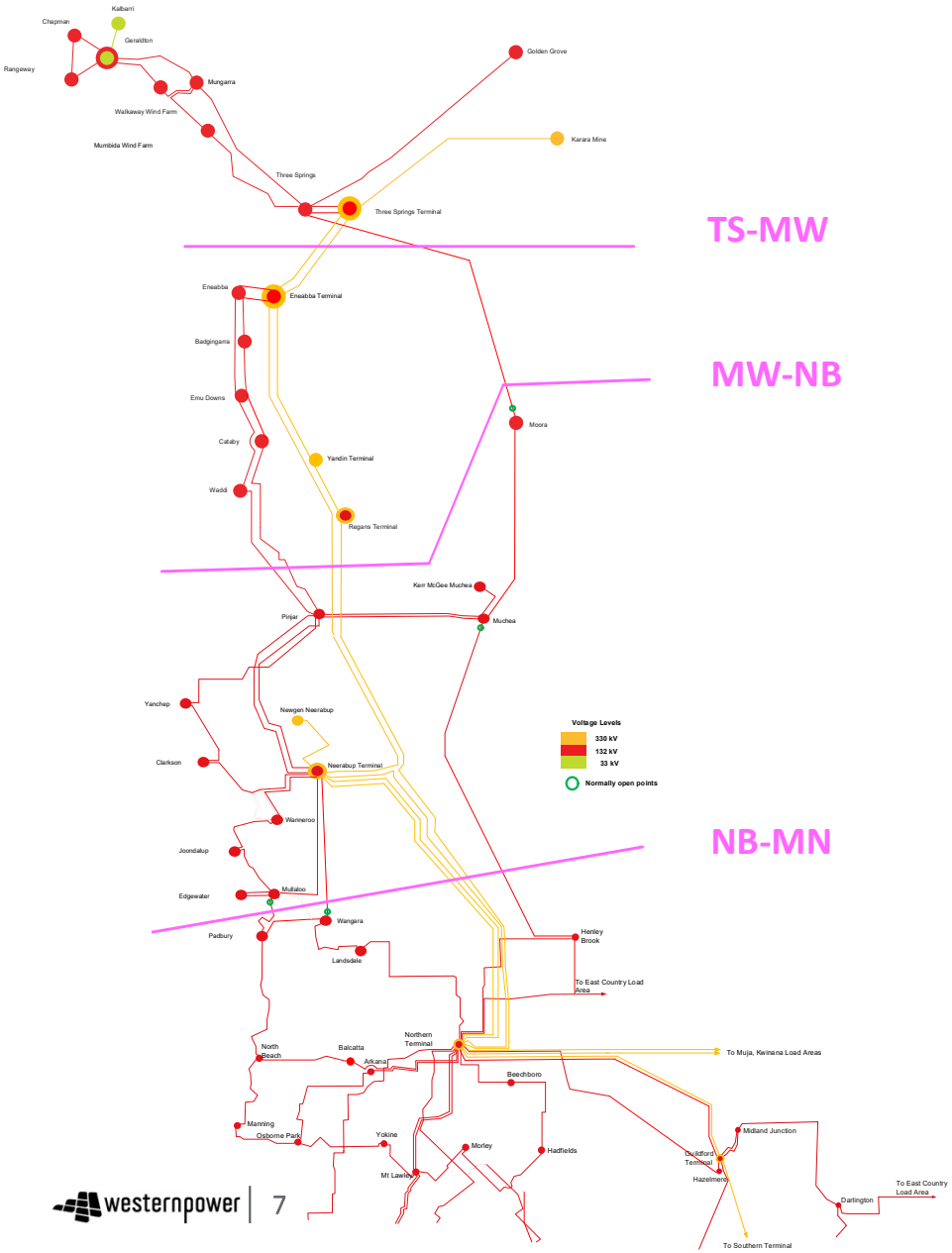
- Unlock (de-constrains) existing windfarm generation capacity
- Maximise the use of existing infrastructure and line corridors



Existing Network Topology



NREP



What is unlocked?

Transfer capacity between defined boundaries

Transfer Boundary	Existing Network	NREP Network
TS-MW	80 MW	325 MW
MW-NB	250 MW	1150 MW
NB-MN	500 MW	2000 MW

NREP1- further detail

Summary

- ~100km of new line route
- ~1000km of conductor
- ~4km of UG conductor
- ~430 steel poles
- ~100 wood poles
- 6 x new 490MVA transformers

- Work at 20 Substations / Terminal
  - Includes construction of 3 new yards
  - ENT, TST, Regans
- Build completion target end 2027.
- Approvals where required - Flora and Fauna, Heritage, Development, Noise
- Priority Project Status

NREP - 330kV line conversion
Eneabba Terminal (ENT)
Three Springs Terminal (TST)
Regans Terminal (RGT)
Northern Terminal 330kV
Eneabba Terminal (ENT) to Eneabba Substation (ENB) 132kV D/C line
132kV line disconnections

NREP – Northern Terminal (NT) to Neerabup (NBT) 330kV new D/C line
Northern Terminal (NT) 330kV
Neerabup Terminal (NBT) 330kV
NT to NBT 330kV D/C line

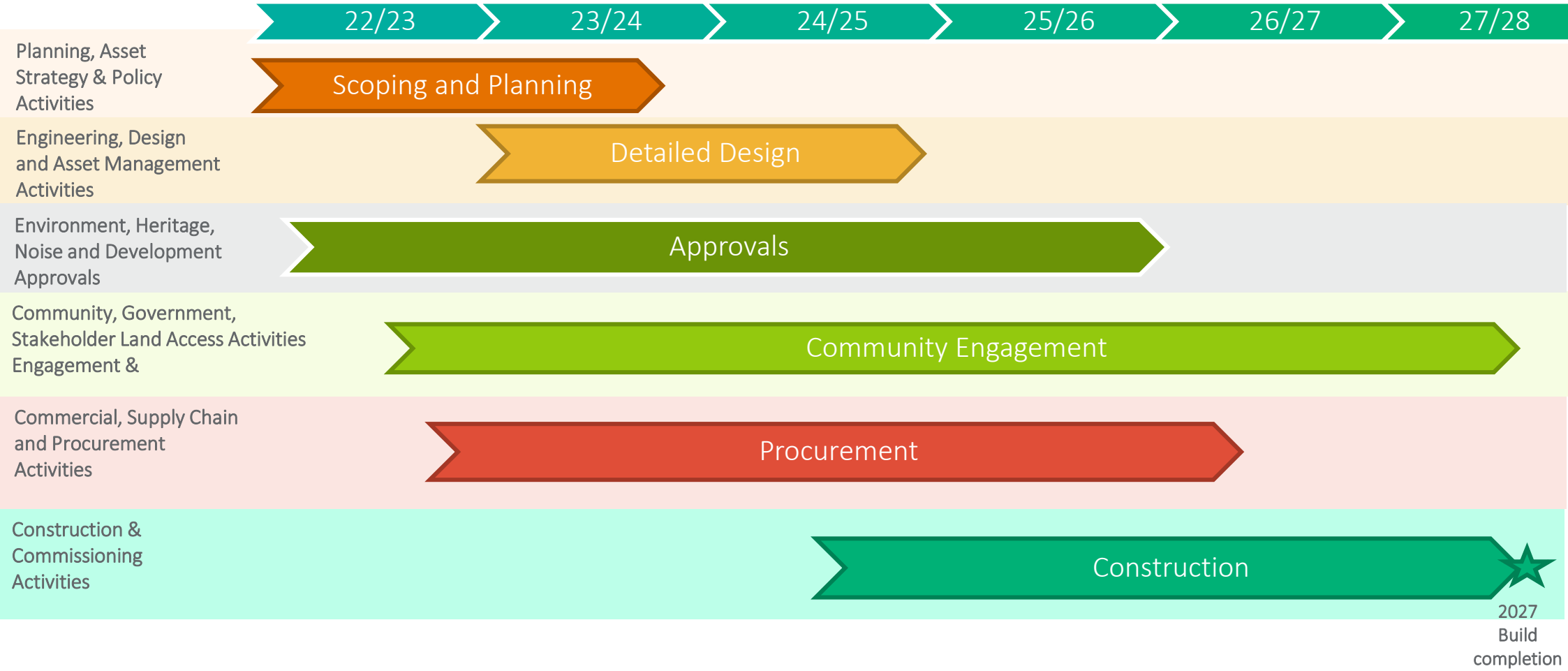
NREP - 132kV demesh
Northern Terminal (NT) 330/132kV
Neerabup Terminal (NBT) 330/132kV
Padbury (PBY) and Henley Brook (HBK) new circuits
NBT-Mullaloo (MUL) 132kV and NBT- Wangara (WGA) 132kV
Padbury (PBY)-WGA 132kV
NT-Northam (NOR)/Henley Brook (HBK) 132 kV
NBT-Pinjar (PJR) 132kV String 2nd side of existing towers
NBT- (Wanneroo) WNO 132kV removal of split phase

NREP1 – Scoping and Planning Activities

Funding pathway

Mar 23 ERC $80M
scoping & planning (S&P) &
LLCs (6x490MVA Transformers)

November 23 ERC BC $575M
remaining amount to complete NREP1



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MARKET ADVISORY COMMITTEE MEETING, 8 February 2024

FOR DISCUSSION

SUBJECT: UPDATE ON AEMO'S WEM PROCEDURES

AGENDA ITEM: 7(A)

1. PURPOSE

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

2. AEMO PROCEDURE CHANGE WORKING GROUP (APCWG)

	Most recent meetings	**Next meeting**
Date	8 November 2023	21 February 2024 (TBC)
WEM Procedures for discussion	WEM Procedure: Dispatch Algorithm Formulation	Indicative Facility Class Frequency Co-Optimised Essential System Services Accreditation Certification of Reserve Capacity

3. AEMO PROCEDURE CHANGE PROPOSALS

The status of AEMO Procedure Change Proposals is described below, current as at 8 February 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_2023_03 WEM Procedure: Dispatch Algorithm Formulation	AEMO has determined several changes are required to the WEMDE implementation and Dispatch Algorithm Formulation: • Issue 1: Allowances on ESS Trapezia • Issue 2: Removal of lower bound on Contingency variables • Issue 3: Addition of CVQ to Constraint 2.4.17 Additionally, AEMO has made minor clarifications to other areas of the formulation. The changes were implemented on 12 October 2023 to address system issues and improve market outcomes. Consultation on the Procedure Change Proposal began on 26 October 2023.	Commenced		12 December 2023

MARKET ADVISORY COMMITTEE MEETING, 8 February 2024

FOR DISCUSSION

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

AGENDA ITEM: 7(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	18 December 2023	5 February 2024

3. ERA PROCEDURE CHANGE PROPOSALS

The status of ERA Procedure Change Proposals is described below, current as at 23 January 2024. Changes since the previous MAC meeting are in red text. 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 Price	In the first meeting of the Working Group, 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	Pre-consultation	Working Group to provide feedback on: • weighted average cost of capital (discount rate) • cost recovery period	5 February 2024

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

Agenda Item 7(c): Update on the PSSR Standards Working Group

Market Advisory Committee (**MAC**) Meeting 2024_02_08

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 notes the:

(1) the update from the PSSRSWG meeting on 14 December 2023;

(2) the minutes from the PSSRSWG meeting on 14 December 2023 (Attachment 1).

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).
- While reforms associated with the Energy Transformation Strategy would typically be consulted on through the Transformation Design and Operation Working Group (TDOWG), the technical nature of this review requires a different approach through which more detailed discussions and feedback can be facilitated.
- The MAC supported the establishment of a MAC Working Group at the 23 November 2023 MAC meeting to assist with this review, along with the Working Group Terms of Reference and the Scope of Work for the review.
- Mott MacDonald has been appointed as the consultant to support this review, with Merz Consulting as a subcontractor.
- 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 has meet twice to discuss the framework for analysis and other material and provide input on proposals prior to these being circulated to the PSSRSWG.

- The first PSSRSWG meeting was held on 14 December 2023. The working group discussed the scope of the PSSR Standards Review including:
    - the four stages of the review;
    - the boundaries for stage 1, including the information needed to complete this stage and the approach to new emerging issues such as system strength and resilience;
    - the correlation between DER compliance and the PSSR standard;
    - the status of and approach to Western Power's Technical Rules submission; and
    - the proposed schedule for future PSSRSWG meetings.
- The second PSSRSWG meeting is scheduled for 1 February 2024. The agenda for that meeting will include discussions on:
    - PSSR definitions and boundaries for the analysis in stage 1; and
    - existing standards and activities, and time horizons.
- 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
1 - Assess existing standards	Consultant to provide EPWA, Technical Working Group and PSSRSWG with final report detailing the findings	February 2024
	Chair to provide the MAC an update of the activities of the PSSRSWG	21 March 2024
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 third PSSRSWG meeting is yet to be scheduled.

4. Attachments

(1) Agenda Item 7(c) - Attachment 1 – PSSRSWG 2023_12_14 – Minutes

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Minutes

Meeting Title:	Power System Security and Reliability Standards Working Group (PSSRSWG)
Date:	14 December 2023
Time:	9:30am to 10:34am
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair, Energy Policy WA	
Toby Price	AEMO	Away from 10.00am to 10.30am
Mena Gilchrist	AEMO	
Aditi Varma	ERA	
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Cameron Owens	Synergy	SME, proxy for Mrs Rhiannon Bedola
Noel Schubert	WA Expert Consumer Panel	
Luke Skinner	WA Expert Consumer Panel	
Daniel Cassidy	Western Power	
Bronwyn Gunn	Energy Policy WA	
Sanna Pember	Energy Policy WA	
Ashwin Maharaj	Mott MacDonald	
Robert Ceic	Mott MacDonald	
Tyson Vaughan	Mott MacDonald	Joined at 9.40am
Jaden Williamson	Merz	
Geoff Glazier	Merz	
Apologies	**From**	**Comment**
Hugh Ridgway	Alinta Energy	
Ed Chan	Consultant – Mott MacDonald	
Matthew Veryard	Western Power	Proxy for Ms Sabina Roshan

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Item	Subject
1	**Welcome and Introductions** The Chair opened the meeting at 9:30am. The Chair noted the attendance as listed above and invited each of the members to briefly introduce themselves. Ms Gunn noted the Competition and Consumer Law obligations circulated with the meeting agenda. Ms Gunn encouraged the members to raise any issues with the Chair immediately should they arise during the course of the working group deliberations.
2	**Meeting Attendance** As noted above.
3	**Project Overview** Ms Gunn provided a brief summary of the scope of work for the Power System Security and Reliability (PSSR) Standards Review (slide 1) and made the following key points: • Changes to primary legislation were required to implement the Energy Transformation Taskforce's recommendation, as the Electricity Industry Act 2004 did not empower any single instrument to contain all the PSSR related provisions. • The Electricity Industry Amendment (Distributed Energy Resources) Bill 2023 (the DER Bill) has been introduced to Parliament. The Bill was passed by the Legislative Assembly and is expected to be passed by the Legislative Council in early 2024. • The changes under this Bill will mean that the WEM Rules will be renamed the Electricity System and Market Rules (ESMR) to reflect their expanded scope. • The changes under this Bill will mean that the Electricity Network Access Code 2004, the Technical Rules, the Electricity Industry (Metering) Code 2012 and the Electricity Industry (Network Quality and Reliability of Supply 'NQRS') Code 2005, will be repealed over time as content is covered through amendments to the ESMR. • EPWA will organise the work to transfer the various provisions across on a policy stream basis, rather than doing it instrument by instrument. This project will review the PSSR related provisions within the relevant instruments and transfer those across to the ESMR. There will be other workstreams within EPWA to manage the transfer of other provisions into the ESMR. Ms Gunn introduced Mott MacDonald as the appointed consultant to support this review. She noted that Merz are subcontracted to Mott MacDonald and that Jaden Williamson and Geoff Glazier from Merz will do the bulk of the work in stages 1 and 2 of the project, with Tyson Vaugh and Ed Chan from Mott MacDonald doing more of the work in stages 3 and 4. Ms Gunn presented the stages of work for the review with reference to slides 5 to 13. She made the following key points: • Mott MacDonald will start detailing the information needed to complete stage 1 into a spreadsheet containing all the PSSR related provisions and their governance arrangements from the various instruments that will be brought across to the ESMR. • EPWA's expectation is that there will not be much PSSR related provisions that will come across to the ESMR as part of this review from the Metering Code, and that the bulk would come out of the NQRS Code and Technical Rules. However, all the provisions in each instrument will still be assessed to ensure nothing is

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missed. There will be another workstream to manage the transfer of the Metering Code provisions into the ESMR.

- Stage 2 will also need to consider emerging concepts such as power system resilience and whether these concepts need to be integrated into the new standard.
- Stage 3 will involve developing high level design proposals and will include recommendations for any transitional arrangements that might be required. This will be the first stage that involves public consultation.
- 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.

Ms Gunn clarified the working group guiding principles with reference to slide 14 and emphasised the importance of focusing on issues within the scope of work.

Ms Gunn invited views and questions from the participants.

- Ms Varma asked if the intent of this review is solely to cover PSSR-related provisions within the relevant instruments, noting that the entirety of those instruments will be repealed over time.

Ms Gunn confirmed that only PSSR-related provisions will be moved across to the ESMR as part of this review. She added that there is further work to be done within EPWA to determine what other workstreams are needed to ensure that the transfer of all parts of each regulatory instrument is completed.

Ms Gunn noted that EPWA's expectation is that there will not be many PSSR-related provisions from the Metering Code to be moved across to the ESMR as part of this review, however the distinction between what is a PSSR provision and what is not will not always be clear-cut. As an example, she noted that achieving power system security requires meters to be reliable, accurate and secure, however the provisions of the Metering Code that set this out will not be included in this project. Instead, this project will proceed with the assumption that meters adhere to the established standard. She concluded that it will be up to EPWA, with the input of this group, to determine which provisions should be brought across as part of this project.

- Ms Varma noted that the DER team at EPWA is currently reviewing DER roles and responsibilities and enquired whether the PSSR Standards Review will be covering PSSR on the transmission network but not covering matters related to behind the meter installations.

Ms Gunn clarified that, at this stage, connection standards behind the meter will be out of scope for this review, but that this review would consider connection standards for facilities across the transmission and distribution network.

The Chair acknowledged the importance of not duplicating issues already covered by other projects. She clarified that the focus of this review is to establish a minimum security and reliability standard for both the transmission and distribution networks. She added that commercial arrangements will be out of scope for this review.

- Mr Peake asked whether consideration should be given to the price that customers are prepared to pay for reliability in order to set the standard and if residential customers and larger business should be separated if this was the case. He added that some work has been done in this area.

The Chair answered that pricing issues are currently out of scope for this review. She added that some high-level analysis must be conducted at a qualitive level regarding cost to consumers and input from members of the WA Expert Consumer Panel will be

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valuable. She noted that if issues arise that require economic analysis this can be considered in parallel with this project.

- Mr Owens emphasised the need to consider the power system as a whole and highlighted the material impact that DER aggregation has on power system security. He encouraged participants to adopt a long-term perspective regarding the potential role of DER in the power system.

The Chair acknowledged Mr Owens' point and noted that a comprehensive end-to-end standard, not differentiating between transmission and distribution, could be a possibility. She noted however that it was likely that specific provisions will be needed for distribution connected devices.

- Mr Schubert suggested incorporating learnings and recommendations from previous work related to reliability performance as part of stage 2 of this review and noted that the Independent Review of the Christmas 2021 Power Outages provided recommendations regarding reliability, which could be of value. He added that the ERA has undertaken substantial work in this area as part of Western Power's fifth Access Arrangement (AA5) process. He noted that reliability standards for groups of customers can impose significant costs, particularly in regional areas.

The Chair acknowledged Mr Schubert's point and noted that Western Power and the ERA are part of the group to assist with these discussions. She encouraged participants from the ERA and Western Power to share any past analyses that have been conducted but not made available in the public domain.

Mr Glazier pointed out that certain issues, like protection of electrical equipment from damage and protecting personal safety that are covered under Energy Safety legislation, will be excluded from this review since these matters do not constitute PSSR for the purposes of this project. He added that there are mechanisms in other markets to determine the cost and value of lost load or customer reliability that Mott MacDonald and Merz will review as part of this project.

The Chair clarified that health and safety related legislation issues are out of scope.

- Mr Cassidy noted that Western Power has been working on the Technical Rules and the changes that have been proposed address some new issues relating to security and reliability. He asked whether the intent for the PSSR Standards Review is to consider the work already undertaken by Western Power.

The Chair clarified that the modified Technical Rules will be the starting point for this project. She added that the scope of this review is system security and reliability within the South West Interconnected System (SWIS).

- Ms Varma noted that the ERA has commenced its review of Western Power's Technical Rules submission. She asked Mr Cassidy whether the intent is for the submission to be withdrawn, or if the ERA is expected to review the Technical Rules change request concurrently with this project.

- Mr Cassidy clarified that not all the proposed amendments in the Technical Rules Review would be within the scope for the PSSR Standards Review. He noted that if the PSSR related provisions are being moved to the ESMR there will still need to be a leftover part of that instrument that will need to be functional and maintained until it is repealed entirely.

Ms Gunn noted that another team within EPWA is currently working together with the ERA and Western Power to review and categorise the proposed changes to the Technical Rules.

- Ms Varma noted that some of the issues addressed by the proposed changes, such as power system quality and distribution level asset compliance, will remain

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issues while the PSSR project is underway. She requested a shared a view of how and when proposed changes to the Technical Rules would be progressed by the ERA.

The Chair clarified that whether the ERA review process will continue or not is not a subject for this group and hopefully at the next meeting there would be more clarity about the future of the Technical Rules submission.

Ms Gunn provided the link to the ERA website with the proposed amendments to the Technical Rules.

(https://www.erawa.com.au/electricity/electricity-access/western-power-network/technical-rules/proposal-to-amend-western-powers-technical-rules-western-power-1-september-2023-tra7).

- Mr Cassidy noted that supplementary documents provided with the Technical Rules submission provide more explanation of the proposed changes.
- Ms Varma and Mr Glazier both noted that the DER Bill introduces a range of new definitions, including of quality.
- Mr Cassidy responded that it is common globally to integrate security and quality of supply.

Mr Glazier noted that the initial assessment of the instruments will involve reviewing the various definitions related to PSSR and added that quality will be part of this assessment.

The Chair agreed with Mr Glazier's point and noted that reviewing definitions would be the first and most crucial part of the analysis.

- Ms Varma indicated that consideration also should be given to emerging issues such as DER compliance, without crossing over into safety issues, noting that behind the meter compliance and enforcement of standards will be crucial in the future.

The Chair acknowledged Ms Varma's view and noted the importance of not crossing over to health, safety and environmental legislation related issues.

Mr Glazier agreed with the Chair and noted that deciding where the boundary is will require discussion with the working group. He also noted that sometimes safety and power system security provisions can have tension between them.

The Chair clarified that it is EPWA's preference that the framework continues to set out that generators must stay on to ensure PSSR in certain situations unless that is inconsistent with other safety or environmental requirements.

- Ms Varma clarified that her comment was about ensuring that the standards that apply to DER help to achieve PSSR, for example settings that ensure rooftop PV can be actively involved in managing PSSR and this would involve some standards being applied.

The Chair agreed with this clarification.

The Chair noted that this project will also include a review of PSSR standards in other jurisdictions.

4	**General Business**

No general business was discussed.

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5	**Next meeting**
	The participants discussed the date for the next working group meeting and tentatively agreed to hold the meeting on 1 February 2024.

The meeting closed at 10:34am

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Agenda Item 7(d): Demand Side Response Review – Information Paper

Market Advisory Committee (MAC) Meeting 2024_02_08

1. Purpose

The MAC is asked to:

- note the draft Demand Side Response (DSR) Review Information Paper (Information Paper); and
- provide any final comments on the review outcomes.

2. Recommendation

That the MAC:

- provide any final comments on the DSR Review Outcomes as presented in the summary table (Attachment 1) and outlined in the Information Paper (Attachment 2);
- note the Information Paper (Attachment 2) and that this paper is in a draft state (Energy Policy WA is still editing the paper); and
- note the minutes from the DSR Review Working Group (DSRRWG) meeting on 29 November 2023 (Attachment 3).

3. 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.
- The guiding principles for the DSR Review are that any recommendation should:
    - meet the WEM Objectives
    - facilitate the orderly transition to a low greenhouse gas emissions energy system
    - be cost-effective, simple, flexible and sustainable
    - allocate risks to those who can manage them best
    - provide investment signals and technical capability signals that support the reliable and secure operation of the power system
    - ensure that the value of DSR can be maximised for the benefit of those who provide it and the WEM as a whole
    - ensure that DSR is not under- or over-compensated for its participation in any of the WEM components

- A Consultation Paper for the DSR Review was released on 21 September 2023. It contained 12 proposals related to the DSR participation across the different WEM components. These included proposals related to the Reserve Capacity Mechanism (RCM), the Supplementary Reserve Capacity mechanism, the Short-Term Energy Market (STEM), and the Real-Time Market (RTM), including the Essential System Services (ESS) markets, as well as proposals related to network access, registration and metering.
- Stakeholder submissions on the Consultation Paper were due on 2 November 2023. Eight submissions were received from AEMO, AGL, Enel X, the Expert Consumer Panel, Newmont Mining, Shell, Synergy and Western Power.
- Submissions were generally supportive of the proposals. Submissions focused particularly on recommending specific changes to rules and other instruments concerning constrained access connection, and on the features of a dynamic baseline for Demand Side Programmes (DSPs) preferred by stakeholders.
- The fifth DSRRWG meeting was held on 29 November 2023. All Review Outcomes were considered, with discussion focusing on:
    - whether there should be a minimum size included in constrained load access arrangements;
    - the information made available to AEMO about constrained load arrangements;
    - arrangements related to the registration of hybrid facilities consisting of a load and Electric Storage Resource;
    - use of Western Power sub-metering in hybrid facilities;
    - technical requirements for DSR providing Essential System Services; and
    - the proposed design of the dynamic baseline for DSPs participating in the RCM.
- An Information Paper has now been prepared which incorporates the feedback from submissions and the DSRRWG.
- The Information Paper presents the Review Outcomes for the twelve Proposals that emerged from the DSR Review. These are summarised at Attachment 1.
- At the 7 February 2024 DSRRWG meeting, the working group will review the Exposure Draft of WEM Amending Rules that will give effect to the majority of the Review Outcomes (Outcome 4 and part of Outcome 1 will be implemented through changes to other regulatory instruments).
- 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)

4. 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

5. Attachments

(1) Agenda Item 7(d) – Attachment 1 - Summary of DSR Review Outcomes

(2) Agenda Item 7(d) – Attachment 2 - Draft DSR Review Information Paper

(3) Agenda Item 7(d) – Attachment 3 - DSRRWG 2023_11_29 – Minutes

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Attachment 1: Summary of Review Outcomes

Review Outcome	Rationale
Review Outcome 1 Transparency regarding constrained access connections should be provided and, to the extent practicable, constrained access loads should be integrated into the processes in the WEM rules. The WEM Rules will set out: • the requirements for Western Power to share information on constrained access loads with Australian Energy Market Operator (AEMO); and • the manner in which AEMO integrates constrained access loads in determining the Reserve Capacity Target and Network Access Quantities. Changes to the commercial and regulatory framework to set out the information that must be made available to a customer seeking to connect on a constrained basis will be developed by Energy Policy WA (EPWA) as a part of the process of transferring the content of the Access Code to the Electricity System and Market Rules following the passage of the Electricity Industry (Distributed Energy Resources) Amendment Bill. In the interim, EPWA will work with Western Power to ensure the relevant information is made available to potential constrained load customers on a more informal basis.	Constrained access connections for loads are becoming more commonplace. The disconnect between the constrained access connections framework and the WEM may have an impact on the overall efficiency of both the RCM and the Real-Time Market. Integrating this process in the WEM Rules will add certainty and transparency. It is important to consider these matters now, before constrained access connections increase, while striking the right level of transparency and integration. It is also important that parties seeking to connect a load on a constrained basis have visibility about the terms and conditions of their connection. Submissions were generally supportive of this outcome, with some suggesting that the framework for connection of new loads be modified. This is out of scope for this project. One other submission suggested a minimum size for constrained loads. Discussion at the Demand Side Response Review Working Group (DSRRWG) concluded that only larger loads are likely to be interested in negotiating access terms.

Review Outcome 2 The WEM Rules will be amended to clarify the circumstances in which a hybrid facility comprising a load and an ESR component will be required by AEMO to register as a Scheduled Facility, and when it will have the flexibility to choose between registering as a DSP or Scheduled Facility. This registration will apply to the entire facility, unless sub-metering is installed (see section **Error! Reference source not found.**).	A hybrid facility comprising a load and an Electric Storage Resource (ESR) component cannot register as both a DSP and as another facility type (e.g. a Scheduled Facility). Further, this hybrid facility may not have a choice whether to register as a DSP or a Scheduled Facility as AEMO may require it to register as a Scheduled Facility. If AEMO does require this, this hybrid facility can only receive capacity credits for its ESR component and not as a DSP. EPWA considers that the WEM Rules should be clear about the circumstances in which a hybrid facility will have flexibility and when it will be required by AEMO to register in a certain way. All submissions from DSR proponents supported this outcome. AEMO maintained its preference that a hybrid facility with an ESR component over 10MW should be required to register as a hybrid facility.
Review Outcome 3 More flexibility will be provided to hybrid facilities by enabling them the option to use Western Power installed sub-metering for the purpose of settlement in the STEM and the Real-Time Market, including the ESS markets. The WEM Rules will be amended to require Western Power to publish standard contract terms and costs for revenue sub-metering. This contract should clarify liabilities, roles and responsibility such that facilities can make an informed decision on the basis of cost and risk associated with these arrangements against the forecast benefits. Settlement rules will also be amended to provide for calculations for settlement when this type of sub-metering is present.	Providing hybrid facilities (capable of providing DSR) with the choice of what services they provide and with access to a variety of possible revenue streams has the potential to provide market wide benefits. With Western Power revenue quality metering on each component, it would be possible to use different components of a facility to provide different WEM services at the same time. This type of arrangement would allow each component to be operated and settled independently. However, revenue quality metering comes at a cost, so it should not be something operators of hybrid facilities are required to install if they do not wish to do so. Submissions were generally supportive of this outcome, with some suggesting that the complexities and costs needed further consideration. EPWA notes that sub-metering is entirely optional under this proposal, and that proponents would be free to determine whether the benefits outweigh the costs and complexities based on their individual circumstances. One submitter noted that EPWA should be looking at alternative lower cost options instead of Western Power metering. However, in order to comply with the *National Measurement Act 1960*, data from Western Power revenue grade metering must be used for settlement.

Review Outcome 4 DSP performance will be measured against a dynamic baseline. The dynamic baseline for DSR participation will be based on an ex-ante '10 of 10' methodology incorporating a 'day of adjustment'. A 20% cap will be placed on upward adjustment but downward adjustment will be uncapped. Weekends and days in which the DSP is dispatched will be excluded from the dynamic baseline calculation, however, the methodology will be adjusted on weekends and public holidays to be a '4 of 4' approach using the last 4 weekend days or public holidays. The dynamic baseline will apply for DSP dispatch compliance and reserve capacity testing. Ex-post examination of data to investigate any undesirable behavior will be provided for.	There was general support for the adoption of a dynamic baseline during the RCM Review as well as during the DSR Review. The RCM Review recommended that the performance of DSPs should be measured against a dynamic baseline, rather than the static baseline in the status quo[1]. The rationale for this outcome can be found in the Reserve Capacity Mechanism Review Information Papers (Stage 1) and (Stage 2). During the RCM Review, it was noted that the introduction of a dynamic baseline may increase the potential for gaming. This review outcome will assist to prevent gaming of the baseline. EPWA is recommending a '10 of 10' methodology for determining the dynamic baseline. A 10 of 10 methodology used by a number of electricity markets internationally, and also the Australian National Electricity Market. This approach has been determined to reasonably reflect a DSP's load available for curtailment, and of the options investigated best meets the principles set out in section 3.3, and in particular strikes the best balance between simplicity and accuracy. Submissions were generally supportive of this outcome. Some members of the DSRRWG suggested that there should be the ability for certain participants to request to have a different baseline applied to them, provided they could prove that it was statistically accurate.
Review outcome 5 No change will be made to DSR participation in the SRC mechanism.	A recent procurement of Supplementary Reserve Capacity (SRC) and subsequent review of this mechanism by the Coordinator of Energy indicates that the SRC framework already provides for the effective participation of DSR. Submissions were generally supportive of this outcome.

[1] Review Outcome 4, Reserve Capacity Mechanism Review Information Paper (Stage 1) and Consultation Paper (Stage 2), 3 May 2023.

Review Outcome 6 The Metering Code will be amended such that Western Power must share energy data to AEMO on request, to the extent necessary for AEMO to fulfil its functions in the WEM. AEMO will be required to keep the information that it receives confidential.	One of the issues raised in DSRRWG discussions was that Western Power is currently limited in the energy information it can provide to AEMO because of the confidentiality obligations in the *Electricity Industry (Metering) Code 2012* ("The Metering Code"). This issue was also raised in the recent SRC Review. During the SRC Review, EPWA identified that AEMO's ability to measure the performance of some of the services provided by DSR, for example in relation to demand response aggregations, was impeded by the current obligations. All submissions were supportive of this outcome.
Review outcome 7 No change will be made to DSR participation in the STEM.	While there may be some barriers to DSR participating in the STEM directly as they cannot meet the bidding requirements, they may participate via the relevant retailers. There may be complexities and costs associated with facilitating direct DSR participation in the STEM. During consultation, it was concluded that there was limited demand for direct DSR participation, and that the benefits may not outweigh the complexities of implementation. Submissions were generally supportive of this outcome. AEMO noted that has not identified any barriers in the current market that would prevent DSR participation in the STEM.
Review outcome 8 No change will be made to DSP participation in the Real-Time Market.	Following discussions with the DSRRWG, EPWA considers that flexible loads are already provided with the opportunity to participate in the Real-Time Market, and DSPs are required to be available during the daytime hours. Further changes to the Real-Time Market to allow bidding by DSPs are likely to be complex and costly without significant benefits to justify such changes. Submissions were generally supportive of this outcome.

Review outcome 9 No change will be made to DSR participation in the Real-Time Market.	DSRRWG members acknowledged that scheduled loads are able to participate in the RTM but were also of the view that direct participation by DSR in the Real-Time Market is likely to have low uptake due to the costs and effort outweighing the benefits. It was also noted that the willingness to participate in the Real-Time Market may change over time or could appeal to hybrid facilities (such as a large load with on-site energy producing system). Submissions were generally supportive of this outcome. Some members of the DSRRWG proposed that DSR participation in the Real-Time Market needed to be encouraged or incentivised. However, customer awareness and education is outside the scope of the WEM Rules and this project.
Review outcome 10 A specific service to address the minimum demand issues in the SWIS will not be developed at this time.	DSRRWG members discussed the need for developing a standard service to address minimum demand in the context of AEMO having already triggered Non-Co-optimised Essential System Services (NCESS) twice to procure minimum demand services. While there was some support for this, it was ultimately concluded that it is best to see if the increasing penetration of ESR, the new flexible capacity product and the Real-Time Market pricing outcomes will address this issue in the medium-term. Submissions were generally supportive of this outcome. The DSRRWG discussed the idea of developing a standard service to address minimum demand, but concluded that in the medium term it is better to monitor the effects of increased levels of Electric Storage Resources, the new flexible capacity product and changes to the Real-Time Market.
Review Outcome 11 The size and potential technical limitations (such as the telemetry requirements) for providing ESS will be reviewed to ensure that there are no unnecessary barriers for the provision of ESS by technically capable DSR. This Review will occur through a separate project to be carried out by EPWA, which will assess the content of all WEM Procedures to assess whether there are any matters that are more appropriate to set out in the WEM Rules.	The DSR Review considered what technical limitations (such as the telemetry requirements) were appropriate for providing ESS services. Telemetry requirements must strike the right balance between ensuring AEMO has the minimum level of information it requires to achieve security and reliability objectives, whilst not imposing unnecessary costs on participants. For example, if information is not required in real time, such as for AEMO to be able to assess compliance and performance, data can be provided ex-post and avoid (or significantly reduce) the need for telemetry. Submissions were generally supportive of this outcome, noting the telemetry is a barrier to DSR participation. AEMO noted the need for data to allow it to assess performance and compliance, but noted this could be achieved through other means (e.g. high speed data recorders).

Review Outcome 12 No changes will be made to the ability of DSR to register as both an Interruptible Load and a DSP, and provide Contingency Reserve Raise services at the same time it receives capacity credits. However, methodology for the rotation of DSP dispatch will be developed and included in the WEM Rules.	Without a rotational method for DSP dispatch in the WEM Rules AEMO must determine which DSP to dispatch each time and on what basis. If a rotation method is included in the WEM Rules, the dispatch of DSP will be more equitable by preventing excessive dispatch of particular DSPs over time. Submissions were generally supportive of this outcome. One DSRRWG member expressed concern about a rotational method resulting in a loss of flexibility for AEMO. EPWA considers that, on the balance, a rotational method is more equitable and will not limit flexibility in emergency situations

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

Review of the Participation of Demand Side Response in the Wholesale Electricity Market

Information Paper

January 2024

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

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Executive Summary

The Demand Side Response Review

The Coordinator of Energy (Coordinator), in consultation with the Market Advisory Committee (MAC), has reviewed the participation of Demand Side Response (DSR) in the Wholesale Electricity Market (WEM) in Western Australia under clause 2.2D.1 of the WEM Rules (the DSR Review). This review focused on large-scale demand side response resources participating in the Wholesale Electricity Market (WEM). Distributed energy resources and the participation of aggregators is being progressed by another workstream within EPWA.

The purpose of this review was to ensure that DSR has adequate incentives to participate in the WEM and is compensated appropriately for the provision of its services.

DSR will play an important role in the WEM in the future, because of:

- the changes to the nature of the demand profile and the generation mix in the South West Interconnected System (SWIS) since the commencement of the WEM in 2006;
- the transition to a low emissions energy system characterised by increasing levels of intermittent and distributed generation; and
- the important flexibility / firming service DSR can provide in a market with ever increasing levels of intermittent and distributed generation.

The importance of DSR as a flexibility/firming resource in the WEM was also highlighted during the Reserve Capacity Mechanism (RCM) Review modelling work. Therefore, it is important to ensure that there are no barriers to the participation of DSR in the different WEM components.

The MAC constituted the DSR Review Working Group (DSRRWG) to support the DSR Review. More information on the DSR Review is available from the Energy Policy WA (EPWA) website[1], including

- the Scope of Work for the review;
- the Terms of Reference for the DSRRWG;
- papers and detailed minutes for all DSRRWG meetings and relevant MAC meetings;
- a Demand Side Response Review Consultation Paper; and
- all stakeholder submissions to the Consultation Paper.

[1] DSRRWG: https://www.wa.gov.au/government/document-collections/demand-side-response-review-working-group

MAC: https://www.wa.gov.au/government/document-collections/market-advisory-committee

Design Proposals and Rationale

Review Outcomes

Review Outcome	Rationale
Review Outcome 1 Transparency regarding constrained access connections should be provided and, to the extent practicable, constrained access loads should be integrated into the processes in the WEM rules. The WEM Rules will set out: • the requirements for Western Power to share information on constrained access loads with Australian Energy Market Operator (AEMO); and • the manner in which AEMO integrates constrained access loads in determining the Reserve Capacity Target and Network Access Quantities. Changes to the commercial and regulatory framework to set out the information that must be made available to a customer seeking to connect on a constrained basis will be developed by Energy Policy WA (EPWA) as a part of the process of transferring the content of the Access Code to the Electricity System and Market Rules following the passage of the Electricity Industry (Distributed Energy Resources) Amendment Bill. In the interim, EPWA will work with Western Power to ensure the relevant information is made available to potential constrained load customers on a more informal basis.	Constrained access connections for loads are becoming more commonplace. The disconnect between the constrained access connections framework and the WEM may have an impact on the overall efficiency of both the RCM and the Real-Time Market. Integrating this process in the WEM Rules will add certainty and transparency. It is important to consider these matters now, before constrained access connections increase, while striking the right level of transparency and integration. It is also important that parties seeking to connect a load on a constrained basis have visibility about the terms and conditions of their connection. Submissions were generally supportive of this outcome, with some suggesting that the framework for connection of new loads be modified. This is out of scope for this project. One other submission suggested a minimum size for constrained loads. Discussion at the Demand Side Response Review Working Group (DSRRWG) concluded that only larger loads are likely to be interested in negotiating access terms.

Review Outcome	Rationale
Review Outcome 2 The WEM Rules will be amended to clarify the circumstances in which a hybrid facility comprising a load and an ESR component will be required by AEMO to register as a Scheduled Facility, and when it will have the flexibility to choose between registering as a DSP or Scheduled Facility. This registration will apply to the entire facility, unless sub-metering is installed (see section **Error! Reference source not found.**).	A hybrid facility comprising a load and an Electric Storage Resource (ESR) component cannot register as both a DSP and as another facility type (e.g. a Scheduled Facility). Further, this hybrid facility may not have a choice whether to register as a DSP or a Scheduled Facility as AEMO may require it to register as a Scheduled Facility. If AEMO does require this, this hybrid facility can only receive capacity credits for its ESR component and not as a DSP. EPWA considers that the WEM Rules should be clear about the circumstances in which a hybrid facility will have flexibility and when it will be required by AEMO to register in a certain way. All submissions from DSR proponents supported this outcome. AEMO maintained its preference that a hybrid facility with an ESR component over 10MW should be required to register as a hybrid facility.

Review Outcome	Rationale
Review Outcome 3 More flexibility will be provided to hybrid facilities by enabling them the option to use Western Power installed sub-metering for the purpose of settlement in the STEM and the Real-Time Market, including the ESS markets. The WEM Rules will be amended to require Western Power to publish standard contract terms and costs for revenue sub-metering. This contract should clarify liabilities, roles and responsibility such that facilities can make an informed decision on the basis of cost and risk associated with these arrangements against the forecast benefits. Settlement rules will also be amended to provide for calculations for settlement when this type of sub-metering is present.	Providing hybrid facilities (capable of providing DSR) with the choice of what services they provide and with access to a variety of possible revenue streams has the potential to provide market wide benefits. With Western Power revenue quality metering on each component, it would be possible to use different components of a facility to provide different WEM services at the same time. This type of arrangement would allow each component to be operated and settled independently. However, revenue quality metering comes at a cost, so it should not be something operators of hybrid facilities are required to install if they do not wish to do so. Submissions were generally supportive of this outcome, with some suggesting that the complexities and costs needed further consideration. EPWA notes that sub-metering is entirely optional under this proposal, and that proponents would be free to determine whether the benefits outweigh the costs and complexities based on their individual circumstances. One submitter noted that EPWA should be looking at alternative lower cost options instead of Western Power metering. However, in order to comply with the *National Measurement Act 1960*, data from Western Power revenue grade metering must be used for settlement.

Review Outcome	Rationale
Review Outcome 4 DSP performance will be measured against a dynamic baseline. The dynamic baseline for DSR participation will be based on an ex-ante '10 of 10' methodology incorporating a 'day of adjustment'. A 20% cap will be placed on upward adjustment but downward adjustment will be uncapped. Weekends and days in which the DSP is dispatched will be excluded from the dynamic baseline calculation, however, the methodology will be adjusted on weekends and public holidays to be a '4 of 4' approach using the last 4 weekend days or public holidays. The dynamic baseline will apply for DSP dispatch compliance and reserve capacity testing. Ex-post examination of data to investigate any undesirable behavior will be provided for.	There was general support for the adoption of a dynamic baseline during the RCM Review as well as during the DSR Review. The RCM Review recommended that the performance of DSPs should be measured against a dynamic baseline, rather than the static baseline in the status quo[2]. The rationale for this outcome can be found in the Reserve Capacity Mechanism Review Information Papers (Stage 1) and (Stage 2). During the RCM Review, it was noted that the introduction of a dynamic baseline may increase the potential for gaming. This review outcome will assist to prevent gaming of the baseline. EPWA is recommending a '10 of 10' methodology for determining the dynamic baseline. A 10 of 10 methodology used by a number of electricity markets internationally, and also the Australian National Electricity Market. This approach has been determined to reasonably reflect a DSP's load available for curtailment, and of the options investigated best meets the principles set out in section 3.3, and in particular strikes the best balance between simplicity and accuracy. Submissions were generally supportive of this outcome. Some members of the DSRRWG suggested that there should be the ability for certain participants to request to have a different baseline applied to them, provided they could prove that it was statistically accurate.
Review outcome 5 No change will be made to DSR participation in the SRC mechanism.	A recent procurement of Supplementary Reserve Capacity (SRC) and subsequent review of this mechanism by the Coordinator of Energy indicates that the SRC framework already provides for the effective participation of DSR. Submissions were generally supportive of this outcome.

[2] Review Outcome 4, Reserve Capacity Mechanism Review Information Paper (Stage 1) and Consultation Paper (Stage 2), 3 May 2023.

Review Outcome	Rationale
Review Outcome 6 The Metering Code will be amended such that Western Power must share energy data to AEMO on request, to the extent necessary for AEMO to fulfil its functions in the WEM. AEMO will be required to keep the information that it receives confidential.	One of the issues raised in DSRRWG discussions was that Western Power is currently limited in the energy information it can provide to AEMO because of the confidentiality obligations in the *Electricity Industry (Metering) Code 2012* ("The Metering Code"). This issue was also raised in the recent SRC Review. During the SRC Review, EPWA identified that AEMO's ability to measure the performance of some of the services provided by DSR, for example in relation to demand response aggregations, was impeded by the current obligations. All submissions were supportive of this outcome.
Review outcome 7 No change will be made to DSR participation in the STEM.	While there may be some barriers to DSR participating in the STEM directly as they cannot meet the bidding requirements, they may participate via the relevant retailers. There may be complexities and costs associated with facilitating direct DSR participation in the STEM. During consultation, it was concluded that there was limited demand for direct DSR participation, and that the benefits may not outweigh the complexities of implementation. Submissions were generally supportive of this outcome. AEMO noted that has not identified any barriers in the current market that would prevent DSR participation in the STEM.
Review outcome 8 No change will be made to DSP participation in the Real-Time Market.	Following discussions with the DSRRWG, EPWA considers that flexible loads are already provided with the opportunity to participate in the Real-Time Market, and DSPs are required to be available during the daytime hours. Further changes to the Real-Time Market to allow bidding by DSPs are likely to be complex and costly without significant benefits to justify such changes. Submissions were generally supportive of this outcome.

Review Outcome	Rationale
Review outcome 9 No change will be made to DSR participation in the Real-Time Market.	DSRRWG members acknowledged that scheduled loads are able to participate in the RTM but were also of the view that direct participation by DSR in the Real-Time Market is likely to have low uptake due to the costs and effort outweighing the benefits. It was also noted that the willingness to participate in the Real-Time Market may change over time or could appeal to hybrid facilities (such as a large load with on-site energy producing system). Submissions were generally supportive of this outcome. Some members of the DSRRWG proposed that DSR participation in the Real-Time Market needed to be encouraged or incentivised. However, customer awareness and education is outside the scope of the WEM Rules and this project.
Review outcome 10 A specific service to address the minimum demand issues in the SWIS will not be developed at this time.	DSRRWG members discussed the need for developing a standard service to address minimum demand in the context of AEMO having already triggered Non-Co-optimised Essential System Services (NCESS) twice to procure minimum demand services. While there was some support for this, it was ultimately concluded that it is best to see if the increasing penetration of ESR, the new flexible capacity product and the Real-Time Market pricing outcomes will address this issue in the medium-term. Submissions were generally supportive of this outcome. The DSRRWG discussed the idea of developing a standard service to address minimum demand, but concluded that in the medium term it is better to monitor the effects of increased levels of Electric Storage Resources, the new flexible capacity product and changes to the Real-Time Market.

Review Outcome	Rationale
Review Outcome 11 The size and potential technical limitations (such as the telemetry requirements) for providing ESS will be reviewed to ensure that there are no unnecessary barriers for the provision of ESS by technically capable DSR. This Review will occur through a separate project to be carried out by EPWA, which will assess the content of all WEM Procedures to assess whether there are any matters that are more appropriate to set out in the WEM Rules.	The DSR Review considered what technical limitations (such as the telemetry requirements) were appropriate for providing ESS services. Telemetry requirements must strike the right balance between ensuring AEMO has the minimum level of information it requires to achieve security and reliability objectives, whilst not imposing unnecessary costs on participants. For example, if information is not required in real time, such as for AEMO to be able to assess compliance and performance, data can be provided ex-post and avoid (or significantly reduce) the need for telemetry. Submissions were generally supportive of this outcome, noting the telemetry is a barrier to DSR participation. AEMO noted the need for data to allow it to assess performance and compliance, but noted this could be achieved through other means (e.g. high speed data recorders).
Review Outcome 12 No changes will be made to the ability of DSR to register as both an Interruptible Load and a DSP, and provide Contingency Reserve Raise services at the same time it receives capacity credits. However, methodology for the rotation of DSP dispatch will be developed and included in the WEM Rules.	Without a rotational method for DSP dispatch in the WEM Rules AEMO must determine which DSP to dispatch each time and on what basis. If a rotation method is included in the WEM Rules, the dispatch of DSP will be more equitable by preventing excessive dispatch of particular DSPs over time. Submissions were generally supportive of this outcome. One DSRRWG member expressed concern about a rotational method resulting in a loss of flexibility for AEMO. EPWA considers that, on the balance, a rotational method is more equitable and will not limit flexibility in emergency situations

1. Introduction

Under Clause 2.2D.1(h) of the WEM Rules, the Coordinator of Energy (Coordinator) has the function 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, in consultation with the MAC, has reviewed the participation of Demand Side Response (DSR) in the WEM (the DSR Review).

2. Background

2.1 Current Participation of DSR in the WEM

Currently, DSR can participate directly in the WEM as:

- A Demand Side Programme (DSP) in the Reserve Capacity Mechanism (RCM);
- An Interruptible Load providing Contingency Raise services;
- A Scheduled Facility participating in the Real-Time Market for energy and/or Essential System Services (ESS); or
- Provider of Non-Co-Optimised Essential System Services (NCESS) or Supplementary Reserve Capacity (SRC) services.

Loads also participate indirectly in the WEM as they:

- pay for the consumption of energy through retail contracts; and
- pay for capacity based on their Individual Reserve Capacity Requirement (IRCR).

2.2 The Need for the DSR Review

DSR will play an increasingly important role in the WEM in the future because of the important flexibility and firming services it can provide in a market with ever increasing levels of intermittent and distributed generation. The importance of this has also been highlighted during the RCM Review modelling.

Therefore, it is important to ensure that there are no barriers to the participation of DSR in the different WEM components.

The purpose of this review is to ensure that DSR:

- faces no barriers and has adequate incentives for participation in the WEM;and; and
- is compensated appropriately for the provision of its services.

2.3 Guiding Principles

The guiding principles for the review of the participation of DSR in the WEM are that any recommendations should:

- meet the Wholesale Electricity Market Objectives;
- facilitate the orderly transition to a low greenhouse gas emissions energy system;
- be cost-effective, simple, flexible and sustainable;
- allocate risks to those who can best manage them;
- provide investment signals and technical capability signals that support the reliable and secure operation of the power system;
- ensure that the value of DSR can be maximised for the benefit of those who provide it and the WEM as a whole; and
- ensure that DSR is not under or over-compensated for its participation in any of the WEM components.

2.4 Scope of the Review

The Coordinator, in consultation with the MAC, set the following objectives for the DSR Review:

- identify the different ways DSR can participate across the different WEM components;
- identify and remove any disincentives or barriers to DSR participating across the different WEM components; and
- identify any potential for over- or under-compensation of DSR (including as part of hybrid facilities) as a result of its participation in the various market mechanisms and provision of Network Services (through NCESS).

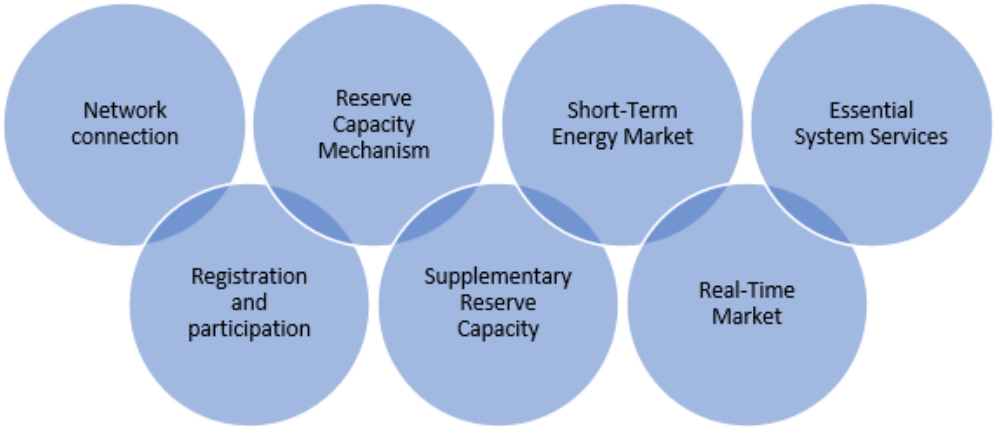
The following aspects related to the participation of DSR are out of scope for this review:

- certification of DSPs;
- treatment of IRCR; and
- DER (Distributed Energy Resources), also known as ‘behind the meter’ devices. The participation of DER is being addressed through other work underway in EPWA.

2.5 Purpose and Structure of this Paper

This paper presents the Review Outcomes for the DSR review, reflecting the analysis undertaken by EPWA and the input of stakeholders. This paper is for information only. It presents the Review Outcomes in all the WEM components as shown below.

Figure 1: Components of DSR participation considered in this Review



Appendix A provides a summary of the feedback on the DSR Review Consultation Paper and EPWA's responses to the feedback.

3. Review Outcomes

3.1 Constrained access for Loads

As a general principle, currently customers have unconstrained network access. More recently, some new customers connecting in congested parts of the network are being placed on 'runback schemes' by Western Power. These customers can have their consumption limited when the network is congested, and are referred to as 'constrained access loads'.

The number of new constrained access loads is expected to increase over time, as more regions are expected to become congested in the transition to a low carbon emissions system and as more customers pursue electrification.

While it is acknowledged that Western Power does share some information about constrained access loads to AEMO, there is no clarity about what must be provided across planning and operational timeframes. The disconnect between the constrained access connections framework and the WEM may have an impact on the overall efficiency of both the RCM and the Real-Time Market. Integrating this process in the WEM Rules will add certainty and transparency.

While there are many benefits to allowing loads to connect on a constrained basis, there are some issues with the operations of these schemes as they currently stand, including:

- Runback scheme connections currently lack transparency and are not fully integrated in the market. For example, the number, the demand and location of these constrained access loads is not transparent to the market.
- Effective integration into the market is also not currently provided for. For example:
  - the triggers for curtailment are not transparent to AEMO and the WEM; and
  - whether and how the effect of this curtailment is considered in system operation, or in the RCM/planning processes more generally, is not clear.

Proposal 1

The Consultation Paper[3] proposed that:

> *Transparency regarding constrained access connections should be provided for and, to the extent practicable, constrained access loads should be integrated into the processes in the WEM Rules.*
>
> *The WEM Rules should set out:*
>
> - *the requirements for Western Power to share information on constrained access loads with AEMO;*
> - *the manner in which AEMO integrates curtailable loads in determining the Reserve Capacity Target and Network Access Quantities; and*
> - *how curtailment of constrained access loads is considered in the Real-Time Market and constraint equations/optimisation processes.*

[3] Review of the Participation of Demand Side Response in the Wholesale Electricity Market, Consultation Paper, 21 September 2023 available here: https://www.wa.gov.au/government/document-collections/demand-side-response-review

Changes to the commercial and regulatory framework to set out the information that must be made available to a customer seeking to connect on a constrained basis will also be developed.

Submissions in response to the Consultation Paper were generally supportive of this proposal. Some submissions suggested reviewing and modifying the framework for the connection of new loads. This is out of scope for this Review, rather the intent is to ensure there is transparency for proponents who may wish to connect a load on a constrained basis about the terms and conditions of doing so.

One submission suggested that a minimum load size threshold should be implemented. This matter was discussed at the Demand Side Response Review Working Group (DSRRWG) meeting held on 29 November 2023, and some members considered it unnecessary as only larger loads would be likely to be interested in negotiating access terms.

With regard to real-time market integration, discussion at the DSSRWG indicated that all current constrained load connections are post-contingent[4]. In future, if there are pre-contingent constrained load arrangements these arrangements will need to be factored into limit advice and constraint equations to facilitate this and allow efficient operation of the Real-Time Market. Given this, and that the number of these arrangements at this time is relatively low, the WEM Rules will not be amended at this time to change the way that curtailment of constrained loads is considered in Real-Time Market operation.

Review Outcome 1

Transparency regarding constrained access connections will be provided and, to the extent practicable, constrained access loads should be integrated into the processes in the WEM rules. The WEM Rules will set out:

- the requirements for Western Power to share information on constrained access loads with Australian Energy Market Operator (AEMO); and
- the manner in which AEMO integrates constrained access loads in determining the Reserve Capacity Target and Network Access Quantities.

Changes to the commercial and regulatory framework to set out the information that must be made available to a customer seeking to connect on a constrained basis will be developed by Energy Policy WA (EPWA) as a part of the process of transferring the content of the Access Code to the Electricity System and Market Rules following the passage of the Electricity Industry (Distributed Energy Resources) Amendment Bill 2023. In the interim, EPWA will work with Western Power to ensure the relevant information is made available to potential constrained load customers on a more informal basis.

3.2 Registration and participation

3.2.1 Registration of hybrid facilities

A hybrid facility comprising a Load and an Electric Storage Resource (ESR) component cannot register as both a DSP and as another facility type (e.g. a Scheduled Facility). Furthermore, a hybrid facility with an ESR may not have the option to register as a DSP if AEMO requires it to register as a Scheduled Facility. A hybrid facility registered as a Scheduled Facility can only receive capacity credits for its ESR component and not for its DSR.

[4] With the exception of the Eastern Goldfields Load Permissive Scheme

Proposal 2

The consultation paper proposed that:

> *The WEM Rules should be amended to clarify the circumstances in which a hybrid facility comprising a load and an ESR component will be required by AEMO to register as a Scheduled Facility. The WEM Rules should also be clear whether there is any flexibility for the relevant market participant to register such a facility as a DSP and receive capacity credits accordingly.*

All submissions from DSR proponents supported the proposal and stated their preference for ensuring registration flexibility and allowing for the ability of a hybrid facility to register as a DSP.

AEMO maintained its preference that a hybrid facility with an ESR component over 10MW should be registered as a Scheduled Facility. EPWA notes that there may be circumstances where hybrid facilities with an ESR component connect in a constrained part of the network, and in these circumstances those facilities should have the option to register as a DSP.

Review Outcome 2

The WEM Rules will be amended to clarify the circumstances in which a hybrid facility comprising a load and an ESR component will be required by AEMO to register as a Scheduled Facility, and when it will have the flexibility to choose between registering as a DSP or Scheduled Facility.

This registration will apply to the entire facility, unless sub-metering is installed (see section **Error! Reference source not found.**).

3.2.2 Participation of hybrid facilities

Currently, the WEM considers a hybrid facility as a single facility for dispatch, as metering accuracy requirements mean that settlement can only be based on a measurement by a Western Power revenue quality meter.

Proposal 3

The consultation paper proposed that:

> *More flexibility should be provided to hybrid facilities by enabling them to use Western Power installed sub-metering for the purpose of participation and settlement in the STEM and the Real-Time Market, including the ESS markets.*

Submissions received were generally supportive of this proposal. However, some submissions suggested further consideration of practical matters such as technical feasibility, operational complexities and site access.

One submitter suggested sub-metering would be cost prohibitive and likely to increase barriers for DSR participation. EPWA notes that sub-metering is entirely optional under this proposal. Market participants will be free to determine whether sub-metering is commercially viable for them.

One submitter noted that EPWA should be looking at alternative lower cost options instead of Western Power metering. However, in order to comply with the *National Measurement Act 1960*, data from Western Power revenue grade metering must be used for settlement.

In its submission Western Power highlighted that practical considerations need to be taken into account. Western Power expanded on this during the DSRWG meeting held on 29 November 2023 noting that the following issues should be considered:

- physical access to the customer side of a meter and the condition of customer owned equipment;
- the need for a minimum safety standard for customer equipment; and
- additional liability and risk adding to Western Power costs.

Further consideration will be given to the complexities that may arise during the drafting of the relevant WEM Amending Rules, however EPWA considers that these are best managed through contractual arrangements between Western Power and its customers.

Review Outcome 3

More flexibility will be provided to hybrid facilities by enabling them the option to use Western Power installed sub-metering for the purpose of settlement in the STEM and the Real-Time Market, including the ESS markets.

The WEM Rules will be amended to require Western Power to publish standard contract terms and costs for revenue sub-metering. This contract should clarify liabilities, roles and responsibilities such that facilities can make an informed decision on the basis of cost and risk associated with these arrangements against the forecast benefits.

Settlement rules will also be amended to provide for calculations for settlement when this type of sub-metering is present.

3.3 Measuring the performance of DSPs in the Reserve Capacity Mechanism

Currently each DSP is allocated Certified Reserve Capacity based on its "Relevant Demand", which is the lower of:

- the aggregate IRCRs of its Associated Loads; and
- its historical 95% Probability of Exceedance consumption during the 200 intervals with the highest generation.

One of the Review Outcomes of the RCM Review was that the performance of DSPs should be measured against a dynamic baseline, rather than the static baseline in the status quo. The rationale for this outcome can be found in the Reserve Capacity Mechanism Review Information Papers (Stage 1)[5] and (Stage 2)[6].

Proposal 4

The consultation paper proposed that:

> *The dynamic baseline for DSR participation will be based on an ex-ante 'X of Y' methodology incorporating a 'day of adjustment'. A cap will be placed on upward adjustment but uncapped for downward adjustment.*
>
> *Ex-post mitigation through examination of data could still be followed to detect any undesirable behavior that is not being mitigated through ex-ante measures.*

Submissions were supportive of this proposal.

[5] epwa_reserve_capacity_mechanism_review_information_and_consultation_paper.pdf (www.wa.gov.au)

[6] https://www.wa.gov.au/system/files/2023-08/reserve_capacity_mechanism_review_-_information_paper_stage_2.pdf

Two submitters suggested a '10 of 10' approach and one submitter suggested a '5 of 10' approach.

This matter was further discussed at the DSRRWG meeting of 20 November 2023 in which members where generally supported the proposal. Some members suggested that there should be the ability for certain participants to request to have a different baseline applied to them, provided they could prove that it was statistically accurate. EPWA agrees that this is reasonable (in limited circumstances), and this will be addressed during the drafting of the relevant WEM Amending Rules.

EPWA developed the following principles to assist in determining the approach to the dynamic baseline.

- Minimise time and cost to implement.
- Allow for as wide participation as possible including aggregation of smaller loads.
- Align with the NEM as much as possible and practical.
- Closely reflect and predict the underlying load.
- Use a simple and understandable approach.
- Utilise a proven concept used by other markets.
- Ensure the approach is consistent with other aspects of DSP participation in the RCM.

A 10 of 10 approach is used in the CAISO, as well as the Australian NEM. Based on studies done by other jurisdictions, including in the NEM, a '10 of 10' approach closely reflects the underlying load and accounts for variation in demand profiles.

A summary of the proposed design, as it relates to business days is presented below in Table 2. The WEM Rules will also include methodology for weekends and public holidays that mirrors the approach in Table 2 below, however uses the 4 most recent weekends or public holidays to establish the baseline.

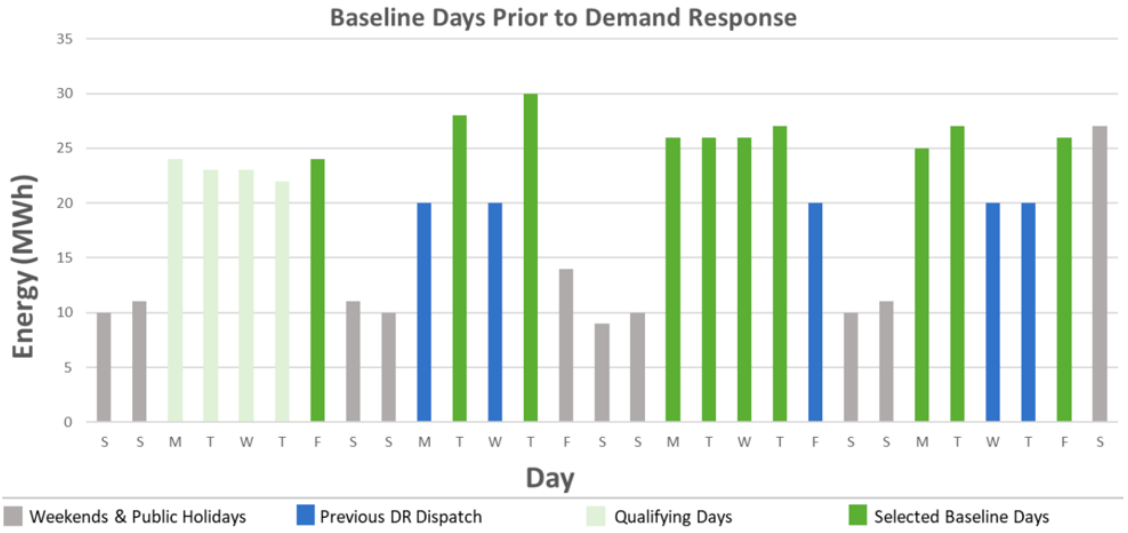
Table 2: Design summary of dynamic baseline

Design Element	Proposed Approach	
Baseline window	10 most recent eligible days	Data from all 10 of the 10 most recent eligible days will be used to create the baseline (see Figure 2 below for further information)
Exclusion rules	Exclude weekends, public holidays and DSR event days	Weekends, public holidays and DSR dispatch events will be ineligible, as these days do not best reflect the underlying demand on expected high demand days.
Calculation type	Average value	The baseline will be based on the average of load for each hour over the included days.
Adjustment window	2 hours looking back from the DSR dispatch notice	Following a DSR dispatch instruction the unadjusted dynamic baseline will be adjusted using demand data from two hours prior to the dispatch instruction. (see Figure 3 below for further information.
Baseline adjustments	Scalar	Adjustments to the baseline will be made (upwards or downwards) depending on the underlying load's consumption during the adjustment window. The dynamic baseline will be adjusted such that the adjusted baseline more closely equals the observed load immediately prior to the dispatch instruction.

		Adjustments upwards will be capped to 20% above the unadjusted dynamic baseline, and adjustments downwards will be uncapped. This adjusted baseline will be used for dispatch compliance assessment and Reserve Capacity testing.
Ex-post review	Allowed	The Economic Regulation Authority will be provided the ability to undertake an ex-post review of the dynamic baseline and be able to take appropriate action should they find evidence of gaming.

An example of how the baseline window for a business day would be determined is outlined in Figure 2 below. Weekends, public holidays and demand response dispatch days have been excluded from the calculation, and an average consumption for each hour would be calculated based on the consumption during the dark green days to create the dynamic baseline. Further consultation on which days should be excluded from the baseline window will be undertaken through the Exposure Draft of the relevant draft WEM Amending Rules.

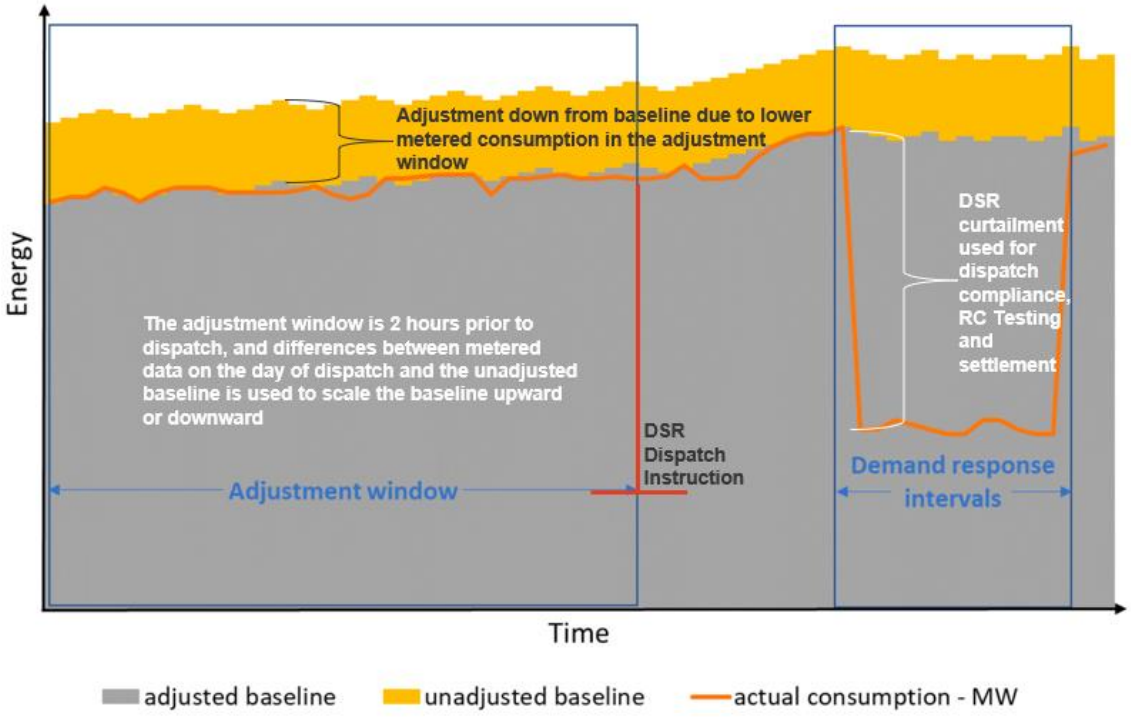
Figure 2: Worked example of baseline window determination for dynamic baseline



Source: AEMO Wholesale Demand Response: High Level Design

Figure 3 below demonstrates how the adjustment mechanism would work. In this example, metered consumption leading up to the dispatch instruction was lower than the baseline would indicate. The dynamic baseline is adjusted down by the same percentage and the demand response is measured from that baseline for the purposes of compliance, reserve capacity testing and settlement. This information will not be used in real time when a dispatch instruction is issued, and the dispatch instructions for DSPs will continue to be expressed as a quantity of curtailment.

Figure 3: Worked example of day-of adjustment for dynamic baseline



Source: AEMO Wholesale Demand Response: High Level Design

Review Outcome 4

DSP performance will be measured against a dynamic baseline. The dynamic baseline for DSR participation on business days will be based on an ex-ante '10 of 10' methodology incorporating a 'day of adjustment'. A 20% cap will be placed on upward adjustment but downward adjustment will be uncapped. Weekends and days in which the DSP is dispatched will be excluded from the dynamic baseline calculation, however the methodology will be adjusted on weekends and public holidays to be a '4 of 4' approach using the last 4 weekend days or public holidays.

The dynamic baseline will apply for DSP dispatch compliance and reserve capacity testing.

Ex-post examination of data to investigate any undesirable behaviour will be provided for.

3.4 Supplementary Reserve Capacity (SRC)

The SRC mechanism is a market mechanism which provides additional reserve capacity to the WEM in circumstances in which available reserve capacity is deemed insufficient to maintain system reliability.

Six months before the start of a capacity year AEMO can seek SRC if AEMO considers there will be inadequate reserve capacity. All services, including DSR, are eligible to participate if they satisfy the eligibility criteria.

Proposal 5

The consultation paper proposed that:

> *No change is made to the SRC mechanism, as the SRC framework already provides for the effective participation of DSR.*

Most submissions were generally supportive of the proposal.

One submission suggested that the SRC framework could be improved to increase DER participation. EPWA currently has a separate workstream that is reviewing and considering DER arrangements.

Another submission suggested that the performance of the SRC framework be reviewed after this hot season to assess DSR participation. EPWA notes that the Coordinator of Energy must review the SRC framework after each SRC tender process.

Review outcome 5

No change will be made to DSR participation in the SRC mechanism.

3.5 Amending the Metering Code

AEMO's ability to measure the performance of some SRC services based on DSR is impeded due to issues with metering data availability.

EPWA proposed to make amendments to the WEM Rules to require Western Power to provide AEMO with the metering information necessary for the performance measurement of SRC services based on DSR.

Proposal 6

The consultation paper proposed that:

> *The Electricity Industry (Metering) Code 2012 (Metering Code) be amended so Western Power must share metering data on request to AEMO, to the extent necessary for market purposes, and with AEMO keeping that information confidential.*

All submissions were supportive of this proposal.

AEMO's submission proposed changing the Metering Code to require Western Power to remove a meter from the deemed accumulation meter list, if requested by AEMO. EPWA notes that making this change now would be premature as there will be a separate project on the gradual reduction of the Notional Wholesale Meter that will be progressed in due course.

Review Outcome 6

The Metering Code will be amended such that Western Power must share energy data to AEMO on request, to the extent necessary for AEMO to fulfil its functions in the WEM. AEMO will be required to keep the information that it receives confidential.

3.6 Short Term Energy Market (STEM)

While DSR participation in the STEM is not explicitly prohibited, DSR may not able to comply with the STEM bidding requirements.

Proposal 7

The consultation paper proposed that:

> *Steps should be taken to remove impediments from the WEM Rules to allow direct participation by DSR in the STEM.*

Submissions were generally supportive of the proposal. However, AEMO noted that has not identified any barriers in the current market that would prevent DSR participation in the STEM.

This proposal was further discussed at the DSRRWG meeting held on 29 November 2023. It was highlighted that DSR could participate in the STEM via the relevant retailers, and there may be complexities and costs associated with facilitating direct DSR participation in the

STEM. It was concluded that there was limited demand for direct DSR participation, and that the benefits may not outweigh the complexities of implementation.

Review outcome 7

No change will be made to DSR participation in the STEM.

3.7 Real-Time Market

3.7.1 DSP participation

A DSP with capacity credits is required to be available for dispatch between 8am – 8pm on each day. AEMO issues Dispatch Instructions to a DSP if it reasonably considers that the dispatch of that DSP is required to restore or maintain Power System Security or Power System Reliability. Further changes to the Real-Time Market to allow bidding by DSPs are likely to be complex and costly without significant benefits to justify such changes.

Proposal 8

The consultation paper proposed that:

> *No changes be made to DSP participation in the Real-Time Market.*

All submissions responding to this proposal were supportive of this proposal.

Review outcome 8

No change will be made to DSP participation in the Real-Time Market.

3.7.2 DSR Participation

Loads that are not part of a DSP[7] have the option to participate in the Real-Time Market by registering as a Scheduled Facility. Scheduled Facilities can bid withdrawal quantities and prices into the Real-Time Market. Loads that want to participate in the Real-Time Market must weigh up the costs and risks with the potential benefits.

Proposal 9

The consultation paper proposed that:

> *No change is made to DSR participation in the Real-Time Market as the participation of flexible loads is already provided for.*

All submissions responding to this proposal were supportive of this proposal.

At the DSRRWG meeting on 29 November, some members put forward the view that DSR participation in the Real-Time Market needed to be encouraged or incentivised, and that retail contracts should better reflect market signals. Other members expressed a view that exposure to Real-Time Market pricing carries risk for large loads, and that there are better opportunities to participate through the RCM.

This review is concerned with impediments in the WEM Rules, and none have been identified. To the extent that any customer awareness or education is required to incentivise DSR participation, this is outside the scope of this Review.

[7] A load cannot be registered concurrently as both a DSP and as another Facility, apart from an Intermittent Load.

Review outcome 9

No change will be made to DSR participation in the Real-Time Market.

3.8 Provision of Market Services

3.8.1 Minimum demand service

An increasing challenge in the SWIS is that the minimum operational demand is falling as inverter-based generation (i.e rooftop PV generation) increases. In response, EPWA is coordinating and leading the Low Load Project[8]. This project is to ensure appropriate mechanisms are in place to manage the reducing minimum demand on the SWIS. However, consideration was given through this Review to whether any adjustments to the market mechanisms could or should be made to create a market service that can respond to low demand.

Proposal 10

The consultation paper proposed that:

> *No changes be made for a specific service to address the minimum demand issues in the SWIS at this time.*

All submissions were generally supportive of the proposal.

One submitter recommended that households and small businesses be directly incentivised to address minimum demand, instead of doing so through a market solution. EPWA notes that DER participation is addressed in a separate EPWA workstream.

The DSRRWG discussed the idea of developing a standard service to address minimum demand in the context of AEMO having already triggered NCESS twice to procure minimum demand services. While there was some support for this, the working group concluded that in the medium-term, it is better to monitor the effects of increasing penetration of ESR, the new flexible capacity product and Real-Time Market pricing. If those developments have sufficient effect on minimum demand, a new product may not be necessary.

Review outcome 10

A specific service to address the minimum demand issues in the SWIS will not be developed at this time.

3.8.2 Ability to participate in Frequency Co-optimised Essential System Services (FCESS)

During the review it was highlighted that technical limitations placed on ESS providers, such a size and telemetry requirements, may be limiting participation of DSR.

Proposal 11

The consultation paper proposed that:

[8] https://www.wa.gov.au/system/files/2022-08/EPWA-SWIS%20Low%20Demand%20Project%20Stage%201.pdf

> *The size and potential technical limitations (such as the telemetry requirements) for providing ESS should be reviewed to ensure that there no unnecessary barriers for the provision of ESS by technically capable DSR.*

Submissions were generally supportive of this proposal.

Two submissions noted that that telemetry is an unnecessary barrier for DSR participation.

One submission commented on the specific technical limitations placed on DSR providing FCESS. This submission suggested that the FCESS requirement for loads to respond within 400ms is a barrier to participation and instead proposed a scaled approach.

At the DSRRWG meeting held on 29 November 2023, AEMO addressed this specific procedure requirement noting that AEMO is amending the accreditation requirements to allow for a slower response time (with compensation adjusted according to speed factor).

At this meeting, AEMO noted its need for data that will allow it to assess performance and compliance. While this does not require real-time telemetry, it does require data to be captured that can confirm that a service has been delivered. This could be, for example, through high-speed data recorders.

Review Outcome 11

The size and potential technical limitations (such as the telemetry requirements) for providing ESS will be reviewed to ensure that there are no unnecessary barriers for the provision of ESS by technically capable DSR. This Review will occur through a separate project to be carried out by Energy Policy WA, which will assess the content of all WEM Procedures to assess whether there are any matters that are more appropriate to set out in the WEM Rules.

3.8.3 DSPs providing Contingency Reserve Raise services

Currently, a DSP can also register as an Interruptible Load and be accredited to provide Contingency Reserve Raise services. Consideration was given to the interaction between its obligations in the provision of each market service.

Proposal 12

The consultation paper proposed that:

> *No changes are proposed to be made to the ability of DSR to register as both an Interruptible Load and a DSP, and provide Contingency Reserve Raise services at the same time it receives capacity credits. However, methodology for the rotation of DSP dispatch will be developed.*

Submissions were generally supportive of this proposal.

This issue was discussed at the DSRRWG meeting held on 29 November 2023. One stakeholder expressed a concern that having a method for rotation of DSPs might result in a loss of flexibility and worse outcomes for the market. While this might reduce flexibility, without it there is no guidance for AEMO on what basis to rotate DSPs. A rotation method will ensure dispatch during normal operating conditions is more equitable, and would not limit AEMO's ability to issue directions in an emergency situation.

Review Outcome 12

No changes will be made to the ability of DSR to register as both an Interruptible Load and a DSP, and provide Contingency Reserve Raise services at the same time it receives capacity credits. However, methodology for the rotation of DSP dispatch will be developed and included in the WEM Rules

Appendix A. Responses to the consultation paper

Stakeholder	Stakeholder Feedback	EPWA's Response
Proposal 1: Transparency regarding constrained access connections should be provided for and, to the extent practicable, constrained access loads should be integrated into the processes in the WEM rules.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Synergy • Expert Consumer Panel • Western Power • Newmont		
AEMO	AEMO supports the broad proposal for defining the parameters for the connection of constrained access loads under the WEM Rules. In progressing the detail, AEMO requests consideration is given to ensure that the WEM Rules empower AEMO to obtain the relevant data from Western Power and to use this in relevant market processes (e.g., the Reserve Capacity Mechanism and PASA processes).	EPWA agrees that the WEM Rules should provide for AEMO to obtain the relevant data from Western Power and to use this in the relevant market processes (e.g., the Reserve Capacity Mechanism and PASA processes). Provisions to achieve this will be included in the relevant WEM Amending Rules.
Expert Consumer Panel	Consideration should be given to Western Power introducing a streamlined and transparent process for loads to connect to constrained parts of the network, potentially including standard constrained-load-connection contracts, to assist load proponents to understand the implications and connect. The Expert Consumer Panel recognises that in some cases, terms and conditions applicable to connection are likely to be specific to the constrained network location and so result in bespoke connection contracts. This may limit the extent of standardisation possible.	EPWA agrees that a streamlined and transparent process for loads to connect to constrained parts of the network should be introduced, potentially including standard constrained access contracts, to assist connection applicants to understand the implications.

Stakeholder	Stakeholder Feedback	EPWA's Response
Synergy	Synergy considers the review of the changes required to the commercial and regulatory framework should also carefully consider the changes required to the access regime. The review should adopt a similar approach to that taken when the Electricity Network Access Code 2004 (ENAC) was amended to support the operation of security constrained economic dispatch in relation to entry covered services, for the export of electricity into the network (generation).	Changes to the commercial and regulatory framework to set out the information that must be made available to a customer seeking to connect a load on a constrained basis will be developed by Energy Policy WA (EPWA) as a part of the process of transferring the content of the Access Code to the Electricity System and Market Rules following the passage of the Electricity Industry (Distributed Energy Resources) Amendment Bill 2023. In the interim, EPWA expects that Western Power will ensure the relevant information is made available to potential applicants seeking to connect a load on a constrained access basis.
Newmont	A minimum load size or aggregation size should be determined for inclusion.	EPWA considered this suggestion and it was discussed further with the DSRRWG. Ultimately, it was agreed that only larger loads would seek to negotiate a connection on a constrained access basis and thus, a minimum size threshold is not required.
Proposal 2: The WEM Rules should be amended to clarify the circumstances in which a hybrid facility comprising a load and an ESR component will be required by AEMO to register as a Scheduled Facility. The WEM Rules should also be clear whether there is any flexibility for the relevant market participant to register such a facility as a DSP and receive capacity credits accordingly.		
The following stakeholders indicated that they 'support' or generally support the proposal: • Enel X • Expert Consumer Panel • Synergy		

Stakeholder	Stakeholder Feedback	EPWA's Response
AEMO	AEMO considers that it is essential for AEMO to retain the ability to decide, based on power system security and reliability requirements, that a hybrid Facility (comprising of a Load and an Electric Storage Resource) must register as a Scheduled Facility. AEMO considers that operability (i.e., dispatchability and response measurement) should form part of registration requirements.	The WEM Rules will be amended to clarify the circumstances in which a hybrid facility comprising a load and an ESR component will be required by AEMO to register as a Scheduled Facility, and when it will have the flexibility to choose between registering as a DSP or Scheduled Facility. This registration will apply to the entire facility, unless sub-metering is installed.
Proposal 3: More flexibility should be provided to hybrid facilities that are registered in the WEM by enabling them to use Western Power installed sub- metering for the purpose of settlement in the STEM and the Real-Time Market, including the ESS markets.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Newmont • Enel X • Shell Energy • Expert Consumer Panel • Western Power		

Stakeholder	Stakeholder Feedback	EPWA's Response
Expert Consumer Panel	The Expert Consumer Panel notes that under this proposal, the metering would still need to be Western Power's approved, revenue-grade technology. The Expert Consumer Panel note that measurement technology is developing quickly, and new lower cost, but nevertheless accurate, metering technologies are emerging. Western Australia must ensure that the market rules keep up to date with these developments, engaging with national measurement bodies where necessary, because metering costs have traditionally been seen as a material barrier to demand side response.	EPWA understands that there are costs associated with installing Western Power meters. However, EPWA is limited by the national legal framework as to what kinds of meters can be used for settlement purposes. More flexibility will be provided to hybrid facilities by enabling them the option to use Western Power installed sub-metering for the purpose of settlement in the STEM and the Real-Time Market, including the ESS markets. The WEM Rules will be amended to require Western Power to publish standard contract terms and costs for revenue sub-metering. This contract should clarify liabilities, roles and responsibilities such that facilities can make an informed decision on the basis of cost and risk associated with these arrangements against the forecast benefits. Settlement rules will also be amended to provide for calculations for settlement when this type of sub-metering is present.
Shell Energy	Shell Energy recognises the importance of and broadly supports metering accuracy. However, at this stage Shell sees the proposal for installation of settlement grade sub-meters for hybrid facilities as cost prohibitive and likely to increase barriers to entry for DSR participants.	This arrangement is entirely optional and the decision to install a sub-meter is entirely up to the Market Participant to make.

Stakeholder	Stakeholder Feedback	EPWA's Response
Proposal 4: The dynamic baseline for DSR participation will be based on an ex-ante 'X of Y' methodology incorporating a 'day of adjustment'. A cap will be placed on upward adjustment but uncapped for downward adjustment. Ex-post mitigation through examination of data could still be followed to detect any undesirable behavior that is not being mitigated through ex-ante measures.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Enel X • Expert Consumer Panel • Newmont • Shell Energy		
AEMO	AEMO supports the proposal and suggests the use of the 10 of 10 methodology – for alignment with the Wholesale Demand Response and Reliability and Emergency Reserve Trader mechanisms in the National Electricity Market. AEMO is also open to variations which may result in better outcomes or reduced opportunity for gaming. AEMO further notes that consideration should be given to how the Y days are selected. For example, whether it includes weekdays only; weekdays/weekends depending on the day of dispatch; no distinction; whether public holidays are included; and whether Market Participants be allowed to request specific days be excluded (on the basis maintenance activities).	DSP performance will be measured against a dynamic baseline. The dynamic baseline for DSR participation will be based on a '10 of 10' methodology. Ex-post examination of data to investigate any undesirable behaviour will be provided for.
Enel X	A CAISO 10 of 10 methodology, where all 10 of the 10 most recent eligible days are used in the baseline calculation, is a sensible starting point. A 10/10 baseline will also take into account any load curtailment done by the customer for the purposes of reducing its IRCR. Under a 10/10 baseline, all the previous 10 eligible days are included in the baseline calculation. Where a customer has curtailed load for the purposes of IRCR within that 10-day period, the customer's raw baseline and thus the value that it can receive through the RCM will be reduced.	Data from all 10 of the 10 most recent eligible days will be used to create the baseline.

Stakeholder	Stakeholder Feedback	EPWA's Response
Newmont	Newmont agrees that an ex-ante "X of Y" methodology should be used with adjustments for periods when loads are reduced for maintenance or suspended operations differing from their normal operating levels.	The dynamic baseline for DSR participation will be based on an ex-ante '10 of 10' methodology incorporating a 'day of adjustment'. A 20% cap will be placed on upward adjustment but downward adjustment will be uncapped.
Shell Energy	Shell Energy favours the baseline adopted in the NYISO market using the 5 of 10 baseline with the average of the 5 highest kWh days out of the 10 most recent weekdays. Shell Energy suggests that if this baseline methodology is adopted, there be flexibility applied to the definition of "day" so that the method could differentiate between trading days, weekdays and weekend days.	A 10 of 10 methodology will be adopted. EPWA considers a 10 of 10 baseline would better reflect the underlying demand, whereas a 5 of 10 baseline using the 5 highest demand days tends to result in a higher baseline value. EPWA also supports the suggestion that certain days should be excluded from the calculation of the baseline as they do not accurately reflect the underlying load on likely DSR dispatch days. Weekends, public holidays and DSR dispatch events will be ineligible, as these days do not best reflect the underlying demand on expected high demand days.
Proposal 5: No change to the SRC mechanism is proposed, as the SRC framework already provides for the effective participation of DSR.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Enel X • Expert Consumer Panel • Newmont		

Stakeholder	Stakeholder Feedback	EPWA's Response
Shell Energy	Shell Energy does not necessarily agree that the SRC framework already provides for effective DSR participation, as there have not been enough instances to demonstrate this. In practice, the competing markets (SRC, RCM, WEM) increase the amount of value available to participants. Whilst it may be more cost effective and efficient for DSR services to only participate in the WEM during this period, due to the notable increase in demand and forecast shortfall of capacity in the coming years, Shell notes SRC is necessary to ensure reliability and stability of the SWIS. Shell considers that effective participation relies on a more flexible mechanism and suggests that if a review is triggered following this hot season, the 20% cap could be lifted or removal of the 10/10 days would further incentivise participation in the SRC mechanism.	EPWA notes these comments. The WEM Rules require the SRC framework to be reviewed after each SRC tender process, and the learnings from the most recent SRC process will inform the next review.
Synergy	Synergy considers that improvements can be made to assist with increased participation DSR containing DER assets.	EPWA notes this comment. A separate EPWA project is focused on the integration of DER in the WEM. This comment will be considered by the DER Roadmap project.
Proposal 6: Amend the Electricity Industry (Metering) Code 2012 (Metering Code) so Western Power must share metering data on request to AEMO, to the extent necessary for market purposes, and with AEMO keeping that information confidential.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Synergy • Expert Consumer Panel • Western Power • Newmont		
AEMO	AEMO proposes that EPWA considers amending section 3.2 of the Metering Code, to require Western Power to remove a meter from the deemed accumulation meter list if requested by AEMO. This will enable the metering data requested by AEMO to be shared in an operationally efficient manner.	EPWA notes this comment and considers that making this change now would be premature as there will be a separate project on the reduction of the Notional Wholesale Meter that will be progressed in due course.

Stakeholder	Stakeholder Feedback	EPWA's Response
Western Power	The Metering Code currently limits Western Power's ability to provide AEMO with meter readings for some of the relevant NMIs to protect customer confidentiality. As such, there is a need to align requirements on Western Power to provide the information to AEMO.	Noted.
Proposal 7: Take steps to remove impediments from the WEM Rules to allow direct participation by DSR in the STEM.		
The following stakeholders indicated that they 'support' or generally support the proposal: • Enel X • Expert Consumer Panel • Newmont		
AEMO	AEMO has not identified any barriers in the current market that would prevent DSR participation in the STEM. Participation in the STEM is on a participant level, not Facility, and is on the basis of registration and not technology (i.e. a participant with a registered DSP or Intermittent Load can already participate in the STEM).	EPWA notes this comment. After further discussion with the DSRRWG, EPWA is no longer proposing any changes to the STEM. DSR could participate in the STEM via the relevant retailers, and there may be complexities and costs associated with facilitating direct DSR participation in the STEM. There is limited demand for direct DSR participation, and the benefits may not outweigh the complexities of implementation.
Synergy	Synergy seeks to understand expected costs and benefits associated with this proposal, and considers that there is likely to be limited uptake of DSR participation in the STEM.	See comment above.

Stakeholder	Stakeholder Feedback	EPWA's Response
Proposal 8: No changes are proposed to DSP participation in the Real-Time Market.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Expert Consumer Panel • Enel X • Newmont		
Proposal 9: No change is proposed to DSR participation in the Real-Time Market as the participation of flexible loads is already provided for.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Expert Consumer Panel • Enel X • Newmont • Synergy		
Proposal 10: No changes are proposed to be made for a specific service to address the minimum demand issues in the SWIS at this time.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Expert Consumer Panel • Newmont		
AGL	We consider that the planned introduction of electricity storage systems, along with increased underlying electricity demand, justifies no changes being made as is proposed. However, AGL suggests that this should be reviewed at some agreed date, maybe two years' time, to ensure that the situation is monitored before any system issues arise.	Noted. Following discussion with the DSRRWG, EPWA considers that in the medium-term, it is better to monitor the effects of increasing penetration of ESR, the new flexible capacity product and Real-Time Market pricing. If those developments have sufficient effect on minimum demand, a new product may not be necessary.

Stakeholder	Stakeholder Feedback	EPWA's Response
Expert Consumer Panel	Households and small businesses could also be incentivised to help address the challenge by upgrading their electric storage hot water systems to heat in the middle of the day, and enlisting behind-the-meter batteries and electric vehicles in appropriate programs. Larger (business) behind-the-meter PV systems could also be managed to be temporarily turned off during the middle of low system demand days (not preferred); while other flexible loads, such as those mentioned in the consultation paper (page 21), could be set up to turn on in the middle of the day. The Expert Consumer Panel also see an opportunity to engage more effectively with the public around ways they can support system security at the times of the year when the risk posed by minimum demand is greatest. There is now significant research, and experience in Western Australia and other jurisdictions, that shows that the public is willing and able to make a contribution to these challenges when they are engaged the right way.	EPWA notes this comment. A separate EPWA project is focused on the integration of DER in the WEM. This comment will be considered by the DER Roadmap project.
Proposal 11: The size and potential technical limitations (such as the telemetry requirements) for providing ESS should be reviewed to ensure that there are no unnecessary barriers for the provision of ESS by technically capable DSR.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Newmont • Enel X • Synergy • Expert Consumer Panel		

Stakeholder	Stakeholder Feedback	EPWA's Response
Enel X	Enel X has identified two barriers to the participation of DSR in the ESS markets: 1. The current FCESS framework requires loads to respond within 400ms. If they cannot respond within this timeframe, they are ineligible to participate in the contingency FCESS market. While a fair proportion of loads can respond within 400ms, this is quite strict and thus rules out many others. Enel X proposes a scaled approach, similar to that which Enel X understands applies to generator/ battery providers of contingency FCESS – that is, you can receive full value if you can respond within 400ms, and less for slower responses, but while still being able to participate in the market. 2. The current FCESS framework applies real time telemetry obligations to an aggregation of loads providing contingency FCESS. Enel X do not believe that real time telemetry should be a requirement for participation in the contingency FCESS markets. Real time telemetry is not required for the NEM's contingency FCAS markets or NZ's interruptible load market. Enel X proposes that AEMO remove telemetry obligations for contingency FCESS providers, or alternatively look at supporting low cost ways for providers to share key information with AEMO.	EPWA understands that AEMO is currently developing responses to both of these issues, and AEMO intends to update the WEM Procedure in response to these concerns and remove any barriers that are not necessary. AEMO is amending the accreditation requirements to allow for a slower response time (with compensation adjusted according to speed factor).
Proposal 12: No changes are proposed to be made to the ability of DSR to register as both an Interruptible Load and a DSP, and provide Contingency Reserve Raise services at the same time it receives capacity credits. However, methodology for the rotation of DSP dispatch will be developed.		
The following stakeholders indicated that they 'support' or generally support the proposal: • AEMO • Newmont • Enel X • Synergy • Expert Consumer Panel		

Stakeholder	Stakeholder Feedback	EPWA's Response
AEMO	AEMO considers that the methodology for "rotation" of DSP dispatch should not be formally defined, but if it is to be formally defined then it should be specified in a WEM Procedure rather than the WEM Rules. This should allow sufficient flexibility to account for power system security and reliability conditions on the system at the time of dispatch.	While a rotation methodology for DSP dispatch might reduce flexibility, without it there is no guidance for AEMO on what basis to rotate DSPs. A rotation method will ensure dispatch during normal operating conditions is more equitable, and would not limit AEMO's ability to issue directions in an emergency situation.

Minutes

Meeting Title:	Demand Side Response Review Working Group (DSRRWG)
Date:	29 November 2023
Time:	9:30 AM to 11:30 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	(Chair) EPWA	
Tom Butler	AEMO	
Toby Price	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	
Mike Thomas	Lantau Group, Consultant	
Tessa Liddelow	Shell Energy	
Graeme Ross	Simcoa Operations	
George Martin	Starling Energy	
Chris Alexander	Small-Use Consumer Representative	Left at 11:06am
Noel Schubert	Small-Use Consumer Representative	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Rhiannon Bedola	Synergy	
Apologies	**From**	**Comment**
Mitch O'Neill	Grids	
Wayne Trumble	Newmont Mining	
Dimitri Lorenzo	Bluewaters Power	Not in attendance
Jake Flynn	Collgar Wind Farm	Not in attendance
Oscar Carlberg	Alinta Energy	Not in attendance
Michael Zammit	Integrated Management Services	Not in attendance

Item	Subject
1	**Welcome** The Chair opened the meeting at 9:30 AM
2	**Meeting Apologies/Attendance**
3	**Competition Law Statement**
4	**Minutes**
5	**Action Items**
6a	**Consultation Paper submissions summary** The Chair noted that: • there would be one further working group meeting to discuss the draft Exposure Draft of the WEM Amending Rules implementing the outcomes of this review; and • an information paper on the outcomes of the review will be published in early 2024. <u>Proposal 1 – Transparency regarding constrained access connections should be provided for and, to the extent practicable, constrained access loads should be integrated into processes in the WEM Rules:</u> The Chair noted the responses, questions and clarifications as per Slide 4. She noted that there is one constrained access loads scheme operating in the Goldfields but with networks being increasingly constrained more loads may opt into these arrangements as they allow for cheaper and quicker network connection. The Chair invited discussion on a minimum load size for this proposal. • Mr Butler noted that a load with constrained access would not be small. The Chair agreed and noted that it may not be necessary to set a minimum size. • Mr Price noted that there is an obligation for Western Power to connect new loads below a certain size, and that above that threshold there could be an obligation to pay for network augmentation to connect. This level could be used as the threshold for this proposal. The Chair asked whether that threshold would also capture some domestic PV installations. • Mr Price responded that his recollection was the threshold is 6MVA/6MW. • Mr Schubert and Mr Butler agreed that there was a threshold where network connection goes from guaranteed to negotiated. The Chair asked if someone from Western Power could confirm the threshold. • Ms Kogon stated she would follow up within Western Power's team whether such a threshold exists. The Chair noted that the proposal is concerned with both but asked Ms Kogon to advise whether the threshold distinguishes between transmission and distribution. **Action: Western Power to confirm whether there is a size threshold above which new loads are required to contribute to network augmentation, what the threshold is and whether that threshold distinguishes between transmission and distribution.** • Mr Butler noted that in the future dynamic operating envelopes would be part of the framework for constrained access for smaller loads. The Chair agreed but noted that the discussion is about larger loads which may have commercial arrangements and negotiated network access terms.

Item	Subject

- Mr Schubert noted that a threshold may not be needed as only larger loads would agree to constrained access arrangements.

The Chair noted that AEMO suggested the WEM Rules should empower them to obtain relevant data from Western Power about constrained loads. The Chair invited comments from members about whether there should be explicit provisions to allow for this, noting similar arrangements exist in other parts of the Rules.

- Ms Kogon stated Western Power does have an obligation to provide information related to system security and reliability as part of operational processes, and queried whether that needs to be explicitly codified in the Rules.

The Chair clarified that the question is about how much is prescribed in the WEM Rules about data sharing with regard to constrained loads, and whether AEMO should be able to request more than what is prescribed.

- Mr Schubert noted that in real time AEMO may want to know if material loads (or aggregations of small loads) are being constrained.

The Chair noted that this would be visible through constraint equations.

- Mr Price responded that there were two timeframes to consider:
    - Ex ante provision of information about constrained access loads that would flow into AEMO's planning (particularly the Electricity Statement of Opportunities (ESOO)).
    - Visibility to AEMO and the broader market of loads being constrained during dispatch.

The Chair asked if there would be constraint equations for larger loads that are curtailed.

- Mr Price said there are already loads included in constraint equations. The question is how, in WEMDE, a runback scheme would be implemented to allow visibility and management of loads through the market rather than a contract by Western Power.
- Ms Kogon stated that:
    - All Western Power's runback schemes apart from ELPS are post-contingent.
    - When the contingency occurs, Western Power informs AEMO about the forced outage. That is covered by the Control Room documentation.
    - For the Eastern Goldfields Load Permissive Scheme Western Power provides SCADA data.

The Chair noted that future schemes may be pre-contingent and there will need to be a constraint equation or similar to facilitate this. Transparency must be provided to market participants as the operation of this could influence market outcomes.

The Chair stated that EPWA will draft rules for future discussion.

- Mr Butler noted that better information sharing will enable Western Power to take action when it needs to.
- Ms Kogon noted that information is already provided to AEMO, that providing this to other participants would be additional.

The Chair noted that information is provided ex-post. The outstanding questions are:

- Whether AEMO needs to have ex-ante information about runback schemes or similar arrangements.
- Whether AEMO needs to know closer to real-time that a load will be curtailed, and whether this can be done through constraint equations.
- How transparency for the rest of the market is provided when a load is curtailed.

Proposal 2 – Clarifying circumstances in which a hybrid facility comprising a load and electric storage resource (ESR) component must register as a Scheduled Facility:

The Chair noted the responses, questions and clarifications as per Slide 5 and noted that the WEM Rules have guidance on how ESR is treated in other circumstances, with AEMO having discretion about registration facility type.

The Chair asked whether the rules should provide flexibility if the load is larger than the ESR component.

- Mr Butler clarified AEMO's submission related only to facilities over 10MW that are categorised as scheduled, not to smaller hybrid facilities.
- Mr Butler stated that AEMO is unsure why hybrid facilities should be treated differently to other facilities.

The Chair stated that the proposal is to allow a participant the choice whether to register as a DSP or Scheduled Facility for the purpose of receiving capacity credits. If a facility is a scheduled facility, the component that can have capacity credits is the ESR component, not the load.

- Mr Price responded that a facility can manage its IRCR exposure in addition to receiving capacity credits for the amount it can inject net of its load.

The Chair noted there is a specific prohibition against doing that using ESR which has capacity credits.

The Chair noted that a load can have a diesel generator to reduce its withdrawal and get capacity credits for that as a DSP, and that the same should apply for a load and ESR.

- Mr Price responded that a facility cannot currently have over 10MW with a diesel generator without being registered as an intermittent load.
- Ms Bedola said there are two issues that need to be understood:
    - If a load can reduce on its own, with the ESR providing a separate response, why can't both components get capacity credits (with appropriate submetering)?
    - Regarding the obligations of a scheduled facility that is comprised of a load and ESR – does the ESR need to smooth the load to meet the requirements of a scheduled facility?

The Chair said that those questions are answered by the fact that a facility currently cannot be registered as both a DSP and a Scheduled Facility (or any other facility type).

- Mr Schubert suggested going back to first principles and deciding which arrangements will provide the best value for customers and for the system.

The Chair stated that allowing a Scheduled Facility and DSP to co-exist could require significant changes to the rules, but allowing a choice to participants may be simpler.

- Mr Schubert suggested a negotiated outcome with AEMO would achieve a better outcome for both AEMO and the participant.
- Mr Price stated that:
    - If a participant is installing a large ESR component that there is a benefit for both AEMO and the participant in unlocking as many services and as much visibility as possible.
    - If a 100MW battery was installed but does not interact with the market, there may be a risk due to the potential swing in demand with no recognition of that in SCED.

The Chair noted that an ESR might be installed in a part of the network where export is limited but it could provide demand side response by reducing the load. This facility should be allowed to register as a DSP. EPWA proposes to draft a rule to allow for that flexibility.

- Mr Price stated AEMO are happy to consider the rule drafting.

Item	Subject

Proposal 3 – Use of Western Power sub-metering in the STEM and RTM by hybrid facilities:

The Chair noted the responses, questions and clarifications as per Slide 6. She added that this would be optional, and that other low-cost options won't be compliant with national legislation if the meters are used for settlement purposes.

The Chair asked for feedback on the complexities that may arise from this proposal.

- Ms Kogon noted the following complexities:
  - physical access to the customer side of a meter and the condition of customer owned equipment were both issues to consider.
  - Western Power will likely need to define a minimum safety standard for customer equipment, which would need to be upgraded at the customer's expense if it is not up to standard.
  - Western Power needs to raise awareness about minimum safety standards and enforce those requirements, increasing liability and risks which could add to Western Power's costs.
  - Western Power's existing processes and systems will need to be refreshed to accommodate these changes.

The Chair cited independent connection providers in the United Kingdom to demonstrate similar arrangements had been implemented elsewhere in the world.

The Chair asked Ms Kogon whether the complexities could be solved by contractual arrangements.

- Ms Kogon said that was a legal question regarding Western Power's compliance with state and national legislation.
- Mr Schubert said that a cooperative approach between Western Power and a network customer could address most of Ms Kogon's concerns and would be simpler than a WEM Rules based approach.
- Mr Price noted the need for some limitations – if this was offered to any hybrid facility, there would be some consequent management of matters such as loss factors, definition of a connection point, limitations on multiple market participants owning facilities behind a single connection point, management of outages and constraint equations. AEMO is supportive of enabling the most flexibility for each component, and there is an appetite for this, but that analysis is required to support this.
- Ms Kogon agreed a cooperative approach was appropriate but noted that, to address the risk, the redefined role and responsibilities of Western Power and market participants/customers needed to be reflected somewhere, whether that is in a contract, agreement, rules or regulations.

The Chair noted that there will need to be calculations in the rules to manage the submetering arrangements, as those that exist for the City of Kambalda, and that this is expected to only be applicable for hybrid facilities with a load.

- Mr Price noted there is an appetite for non-load hybrids wanting to split their facility behind an existing connection point to participate in multiple markets.

The Chair stated that the cost and time of implementing the proposal needs to be understood, as well as the actual demand for this type of arrangement.

The Chair asked for other views.

- Mr Huxtable noted that the complexity will just be part of the cost of doing business to enter into these arrangements and could be sorted out contractually.
- Mr Alexander asked for an example of the risk in laypersons terms.

Item	Subject

- Ms Kogon stated that if roles and responsibilities are not clearly defined then Western Power will carry more risk in the case of an adverse event. If these can be resolved they will come at a cost, which needs to be weighed up against the benefit.
- Ms Bedola noted that she will provide Synergy feedback following the meeting.

Action: Synergy to provide feedback on Proposal 3 of the DSR Review Consultation Paper.

The Chair noted that members generally support the Proposal but there is a need to clarify complexities, liabilities, roles and responsibilities so the customer can make a conscious choice on the basis of cost and risk against the forecast benefit they would have in the market.

- Ms Kogon noted that the method of delivery should be considered; a case-by-case basis for each customer is not an efficient approach.

The Chair stated the rules should require Western Power to publish a standard contract for providing the service, along with the cost of submetering.

Proposal 4 – Dynamic Baseline:

The Chair noted the responses, questions and clarifications as per Slide 7, and deferred discussion on this to Item 6b.

Proposal 5 – No change to the SRC mechanism:

The Chair noted the responses, questions and clarifications as per Slide 8.

The Chair noted that the Rules require the Coordinator of Energy to review the SRC framework every time AEMO calls for tenders. The review will not occur until March 2024 and should also consider if the Hot Season should be shifted given the events in November 2023.

Proposal 6 – Metering Code changes:

The Chair outlined the following developments regarding this Proposal:

- EPWA has drafted amendments to the Code which are undergoing legal review.
- EPWA has consulted with both AEMO and Western Power on those changes.
- AEMO proposed the meters the subject of the proposal should be taken out of Notional Wholesale Meter. This is premature and there will be a separate project about the gradual reduction of the Notional Wholesale Meter once EPWA has understood how AEMO will implement 5-Minute Settlement.

Proposal 7 – Remove impediments in WEM Rules to allow direct participation by DSR in the STEM:

The Chair noted the responses, questions and clarifications as per Slide 10.

The Chair invited members views.

- Ms Bedola suggested this is probably a low priority.
- Mr Schubert noted that use of the STEM may increase as DSR participation matures.
- Mr Butler agreed with Mr Schubert.

Mr Ditric noted that under a strict reading of the Rules someone uncontracted may not be able to participate. However, at this time the complexity of implementation would mean costs exceed benefits.

- Ms Bedola noted that loads could participate through their retailers.

The Chair concluded that there are no barriers that need to be removed at this time.

Proposal 8 – No changes to DSP participation in the RTM:

The Chair noted stakeholders' general support for this Proposal and invited members views.

Item	Subject

- Mr Schubert noted that demand-side resources are able to participate in the NEM real time market, and asked why this can't happen in the WEM.
- The Chair clarified that this proposal is about DSPs, which do not submit bids with price/quantity pairs and need to maintain a minimum available level when dispatched.

Proposal 9 – No changes to DSR participation in the RTM as participation of flexible loads is already provided for:

The Chair noted the responses, questions and clarifications as per Slide 10. She noted that it was costly and complex for loads to participate in the real time market.

- Mr Schubert said signals in the RTM need to reach consumers. He stated many large loads will not be aware of the prices in the real time market.

The Chair asked what changes could be made to the Rules to address that.

- Mr Schubert stated that the retail contracts should reflect the real time price to allow loads to respond and save during periods of high prices and the information barrier must be addressed by AEMO or EPWA.

The Chair noted that retail contracts are outside the scope of this review and changes to the WEM Rules cannot address this issue, and that real time prices are already published.

- Ms Bedola noted that participation in the wholesale market is low in the NEM where the price caps are much higher. Participation in the electricity market is a small consideration for participants in their overall business operations and that reducing their load has other costs.
- Mr Schubert agreed but noted that if customers are receiving market signals they may take actions such as installing storage on-site to use during periods of high prices without affecting their own load. This can also be used for IRCR reduction purposes.
- Ms Bedola noted that the benefits of participating come more from reducing IRCR as that benefit lasts for the whole year.
- Mr Schubert responded that the RCM does not have a minimum demand product, and that the $738/MWh clearing price would provide some motivation to reduce demand.

The Chair noted that end-use customers are receiving this signal through their retailer.

- Mr Butler asked whether any large users responded to the consultation and what needs to be done to further gauge interest in this.

The Chair noted that there is interest but that benefits mostly come through the RCM, whether that is capacity credits or IRCR reduction.

- Mr Butler noted that there are risks associated with both high and low prices in the WEM. So there are probably better opportunities in the RCM and SRC.
- Mr Carlson noted that this review is concerned with impediments in the WEM Rules. To the extent that an awareness campaign is required, this is a separate matter.
- Mr Ross stated that large loads are aware of prices in the RTMand agreed that there are price risks on both sides and these users have operational considerations. There are no impediments if loads want to participate.

Proposal 10 – No proposal for specific service addressing minimum demand issues in the SWIS:

The Chair noted the responses, questions and clarifications as per Slide 13.

The Chair asked for views on whether a review of the need for a minimum demand service should be embedded in the WEM Rules.

The Chair noted that two NCESS procurement processes had been carried out to procure minimum demand services. However, the 600-800MW of storage entering the system, as well

as the new flexible capacity product, may change the dynamics and negate the need for a minimum demand product.

- Mr Schubert agreed and suggested ongoing monitoring.
- Mr Butler supported Mr Schubert's view.

The Chair summarised that a specific review would not be required but this would be monitored.

Proposal 11 – Review of size and technical limitations (eg telemetry requirements) for providing ESS:

The Chair noted the responses, questions and clarifications as per Slide 14.

The Chair invited feedback from the working group.

- Ms Bedola stated that the FCESS response time requirements should be consistent for all facilities, with no specific allowance for DSR, and the impact of this on power system security and reliability needs to be considered.
- Mr Schubert stated that if there is equipment on-site that allows for an automatic under-frequency load shedding (UFLS) response without AEMO control, then telemetry shouldn't be required.
- Mr Butler stated that telemetry is specified in the WEM Procedures. That should remain the case as it is a technical matter. If there is a slower response for the service, the extent to which AEMO would be able to use this capability is unclear. He noted that UFLS capability is a separate requirement to the telemetry requirements for ESS.

The Chair confirmed that this is specifically about contingency raise provided by loads. She noted that telemetry is not required in the NEM and that matters such as telemetry and minimum size can present barriers to entry and are more appropriate to deal with in the WEM Rules not procedures.

- Mr Price clarified that the NEM does require high speed data recorders for the provision of FCAS raise and lower services. It is critical to measure performance ex-post.

The Chair asked whether this was the case even if there was equipment installed by the load that would ensure it responded.

- Mr Price clarified that real time telemetry/SCADA is not required in the NEM, but high-speed data recorders (400 milliseconds) capturing response during a contingency event are still required. The meters trigger when frequency hits a threshold, capturing the 10 seconds before and 20 seconds afterwards. Equipment designed to provide a response may not be set up properly, so ex-post confirmation of a response is required.
- Mr Butler stated that telemetry is required to confirm a service has delivered (ex-post).

The Chair noted that EPWA would review the NEM procedures and discuss with stakeholders who have raised this issue previously.

The Chair that said her understanding was that the requirements in the WEM Procedure are more stringent than what Mr Price is describing.

- Mr Price noted that there are two procedures that Enel X have raised concerns about:
    - The Accreditation WEM procedure that includes the 400ms response time for interruptible loads. AEMO is amending that procedure to treat loads the same as other facilities, to give them a speed factor and they will be able to accredit like any other facility. But if their response is very slow and not of value, they will not.
    - The Communications and Control systems WEM procedure that contains the SCADA and telemetry requirements. AEMO has had positive informal discussions about what an appropriate arrangement for non-SCADA derived telemetry would be. However, that is not reflected in the procedure yet.

Item	Subject

The Chair summarised AEMO's view that procedures are the right place for telemetry requirements and that issues that have been raised are already being addressed.

Proposal 12 – No changes to DSR ability to register as Interruptible Load and DSP and receive capacity credits at same time as providing Contingency Reserve Raise (but rotation methodology to be developed):

The Chair summarised the responses and questions as per Slide 14 and noted:

- There has previously been discussion about the rotation of DSPs and why Interruptible Loads are not being dispatched to the same extent;
- Interruptible Loads should still be able to provide ESS services;
- in the past there was a methodology for the rotation of DSPs;
- she disagrees with AEMO's view that the rotation method should be in procedures as it could have financial impact on participants.

The Chair invited views from the rest of the group.

- Mr Ross queried whether flexibility in choosing the 'best' load to dispatch each time would be lost by implementing a rotation method.

The Chair responded that without a rotation method there are issues with one party having to make a decision about who to dispatch each time and on what basis. She noted that some DSPs that are not Interruptible Loads have expressed views that they are repeatedly dispatched as they are large and have proven their capability. Interruptible Loads shouldn't be dispatched if they are in merit to provide contingency reserve raise, but as more DSPs enter the market there needs to be assurance that dispatch will be equitable.

- Mr Schubert suggested a lack of activation payment might ultimately be responsible for the lack of participation.

The Chair stated that a loss of production is the primary concern for participants.

6b **Dynamic Baseline proposal**

Mr Carlson presented Slide 17, noting that:

- the design elements presented are drawn from the United States National Action Plan on Demand Response; and
- not all exclusion rules presented would be used in the WEM.

Mr Carlson presented slide 18. He noted that the calculation should be simple and understandable – there are more complex and expensive methods but the accuracy benefits are marginal. He noted that:

- Demand response events happen when demand is the highest, and as such adjustments are usually needed to the observed consumption in the previous days to establish an accurate baseline;
- The extent to which an adjustment is needed will depend on the methodology that is used to establish the baseline – one that already excludes low demand days (e.g. a 5 in 10 methodology using the highest demand days) would require less adjustment; and
- The adjustment window cannot go back a lot further than the call to respond otherwise the risk of gaming arises.

Mr Carlson presented Slide 20. He noted that:

- many demand response providers would be operating across the NEM and WEM; and
- predicting the underlying load depends on a baseline methodology that is accurate, lacks bias and is predictable.

Item	Subject

Mr Carlson presented Slide 21. He noted that the proposed approach is based on the CAISO 10 of 10 and that is the scheme used in the NEM. Weekends will use a 4 of 4 methodology.

- Mr Cornish asked whether aligning with the NEM 20% upwards adjustment cap was in reference to the Wholesale Demand Response Mechanism (WDRM) baseline or Reliability and Emergency Reserve Trader (RERT) baseline, as those baselines are based on different things in each mechanism.

Mr Carlson answered that this refers to the WDRM, but that the PERT had also been considered, and asked whether there was any reason to favour one baseline over the other.

- Mr Cornish noted that:
    - The WDRM uses a 20% cap up and down whereas the suggested model is 20% up and uncapped down. The latter is what RERT uses and is the more sensible methodology.
    - The reason the WDRM caps down is because of accuracy testing. In the RERT, the cap is based on the service quantity contracted (equivalent to WEM capacity credits).
    - In most markets, however, the 20% cap is based on the unadjusted baseline value and this is what should be used in the WEM.

Mr Carlson agreed with not having cap downwards.

The Chair suggested more analysis is needed to address the points raised by Mr Cornish.

- Mr Schubert suggested excluding public holidays and asked how the design would recognise that some businesses ramp up on Monday and ramp down on Friday and don't operate on weekends, and as such would have a different profile on those days.

Mr Carlson said that the issue would be examined in more detail.

Mr Carlson noted that the participants in the NEM have a choice of four baselines but in practice, almost all use one approach. The approach in the WEM will need to strike the right balance between detail/accuracy and simplicity.

The Chair noted that, of the NEM components, the RERT is closest in design to the RCM and should be used as a model rather than the WDRM.

- Mr Butler noted that AEMO supports the proposal but giving options to participants about how their baseline is structured would be complex to implement.

The Chair stated that there will be no options for participants.

- Mr Butler stated that the rules should set out high level principles about the exclusions and allow the detail of this to be put in procedures.

Mr Carlson noted that in the NEM, the baseline was not adjusted to take account of loads that were highly temperature or weather dependent. However, the rules allowed participants to propose an additional baseline for a certain set of customers proving it was statistically accurate and relevant. To date, no participant has made such a suggestion.

The Chair noted that the framework will be in the Rules not procedures.

- Mr Butler noted that there needs to be the ability of a particular category of participant to request it is treated differently.

The Chair agreed that Rules may need to provide for some specific cases to be assessed on the basis of evidence and the process for that may need to be in the Procedure. She stated that procedures must be procedural, and not setting constraints on participation or providing allowances.

Mr Ditric presented slide 22 and noted that the more exclusions there are, the further back the methodology needs to go to find the 10 qualifying days.

Item	Subject

The Chair asked whether an 8 of 10 baseline should be used, excluding the lowest and highest days.

- Mr Schubert asked how the baseline calculation would allow for temperature dependent loads with different measurements on different days.

Mr Ditric responded that day-of adjustments and scalar would be used to capture that.

Mr Ditric presented slide 23. He noted that

- consumption two hours prior to the dispatch instruction is used to adjust the baseline up or down as required; and
- an adjusted baseline is only calculated if a dispatch instruction is given.

The Chair invited views on the proposed approach but there were none.

Mr Ditric presented slide 24. He noted that this proposal is the same as reserve capacity testing for DSPs, but that it is from the adjusted baseline level.

The Chair invited final comments on the proposed baseline methodology.

- Mr Cornish asked (with regard to slide 28) how the bias/accuracy threshold would be calculated for RCM purposes and whether a DSP's portfolio would be found not available if outside of that.

Mr Ditric noted that a bias threshold is not proposed in the WEM, as when a DSP is accredited they may not have all their loads associated at that point in time.

- Mr Butler asked why there would be an ex-post review if there were changes to associated meters.

Mr Ditric said if a meter had moved away and that was not reflected in the initial settlement run, it might be necessary to re-calculate the baseline against which the DSP was dispatched.

The Chair noted that while the baseline has been constructed to avoid gaming, there is still a need for a regulator to have ex-post compliance monitoring role.

Mr Carlson noted that the regulator will have broader powers to do an ex-post review, in particular the ability to scrutinise how a participant behaved in the hours prior to dispatch.

Mr Carlson said that the regulator should have discretion to do an ex-post review, but it is more important to monitor how the participant behaved a few hours prior to dispatch taking place.

7	General Business

8	Next Steps

The Chair summarised the next steps as follows:

- An Information Paper will be drafted by the end of January 2024.
- The Information Paper will be supported by draft amending rules.
- MAC will review the Information paper but not the draft amending Rules.
- This working group will meet in early to mid-February to discuss the draft amending rules.
- There are still outstanding Action Items that need to be completed.

The meeting closed at 11:34 AM

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

Agenda Item 7(e): Update on the WIC Review Working Group

Market Advisory Committee (MAC) Meeting 2024_02_08

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:

(1) notes the update from the WICRWG meeting on 6 December 2023;

(2) notes the minutes from the WICRWG meeting on 8 November 2023 (Attachment 1);

(3) notes the minutes from the WICRWG meeting on 6 December 2023 (Attachment 2); and

(4) provides any additional comments on the proposals outlined in 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 Review and will consider the five specific reforms that were announced by the Minister for Energy on 9 May 2023.
- Following discussions at the WICRWG meetings on 31 August and 11 October 2023, Energy Policy WA implemented further changes to the design of the emission thresholds for existing and new facilities.
- At the WICRWG meeting on 8 November 2023 the amended emission thresholds proposals were presented and preliminary discussions were held on Initiative 1 and 2.
- Proposals for Initiative 1 were presented to the WICRWG at the 6 December meeting, including:
    - issues with the current Reserve Capacity Price (RCP) and the four identified options for the price curve;
    - the arguments for and against retaining the absolute zero point at 130% capacity, considering the size of the WEM and the stand alone nature of the SWIS;
        - the WICRWG supported a stronger signal being sent when there are capacity shortfalls, agreeing that investors should be paid in a surplus situation to encourage investment.
        - the four identified options for the RCP curve were evaluated against the design principles option 4 identified as the best option with strong support for option 7.

- transitional arrangements for facilities commissioned since 2019;
- inflation adjustment for transitional facilities;
- price implications under the proposed price curve; and
- the approach to modelling market outcomes, including the:
  - revenue projections for technologies;
  - capacity factors for facilities affected by emissions thresholds; and
  - interaction with the Commonwealth Capacity Investment Scheme (CIS).

- At the WICRWG meeting on 24 January discussion focused on the parameters and inflection points that make up the curve and the final proposals for the RCP including:
  - the use of an administered price curve to set the RCP in the Reserve Capacity Mechanism would continue;
  - the price cap for Peak Capacity would be set at 150% of the BRCP to provide a greater signal for investment when there is capacity shortage. This represents the low end of the international range;
  - an absolute zero point at 130% of the capacity target will be retained;
  - a flat RCP between 95% and 105% of the Reserve Capacity Target;
  - setting the price cap at 85% of the Reserve Capacity Target
  - differentiating the price curves for Peak and Flexible Capacity to provide a signal when there is peak shortage;
  - adding the Coordinator's review of the price curve to the regular review of the BRCP reference technology;
  - no special transitional provisions for Facilities commissioned since 2019; and
  - amending the cap and floor inflation provisions for existing Transitional Facilities (commissioned before 2019) to include a lookback adjustment to account for differences between forecast and actual inflation.
- Discussions also commenced on Initiative 3, with the objective to consider the need for a "top-up" of WEM revenues for renewable generators to address the risk that the renewables may not recover enough revenue to justify investment and focussed on the overall approach to the scheme and calculation of the "top-up". Four high level options were discussed:

  Approach A: an energy purchaser obligation, like the Renewable Energy Target (RET)

  Approach B: a capacity-based revenue top up, preferably linked to the CIS

  Approach C: a price guarantee linked to pricing in a trigger year (with a cap and floor)

  Approach D: managed via the BRCP reference technology

  - The WICRWG considered who was best positioned to bear the risk, the need to be clear on the outcomes and objectives of the CIS, options to address through the capacity mechanism and the BRCP, curtailment, and the need to ensure that it does not remove the incentive to generate or distort the market.
  - The WICRWG supported further consideration of all options until it was clear how the CIS would operate in the WEM.

- The Terms of Refence, papers and minutes for the WICRWG meetings are available on the WICRWG webpage at Wholesale Electricity Market Investment Certainty (WIC) Review Working Group (www.wa.gov.au)
- Further information on the WIC Review, including the Scope of Works are available on the WIC Review webpage at Wholesale Electricity Market Investment Certainty Review (www.wa.gov.au)

4. Next Steps

WICRWG meeting 27 February and 27 March 2024.

5. Attachments

(1) Agenda Item 7(e) – Attachment 1 – WICRWG 2023_11_08 – Minutes

(2) Agenda Item 7(e) – Attachment 2 – WICRWG 2023_12_06 – Minutes

(3) Agenda Item 7(e) – Attachment 3 - Update on the WICRWG - Presentation

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

Minutes

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

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

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1-3 Welcome, Minutes and attendance

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

The attendance was taken as listed above.

The Minutes from WICRWG 2023_08_31 were approved.

4 Approach to emissions threshold regime – existing facilities

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The Chair noted that tracking fuel use may make sense.

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

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

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

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

The Chair accepted Mrs Bedola's offer.

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

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

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

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

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

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

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

The Chair noted that EPWA will look further into this.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The Chair agreed about simplicity.

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

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

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

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

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

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

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

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

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

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

5 Approach to emissions threshold regime - New Facilities

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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6 Existing Facilities - transition

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

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

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

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

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

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7 Exemptions for Flexible Capacity Providers

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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- Mr Peake considered that the amount of emissions in the future can only be reduced by major investment in renewables and that, if the transmission system is built, investors will build renewables.

8 Cogeneration

Mr Robinson outlined two options

- add a mechanism to split emissions from electricity and process heat; or
- exclude cogeneration from these thresholds altogether.

Mr Robinson noted that most of the cogeneration plants are not receiving capacity credits and that most of these plants are reaching end of life in the next 10-15 years.

Mr Robinson noted the recommended option is to exclude these from the scheme.

The Chair noted that most cogeneration facilities do not receive capacity credits and are usually collocated with processing facilities. She noted that there is an ambition for these processes to electrify. She noted the potential equity issues if those cogeneration facilities which have capacity credits are included in this proposal while not including the facilities which do not have capacity credits.

- Mr Schubert noted the efficiency of cogeneration facilities and considered that cogeneration plants emissions could be calculated based on ‘useful energy produced’.
- Ms Aitken noted that cogeneration facilities are treated as scope 1 and are captured under the safeguard mechanism.
- Mrs Bedola noted she is not in a position to comment here and that this should be a discussion EPWA has with the cogeneration facility owners, and accepts the proposal to exclude them from this regime as they will be captured under the federal safeguard mechanism.
- Mr Carlberg considers that once process heat emissions are removed from cogeneration facilities, the facility would be within the proposed existing threshold for their remaining life.
- Ms Gilchrist noted the BRCP review which could increase the capacity price and questioned whether this could be considered as a floor only meaning the price could go up but not down for those eligible.

9 Summary of emissions threshold proposals

This agenda item was deferred to the next WICRWG meeting.

10 10-year RCP guarantee for new technologies

Mr Robinson noted that:

- the RCM proposes to offer a 10-year fixed price for proponents of new flexible technologies such as long-duration storage; and
- EPWA proposes that any facility which uses a renewable fuel source to provide firm availability that exceeds the prevailing Electric Storage Resource Duration Requirement would be eligible.

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

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

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

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

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

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

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

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

11 Upcoming meeting schedule

Members were provided with the upcoming meeting schedule.

12 General Business

No general business was discussed.

The meeting closed at 11:30 AM

Minutes

Meeting Title:	WEM Investment Certainty Review (WIC Review)
Date:	6 December 2023
Time:	9:30 AM to 11:30 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Mena Gilchrist	AEMO	Joined 10am
Oscar Carlberg	Alinta Energy	
Francis Ip	BLT Energy Pty Ltd	
Tom Frood	Bright Energy Investments	
Jake Flynn	Collgar Wind Farm	
Liz Aitken	Empire Carbon and Energy	
William Street	Entego Group Pty Ltd	
Dr Matt Shahnazari	ERA	
Noel Schubert	Expert Consumer Panel	
Luke Skinner	Expert Consumer Panel	Joined at 9:50am
Timothy Edwards	Metro Power	
Patrick Peake	Perth Energy	
Paul Arias	Shell Energy	
Shane Cremin	Summit Southern Cross Power Pty Ltd	
Wesley Medrana	Synergy	Proxy for Rhiannon Bedola
Ben Tan	Tesla Corporation	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Shelley Worthington	EPWA	
Tonia Curby	EPWA	

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1 Welcome

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

2-3 Meeting Attendance and Minutes

The Chair noted the meeting attendance as listed above and that Minutes from 8 November 2023 have been published.

4 RCP Curve - options

Mr Robinson presented the following issues with the existing Reserve Capacity Price (RCP) curve:

- if there is enough capacity to meet the target on the current curve, the capacity price would be 1.3 times the BRCP. EPWA considers this approach adds an unnecessary premium to the capacity price and incentivises overbuild; and
- the absolute zero point is high compared to other jurisdictions.

Mr Robinson recapped that in the last WICRWG meeting, four options for the price curve were identified, noting that:

- all options proposed by EPWA set capacity price at the BRCP at the Reserve Capacity Target (RCT); and
- if there is no difference between the reference technology for peak and flex capacity, then a peak capacity shortfall will provide zero additional signal for flexible capacity even if there is also a shortfall of flexible capacity.

- Mr Arias noted that, if the position since 2019 was to incentivise new capacity at the target and there is now a shortfall, we are reversing this assumption and expecting a different outcome.

Mr Robinson noted that RCP volatility must be considered and that the WICRWG needs to consider whether the options provide additional certainty or not.

The Chair noted that the Coordinator is soon to make a determination of the BRCP reference technology. She noted that the new reference technology and the gross cost of new entry approach will provide surplus revenue for some technologies. She noted that the intention of this review is to provide certainty but also dovetail with other work completed in the RCM Review. She also noted that this will be subject to consultation.

- Mr Arias appreciated that this will be part of broader consultation.

- Ms Aitken asked how the Commonwealth Capacity Investment Scheme (CIS) will impact on this work and whether the WEM would need to adopt the CIS framework.

The Chair responded that there is a proposal to support firmed renewable generators in the WEM, which will be discussed in the next meeting.

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- Ms Aitken considered that a similar proposal to the CIS would eliminate some of the issues raised in slide 7, as capacity holders would be obliged to pay back if profits exceed a predetermined level.

The Chair noted the difficulties in using the CIS design for the National Energy Market for Western Australia's WEM.

- Dr Shahnazari noted that, given the uncertainty in estimating BRCP and the Reserve Capacity Target (RCT), it may be beneficial to allow a small level of excess capacity at the BRCP. The cost to consumers of a potential under-procurement can be much more than allowing a small excess.

The Chair noted that this is a good point and noted that one of the options proposed a symmetrical flat line around the RCT.

- Mr Carlberg agreed, noting that this has been observed with Non-cooptimised Essential System Services (NCESS) being called despite the Reserve Capacity Price being below the floor price for 2023/24.

- Mr Schubert clarified that this capacity year, the RCP for non-transitional generators is lower than the price floor for the transitional facilities. He noted that there is a lag in the RCP response as there is currently a shortfall in capacity and yet capacity prices are relatively low.

The Chair considered that one cannot look at the capacity price this year, but rather need to consider the RCP three years ahead as this is the signal for new facilities.

- Mr Carlberg sought to clarify why the RCP should be set at the BRCP at target.

The Chair responded that the analysis suggests that gross CONE is the better approach and noted that for a period of time facilities may make more money than needed to cover their long-run costs.

- Mr Schubert noted that AEMO's new reserve margin approach incentivises more capacity because of the higher target increases the capacity shortfall and the RCP. He considered this also needs to be taken into account when balancing other considerations.

The Chair responded that the Consultation Paper will seek to address how all of these factors work together. She also noted that none of the other markets in the jurisdictional review use gross CONE, or have the RCP above the BRCP at the target.

- Mr Carlberg responded that, if this had been implemented in the current capacity year, the price would have been lower, so the signal would have been more dissonant with the current need for capacity.

The Chair responded that the price this year is based on what we understood in 2021, noting that things have changed drastically since.

- Mr Tan questioned how this would deal with government decisions in building excess capacity, noting that this may increase investment risk

Item	Subject	Action

if there is a deep curve that goes to true zero. He also noted that pushing absolute revenue to zero impacts on the ability to finance projects.

The Chair noted that Synergy is currently only replacing the capacity which has been scheduled for retirement by the end of the decade. She noted that it is unlikely this group can do anything about future government decisions, but it can create an environment for private investment.

- Mr Skinner noted that mechanisms to constrain actions of future government are ineffective as these laws can be overwritten by the future government.
- Mr Peake responded that holding the price at the BRCP when there is still some excess, as in option 4, is good.
- Dr Shahnazari elaborated on his previous comment noting that other jurisdictions allow around 1% excess capacity at their BRCP but use net CONE. He noted that, if gross CONE is used, there would be some leeway in the calculation and these differences need to be considered in the jurisdictional analysis.
- Mr Carlberg noted that the margin in Western Australia is very thin, for example only 10 MW can sway the excess.

The Chair responded that having a deadband around the target prevents the price from immediately dropping and immediately increasing.

- Ms Aitken noted that this delay impacts on the finance/debt costs which increase significantly in the intervening period.

Mr Robinson noted that the WEM is a much smaller market and is not interconnected. He considered that this means it is not reasonable to set the absolute zero point at 5% or 10% above the target, as in other jurisdictions. He noted that, for this reason, the absolute zero point at 130% capacity is being retained.

- Mr Carlberg considered that this makes sense in the context of the SWIS being a small state-owned grid where the government is building new capacity. He questioned if it is worth considering a non-zero floor.
- Mr Peake considered that a symmetrical flat line around the target is sound.
- Mr Street considered that the percentage excess matters in the WEM given its small size and that aligning the forecast inaccuracy with the incremental change in the price makes sense.
- Mr Schubert supported leaving at the absolute zero point at 130%.
- Mr Skinner did not consider that any investment should be encouraged above 130% of the target capacity. He questioned what the rationale of not having a price floor would be.

Mr Robinson noted that the rationale for a floor would be investment certainty.

- Mr Carlberg considered the logic for a floor is to avoid excessive losses to investors.

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- Mr Skinner responded that at the point of 30% oversupply of capacity, the market should not be sending a signal for more investment.
- Mr Carlberg considered that there would not be a signal if the facility can only recover 50% of the capital cost, but this was about someone who has already invested not going broke.
- Mr Skinner considers that it is unrealistic that government investment decisions would cause a 30% overbuild in capacity.

Mr Robinson noted that for new capacity to enter on an economic basis during a capacity surplus, it would need to be making money back in the energy market or through LGCs and asked whether it would be reasonable to put an administered price forced recovery on consumers at that point.

The Chair noted that historically, there was a formula to ensure that consumers never pay more than they would if the target was reached in situations of capacity excess.

In response to Mr Skinner, the Chair considered that investors would make assumptions that at some point they are not going to be able to recover their costs in the market.

- Mr Tan considered that if the price gets to zero, existing capacity will exit.
- Mr Cremin considered that this depends on the capacity, as at some point energy will be needed.
- Mr Frood considered that the floor is helpful, as the entire capex is not recovered within the cycle and participants are not allowed to include profit and risk under the offer guidelines.
- Mr Schubert questioned whether the WEM rules currently cap the amount of excess capacity.

The Chair responded that a new facility, which has a bilateral contract, can be considered as committed and receive capacity credits despite there being excess capacity.

- Mr Edwards considered that if 130% is reached and puts the RCP to zero, it would punish existing facilities and damage future investment.
- Mr Ip considered that having a 130% cap makes sense. He considered that the RCP alone will not be enough to build an investment case for renewables but signalling for overcapacity is important.

The Chair summarised that the absolute zero point is important to consider.

Mr Robinson summarised that there have been arguments on both sides and that these arguments should be adequately covered in the Consultation Paper. He noted that there needs to be a signal in the event of over-capacity to protect consumers.

Mr Robinson noted the four options being considered:

- Option 2 is an adjusted four segment curve based on the status quo.

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- Option 3 has a different curve for flexible capacity to resolve the issue of there being no additional signal for flexible capacity if there is a peak capacity shortfall.
- Option 4 includes a 5% deadband for surplus capacity only, noting the previous proposal also included a symmetrical deadband around the target.
- Option 7 does not include an absolute zero point and replicates the pre-2019 curve with a higher cap.

- Mr Peake considered that the deadband in option 4 should extend to 110% noting the volatility in the capacity calculations year on year. He considered that this would provide investor certainty and would not impose a substantial cost to customers.
- Mr Carlberg agreed with Mr Peake and noted changes to Synergy's construction timelines, the demand forecasts and investment plans which can create big swings in the capacity price for investors. He also considered that this is why a 130% excess is not unlikely.

5 Option evaluation

Mr Robinson provided an overview of what the WIC review must consider noting that:

- The overall methodology and design principles still seem appropriate;
- The shape of the price curve and the transitional arrangements will be discussed;
- The options were assessed against the design principles.

- Ms Aitken asked whether emissions intensity factors affect the payment amount to individual generators rather than the curve, and whether a high emissions intensity generator will have all of its capacity included for the actual capacity amount used to calculate the RCP.

The Chair responded that if the facility loses Capacity Credits, these would not be included in the calculation.

- Ms Aitken questioned what happens to the calculation if a facility awarded capacity credits for a future year, exceeds its emissions threshold in the meantime.

The Chair noted that it is not proposed that the Reserve Capacity Price would change once set.

Mr Robinson responded that it may affect the price in a subsequent cycle if AEMO has to procure additional capacity.

- Mr Skinner considered that the RCM should not be used for consumers to cross-subsidise risky investments for capacity which is not needed.
- Mr Peake agreed and noted that the RCM has not encouraged new capacity since 2010. He considered that there needs to be a fair balance between risk carried by investors and consumers.

Item	Subject	Action

- Mr Edwards considered that the only way to manage investment risk for 10-20 year assets is the smooth curve (pre-2019 method).

The Chair did not consider this curve sent a strong signal in the event of capacity shortfalls.

Mr Robinson responded that the price cap for this curve was 1.1 which is not a strong signal for investment.

- Mr Peake considered that the curve is a fair approach as it removes the cost risk to customers if there is excess capacity. He noted that this does not incentivise Government to invest in excess capacity as a mechanism to drive prices down.
- Mr Skinner responded that other markets without this curve get investors.

Mr Robinson summarised that the Working Group agrees with a stronger signal being sent when there are capacity shortfalls but agrees that investors should be paid in a surplus situation to encourage investment.

- Mr Edwards considered that the biggest risk is lack of capacity and loss of supply. He considered that both capacity surplus and shortfall increase costs to consumers. He indicated support for option 7.
- Mr Tan considered that a floor would protect from bad outcomes.
- Mr Peake considered that Government decisions cannot be stopped, a resilient system can be designed which ensures private investors can make a fair return. He noted support for the deadband in option 4.
- Mr Carlberg agreed that government decisions cannot be stopped but the key is to get the target right. He noted investors will look for reasonable returns over the life of their investment.
- Mr Skinner noted support for the flat band proposal, but considered that the exact percentage must provide certainty around the investment needed and asked at what point investors think consumers should stop paying for excess capacity. He considered that other jurisdictions have demonstrated that their price curves are able to incentivise investment.
- Mr Edwards noted that there was an oversupply and subsequent rule change caused approximately 450MW of Demand Side Programmes to leave the market. He considered that the big issue is capacity shortage, noting that if there is an oversupply and costs increase the rules can be changed to reduce the cost.
- Mr Frood highlighted the challenge that banks will not lend if the price is volatile, and a floor provides certainty for the banks that debt is covered.
- Ms Aitken suggested another curve which has a cap and a floor and a steep part which responds quickly to changing conditions.
- Mr Skinner considered that the technological change and attempt to constrain emissions caused the current capacity issue. He agreed to getting the deadband right for investors while ensuring the price drops

Item	Subject	Action

off at a reasonable point so consumers to not subsidise risks taken by investors.

- Mr Tan considered that there is a high payback at the recent NCESS price and rapid capital recovery allows investments.
- Ms Gilchrist considers that option 7 with no floor is likely to mute price signals to retire, meaning the transition to zero could be slowed.

Mr Robinson presented options evaluation against the design principles. He noted that option 4 seems to be the best option and noted the strong support for option 7 from the WICRWG.

Mr Robinson noted the review of the price curve parameters and the proposal that the price curve be considered at the time of the BRCP Benchmark Capacity Providers review.

- Mr Carlberg agreed with the general shape of option 4, but had doubts regarding where the RCP is set at the RCT, the length of the deadband and the angle of the curve.
- Mr Carlberg noted that, because the RCP changes yearly, investors have uncertainty regarding how much they will get paid.

The Chair considered that this market design actually has more certainty than prices set by capacity auctions.

Mr Robinson discussed transitional arrangements for facilities commissioned since 2019 and noted that their downside risk does not change. He considered that there is limited arguments for a transitional arrangement as there is upside for facilities commissioned since 2019.

- Mr Schubert considered that a price cap and floor provides certainty for investors and consumers and would like to see this in the future curve. He considered that facilities will receive a windfall gain and that there is an argument for a floor and a cap for existing facilities.
- Mr Skinner disagreed that there should be a floor, noting that existing facilities have already made their investment decisions on the basis of the price going to zero at 130% of the target.

Mr Robinson presented the proposed inflation adjustment for transitional facilities noting the differences in RBA forecasts and actuals. He noted that the proposal is to introduce a lookback adjustment to reflect the difference.

- Mr Skinner, Mr Carlberg, Mr Peake and Mr Edwards supported the proposal.
- Ms Aitken asked if this should include delays caused by delays in transmission build.

The Chair invited Ms Aitken to provide ideas of how to incorporate this.

6 Price implications

Mr Robinson presented a comparison of the current vs proposed price curves. He noted that the RCP under the proposed price curve would have been higher than the current price curve in previous years.

Item	Subject	Action
	Mr Robinson noted that EPWA will take on the WICRWG feedback and present the final proposal in January prior to consultation.	
7	**Modelling Approach** Mr Robinson presented the modelling approach noting that there are four key items to explore: revenue projections for technologies, capacity factors for facilities affected by emissions thresholds, effects of EPA thresholds and interaction with the CIS. The Chair noted there will be a proposal and the WICRWG will consider an alternative framework to the CIS to provide similar investment signals outside of the CIS. • Ms Aitken asked whether the modelling assumes the ESROI policy stays in place noting this policy limits battery operation around 2029 while artificially constraining operation. The Chair noted that there are new rules to be introduced around the Availability Duration Gap and was happy to discuss this with Ms Aitken. • Mr Carlberg agreed with the approach and would like further consideration regarding how new flexible gas is captured in the capacity factor calculations.	
8	**Next steps** The Chair noted that EPWA will present a final proposal in January and then present this to the MAC in February.	
9	**General Business** No general business was discussed.	

The meeting closed at 11:30 am

Government of **Western Australia**
Energy Policy WA

Market Advisory Committee

WICRWG update

8 February 2024

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

Agenda

Item	Item	Responsibility	Type	Duration
1	WIC Review Price Curve Scope	EPWA	Noting	5 min
2	Reserve Capacity Price (RCP) Curve – History	RBP	Noting	5 min
3	Options Explored	RBP	Noting	5 min
4	Option Evaluation	RBP	Noting	5 min
5	Proposed RCP Curve	RBP	Discussion	15 min
6	Assessing the impact of price curve changes	RBP	Discussion	15 min
7	Support for renewable investment	RBP	Noting	5 min
8	Next steps	EPWA	Noting	5 min
	Appendices – supporting detail			

2. WIC Review – Price Curve Scope

WEM Investment Certainty Review: Agreed Scope

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

WIC Review scope – Initiative 1: RCP curve

The WIC Review must consider whether:

1. The overall methodology for setting the RCP is appropriate
2. The shape of the price curve is appropriate
3. The parameters for the price curve are appropriate
4. The transitional arrangements are appropriate

The review also needs to consider whether there should be a difference between the price curves used to set the Peak and Flexible Capacity prices.

2. Reserve Capacity Price curve - History

The WEM Reserve Capacity Price curve

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

During the RCM Review, stakeholders identified issues with the existing RCP curve, and the WIC Review is now considering amendments.

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

Until 2019, the price curve was set based on a calculation that effectively divided a fixed amount of capacity payments among all eligible capacity, with a price cap of 1.1 times the BRCP. This approach provided only very muted investment signals for retirement when there was excess capacity, and for investment in times of shortfall.

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.

WEM 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: $Max(Segment\ 1, Segment\ 2, 0) * BRCP$

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

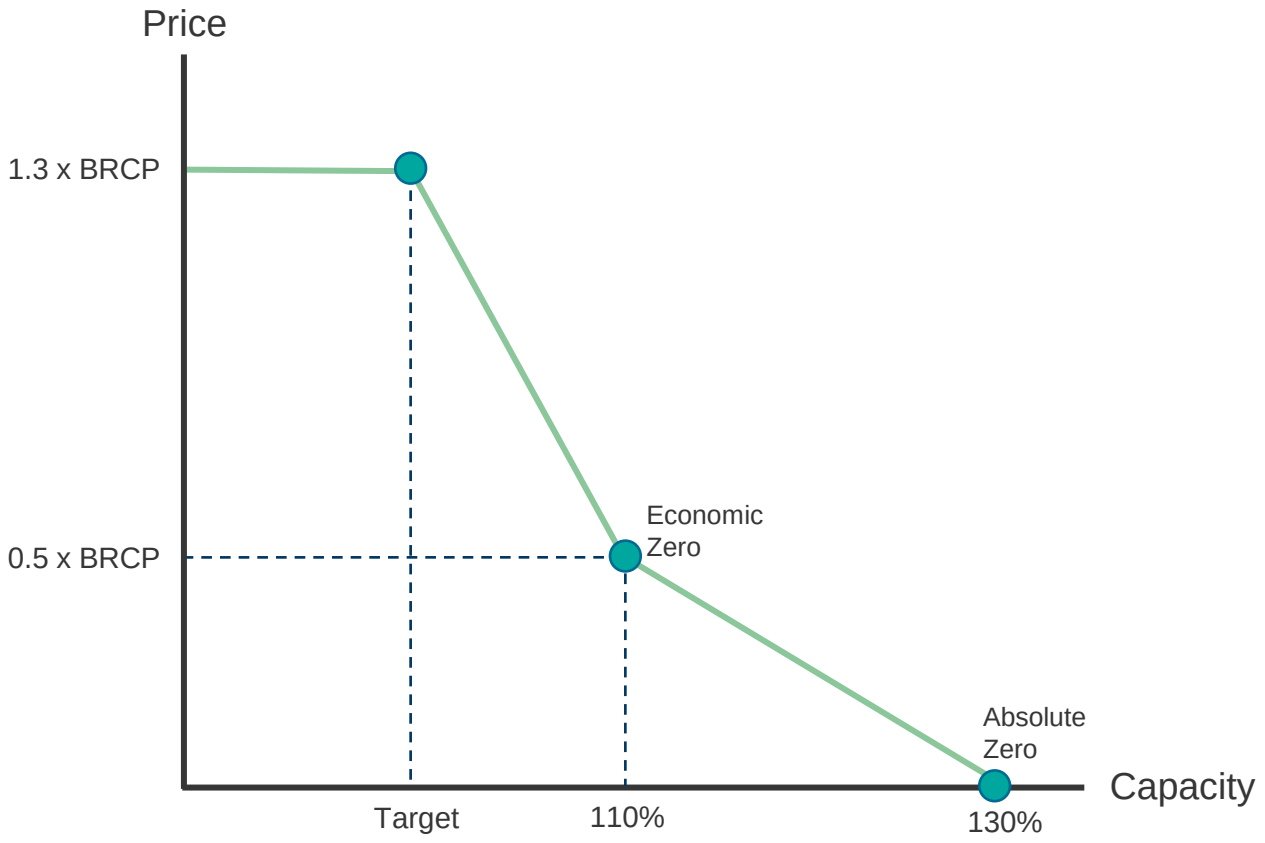
$$Segment\ 2 = \left(\frac{EZ\ BRCP\ Factor}{EZ - AZ}\right) \times (Excess\ Capacity - AZ)$$

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



Key parameters of the current RCP curve

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.

Issues with the current RCP curve

The RCM Review identified two issues with the existing price curve:

1. The absolute zero point used is relatively high compared to other jurisdictions.
2. Because the price is set at the cap at the Reserve Capacity Target, the investment signal does not change when there is a shortfall.

It also proposed to use the same parameters to set the price curve for both Peak and Flexible Capacity

The Benchmark Capacity Providers (BRCP Reference Technology) Review has identified a further issue:

3. 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 differential for Flexible Capacity, even if there is also a shortfall of Flexible Capacity.

3. Options Explored

Options

EPWA identified four feasible options:

2. Adjusted four segment curve, with the same curve for both products
3. Separate four segment curves for each product
4. Separate five segment curves with deadband for each product
7. Smooth curve with no absolute zero point

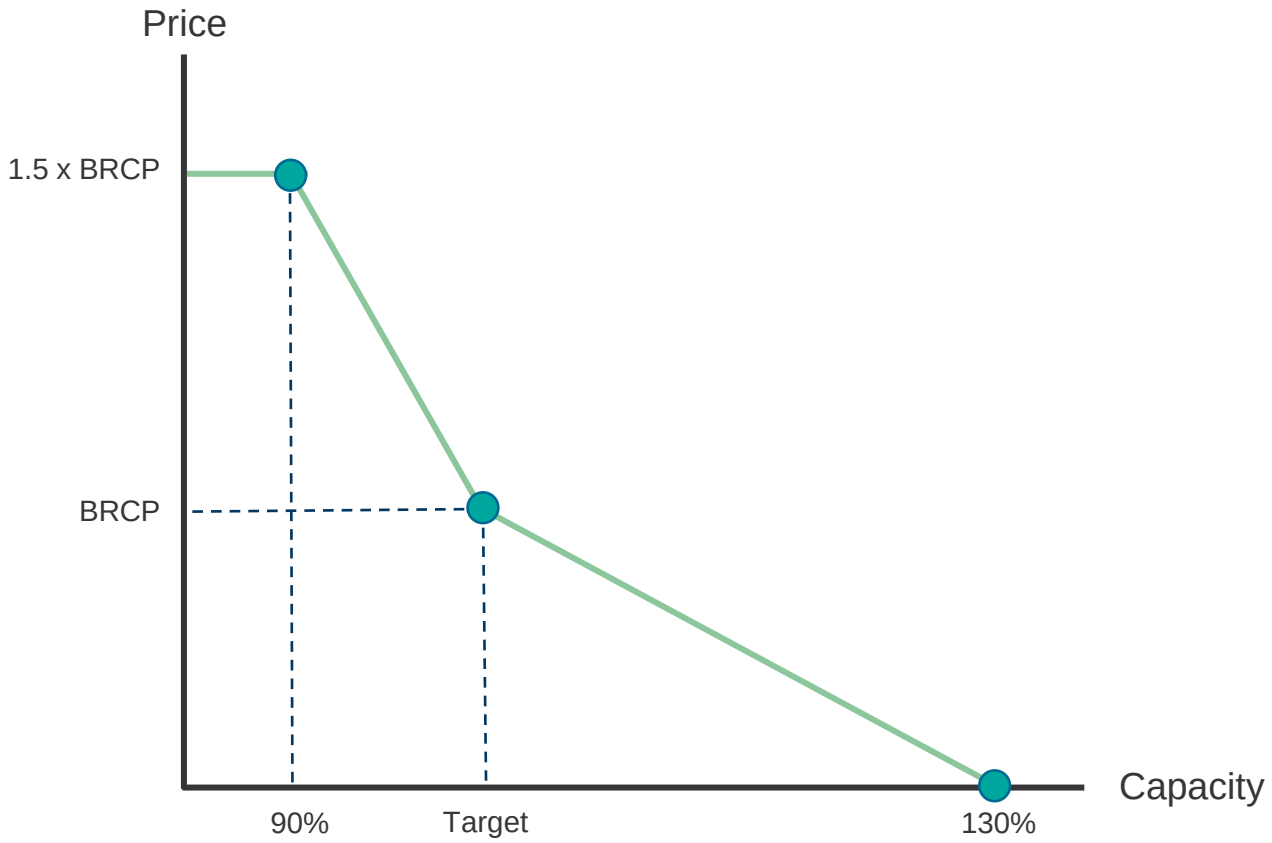
Option 2: Adjusted Four Segment Curve

Four segment curve for both services with the following parameters:

Price at Capacity Target: BRCP (CONE)

Maximum Price: 1.5 * BRCP at 90% of Target Capacity

Minimum Price: 0 at 130% of Target Capacity



Option 3: Separate Four Segment Curves

For Peak services:

Price at Capacity Target: BRCP (CONE)

Maximum Price: 1.5 * BRCP at 90% of Target Capacity

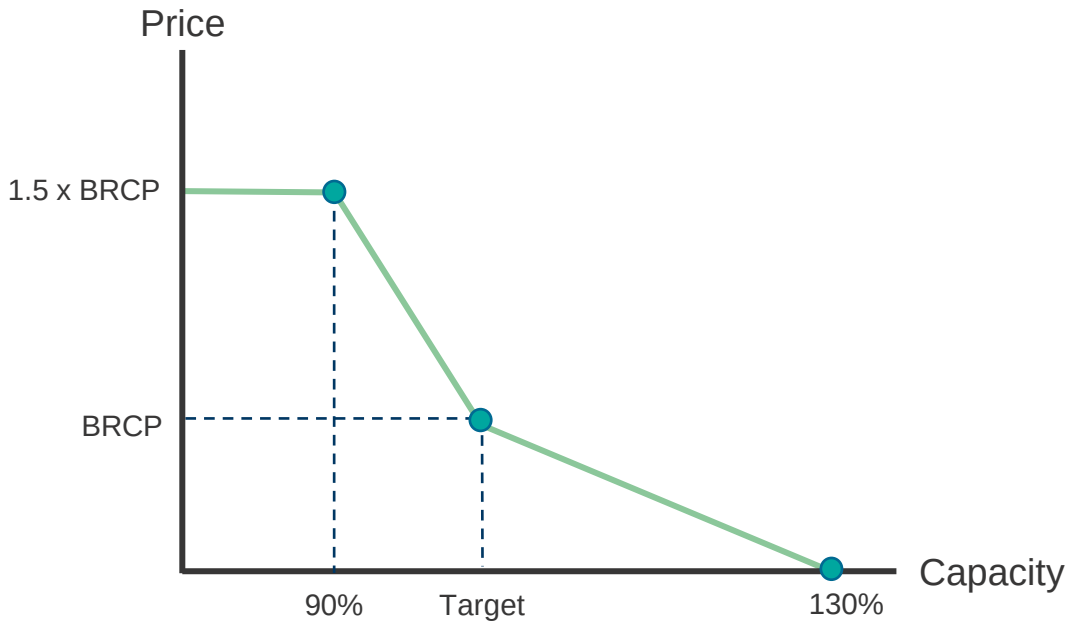
Minimum Price: 0 at 130% of Target Capacity

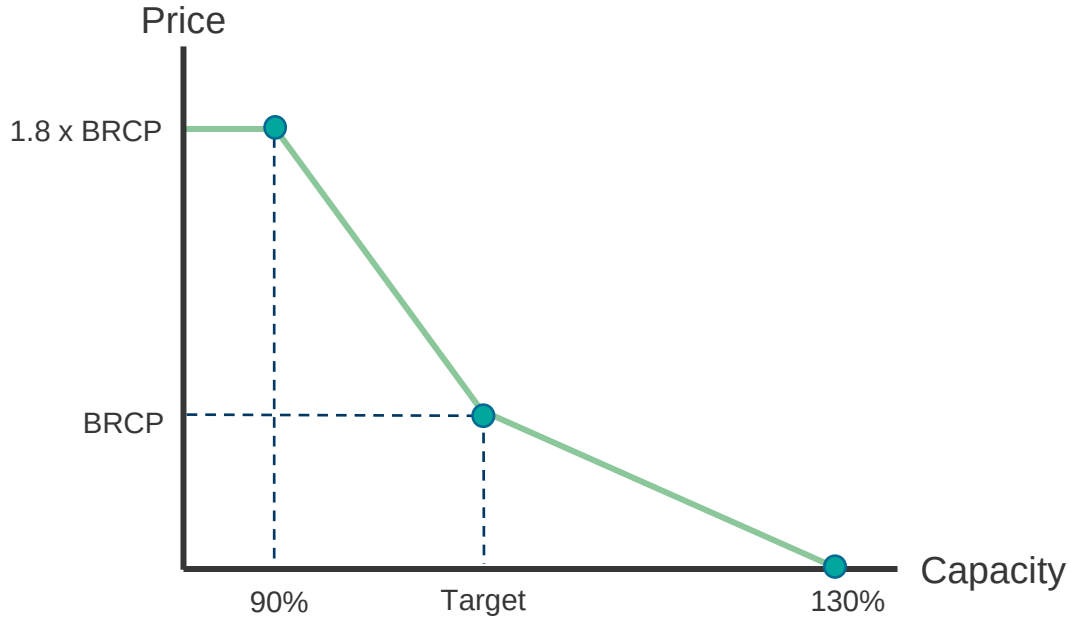
For Flex services:

Price at Capacity Target: BRCP (CONE)

Maximum Price: 1.8 * BRCP at 95% of Target Capacity

Minimum Price: 0 at 130% of Target Capacity





Option 4: Separate Five Segment Curves with deadband

For Peak services:

Price at Capacity Target: BRCP (CONE)

Maximum Price: 1.5 * BRCP at 90% of Target Capacity

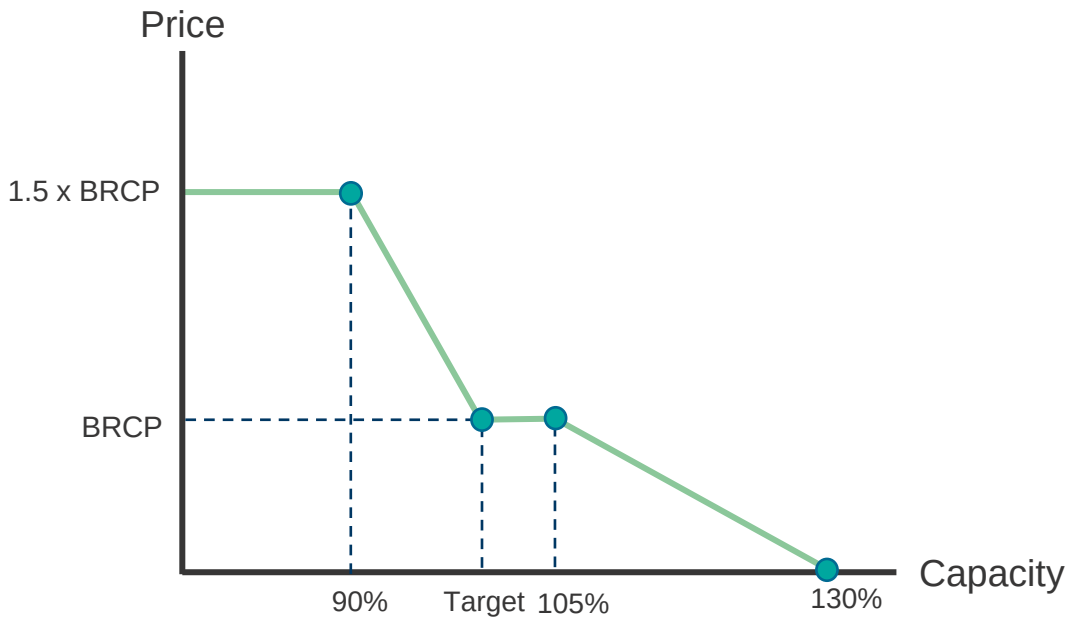
Minimum Price: 0 at 130% of Target Capacity

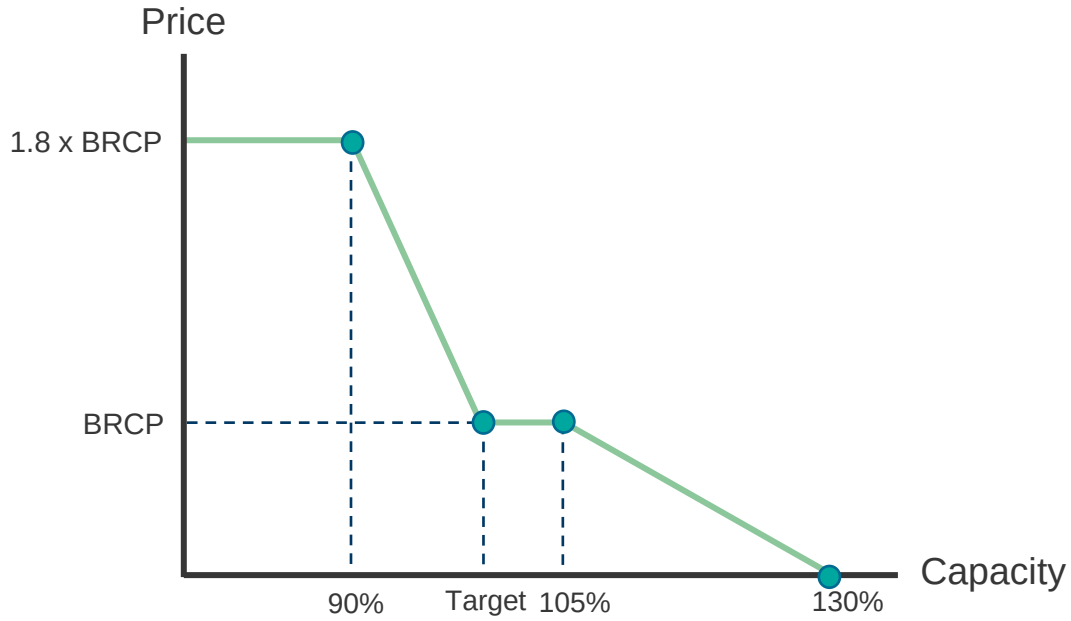
For Flex services:

Price at Capacity Target: BRCP (CONE)

Maximum Price: 1.8 * BRCP at 90% of Target Capacity

Minimum Price: 0 at 130% of Target Capacity

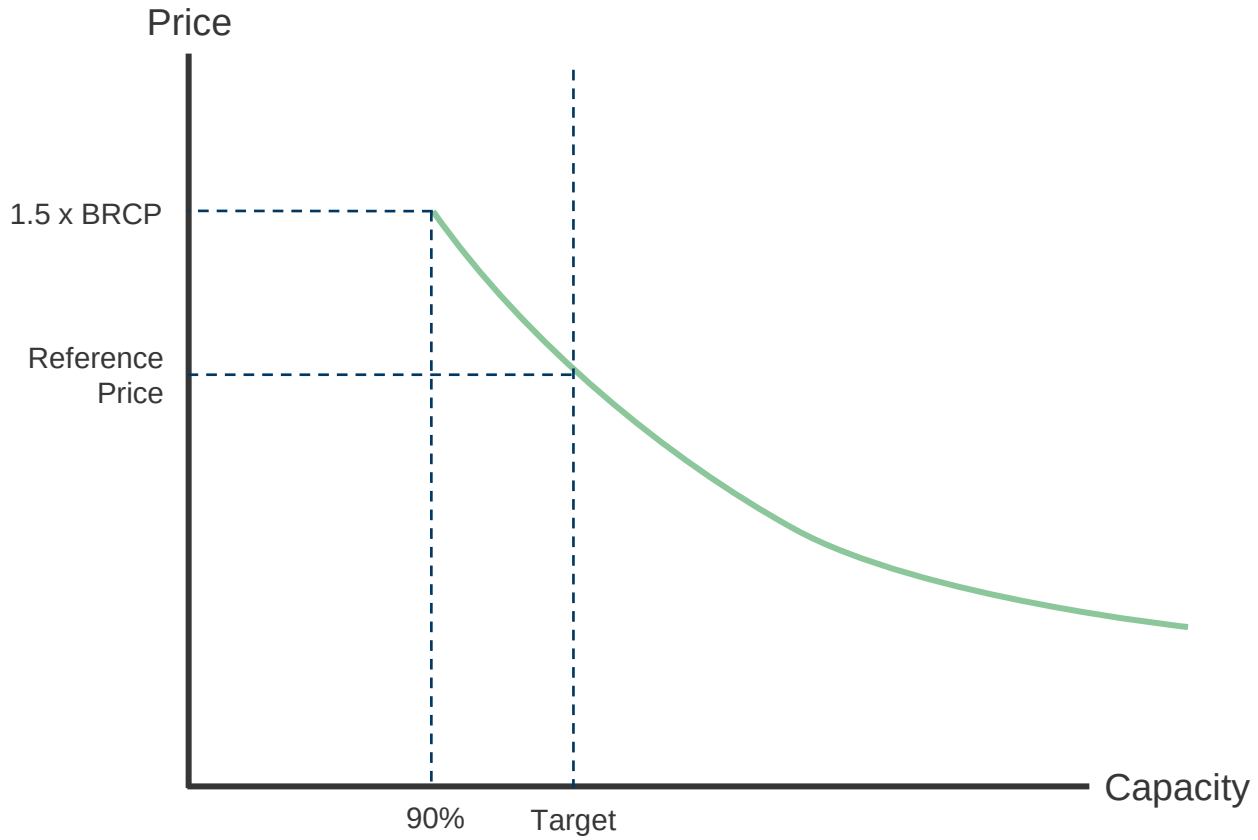




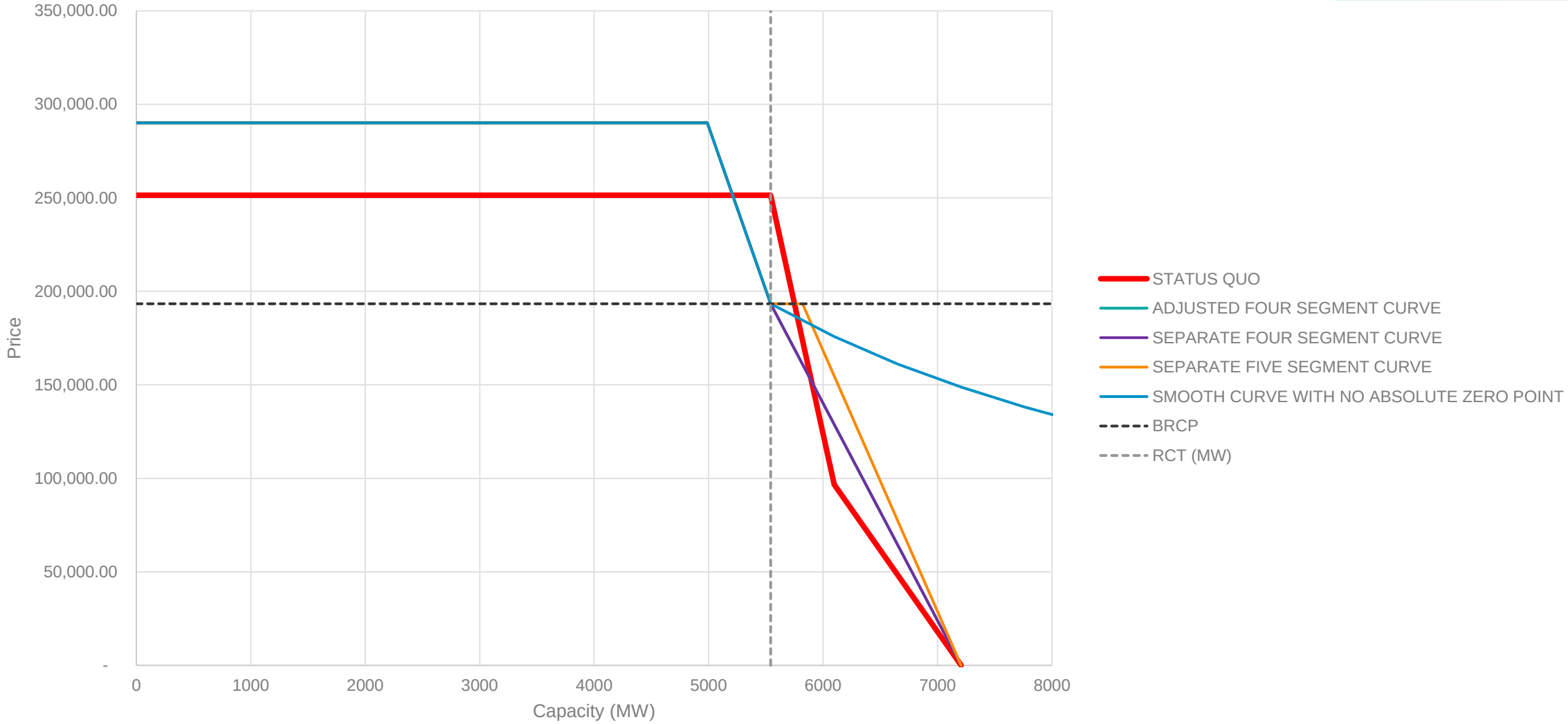
Option 7: Smooth curve with no absolute zero point

The pre-2019 RCP curve was convex. The capacity price was set by calculating a total capacity payment (RCT x BRCP), and then dividing by the total issued Capacity Credits to determine the capacity price.

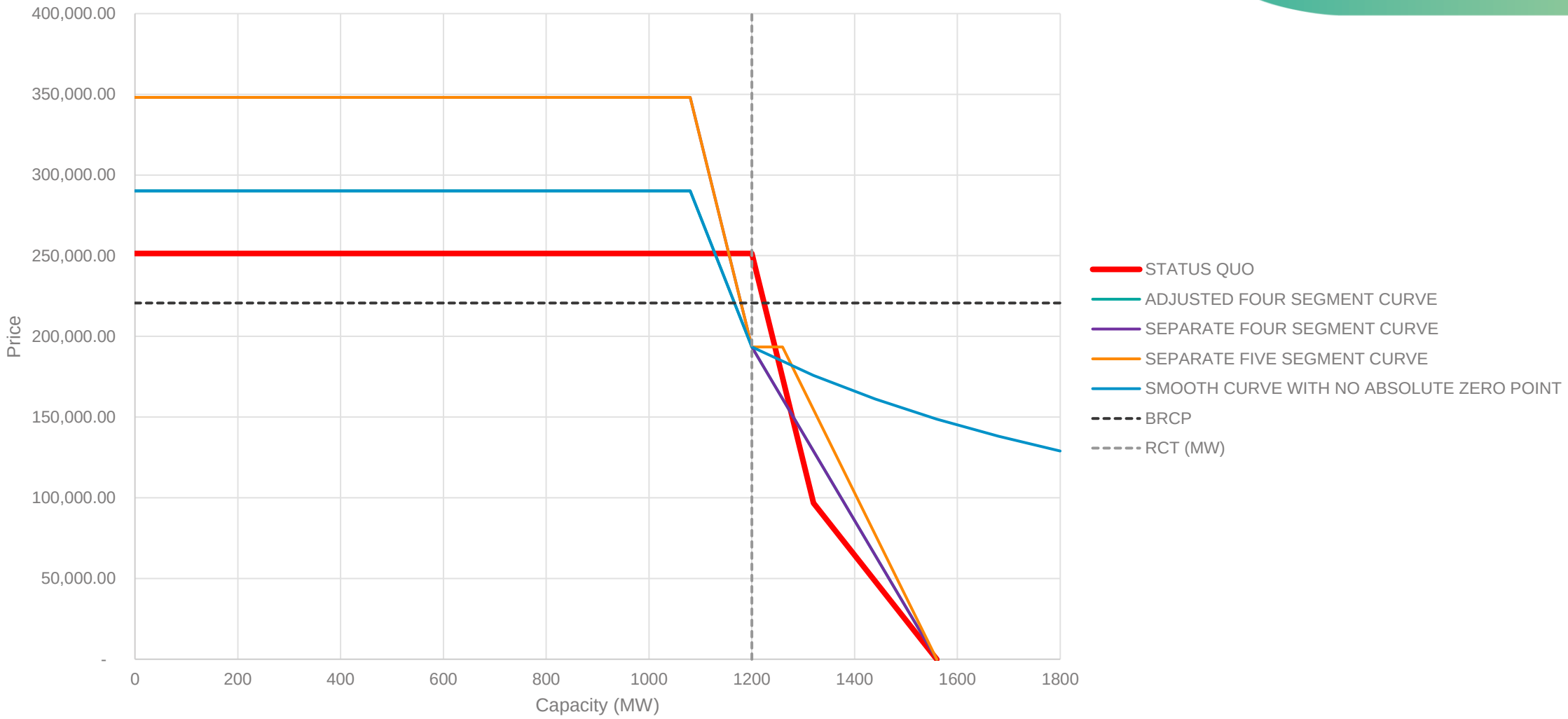
This option would replicate that curve, but increase the cap.



Option Curves (2025-26) – Peak Services



Option Curves (2025-26) – Flex Services[1]



[1] There is no current capacity target for Flex Services. The assumed RCR of 1,200 MW is indicative only.

4. Option Evaluation

Design principles / evaluation criteria

Ideally, the RCP should provide:

- A price signal for investment when there is insufficient capacity
- Appropriate exposure to risk for capacity suppliers and the consumers who pay for it
- Signals for capacity withdrawal or retirement when there is surplus capacity

The RCM overall should ensure that:

- Equal qualifying resources receive the same capacity price
- Capacity payments only compensate credible, verifiable resources
- There is a binding contract against exit for capacity resources that are needed.

The WEM overall should promote the most appropriate capacity mix over time as demand profiles change.

Option evaluation

Design principle	OPTION 1: Status Quo	OPTION 2: Adjusted Four Segment Curve	OPTION 3: Separate Four Segment Curve	OPTION 4: Separate Five Segment Curves with deadband	OPTION 7: Smooth curve with no Absolute Zero Point
Provides signal when there is insufficient capacity	◔	◑	◕	●	◕
Appropriate risk exposure for suppliers and consumers	◑	◕	◕	◕	◑
Signals for withdrawal/retirement when there is oversupply	●	●	●	◕	◔

Evaluation notes

All options provide a signal for investment when there is insufficient capacity. Option 4 provides a greater signal at small levels of surplus than the others, and option 2 mutes the Flexible Capacity signal when there is a shortfall of Peak Capacity.

Options 2, 3 and 4 balance exposure to risk between suppliers and purchasers. The option 4 deadband means that, close to the capacity target, the capacity price is less sensitive to state build and retirement decisions. Option 7 would have purchasers continue to pay the same total amount regardless of the level of overcapacity.

Options 2 and 3 provide a clear signal when there is overcapacity. Under option 4, there is no retirement signal until the deadband is cleared.

5. Final Proposal

Key RCP curve parameters

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

WICRWG discussion focused on the parameters and inflection points that make up the curve.

- The price cap as a proportion of the benchmark price
- The proportion of the capacity target at which the price cap is reached
- The price at the Reserve Capacity Target
- The proportion of the capacity target at which the price goes to zero, if at all
- A “deadband” zone around the Reserve Capacity Target in which the price does not change
- Differentiating the Peak Capacity Price and the Flexible Capacity Price.

Parameters: Peak Reserve Capacity Price Cap

In the current RCP curve, the price cap is 130% of the BRCP.

In the 2022 and 2023 capacity cycles, the price was above the BRCP, but we have not seen significant new entry.

Although 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 proposes to set the price cap for Peak Capacity at 150% of the BRCP. This will provide a greater signal for investment when there is a capacity shortage, and represents the low end of the international range.

Working group discussion did not raise particular concerns about the proposed price cap change, though considered that other factors – particularly grid access issues – have probably contributed more to the lack of investment certainty in recent years.

Does the MAC have any further comments on the proposed price cap for Peak Capacity?

Parameters: 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.

The various price parameters all need to work together. The Benchmark Capacity Providers Review has identified:

- A change in reference technology to a 4-hour LiON battery electric storage system
- That for a number of years storage facilities are likely to receive some infra-marginal rents in the energy market.
- It is still appropriate to use gross CONE to set the BRCP.

This dynamic means that the WEM can reasonably align with almost all other jurisdictions and set RCP=BRCP when capacity matches the target figure.

EPWA proposes to set the Peak Reserve Capacity Price to 100% of the BRCP at the Peak Reserve Capacity Target.

WICRWG members were split on this issue. Consumer members considered that the proposal was appropriate, while most generator members expressed concern about weakening the signal for new capacity at a time when new capacity is keenly needed.

Does the MAC have any further comments on the proposed RCP at the Reserve Capacity Target?

Parameters: Absolute Zero Point

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% of the Reserve Capacity Target, the capacity price will be zero.

While oversupply of capacity appears unlikely in the near future, EPWA still considers that it is important to have some protection for consumers in case of oversupply. New generation will be primarily renewables, and the new Relevant Level Method (RLM) means that Capacity Credits allocated to intermittent generators will be a relatively low proportion of nameplate capacity, especially where output is highly correlated with existing facilities.

Almost all international comparators have an absolute zero point between 105 and 115%. While a 130% absolute zero point is higher than this, for a relatively small, isolated power system, it is appropriate that the WEM has a higher absolute zero point than larger, interconnected markets.

EPWA proposes to retain an absolute zero point at 130% of the capacity target.

Some WICRWG members were concerned that having a zero floor means less certainty for investors. The group discussed alternate options, including a non-zero floor, a cost-of-debt based floor (like the NSW LTESAs) or an arrangement similar to the pre-2019 curve, where consumers always paid the same total amount regardless of the level of surplus. Other members were concerned that, above 130% of target, making any contribution to capacity at all would be the wrong signal.

Does the MAC have any further comments on the proposed absolute zero point?

Parameters: Deadband

EPWA's initial proposal had a constant reserve capacity price between 100% and 105% of the Reserve Capacity Target. The working group generally supported having a flat priced region near the Reserve Capacity Target, as this would assist investment certainty and reduce year-to-year volatility.

Members considered that if there were to be a deadband, it should be symmetrical both above and below the capacity target.

EPWA proposes a flat RCP between 95% and 105% of the Reserve Capacity Target.

This means that with a Reserve Capacity Target around 5000 MW, the RCP would remain the same over a band of around 500 MW. Some 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 new build announcement. Members also noted that other factors affect the price as well, e.g. the Reserve Capacity Target for the 2025-26 capacity year is 20% higher than for the 2024-25 capacity year.

Members considered that some investors look at the worst-case scenario, but noted that the ability to receive a fixed price for five years mitigates this issue to some degree.

Does the MAC have any further comments on the proposed deadband?

Parameters: Capacity shortfall at which price cap is met

Almost all international jurisdictions reviewed have their prices hit the cap at between 92% and 98% of

EPWA presented an option with the price cap at 90% of the target.

After discussion settled on a deadband that was symmetric around the capacity target, one member noted that increasing the price by 50% from 90% to 95% would mean very small amounts of capacity would have a large impact on the price.

EPWA proposes to set the price cap at 85% of the Reserve Capacity Target.

This portion of the RCP curve would have a slightly steeper slope than the portion between 105% and 130% of target. The price would move from 100% of BRCP to 150% of BRCP over a capacity reduction of around 500 MW.

One working group member was concerned that this would still result in large changes in price for a relatively small change in capacity. EPWA considers that the slope is necessary to provide a signal, and the proposed curve is less steep than the current one.

Does the MAC have any further comments on the proposal for where the price cap is set?

Differentiating Peak and Flexible Capacity

In the recently commenced RCM Reform Rules, Peak Capacity and Flexible Capacity have the same curve parameters.

The Benchmark Capacity Providers Review has determined the same Benchmark Capacity Provider for both capacity services. This means that the BRCP for each will be the same, and if there is a shortage of Peak Capacity, there will be no price premium for Flexible Capacity, and thus no investment signal.

The two curves need to be differentiated to provide a signal when there is peak shortage. At the same time, consumer members were concerned that a cap at 180% of gross CONE was too high for consumers.

EPWA proposes to:

- **Set the deadband in the Flexible Capacity price curve to between 100% and 105% of the Flexible Capacity Target.** This will provide a sharper signal for investment for Flexible Capacity in case of Peak Capacity shortfall.
- **Set the price cap for Flexible Capacity at 160% of the BRCP.** This is the high end of the international range.

Working group members noted that a 5% deadband would be only 50 to 100 MW, and that it may be more appropriate to link the deadband to an absolute MW quantity rather than a percentage of the target.

Does the MAC have any further comments on the proposed differences between the peak and flex curves?

Proposal Summary: Five Segment Curves with Deadband

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 at 130% of Target Capacity

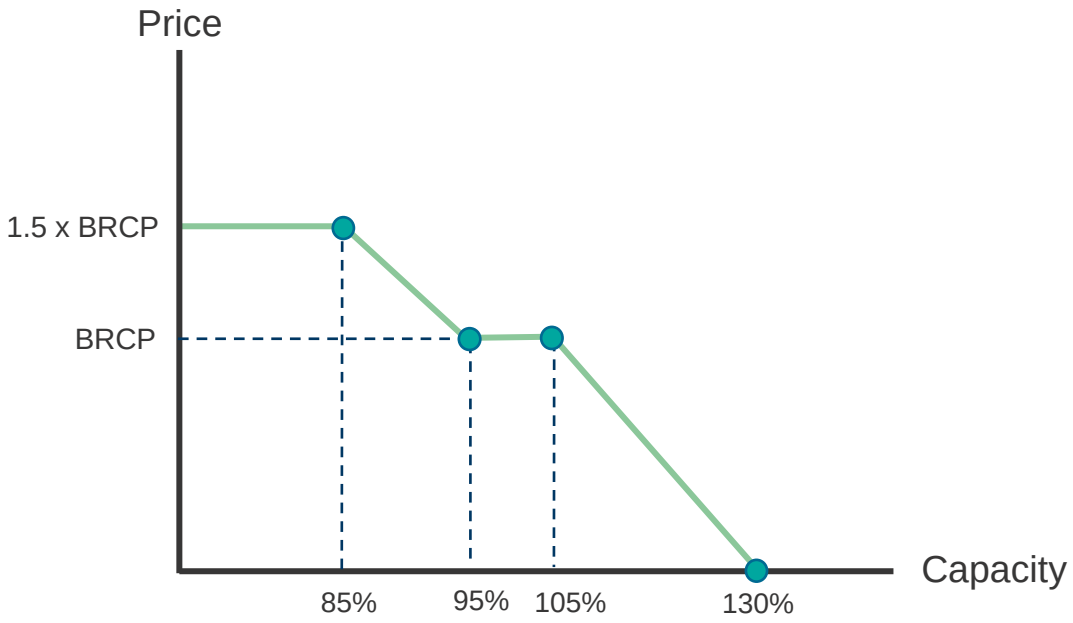
Flexible Capacity

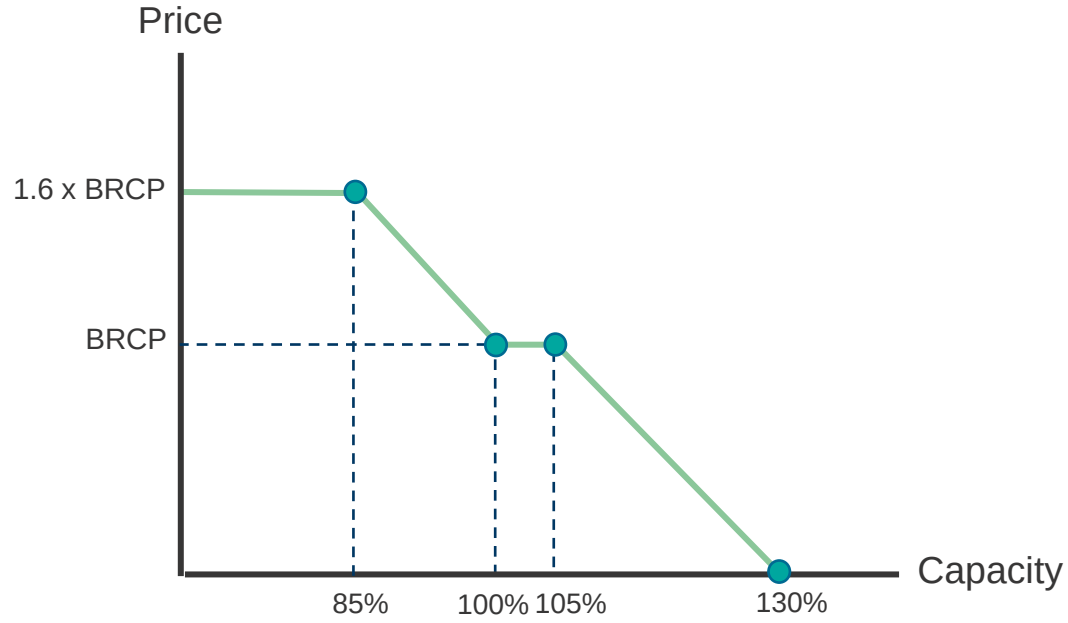
Maximum Price: 1.6 * BRCP at 85% of Target Capacity

Price at Capacity Target: BRCP (CONE)

Deadband: BRCP at 100% - 105% of Target Capacity

Minimum Price: 0 at 130% of Target Capacity





Other price curve topics

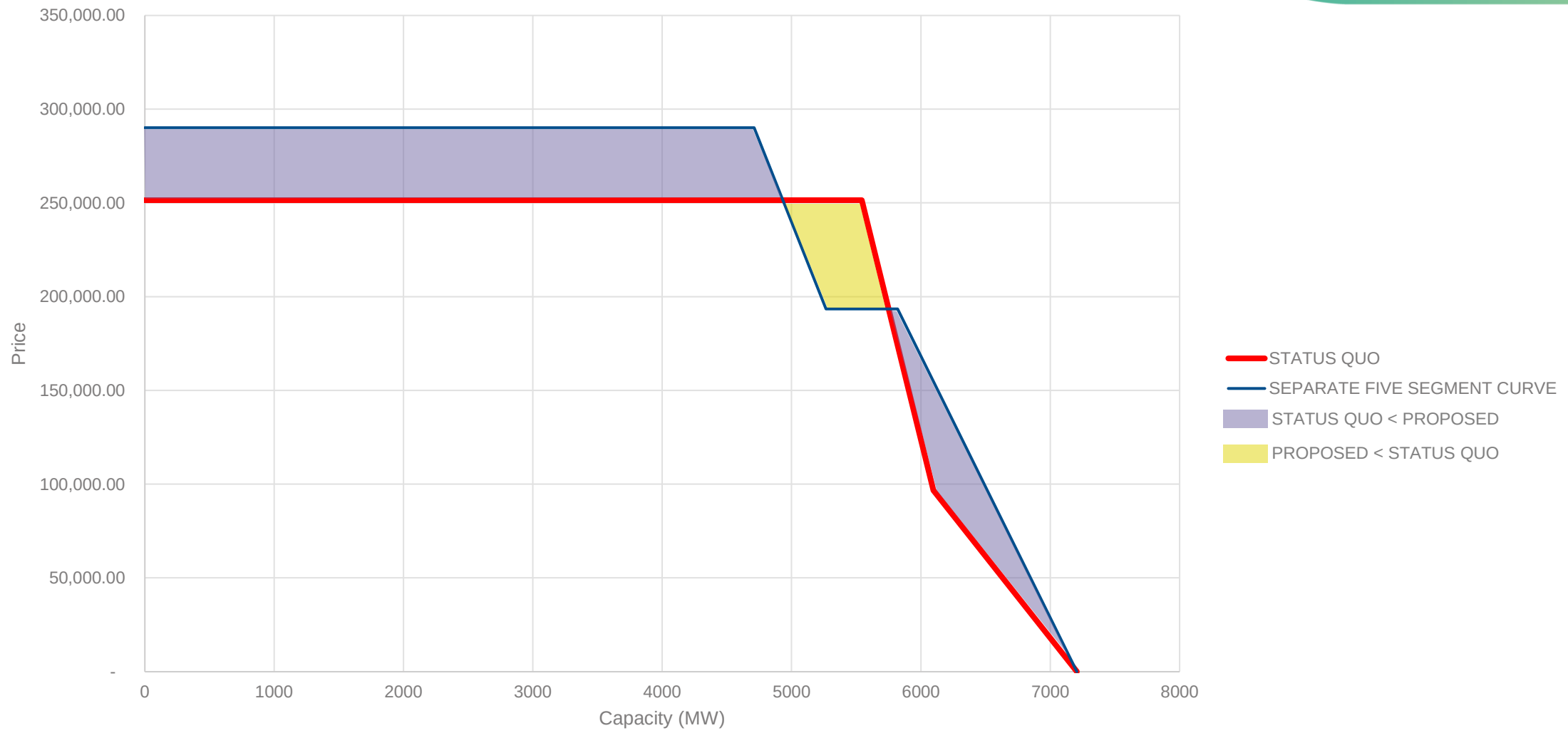
EPWA proposes to:

- Add the Coordinator's review of the price curve to the regular review of the BRCP reference technology.
- Include no special transitional provisions for Facilities commissioned since 2019
- Amend the cap and floor inflation provisions for existing Transitional Facilities (commissioned before 2019) to include a lookback adjustment to account for differences between forecast and actual inflation

These items were generally agreed upon by the working group.

6. Assessing the impact of price curve changes

Price increases and decreases



Historical Reserve Capacity Prices

In recent years, the RCP has increased significantly, 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.

The working group discussed whether the RCP, being less than the BRCP in recent years, and the lag in the signal due to the timing of the RCP determination have alone affected investment decisions.

The working group considered that recent increases in the RCP have not yet driven significant new investment in the SWIS.

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
2025	5,543	4,717	251,420

Other factors affecting investment

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 interaction with the RCM certification mechanism
- Energy transition issues, including the 1 Oct 2023 market commencement and the RCM Review outcomes
- Commonwealth energy transition policy, 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.

Assessing impact of WIC initiatives

The proposed changes to the price curve are likely to see an increase in the Reserve Capacity Price in the short term. Other factors are also likely to see continuation of a high capacity price:

- Announced retirement of existing plant affecting the capacity margin
- A new benchmark technology used to set the BRCP (was OCGT, now lithium storage)
- The continued use of gross CONE to set the BRCP
- Continuing increased demand growth rates
- Continuation of the step-change in reserve margin in the Reserve Capacity Target

Upcoming modelling as part of the WIC Review will shed more light on the potential impacts on investment and on customers of all these factors, noting the disconnect between non-contestable customer tariffs and the WEM cost drivers

7. Support for renewable investment

Initiative 3 - Scope

The RCM Review forecast declining revenues for renewable generators after 2030 when conventional baseload retires:

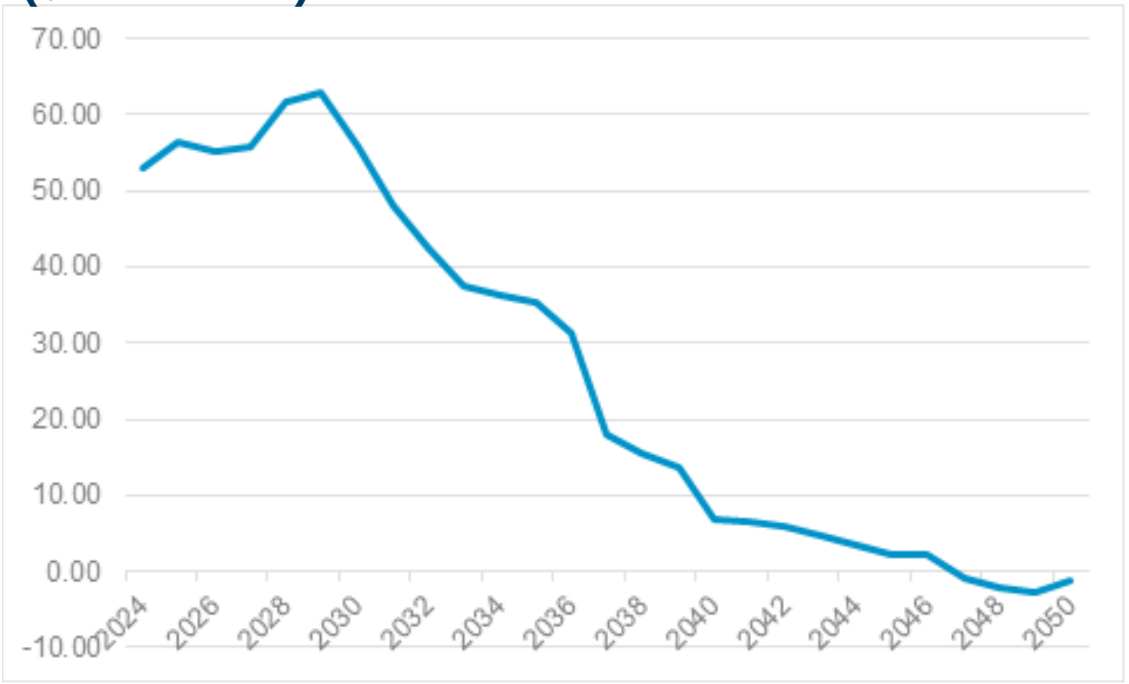
- Meeting the Reserve Capacity Target means building significant volumes of renewable capacity. That means being oversupplied with renewables and storage much of the time.
- Renewable projects need to recover some fixed costs in the energy market as their fixed costs per MW are higher than the technology used to set the BRCP, and they only get Capacity Credits for 15-30% of their nameplate capacity.
- As conventional generation retires, renewable generators with low variable costs will more frequently set the Real-Time Market (RTM) energy price, driving prices to zero or below most of the time. As a result, renewable projects will no longer recover their long run marginal cost through RCM, energy and Frequency Co-optimised Essential System Service (FCESS).

At the same time, Commonwealth programmes are changing:

- The mandatory large-scale generation certificates (LGC) programme will end in 2030, and there is no clear successor mechanism to replace these revenues.
- The CIS will provide additional revenue for some facilities but not for others.

The objective of Initiative 3 is to consider the need for a “top-up” of WEM revenues for renewable generators to address the risk that the renewables may not recover enough revenue to justify investment.

Average RTM energy prices – RCMR forecast ($AUD/MWh)



Initiative 3 - Status

WICRWG initial discussion on 24 Jan.

Four high level options discussed:

- Approach A: An energy purchaser obligation, like the RET
- Approach B: A capacity-based revenue top up, preferably linked to the CIS
- Approach C: A price guarantee linked to pricing in a trigger year (with a cap and floor)
- Approach D: Manage via the BRCP reference technology

WICRWG members agreed to keep all options on the table until it is clear how the federal CIS will operate in WA.

8. Next steps

Next steps

Progress on initiative 3 depends on clarity of CIS approach for WA.

WICRWG 27 February:

- Price guarantee analysis
- Price guarantee initial proposal

MAC 21 March

- Discuss consultation paper (initiatives 1, 2, 4, 5)

WICRWG 27 March:

- Price guarantee proposal

April – Consultation paper released

June:

- Updates to proposals based on submissions.

June – Information paper released

July:

- Draft amending rules.

Questions or feedback can be emailed to energymarkets@dmirs.wa.gov.au

We're working for Western Australia.

Appendix – International Price Curves

International scan

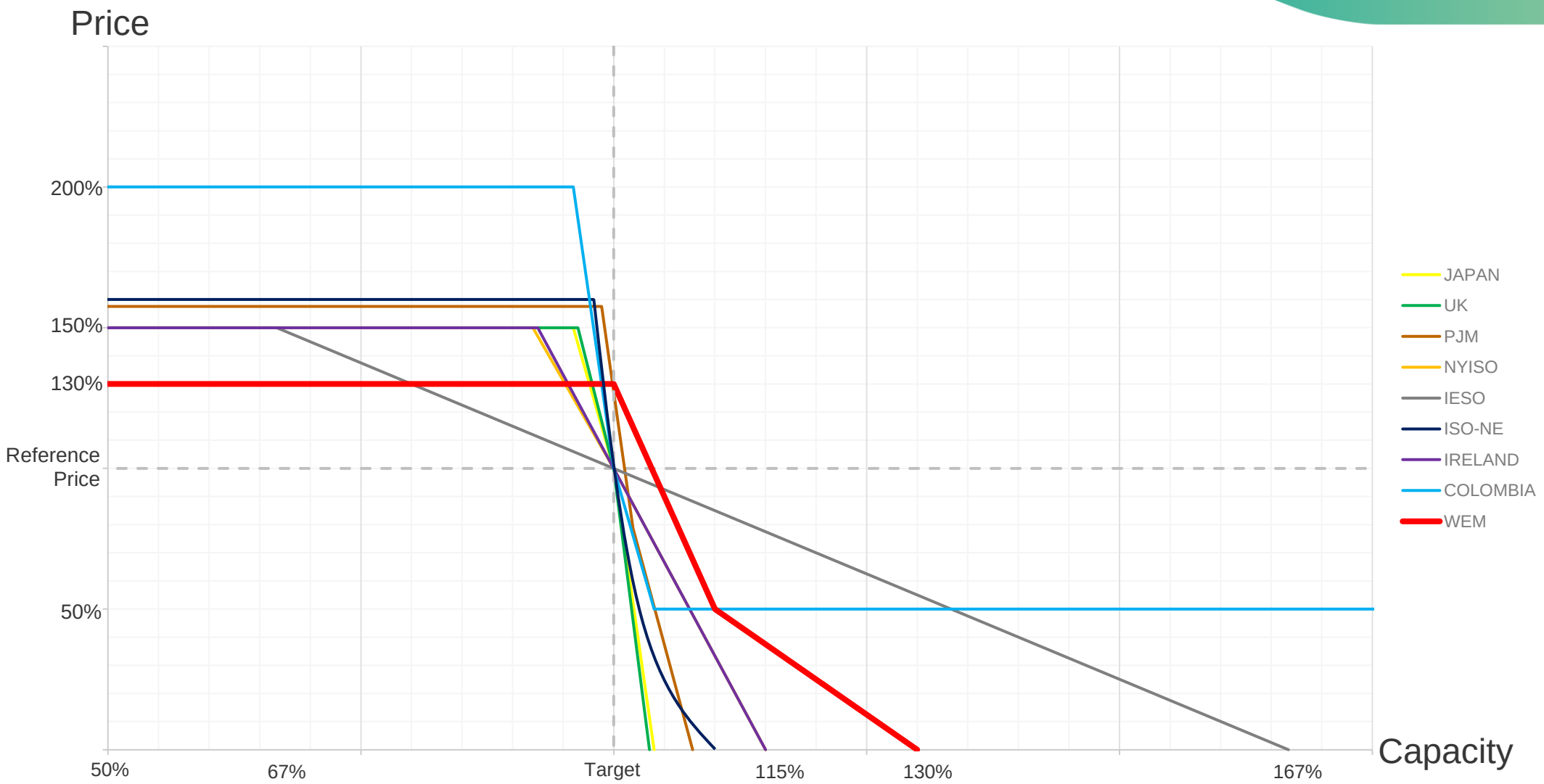
EPWA has revisited the analysis of international price curves conducted during the RCM Review. Some of the jurisdictions covered in that review do not have a price curve, as they do not use central procurement, so these were supplemented with additional jurisdictions which do.

The markets considered are: Colombia, Ireland, ISO-NE, Japan, NYISO, Ontario, PJM, and UK.

While these curves are used in a capacity auction, 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.

See appendix for details of the price curves for each market.

International scan price curves[1]



[1] NYISO's curve is estimated from the average of Zero Crossing Point for each region; ISO-NE's curve is not exact and is for illustrative purposes only.

Observations from international scan

- The WEM price cap is lower (as a percentage of reference price) than other jurisdictions
- Most of the other jurisdictions use Net CONE, while the WEM uses gross CONE
- All other markets set the capacity price at the reference capacity price when capacity procured exactly equals the target, while the WEM sets the price at the cap at the target capacity.
- Most (but not all) markets have a three-part curve, with a straight line from the cap to the floor. The WEM has four.
- Some markets have a convex curve (like the WEM) that sends a sharper signal when in shortage, and provides non-zero payment to capacity providers at higher levels of overcapacity.

Appendix – Other aspects of the RCP curve

Review of price curve parameters

Currently:

- 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 RCM Review amending rules will consolidate ERA BRCP review into 4.16, including triggering an ERA review if the benchmark technology changes

It is proposed to add the Coordinator's review of the price curve to the regular review of the BRCP reference technology. As a result, the ERA review of the BRCP methodology will not include the price curve parameters, as these will be considered by the Coordinator (as in this WIC Review).

Transitional arrangements for existing facilities

In the 2019 reform, transitional pricing arrangements were implemented for existing facilities on the basis that they had invested under a particular pricing arrangement, with no absolute zero point.

These facilities have a cap and floor applied to their RCP.

Because the new proposal does not significantly change the downside risk, there is limited argument for applying a floor for facilities that have commissioned since 2019. However, the new proposal does increase the potential upside for new facilities, because the price cap is increased. Accordingly, an increase in the RCP due to this factor would be a windfall for existing facilities commissioned since 2019.

Inflation adjustment for transitional facilities

The transitional cap and floor is inflation adjusted each year, using RBA forecasts. Forecasts must be used due to the timing of the price calculation, and there is no mechanism to reflect actual inflation, even where it differs significantly from the forecast, as it has in recent years.

Per discussion at the previous WICRWG, EPWA proposes to add a lookback adjustment in future capacity price calculations to reflect differences between forecasts and actuals, in the form:

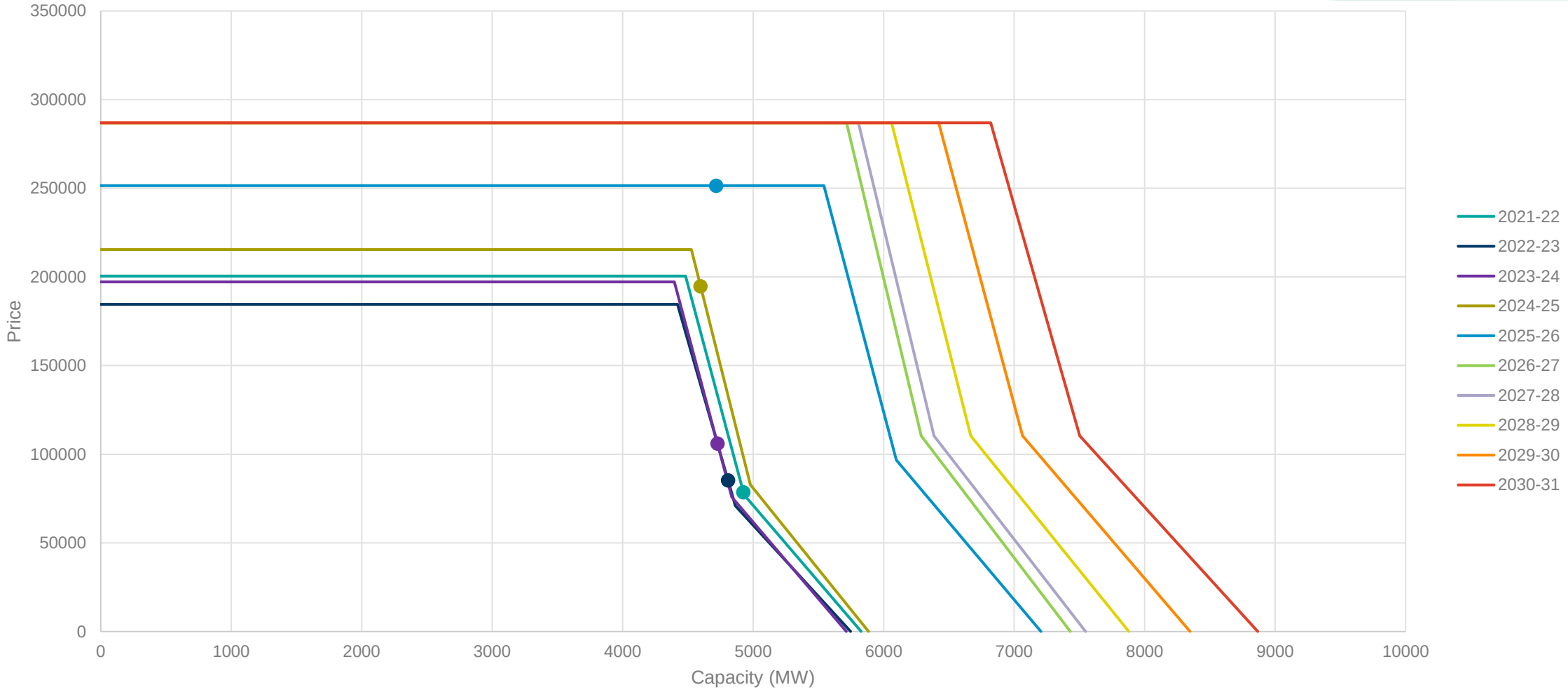
$$\text{Trans\_Ceiling} = \text{Trans\_Ceiling}_{[\text{previous}]} \times \max\left(1, \left(1 + \text{ForecastCPI} + \text{ActualCPI}_{[\text{previous}]} - \text{ForecastCPI}_{[\text{previous}]}\right)\right)$$

The first year would adjust for the period since 2019, while subsequent years would adjust for the previous year only.

Prices already published for previous capacity cycles will not be adjusted.

Appendix – RCP Implications

Current RCP curve over time[1]

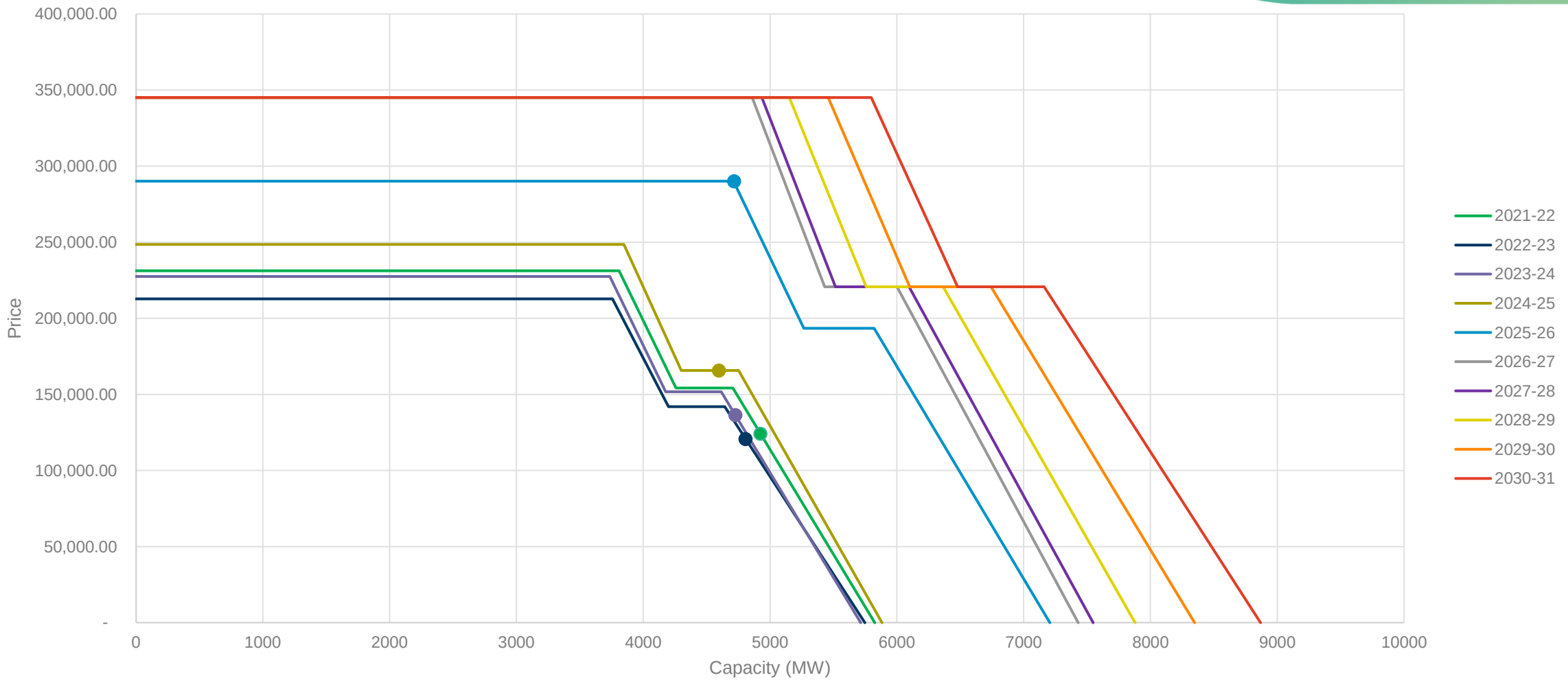


[1] BRCP for 2026 onwards is assumed to be the 2026-2027 BRCP

RCP curve parameters

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap ($)	200,460.00	184,470.00	197,210.00	215,410.00	251,420.00	286,910.00	286,910.00	286,910.00	286,910.00	286,910.00
Target (MW)	4,482.00	4,421.00	4,396.00	4,526.00	5,543.00	5,716.00	5,806.00	6,061.00	6,422.00	6,821.00
Economic Zero ($)	77,100.00	70,950.00	75,850.00	82,850.00	96,700.00	110,350.00	110,350.00	110,350.00	110,350.00	110,350.00
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**	-	-	-	-	-

Peak Capacity price curve over time[1]

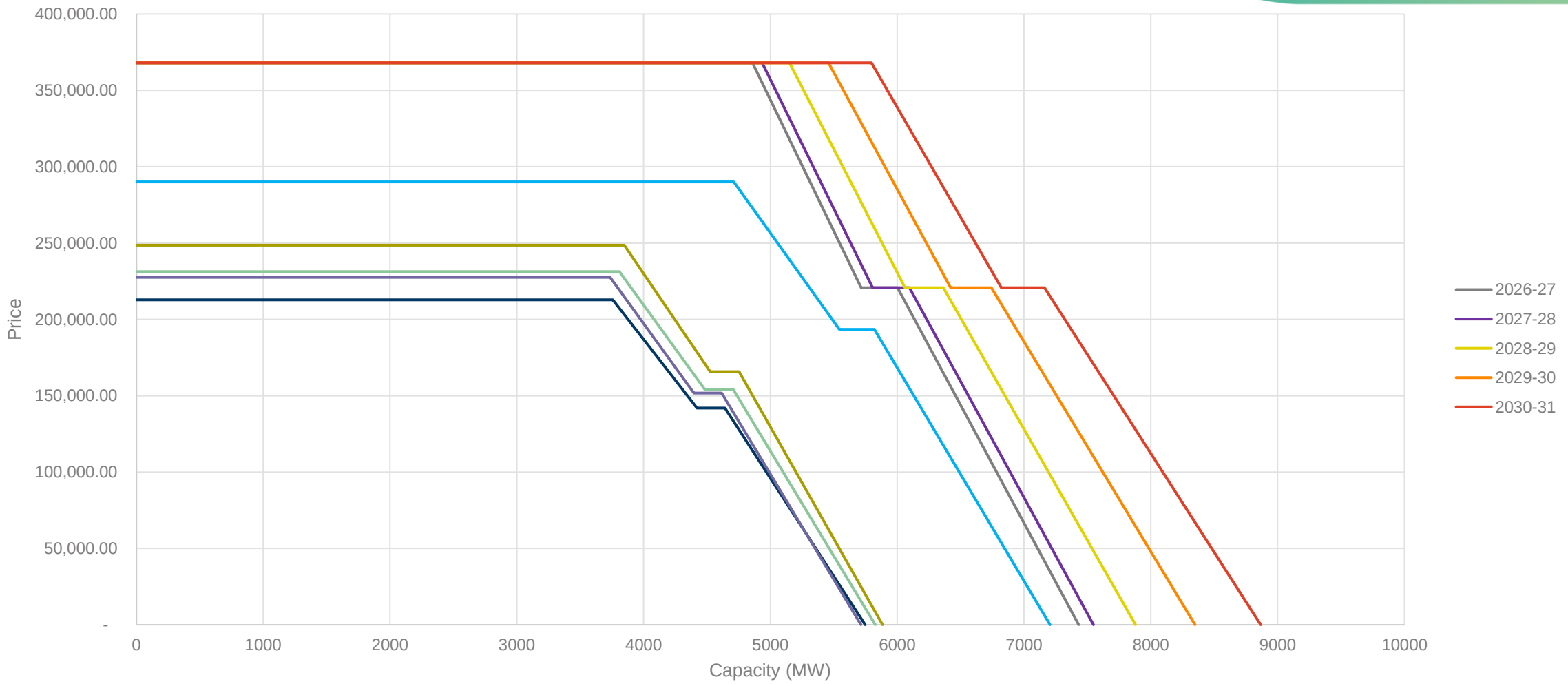


[1] BRCP for 2026 onwards is assumed to be the 2026-2027 BRCP

RCP outcomes – Peak Capacity

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	331,050.00	331,050.00	331,050.00	331,050.00	331,050.00
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	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
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	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
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
Absolute Zero	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130% Target	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 ($)	**124,097**	**120,692**	**136,410**	**165,700**	**290,100**	-	-	-	-	-
Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	-	-	-	-	-

Flexible Capacity price curve over time



[1]With the following assumptions: 1) BRCP for 2026 onwards is assumed to be the 2026-2027 BRCP; and 2) Flex Services have the same values of Target Capacity and BRCP as the Peak Services.

RCP outcomes – Flexible Capacity

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	353,120.00	353,120.00	353,120.00	353,120.00	353,120.00
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	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
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
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
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
Absolute Zero	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130% Target	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
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Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	-	-	-	-	-

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

Agenda Item 8(a): Overview of Rule Change Proposals (as of 1 February 2024)

Market Advisory Committee (**MAC**) Meeting 2024_02_08

- 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
2023/165	12/12/2023	Wholesale Electricity Market Amendment (FCESS Shortfall Pricing) Rules 2023	• Commenced at 8:00am on 13 December 2023

Rule Change 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