



Meeting Agenda

Meeting Title:	Market Advisory Committee (MAC)
Date:	Thursday 16 March 2023
Time:	9:30 AM – 11:30 AM
Location:	Online, via TEAMS, or in person at EPWA.

Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda <ul style="list-style-type: none"> • Conflicts of interest • Competition Law 	Chair	Noting	2 min
2	Meeting Apologies/Attendance	Chair	Noting	2 min
3	Minutes of Meeting 2023_02_02	Chair	Decision	2 min
4	Action Items	Chair	Noting	2 min
5	Market Development Forward Work Program	Chair/Secretariat	Discussion	5 min
6	Update on Working Groups			
	(a) AEMO Procedure Change Working Group	AEMO	Noting	2 min
	(b) Reserve Capacity Mechanism Review Working Group (RCMWG)	RCMRWG Chair	Discussion	90 min
7	Rule Changes			
	(a) Overview of Rule Change Proposals	Chair/Secretariat	Noting	2 min
8	Demand Side Response Review Working Group	Chair/Secretariat	Decision	10 min
10	General Business	Chair	Discussion	3 Min
	Next meeting: 9:30am Thursday 27 April 2023			

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.



Minutes

Meeting Title:	Market Advisory Committee (MAC)
Date:	2 February 2023
Time:	9:30am –11:05am
Location:	Energy Policy WA and Microsoft Teams

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

Also in Attendance	From	Comment
Dora Guzeleva	MAC Secretariat	Observer
Shelley Worthington	MAC Secretariat	Observer
Laura Koziol	MAC Secretariat	Observer
Tim Robinson	Robinson Bowmaker Paul (RBP)	Presenter

Apologies	From	Comment
Timothy Edwards	Metro Power	
Zahra Jabiri	Western Power	
Rajat Sarawat	ERA	
Christopher Alexander	Small-Use Consumer Representative	

Item	Subject	Action
1	<p>Welcome</p> <p>The Chair opened the meeting at 9:00am with an Acknowledgement of Country.</p> <p>The Chair advised that there had been no change to her conflicts of interest since the last MAC meeting.</p> <p>The Chair noted the competition law obligations of the MAC members, asked that members read the paper outlining these obligations and invited members to bring any matters they may identify to the attention of the Chair.</p> <p>The Chair also noted that MAC members are to operate in the interests of the category of membership they represent and achieving the objectives of the Wholesale Energy Market (WEM) and that the purpose of the MAC is to advise the Coordinator whether the WEM is working as intended.</p>	
2	<p>Meeting Apologies/Attendance</p> <p>The Chair noted the attendance and apologies as listed above and welcomed the reappointment of members to the MAC, including the new member Mr Stephen.</p>	
3	<p>Minutes of Meeting 2022_12_13</p> <p>The MAC accepted the minutes of the 13 December 2022 meeting as a true and accurate record of the meeting.</p> <p>Action: The MAC Secretariat to publish the minutes of the 13 December 2022 MAC meeting on the Coordinator's Website as final.</p>	<p>MAC Secretariat</p>
4	<p>Action Items</p> <p>The Chair noted there were no open action items.</p> <p>Ms Guzeleva noted that Mr Schubert had provided some written comments on the Cost Allocation Review (CAR) Consultation Paper.</p>	
5	<p>Market Development Forward Work Program</p> <p>The paper was taken as read.</p>	
6	<p>Update on Working Groups</p> <p>(a) AEMO Procedure Change Working Group (APCWG)</p> <p>Mr Maticka noted the recent procedure changes resulting from the AEPC_2022_01 Certification of Reserve Capacity (CRC) procedure change proposal. Mr Maticka noted that the questions raised on that proposal were responded to individually but invited members to get in touch him if there were any further questions.</p> <p>Mr Maticka noted that the other procedure change proposal consultation, which closed on 24 January 2023, related to the Distributed Energy Resources (DER) procedure. He noted that Western Power had asked to discuss this separately with AEMO but that this was in relation to an operational query rather than the implementation of the proposed changes.</p>	

Item	Subject	Action
	<p>(b) RCM Review Working Group (RCMRWG)</p> <p>Ms Guzeleva noted that Mr Sharafi would provide a short presentation to the group that would set some of the context.</p> <p>Mr Sharafi presented to the MAC on the events on 30 January 2023.</p> <p>Mr Sharafi apologised for not being able to send the slides ahead of the meeting and noted that they were relevant to the context of the discussion.</p> <p>He noted that the slides presented information about the generation mix on Monday 30 January 2023, which was a historic day for the SWIS because it was the first time ever that AEMO had dispatched Supplementary Reserve Capacity (SRC).</p> <p>Mr Sharafi noted, regarding the intermittent generation output, that the minimum wind output over the peak was only 28 MW. Mr Sharafi noted that this was not because of any planned outages or any constraints on the grid. The maximum wind generation output over a few periods during the peak was 40 MW, amounting to around 20% of the total Capacity Credit that wind generators are receiving.</p> <ul style="list-style-type: none"> • Mrs Papps queried Mr Sharafi's comment noting that she was aware that Yandin and Badgingarra were constrained during that period due to thermal constraints. Mrs Papps asked Mr Sharafi to confirm that this was correct as the information she had was that Alinta's wind generators were constrained on that day. <p>Mr Sharafi noted that this was not his understanding but that he would confirm that and get back to Mrs Papps.</p> <p>Mr Sharafi noted that AEMO was advised ahead of time by the forecasters that wind would be very low and pointed to the chart depicting generation by fuel type. The chart showed that, over the peak period, there was effectively no intermittent generation.</p> <p>Mr Sharafi noted that the slides highlight that AEMO needed generation during the peak demand in order to meet that peak demand. He added that the WEM does not have an energy problem, and that there is abundant energy that is creating challenges and issues. Mr Sharafi noted that the WEM has a power problem, instead, that was going to get worse as dispatchable generation retires and the share of intermittent generation grows.</p> <p>Mr Sharafi noted that even if intermittent generation was increased tenfold it cannot meet the peak demand. He added that for AEMO, as the system operator, to be able to plan for the power system it required certainty and that certainty is not there. Mr Sharafi noted that AEMO is at the point it really needed firm capacity to be able to operate the power system and if this capacity is renewable then it has to be firm renewable.</p> <p>Mr Sharafi noted that he did not think the public will accept load shedding each time there was a situation similar to what occurred on the 30 January. He asked the MAC members to consider if it is acceptable that during those extreme days AEMO is not able to meet the peak.</p>	

Item	Subject	Action
	<p>The Chair noted that there was a need to connect these things in order to extract an outcome for what was required of the MAC and the work that the MAC is doing.</p>	
	<ul style="list-style-type: none"> Mr Arias asked if there were any learnings that AEMO can share from that process, noting that it was the first dispatch of the SRC contracts. 	
	<p>Mr Sharafi noted that there had been some issues and learnings and that AEMO was investigating how SRC providers responded and, as the investigation had not been concluded, he may be able to provide further updates at the next MAC meeting.</p>	
	<p>Ms Guzeleva noted that EPWA had commenced its SRC Review, as required under the Rules. She added that the first stage of the review would be about the process leading to the SRC contracts been signed and the second stage would be about what Mr Arias' question pertains to, on the performance of the SRC services. Ms Guzeleva noted EPWA would be sending questionnaires to the various participants during the first stage date and that will also happen for the second stage to get a full knowledge about the processes.</p>	
	<ul style="list-style-type: none"> Mr Huxtable asked how much SRC AEMO got, noting that he did not believe he has seen a figure published anywhere. 	
	<p>Mr Sharafi responded that there was about 90 MW of SRC contracted.</p>	
	<p>The Chair noted that EPWA was undertaking a review and the terms of reference for that review had been brought to the MAC at the December 2022 meeting and published on the website.</p>	
	<p>Ms Guzeleva noted that the reason for the two stages to the review was that the first stage had to be run quickly because it was plausible that AEMO might need to call another SCR procurement after 1 April 2023. She also noted that members could have one to one meetings if they would like and that there would be consultation and further updates provided to the MAC.</p>	
	<p>Action: AEMO to confirm whether the Yandin and Badgingarra wind farms were constrained on 30 January 2023, at the next MAC meeting on 16 March 2023.</p>	AEMO
	<p>Action: AEMO to provide an update on any learning to be shared from activating SRC on 30 January 2023, at the next MAC meeting on 16 March 2023.</p>	AEMO
	<p>The papers for agenda item 6(b) were taken as read.</p>	
	<p>The Chair noted that MAC members are being asked to:</p>	
	<ul style="list-style-type: none"> note the proposed methodology for the certification of intermittent generators; note the minutes from the last RCMRWG meeting and the meeting of 15 December 2022 (which were circulated separately prior to the MAC meeting); note the process that has been undertaken since 2018; and provide any feedback on the recommended approach and the way forward. 	

Item	Subject	Action
	<p>Ms Guzeleva noted that there had been a RCMRWG meeting the previous day (1 February 2023). She added that the minutes from the 15 December 2022 meeting, which were approved at the 1 February meeting, were very relevant to today's discussion and would provide good context for those who had an opportunity to review them.</p>	
	<p>Ms Guzeleva noted that slide 2 was provided to recap what has happened since 2018. She noted that EPWA has received a lot of feedback that this process has gone for far too long and taken too much effort and resource. The current method is not fit for purpose and the time has come to move on. She added that this MAC meeting should be the final stage of the discussion and will be followed with a final paper with the decision and draft rules to be implemented as soon as practicable.</p>	
	<p>Ms Guzeleva noted there is not an answer that will please everyone, which is why it has taken so long, but that the industry cannot spend five years on something without a result. Whatever the answer is, it needs to meet the reliability requirements so the fleet value is very important and then distribution of that fleet value across individual facilities becomes a matter of finding the most balanced approach.</p>	
	<p><u>Volatility in Fleet Performance</u> (Slide 5)</p>	
	<p>Mr Robinson reinforced the message that volatility from year to year in the output of the method that allocates CRC is primarily driven by volatility in the output of the intermittent generators and noted that there was no getting away from the fact that the intermittent generation is volatile. With the use of best historical data available, there is an inherent level of generation volatility that can drive volatility in the outcome of the CRC method.</p>	
	<p>Mr Robinson acknowledged that this may not be ideal for investors, but inherent volatility is a real thing that must be accounted for in the method even if it results in different results from year to year. There are things that can be done to smooth the volatility but not at the expense of increasing the risk to system reliability.</p>	
	<p><u>Determining the Fleet Effective Load Carrying Capability (ELCC)</u> (Slide 6)</p>	
	<p>Mr Robinson noted that there are a number of ways to calculate the ELCC and provided an overview for the approach used in the analysis. He noted that, while the method can account for all of the demand intervals in a year, the result is going to be dependent on what the performance was in a small number of intervals with the highest likelihood of unserved energy, which are likely to be the peak demand intervals. He added that what the performance of the intermittent facilities was in those peak intervals will determine the Fleet CRC.</p>	
	<p>Mr Robinson noted that the method takes any curtailed amount into account because there is a need to know what the intermittent facilities would have provided had they not being curtailed. Mr Robinson noted that this was a slightly different ELCC calculation than what was in the Rule Change Panel report but that the aim was to try and get an equivalent firm value from the historical traces.</p>	

Item	Subject	Action
	<p>Ms Guzeleva noted there was a typo on slide 6. The number should be 0.0015% not 0.015%.</p>	
	<ul style="list-style-type: none"> Mr Sharafi referred back to what he had presented earlier and noted that if a facility is behind a constraint and can be curtailed makes it really ineffective for the system operator to rely on in dispatch. He asked if a facility cannot be dispatched, how it can be considered in the CRC method. He referred to Mrs Papp's statement earlier that she believed that Yandin and Badgingarra were curtailed and noted that, while this might be the case, if they could not be dispatched because they are behind a constraint, this was not very useful to AEMO. 	
	<p>Mr Robinson noted that, in a market with constrained dispatch, that is a really strong signal that perhaps there should be some network investment to remove the need for curtailment. He also noted that this was the reason for introducing the network access quantity (NAQ) regime in that, if a facility is likely to be curtailed at the time of peak, then it is not helpful to give it Capacity Credits. Mr Robinson reminded that MAC that this process is about setting CRC and the NAQs process deals with those network effects.</p>	
	<p>Ms Guzeleva added that capacity without a NAQ is not counted as MW meeting the reliability criteria and cannot be relied on.</p>	
	<ul style="list-style-type: none"> Mr Schubert noted the need to make sure that the curtailment was actually necessary and not due to conservatism on the Network Operators behalf. 	
	<p>Ms Guzeleva noted in the future there will be proper optimization on the basis of constraint equations by the AEMO dispatch engine.</p>	
	<ul style="list-style-type: none"> Mr Schubert noted the information on the basis of which the constraint equations were built is provided to AEMO by Western Power and could still be conservative. 	
	<p>Ms Guzeleva noted that there were checks and balances as there was the option for people to complain to the <u>Economic Regulation Authority (ERA)</u> regarding this.</p>	
	<p>The Chair noted that there were lots of things that could go wrong which is why the governance is important.</p>	
	<p>Mr Robinson noted that one of the things that was taken on board following the consultation paper was the volatility from year to year. He added that one of the working group participants proposed to average the individual year outputs rather than look at the period as a whole (because that would reduce the volatility year to year).</p>	
	<p>To address some of that volatility, it is proposed to take the period as a whole as well as average the individual year outputs, but then use the lower of the two to avoid increasing the risk to system reliability. Mr Robinson noted some years have a system stress event some years do not and so it is proposed to remove the year with the lowest peak demand from the sample.</p>	
	<ul style="list-style-type: none"> Mr Schubert supported the approach and noted that the reserve capacity requirement is determined by the 10% Probability of Exceedance (POE) years which did not happen very often. He 	

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	<p>considered that there was a need to weight those years more than the years where there is lower peak demand.</p> <p>Mr Robinson noted that this was what the ELCC method does - the years which actually had the highest peak demands drive more of the result than the other years do.</p> <p>The Chair noted that there were no questions or objections to the approach to determining Fleet ELCC, noting there would be no further consultation on this.</p>	
	<p><u>Determining Facility ELCC (slide 17 and 18)</u></p>	
	<p>Mr Robinson provided a recap of the three methods considered, noting that this area had been slightly more controversial and that the slides provided some of the results of the analysis and options to mitigate some of the volatility.</p>	
	<p>Mr Robinson noted that there was a strong message from the RCMRWG that a simpler method was required, and if particular intervals were chosen participants and investors can apply the method themselves. Mr Robinson noted that as a result a simpler method is proposed. However, if particular intervals are to be used, then these should be the same intervals that are used for setting the Individual Reserve Capacity Requirement (IRCR), which apply to the demand side. This will align everybody's incentives to drive behaviour in the same direction.</p>	
	<p>Mr Robinson noted that there had not been a great deal of discussion on this with the RCMRWG. However, assessing individual facility performance in a set of performance intervals that are consistent with IRCR would satisfy the long list of policy design goals including system reliability, because the Fleet CRC will be set on an ELCC basis.</p>	
	<p>Ms Guzeleva noted, for the benefit of those who were not at the RCMRWG the previous day, that a number of options were presented on setting the IRCR intervals and that this was a very good discussion. She considered that the group broadly supported to keep the principle of setting the IRCR intervals as it is today, but looking into whether the number of the IRCR intervals was sufficiently large to pick up the right stress events and noted that there would be additional analysis.</p>	
	<p>Ms Guzeleva noted that there were 3 other proposals that were not accepted by the group. This is why this new option was developed. The next step is to refine this new preferred option and bring it back to the MAC at the next meeting.</p>	
	<p>Mr Robinson noted that there was little support for one of the other options and also a request to see if we could make the low reserve margin option slightly more predictable. However, the general weight of the discussion tended towards selecting the high demand intervals to reflect the changing nature of the shape of the load.</p>	
	<p>The Chair asked Ms Guzeleva what she is asking of the MAC.</p>	
	<p>Ms Guzeleva noted that the proposal is to use the IRCR intervals for setting the CRC for individual intermittent facilities, noting that the intervals might be expanded to cover as much of the stress events as</p>	

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	<p>practicable. She was looking for any particular objections to doing that and the basis of any objection.</p>	
	<ul style="list-style-type: none"> Mrs Papps asked if one of the previous slides showed what the outcomes are of using the IRCR intervals or was there no analysis of that. 	
	<p>Mr Robinson noted that there was no analysis of what the outcomes would be of using the IRCR intervals because it had not yet been determined what the IRCR intervals would be in the future. He noted, however, that slide 5 shows the analysis for the fleet in the top 12 intervals versus the IRCR intervals. This showed that the IRCR intervals are not the same as the same number of highest demand intervals. This could mean that the current IRCR method is not selecting all the highest demand intervals, i.e. it is selecting some lower demand intervals instead. Some of the discussion at the latest RCMRWG meeting was on how the IRCR method could be refined in order to make sure that it selects all of the intervals that comprise stress events.</p>	
	<ul style="list-style-type: none"> Mrs Papps noted her concern that using the IRCR intervals might come back to the very same problem with the Delta method. That is, that a very small number of intervals are selected that could severely skew the results. She asked if it was proposed to expand the number of IRCR intervals, so that the same issue does not occur. 	
	<p>Mr Robinson noted that Mrs Papps was right that, as the system stress events only happen in a small number of intervals, results are likely to be more volatile. One of the concerns raised by the last RCMRWG meeting was that if only one day was selected if all of the highest demand intervals happened on that day. As there are a couple of past years in which the highest demand happened on the same day, the group discussed options to make sure that the IRCR intervals were not all selected on a single day.</p>	
	<ul style="list-style-type: none"> Mrs Papps asked if the MAC members were being asked to approve or endorse a methodology without knowing what they were endorsing (because the next bit of work had not been done). 	
	<p>Mr Robinson noted that endorsement is being sought on two levels. Firstly, RCMRWG members had recommended that performance is assessed over predetermined intervals because this is a simple method that can be understood by investors. Secondly, if predetermined intervals are to be used, it is appropriate to use the same intervals that are used for setting IRCR. If there are concerns that there are too few IRCR intervals, this can be discussed in the IRCR methodology assessment process.</p>	
	<p>Ms Guzeleva asked if it was fair to assume that if five years or IRCR intervals are used this will pick up more intervals than the Delta method did, noting that the concern with the Delta method was that it was picking too few intervals.</p>	
	<p>Mr Robinson noted that this was correct.</p>	
	<p>Ms Guzeleva noted that the method for distribution of the fleet amongst the facilities needs to be decided and the exact intervals can be refined.</p>	

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	<p>The Chair asked Mrs Papps to indicate if the discussion has captured her concern.</p>	
	<ul style="list-style-type: none"> Mrs Papps noted that, because there was still a piece of the puzzle that is yet to be solved, it was hard to agree to the method. 	
	<p>The Chair noted that Mrs Papps had concern with accepting something in principle without knowing what its impact was going to be.</p>	
	<ul style="list-style-type: none"> Mrs Papps agreed with the Chair's comment noting that she very strongly supported moving this forward as well and agreed with Ms Guzeleva that five years without an outcome is too long. 	
	<p>The Chair asked other members of the MAC if they had any further questions or comments.</p>	
	<ul style="list-style-type: none"> Mr Peake noted that he was supportive of what was being proposed and that adding more intervals to the IRCR would be good. 	
	<p>The Chair noted that Mr Peake was comfortable with the proposal knowing that there was subsequent analysis to address remaining aspects.</p>	
	<ul style="list-style-type: none"> Mr Schubert supported the proposal of using the IRCR intervals and noted that the intent was to identify those intervals that actually matter to reliability. He hoped that the next step would come up with a good method for selecting the right intervals. Mr Huxtable was supportive of the approach and moving forward. Mr Arias had no objections but noted the need to make sure that that the range of intervals is wide enough to adequately represent performance, rather than focusing on one year. Mr Stephen noted that the purpose of the proposed alignment was to keep things simple. 	
	<p>Ms Guzeleva noted that the Fleet CRC value is not going to be changed by this, as this is about distribution of the value amongst the various facilities in the fleet.</p>	
	<ul style="list-style-type: none"> Mr Schubert noted that he understood this but that it is the individual facilities values that of most concern to the investors. Mr Huxtable asked how an event like Monday's (referring to the slides presented by Mr Sharafi) would affect the Fleet CRC value and whether the next year fleet value will shift markedly because of it. 	
	<p>Ms Guzeleva confirmed that the Fleet CRC value would be based on intervals like those on Monday.</p>	
	<p>Mr Robinson noted that the peak demand on that day of 3,800 MW, if that is the highest demand this year, is still 200 MW lower than the highest peak demand in the past. If within the CRC calculation horizon there are some years, which had higher peak demand than the demand on Monday, then the Fleet CRC result will be more influenced by those intervals of higher demand than this year's. However, if this year's peak demand intervals are taken into account</p>	

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	<p>by the calculation, fleet performance in those intervals will flow into the fleet ELCC value and, all else being equal, would bring it down.</p>	
	<ul style="list-style-type: none"> • Mr Gaston had concerns that it is proposed to use a method that is used to allocate costs to customers and shoehorn that method for assigning Capacity Credits to participants. He referred to what he said at the previous day RCMRWG meeting - that the IRCR method needs to be easy for customers to understand. He had concerns that this may potentially be compromised to try to accommodate more Capacity Credits for the intermittent generators. • Mr Gaston noted, however, that he did support, in principle, treating renewable or intermittent generators like loads but they should be getting all the different costs that go with that treatment. However, he did not support using reserve margins to identify IRCR intervals, noting that IRCR is there to cover the reserve capacity requirement. This is currently based on peak demand and this needs to remain as otherwise IRCR intervals may end up at midnight in July. 	
	<p>Ms Guzeleva noted that the minutes from yesterday's RCMRWG meeting will show that using the reserve margins to identify the IRCR intervals was clearly not supported. The group did not support moving from basing the IRCR on the peak demand intervals and the stress events.</p>	
	<ul style="list-style-type: none"> • Mr Gaston noted that trying to repurpose the IRCR methodology for another purpose instead of just fairly allocating costs to customers, will lead to other participants trying to use it to maximize their own benefits. 	
	<p>Ms Guzeleva agreed that it is not acceptable to expand the IRCR intervals just for the sake of assigning more Capacity Credits to facilities.</p>	
	<p>The Chair acknowledged Mr Gaston's concern noting that it may also be related to others' concern to agree in principle to something while there was further work to be done on the detail. The Chair sought to clarify whether this was a matter of keeping that concern in mind in moving forward, or if Mr Gaston did not support the proposal in principle.</p>	
	<ul style="list-style-type: none"> • Mr Gaston noted that he did like the idea of using the IRCR method because it was about performance during the peak demand, but was worried that some participants may want to have this designed so that it was better for them, rather than allocating costs to customers fairly. 	
	<p>The Chair noted that it will be important to understand how the process and the decision making around that process will address these concerns.</p>	
	<ul style="list-style-type: none"> • Ms Teo noted that she understood the need to keep it simple. • Mr Sharafi supported linking the CRC for individual facilities to IRCR, but did not support changing the IRCR method for that purpose, noting that anything that removes predictability of the IRCR intervals will be counterproductive. 	

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	<ul style="list-style-type: none"> Mr Maticka added to Mr Sharafi's comment noting that Mr Gaston has raised a very interesting point, in that different stakeholders potentially have different interests in how this is going to work, but, apart from that, agreed it is a reasonable way forward. 	
	<p>The Chair noted that she understood the concern and noted that that this would be about understanding what individual commercial interests might be versus achieving an outcome that is best for the WEM. The process should make sure that the focus is on what is best for the WEM, and declaring and understanding individual commercial interests. The Chair noted she had faith in Ms Guzeleva's ability to understand everybody's interests in that process.</p>	
	<p>The Chair read comments from Mr Alexander, who was unable to attend the meeting, that he:</p>	
	<ul style="list-style-type: none"> supported a pragmatic decision for item 6(b) that settles on a methodology that reflects the extensive analysis undertaken to date that allows everyone to collectively move on to other pressing market reform challenges such as creating the right signals for long duration storage. believed that the long history of this issue is detailed in the slides, and stakeholders have had opportunity to coalesce around a methodology suggested by industry, and so the MAC should be comfortable to make a decision today. strongly supports the principle of simplicity and work by EPWA to make the methodology as transparent and user-friendly to understand and apply for investors (without undermining the integrity of the methodology). if Mr Alexander were in the meeting, he would have asked MAC members a clarifying question about what it is about the EPWA methodology as it stands that makes it hard for investors to apply. 	
	<p>Mr Robinson noted that the concern was not that the proposed method would be hard to apply, but rather that some of the previously proposed methods would be hard to understand.</p>	
	<p>Ms Guzeleva noted that the 3 methods that were hard to understand were discussed at the RCMRWG meeting. The use of the IRCR has been proposed to address the concern that the Delta method would be very difficult to understand.</p>	
	<ul style="list-style-type: none"> Mr Schubert noted that Dr Shahnazari and the ERA has done a lot of analysis in their previous work on allocating CRC to intermittent generators and noted that, while Dr Shahnazari is an observer on the MAC he has a good understanding of the issues and may want to comment. 	
	<p>The Chair asked Dr Shahnazari if there was something he could add that will influence and/or change the views of the MAC or did he consider there to be missing information.</p>	
	<ul style="list-style-type: none"> Dr Shahnazari noted that he has concerns about using the IRCR intervals for the allocation of CRC. The reason for this is that IRCR intervals should be based on system stress events and he believed that at the previous working group meeting there was consensus around this. 	

Item	Subject	Action
	<ul style="list-style-type: none"> Dr Shahnazari noted that if the CRC allocation is based on IRCR intervals (that is, on the system stress events), these events are moving into the evening periods. The solar farms are actually contributing to the reliability of the system by shifting demand from early afternoon towards later in the evening. If you base the CRC allocation on the IRCR intervals, there is a risk this will disadvantage some of these resources. That is something else that needs to be considered. <p>Ms Guzeleva noted that Dr Shahnazari is a RCMRWG member and comments like these should be actually raised the working group.</p> <ul style="list-style-type: none"> Mr Shahnazari noted that this methodology was not discussed at the RCMRWG because the group had not decided to use the IRCR method. <p>The Chair noted that Dr Shahnazari has made his objection and that this has been heard by the MAC members.</p> <ul style="list-style-type: none"> Mrs Papps asked a clarification question on the slide 18, which states that the allocation for CRC would be consistent with the IRCR intervals over the previous five years. She asked whether this meant that applying this over five years is still proposed. <p>Mr Robinson confirmed that this is correct.</p> <ul style="list-style-type: none"> Mrs Papps noted that she had not changed her opinion because she did not believe that this had been discussed at the working group. Mr Carlberg, who attended the RCMRWG meeting, had confirmed that he did not support aligning the CRC with the IRCR intervals. <p>The Chair noted that there was an RCMRWG meeting on the previous day and that the MAC has not had the advantage of having that conversation shared yet. However, she understood that what Ms Guzeleva had said was that group had discussed the IRCR method and there was further work that needs to be done on making sure this supports what the group is trying to achieve at a couple of levels, not just for this purpose. She added that the concerns that have been raised at the MAC will be taken into account.</p> <p>Ms Guzeleva reiterated that this is only about the distribution of the fleet value amongst the individual facilities, and it does not impact reliability. The working group discussed 3 methods and there was no consensus on those 3 methods. The feedback from the working group was that the proposed methods are way too complex and have to be simplified because this is not good for investment. Given this an alternative much simpler method has now been proposed.</p> <p>Ms Guzeleva noted that the RCMRWG feedback was taken on board and in the last set of slides presented to the RCMRWG had this simpler method, noting that it will be applied in a similar way to the IRCR is applied to loads, but over 5 years. She, however, accepted that there had not been extensive discussions at the RCMRWG</p> <p>Ms Guzeleva asked the MAC if costs are distributed to customers on the basis of system stress events, what would be the logic of not looking at the performance of intermittent generators when the system is most stressed.</p>	

Item	Subject	Action
	<p>Ms Guzeleva noted that, recognising that loads change during the year, basing the IRCR for loads on one year remains appropriate. However, for intermittent generators, the proposal is still to calculate the CRC over five years, which would also reduce the volatility of the outputs.</p> <ul style="list-style-type: none"> Mr Schubert noted that he believed that the RCMRWG and the MAC can work through these issues and address them going forward. He believed that Dr Shahnazari's comment was more about first movers whose intermittent generators help the system but then have their CRC reduced later when others come in but do not help. <p>Ms Guzeleva noted that analysis on the impact of newcomers indicated that this did not make material difference.</p> <ul style="list-style-type: none"> Mr Schubert noted that he was referring to first movers, the ones that have already built their facilities and have helped improve reliability because they were available when the peak used to be at the time. However, now the solar facilities are not helping anymore and wind, as seen on Monday, is not helping either. <p>Mr Robinson noted that analysis showed that if new facilities are added now, this does not seem to make a big difference for existing facilities. However, he understood Dr Shahnazari's concern that facilities that contributed to improving system reliability, when they were commissioned some years ago, are treated the same as those commissioned today but not making the same contribution.</p> <p>Ms Guzeleva noted that this would require a judgement on how much each facility had contributed to system reliability in the past, and that this has been discussed by the group and its complexity would outweigh any benefit.</p> <ul style="list-style-type: none"> Ms Teo noted that, not being a member of the RCMRWG herself, she did not realise that there had been discussions about using the IRCR methodology and that it did not sound like there was general agreement. Ms Teo noted that Synergy would like to see what the analysis is first before landing on applying the IRCR method to CRC. <p>The Chair noted that the point was that nobody had been able to identify another method that all will be happy with. What has been recommended is that the MAC agrees with the proposal in principle, and then work out how the concerns that are being raised can be taken into account.</p> <p>The Chair noted that perhaps the MAC was at a point where it does not have consensus on this issue, however, the majority of MAC members can support adopting the IRCR approach in principle but flagging concerns that MAC members want addressed in subsequent work.</p> <p>The Chair sought to clarify whether Mrs Papps objected to the use of the IRCR method in principle.</p> <ul style="list-style-type: none"> Mrs Papps noted that she did not object, but that she did not have enough information to agree. 	

Item	Subject	Action
	<p>The Chair asked Mrs Paps what information would she need, or what information did she have about another methodology that would be more acceptable that has not already been raised.</p>	
	<ul style="list-style-type: none"> • Mrs Papps noted that she was reasonably comfortable with the Collgar hybrid method, noting that she had not seen the previous three proposals analyzed against each other. 	
	<p>The Chair noted that there, despite this analysis being presented to the RCMRWG, there was no consensus. The MAC may need to acknowledge that the RCMRWG may not be able to reach consensus on the current proposal either, i.e. that some members of the group may not support it, but that this matter needs to keep moving forward. As it was outlined earlier, this has been the subject of discussions for five years.</p>	
	<p>The Chair asked what the best way to move this forward is and if there is another option to put forward than the one that is on the table.</p>	
	<ul style="list-style-type: none"> • Mrs Papps noted that she was comfortable with it moving forward, if it has to move forward, noting that she did not have enough information to know whether to support it. Mrs Papps reiterated that she did not believe this was discussed at the RCMRWG in detail and that this information came from Alinta's member Mr Carlberg who attended the meeting. • Mrs Papps noted that it was difficult for the MAC members, who are not necessarily the experts, to discuss this if a working group of experts has not discussed the proposal. Mrs Papps reiterated that she will not agree with it without understanding the full ramifications. 	
	<p>Ms Guzeleva noted the analysis will be done but the reality was that some facilities may be worse off and other facilities will be better off compared to other methods. If members are waiting to see that result and check whether the Collgar hybrid method was better for them then the discussion will be in the same place it has been for five years.</p>	
	<p>The Chair noted that there was a risk that the method is getting assessed based on the outcome for individual facilities as opposed to the WEM objectives.</p>	
	<p>The Chair noted that she understands that Mrs Papps was comfortable using the IRCR based method to move forward, but has concerns about the selection of the IRCR intervals, which other members have also raised. She sought to clarify Ms Teo's position and whether she supported, in principle, moving forward with the IRCR method for the facility CRC allocation.</p>	
	<ul style="list-style-type: none"> • Ms Teo noted that she supported exploring this alternative method but would like to see the outcomes. 	
	<p>The Chair noted that, once the results of the analysis are available, MAC members need to think about whether there is a problem with the outcome, in principle, as opposed to that outcome being commercially unfavourable to some of the members. At the end of the day the MAC's focus should be on the objectives of the WEM and not on individual organisations' commercial interests.</p>	

Item	Subject	Action
	<ul style="list-style-type: none"> Mrs Papps asked what if the outcome was so uneconomic that everyone exited the WEM or no new investment was attracted. <p>The Chair noted that if Mrs Papps was saying that using the IRCR method is likely to result in that, then she should clarify her objection.</p> <ul style="list-style-type: none"> Mrs Papps clarified that what she was saying was that she did not know what the IRCR method is going to result in because the MAC did not have any analysis in front of it. She reiterated that it is difficult to support the method without that analysis. <p>The Chair sought again to clarify Mrs Papps' position, and whether she could support the method, in principle, to move forward or if she could not support it, in principle.</p> <ul style="list-style-type: none"> Mrs Papps stated that she did not have enough information, and would want to lodge an objection on that basis. Mrs Papps also stated that, as she has previously said, she does not want to hold up progress. <p>The Chair summarised that there was general agreement and the MAC endorsed the conclusions of the RCMRWG in relation to the proposed method for the Fleet CRC determination. In relation to the Facility CRC allocation, the Chair noted that there was general, in principle, support for moving forward with using the IRCR method, recognising all the work that has been done to date and the number of methodologies that have been considered, but the MAC has not reached consensus on endorsing this method.</p> <p>The Chair noted that the concerns that have been raised by the MAC will be addressed by analysing the results of applying the IRCR method. Once those results are available, the MAC will take a WEM objectives view and be very conscious about the difference between that and the commercial interests of individual organisations.</p> <p>Ms Guzeleva suggested that when the results are brought back to the MAC for consideration, they will only be compared to the outcomes of the current Relevant Level method. Otherwise there will always be a method that somebody likes and another method that somebody else prefers.</p> <p>The Chair agreed but noted that MAC members should be committing to considering that analysis on the basis of principle objections, not individual outcome objections.</p>	

(c) CAR Working Group (CARWG)

The Chair of the CARWG reminded MAC members that the submission period on the CAR Consultation Paper closed on 9 February 2023.

She noted that EPWA has had discussions with AEMO about some aspects of the Consultation Paper and acknowledged that there was still further work to be done, particularly on the design of the methodology for distributing the costs of Frequency Regulation.

7 Rule Changes

(a) Overview of Rule Change Proposals

The paper was taken as read. There were no updates.

Item	Subject	Action
	Ms Guzeleva noted there were some typos in the first two columns as the reference to 2023 should be to 2022.	
9	General Business	
	Mr Sharafi requested that the duration of future MAC meetings be extended.	
	Ms Guzeleva noted that the meeting had been shortened as a once off due to there only been one agenda item, and that in future meetings would be of the usual 2 hour length.	
	Mr Schubert asked Mr Sharafi if the 3,800 MW on Monday 30 January was based on sent out or generated power.	
	Mr Sharafi responded that it was based on system load, which is generated and not sent out.	
	The next MAC meeting is scheduled for 16 March 2023.	
The meeting closed at 11:05am.		

Agenda Item 4: MAC Action Items

Market Advisory Committee (**MAC**) Meeting 2023_03_16

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
3/2023	MAC Secretariat to publish the minutes of the 13 December 2022 MAC meeting on the Coordinator’s Website as final.	MAC Secretariat	2023_02_02	Closed The minutes were published on the Coordinator’s Website on 2 February 2023.
4/2023	AEMO to confirm whether the Yandin and Badgingarra wind farms were constrained on 30 January 2023.	AEMO	2023_02_02	Open AEMO to provide update at the next MAC meeting on 16 March 2023.
5/2023	AEMO to provide an update on any learning to be shared from activating SRC on 30 January 2023.	AEMO	2023_02_02	Open AEMO to provide update at the next MAC meeting on 16 March 2023



Agenda Item 5: Market Development Forward Work Program

Market Advisory Committee (**MAC**) Meeting 2023_03_16

1. Purpose

- To provide an update on the Market Development Forward Work Program provided in Table 1, including:
 - the Chair of the Reserve Capacity Mechanism Review Working Group (**RCMRWG**) is to update the MAC on the progress of the Reserve Capacity Mechanism (**RCM**) Review since the last MAC meeting – see Agenda Item 6(b).
 - to provide an update on other issues to be addressed via the Market Development Forward Work Program provided in Table 4:
- Changes to the Market Development Forward Work Program provided at the previous MAC meeting are shown in **red** font in the Tables below.

2. Recommendation

The MAC Secretariat recommends that the MAC notes the updates to the Market Development Forward Work Program.

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.	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ 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 and 24 November 2022; 15 December 2022 and 1 February 2023; and ○ meeting papers from the RCMRWG meeting on 16 February and 2 March 2023. • The Chair of the RCMRWG will update the MAC on the progress on the RCM Review since the last MAC meeting, including the RCMRWG’s assessment of options for the Certification of Intermittent Facilities– see Agenda Item 6(b). • 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: <ul style="list-style-type: none"> ○ 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; and ○ submissions on the Stage 1 Consultation Paper.

Table 1 – Market Development Forward Work Program

Review	Issues	Status and Next Steps
Cost Allocation Review	<p>A review of:</p> <ul style="list-style-type: none"> 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). 	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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; the Consultation Paper; the International Review; submissions on the Consultation Paper; meeting papers and minutes from the CARWG meetings on 9 May 2022, 7 June 2022, 30 August 2022, 27 September 2022 and 25 October 2022; and meeting papers from the CARWG meeting on 29 November 2022. There have been no updates since the last MAC meeting.
Procedure Change Process Review	<p>A review of the Procedure Change Process to address issues identified through Energy Policy WA's consultation on governance changes.</p>	<ul style="list-style-type: none"> The MAC discussed a draft Scope of Work for this review at its meeting on 11 October 2022. MAC members provided comments on the draft Scope of Works at that meeting, and were asked to provide further comments by email. EPWA did not receive any further comments. EPWA will update the Scope of Works to reflect the MAC discussions and, following the Coordinator approval of the Scope, will provide the final scope and a timeline for the review to the MAC in early 2023.
Forecast quality	<p>Review of Issue 9 from the MAC Issues List (see Table 4).</p>	<ul style="list-style-type: none"> This review has been deferred.

Table 1 – Market Development Forward Work Program

Review	Issues	Status and Next Steps
Network Access Quantity (NAQ) Review	Assess the performance of the NAQ regime, including policy related to replacement capacity, and address issues identified during implementation of the Energy Transformation Strategy (ETS).	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> This review has been deferred.
Review of the Participation of Demand Side in the Wholesale Electricity Market (WEM)	<p>The scope of this review is to:</p> <ul style="list-style-type: none"> identify the different ways that Loads/Demand Side Response can participate across the different WEM components; identify and remove any disincentives or barriers for Loads/Demand Side Response participating across the different WEM components; and identify any potential for over- or under-compensation of Loads/Demand Side Response (including as part of 'hybrid' facilities") as a result of their participation in the various market mechanisms. 	<ul style="list-style-type: none"> The MAC discussed a draft Scope of Work for this review at its meeting on 11 October 2022. MAC members provided comments on the draft Scope of Works at that meeting, and were asked to provide further comments by email. EPWA did not receive any further comments. EPWA will update the Scope of Work to reflect the MAC discussions and, following approval by the Coordinator of Energy, will provide the revised scope and a timeline for the review to the MAC in early 2023. EPWA proposes that the MAC establishes a working group for the Demand Side Response Review. To be discussed under Agenda Item 8. EPWA has updated the Scope of Work.

Table 2 – Issues to be Addressed in the RCM Review

Id	Submitter/Date	Issue	Status
1	Shane Cremin November 2017	<p>IRCR calculations and capacity allocation</p> <p>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’.</p>	To be considered in the RCM Review.
3	Shane Cremin November 2017	Penalties for outages.	To be considered in the RCM Review.
4	Shane Cremin November 2017	Incentives for maintaining appropriate generation mix.	To be considered in the RCM Review.
14/36	Bluewaters and ERM Power November 2017	<p>Capacity Refund Arrangements:</p> <p>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:</p> <ul style="list-style-type: none"> • 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. 	To be considered in the RCM Review.

Table 2 – Issues to be Addressed in the RCM Review

Id	Submitter/Date	Issue	Status
		<p>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:</p> <ul style="list-style-type: none"> • 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	<p>Reserve Capacity Mechanism</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p>The review will support Wholesale Market Objectives (a) and (d).</p>	To be 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	<p>Issues with Reserve Capacity Testing</p> <ul style="list-style-type: none"> 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. 	To be considered in the RCM Review (except that the first bullet may be out scope, in which case it will be added to Table 4).
58	MAC October 2019	<p>Outage scheduling for dual-fuel Scheduled Generators</p> <p>'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.</p> <p>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.</p> <ul style="list-style-type: none"> (See section 7.2.2.5 of the Final Rule Change Report for RC_2013_15.) 	To be considered in the RCM Review (or may be out of scope, in which case it will be added to Table 4).

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?	To be considered in the Cost Allocation Review.
16	Bluewaters November 2017	<p>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.</p> <p>Therefore, the non-BTM Market Participants are subsidizing the BTM generation in the WEM. Subsidy does not promote efficient economic outcome.</p> <p>Rapid growth of BTM generation will only exacerbate this inefficiency if not promptly addressed.</p> <p>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.</p> <p>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.</p> <p>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.</p>	To be considered in the Cost Allocation Review.
23	Bluewaters November 2017	<p>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.</p> <p>In particular, the costs associated with an electricity market reform program should be recovered from entities based on the benefit they receive from the</p>	To be considered in the Cost Allocation Review.

Table 3 – Issues to be Addressed in the Cost Allocation Review

Id	Submitter/Date	Issue	Status
		<p>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.</p> <p>Recommendations: to review the Market Fees structure including the cost recovery mechanism for a reform program.</p> <p>The cost saving from improved economic efficiency can be passed on to the end consumers, hence promoting the Wholesale Market Objectives.</p>	
35	ERM Power November 2017	<p>BTM generation and apportionment of Market Fees, ancillary services, etc.</p> <p>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 available. There needs to be equity in this equation.</p>	To be considered in the Cost Allocation Review.

Table 4 – Other Issues

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

MARKET ADVISORY COMMITTEE MEETING, 16 March 2023

FOR DISCUSSION

SUBJECT: UPDATE ON AEMO'S WEM PROCEDURES

AGENDA ITEM: 6(A)

1. PURPOSE

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

2. AEMO PROCEDURE CHANGE WORKING GROUP (APCWG)

	Most recent meetings	Next meeting
Date	17 January 2023	As required
WEM Procedures for discussion	WEM Procedure: DER Information Register	

3. AEMO PROCEDURE CHANGE PROPOSALS

The status of AEMO Procedure Change Proposals is described below, current as at 16 March 2023. Changes since the previous MAC meeting are in **red text**. A procedure change is removed from this report after its commencement has been reported or a decision has been taken not to proceed with a potential Procedure Change Proposal.

ID	Summary of changes	Status	Next steps	Indicative Date
AEPC_2022_02	<p>AEMO proposed amendments to the Procedure to:</p> <ul style="list-style-type: none"> • incorporate electric vehicles (EVs) and electric vehicle charging equipment data; • integrate changes following amendments to the Australian Standard AS/NZS 4777.2:2015 which has been superseded by AS/NZS 4777.2:2020; • implement minor changes that better reflect the changed operational expectations of DER in the WEM and SWIS (e.g. implementation of Emergency Solar Management); • improve the completeness and quality of data exchanged between Network Operators and AEMO (e.g. conveying additional context to reinforce clarity in the document; better aligning the Procedure with related technical specifications); and • reinforce alignment to the WEM Rules, and make other minor administrative changes. 	Consultation Closed	Procedure Commencement	02/10/2023



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

Market Advisory Committee (MAC) Meeting 2023_03_16

1. Purpose

- The Chair of the Reserve Capacity Review Working Group (RCMRWG) to provide an update on the activities of the RCMRWG since the last MAC meeting.
- To outline the proposals in relation to Demand Side Programs, the approach to Individual Reserve Capacity Requirements for the peak and flexible capacity product, the implementation of penalties for high emission technologies and the duration gap, and to seek MAC's endorsement of the proposals.

2. Recommendation

The MAC:

- (1) notes the minutes from the RCMRWG meeting on 15 December 2022, 1 February and 16 February 2023;
- (2) notes the update from the RCMRWG meeting on 1 February, 16 February and 2 March 2023;
- (3) provides its endorsement for the proposed approach to:
 - the treatment of Demand Side Programmes (DSPs) in the Reserve Capacity Mechanism;
 - the determination of the Individual Reserve Capacity Requirement (IRCR) for the peak capacity product;
 - the determination of the IRCR for the flexible capacity product;
 - the implementation of a penalty for high emission technologies; and
 - the duration gap.

3. Process

- On 1 February 2023, the RCMRWG discussed:
 - four options identified for determining the IRCR;
 - two options identified for determining IRCR for the new flexible capacity product;
 - three options identified for determining Certified Reserve Capacity (CRC) for DSPs:
- On 16 February 2023, the RCMRWG further discussed the three options for assigning CRC to DSPs:
 - option 1: using an Effective Load Caring Capability (ELCC) approach;
 - option 2: based on load in historical IRCR intervals; and
 - option 3: nomination of the CRC by the DSP proponent with provision of evidence

The following was discussed in relation to the three options:

- availability requirements for DSPs;
- the value DSPs bring to the market;
- DSP dispatch;
- refunds and consumption deviation applications; and
- assigning CRC to DSPs.

Discussion was held on the proposed methods for setting the peak IRCR, the flexible IRCR and applying the IRCR intervals to Intermittent Generators CRC.

- On 2 March 2023, the RCMRWG discussed:
 - details of the proposed option for the implementation of a penalty for high emission technologies; and
 - options to address the duration gap;
- A RCMRWG meeting is scheduled for 22 March 2023 to discuss:
 - details of the flexibility product; and
 - additional analysis for the implementation of a penalty on high emission technologies,

The outcomes will be incorporated into the Stage Two information and consultation paper planned to be discussed at the 20 April MAC meeting.

- Further information on the RCM Review is available on the RCM Review webpage at <https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review>

4. Attachments

- (1) RCMRWG 2022_12_15 – Minutes of Meeting
- (2) RCMRWG 2023_02_01 – Minutes of Meeting
- (3) RCMRWG 2023_02_16 – Minutes of Meeting
- (4) Update from RCMRWG and outline of proposed approach



Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (RCMRWG)
Date:	15 December 2022
Time:	9:00 AM to 11:00 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Rhiannon Bedola	Synergy	
Toby Price	AEMO	Subject matter expert
Jacinda Papps	Alinta Energy	
Peter Huxtable	Water Corporation	
Paul Arias	Shell Energy	
Patrick Peake	Perth Energy	
Matt Shahnazari	Economic Regulation Authority	
Noel Schubert	Small-Use Consumer representative	
Andrew Stevens	Consultant	
Rebecca White	Collgar Wind Farm	
Tessa Liddelow	Shell Energy	
Andrew Walker	South32 (Worsley Alumina)	
Daniel Kurz	SSCP Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Oscar Carlberg	Alinta Energy	
Jake Flynn	Collgar Wind Farm	
Mark McKinnon	Western Power	
Shelley Worthington	EPWA (EPWA)	
Isadora Salviano	EPWA	

Apologies	From	Comment
Manus Higgins	AEMO	
Dev Tayal	Tesla Energy	
Kiran Ranbir	ATCO Australia	
Dale Waterson	Merredin Energy	
Stephen Eliot	EPWA	
Laura Koziol	EPWA	

Item	Subject	Action
1	<p>Welcome</p> <p>The Chair opened the meeting at 9:00am.</p>	
2	<p>Meeting Apologies/Attendance</p> <p>The Chair noted the attendance as listed above.</p>	
3	<p>Minute of RCMRWG meeting 2022_10_13</p> <p>The Chair sought comments on the draft minutes of the RCMRWG meeting held on 24 November 2022. Dr Shahnazari noted that his last name has been misspelt and Mr Arias noted that his organisation has not been updated from Bluewaters Power to Shell Energy.</p> <p>The Chair noted the comments on the minutes and advised that EPWA will rectify the issues.</p> <p>The RCMRWG accepted the minutes as a true and accurate record of the meeting.</p>	
	<p>Action: RCMRWG Secretariat to rectify and publish the minutes of the 24 November 2022 RCMRWG meeting on the RCMRWG web page as final.</p>	<p>RCMRWG Secretariat</p>
4	<p>Action Items</p> <p>The paper was taken as read.</p>	
5	<p>Purpose of this session</p> <p>Mr Robinson noted the purpose of the session is to:</p> <ul style="list-style-type: none"> • present the analysis of: <ul style="list-style-type: none"> ○ the three proposed methods to allocate Certified Reserve Capacity (CRC) to intermittent generators; and ○ options to mitigate volatility of method outputs; and ○ seek RCMRWG views on a preferred option to allocate CRC to intermittent generators. 	
6	<p>Determining the Fleet ELCC</p> <p>Mr Robinson presented the approach used to determine the Fleet Effective Load Carrying Capability (ELCC) (slides 7 to 13). The following was discussed:</p> <ul style="list-style-type: none"> • Dr Shahnazari noted that currently the first limb of the Planning Criterion is the dominant one and expressed his concern that by measuring capacity value of renewable generators based on Expected Unserved Energy (EUE), the effects might not be consistent with the dominant limb of the Planning Criterion. He considered that there is a risk of undervaluing or overvaluing the intermittent generators. Dr Shahnazari also noted that 50 iterations might not be enough. <ul style="list-style-type: none"> ○ Mr Robinson acknowledged Dr Shahnazari's concern and noted that, as indicated on the slide, the approach to calibrate the target used to set the fleet ELCC will be further investigated. 	

Item	Subject	Action
	<ul style="list-style-type: none"> ○ The Chair noted that RBP will also model a scenario with an EUE target of 0.0015% to assess the effect. ● In response to a question from Mr Carlberg, Mr Robinson clarified that the reference period for the individual years of Fleet ELCC is the 12 months of the relevant Capacity Year and not a historical five year period. ● Dr Shahnazari referred to an email he circulated to the RCMRWG before the meeting and noted that the ERA had previously proposed a similar approach to determine the fleet ELCC in the Rule Change Proposal RC_2019_03 (Method used for the assignment of Certified Reserve Capacity to Intermittent Generators). <ul style="list-style-type: none"> ○ The Chair noted that system reliability must not be compromised. Therefore, it is appropriate to use the lower of the average of the annual ELCC and the whole period ELCC to set the fleet ELCC as this will determine the total Capacity Credits received by the fleet of intermittent generators and is the most important value in terms of system reliability. 	

7 Determining Facility ELCCs

Mr Robinson presented the three Methods assessed for distributing the fleet ELCC to the individual Facilities (slides 14 to 27). The following was discussed:

- Dr Shahnazari expressed concerns about the application of the Delta Method at individual Facility level and suggested considering applying delta method at facility class level (as being pursued in the PJM).
 - The Chair noted that Dr Shahnazari had submitted those concerns via email to the RCMRWG before the meeting.
 - Mr Carlberg agreed with Dr Shahnazari's comment.
- Mr Schubert commented that using Load for Scheduled Generation (**LSG**), as suggested under EPWA's hybrid method, eliminates high demand intervals in which intermittent facilities perform well, which is a disadvantage for the intermittent generators.
 - Mr Robinson agreed that using LSG creates disadvantages for the intermittent facilities. He explained the rationale for assessing LSG is to account for the correlation between the Facilities' outputs.
- Mrs Bedola asked why, under the hybrid methods, the share allocated to solar facilities increases if less intervals are chosen (slide 21).
 - Mr Robinson explained that this related to the distribution of system stress intervals: if more intervals are chosen,

Item	Subject	Action
	<p>there are more intervals in the evening when there is no sun.</p> <ul style="list-style-type: none"> • Mr Peake commented that in all Methods, new wind facilities affect the certification level for existing Facilities. He asked if it is possible for the first machines built to retain their certification with new plant receiving what is left over. <ul style="list-style-type: none"> ○ The Chair noted the complexity of the Network Access Quantity (NAQ) model for which the treatment of existing against new facilities has been analysed extensively with the result that a new facility becomes an existing facility upon connection. ○ Mr Robinson added that the analysis indicate that the effect of new entrants is relatively small and does not warrant the complexity of differential treatment. • Mr Schubert commented that the weather patterns that cause the stress events are very well known and predictable and noted that looking more at the typical weather patterns and synoptic charts for particular days might help with the analysis but would add complexity. • Mr Robinson noted that the analysis of the methods for individual years indicates that the allocation of the fleet ELCC to individual facilities under the delta method is closest to the facilities' performance during the 12 intervals with the highest demand in a year (slide 24). • Mr Robinson noted that the challenge is to assess contribution to reliability during only a few intervals, while selecting a method that tries to keep volatility low. • In response to a question from Ms White, Mr Robinson clarified that the main reason that the results for Collgar Wind Farm are highlighted in red more than other facilities on slide 24 is that it is the biggest facility. This is because only facilities for which actual meter data, instead of expert reports, exists are assessed in the table. He added that there are two aspects driving the outcomes in the table, one is the size of the facility, and the other is that the use of least squares analysis amplifies the differences. • In response to a question from Ms White, Mr Robinson confirmed that the concern about the averaging proposed in the 	

Collgar method is that the results differ too much from actual facility performance.

- Mr Schubert questioned if determining a weighted average could be an alternative, for example weight the years based on how high the demand is.
 - The Chair noted that this approach could be assessed but would likely add complexity.
 - Mr Robinson considered that weighing the years by peak demand may not create a better outcome. He noted that the concern about reliability is addressed by the approach determining the Fleet ELCC.
 - Mr Price asked how firming of intermittent generators is incentivised, given CRC is applied at a technology level.
 - Mr Robinson referred to the consultation paper where applying CRC at a facility level rather than the technology level was discussed.
 - Mr Schubert questioned if the allocation of CRC to intermittent generators could be up to a set level; and reserve the remaining CRC for firm and flexible capacity.
 - The Chair acknowledged the comment and explained that this is addressed by the proposed introduction of three Capacity Classes and a flexibility product.
 - In response to a question from Mrs Bedola, Mr Robinson confirmed that for the calculation of the annual ELCC for 2018 the demand of a 35°C day was scaled to a hypothetical 42°C day and the intermittent generation was assumed to be as recorded.
 - Mr Schubert noted that the reason a 42°C day has high demand is the wind pattern and added that, as a result, there is no wind in the North Country. He added that weighting the individual years by peak demand would be more representative but also more complex.
 - Mrs Bedola agreed that the scaling is a concern. She asked if it is possible to look at high temperature days with lower demand (e.g. weekends).
 - The Chair noted that such an approach had been considered but not pursued due to the high complexity.
 - Mr Robinson added that the issue with creating synthetic high demand days is that the amount of analysis that will be required from AEMO is too high.
 - Mr Stevens suggested that AEMO should provide downloadable tools for the calculation of CRC for intermittent generators. Mr Robinson, Ms White, Mr Peake, Dr Shahnazari, Mrs Bedola and Mr Walker agreed.
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- Ms White commented that an analytical tool from AEMO would be really useful, as long as it is cost effective to produce.
 - Mr Peake, Mr Andrew Dr Shahnazari and Mrs Bedola agreed.
 - Mr Robinson agreed that that should be considered.
 - Mr Stevens commented that the method should be designed so it can be understood, and analysed by investors and asset owners and provide them with reasonable certainty of their future capacity allocations. He expressed concerns that the methods are complex and difficult to explain to investors.
 - Ms White, Dr Shahnazari and Mr Carlberg agreed with Mr Stevens comment.
 - The Chair agreed with Mr Stevens and noted that one of the key principles is that the Method should be simple. However, a simple method does not address volatility, which will also impact reliability and investment, and that the feedback to date was that it is important to avoid volatility.
 - Mr Carlberg agreed with the Chair consideration and that the Fleet ELCC is essential for reliability. He considered that, when allocating the Fleet ELCC to individual facilities it would be best to keep it simple as it will be important to send a clear investment signal to the industry. He added that the analysis indicated that the averaging applied to the delta method still produces a similar output as the pure delta method and therefore may not be worthwhile.
 - The Chair noted that it would be difficult to simplify the determination of the Fleet ELCC because this would be a risk to system reliability. However, EPWA will investigate simplifying the allocation of the Fleet ELCC to individual facilities.
 - Mr Schubert noted that that perhaps the message for investors is to include firming capacity for the facility.
 - The Chair agreed.
 - Mr Carlberg noted his preference for the allocation approach proposed in the hybrid method using a combination of peak LSG and peak demand. He considered that the Delta Method does not provide a clear investment signal about when capacity is needed in future.
 - Dr Shahnazari suggested that applying the delta method to facility classes, creating a facility class ratings, would give investors more certainty.
 - The Chair noted that the simplest way to allocate the Fleet ELCC to individual Facilities is to base the allocation on performance over the Individual Reserve Capacity Requirement (**IRCR**)
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Item	Subject	Action
	<p>intervals in the past five years for each facility. However, that may lead to the volatility issue.</p> <ul style="list-style-type: none"> • Mr Robinson explained that the aim is to incentivise investors to firm up their intermittent capacity. He also explained that facilities are needed most when the margin between available capacity and demand is lowest. <ul style="list-style-type: none"> ○ Mr Carlberg agreed and noted that the issue is that the reserve margin is only small so often and the times of low margin will be different in future. Therefore, a broader range should be applied to provide investors with more certainty. • The Chair noted that the IRCR intervals are readily accessible for investors. • Mrs Bedola commented that, when using the IRCR intervals, it is important to consider adjustment for Distributed Energy Resources (DER) as well. <ul style="list-style-type: none"> ○ The Chair agreed. • Mr Stevens noted that investments in generation in WA are already complicated for investors and stressed that the method for assigning CRC to intermittent generators must enable investors to understand the range of CRC they can expect. • The Chair asked members to provide suggestions how to simplify the method for allocating the Fleet ELCC to individual Facilities. • Mr Carlberg reiterated his preference for the Hybrid and the ERA's Methods. He commented that peak demand and peak LSG are well understood, and that the ERA provided strong rationale for using its proposed method in its 2018 review of the Relevant Level Methodology. • Ms White requested to provide comments after the meeting. The Chair agreed and requested comments as soon as possible but by the following Friday at the latest. 	
	<p>Action: Members are to provide suggestions by 23 December 2022 on how to simplify the Method for allocating the Fleet ELCC to individual facilities.</p>	<p>RCMRWG members</p>
<p>8</p>	<p>Impact of New Entry</p> <p>Mr Robinson presented the impact of new entry (slides 28 to 32). Mr Peake acknowledge the analysis on adding new plant as reassuring. There was no further discussions.</p>	
<p>10</p>	<p>Next Steps</p> <p>The Chair noted the next steps.</p>	

Item	Subject	Action
11	General Business	
	The Chair acknowledged that this was Ms White's last meeting and expressed gratitude for her contributions.	

The meeting closed at 10:30am



Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (RCMRWG)
Date:	1 February 2023
Time:	9:30 AM to 11:30 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Manus Higgins	AEMO	
Toby Price	AEMO	Subject matter expert
Oscar Carlberg	Alinta Energy	
Kiran Ranbir	ATCO Australia	
Dimitri Lorenzo	SSCP Power	Proxy for Daniel Kurz
Geoff Gaston	Change Energy	Subject matter expert
Jake Flynn	Collgar Wind Farm	
Matt Shahnazari	Economic Regulation Authority	
Owen Cameron	Enel X	Subject matter expert
Scott Cornish	Enel X	Subject matter expert
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Paul Arias	Shell Energy	
Noel Schubert	Small-Use Consumer representative	
Andrew Walker	South32 (Worsley Alumina)	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Ajith Sreenivasan	RBP	
Shelley Worthington	EPWA (EPWA)	
Isadora Salviano	EPWA	
Laura Koziol	EPWA	
Stephen Eliot	EPWA	

Apologies	From	Comment
Andrew Stevens	Clear Energy Pty Ltd	
Daniel Kurz		
Dev Tayal	Tesla Energy	
Dale Waterson	Merredin Energy	

Item	Subject	Action
1	Welcome The Chair opened the meeting at 9:30am.	
2	Meeting Apologies/Attendance The Chair noted the attendance as listed above.	
3	Minute of RCMRWG meeting 2022_12_15 The draft minutes of the RCMRWG meeting held on 15 December 2022 were distributed in the meeting papers on 27 January 2023. The RCMRWG accepted the minutes as a true and accurate record of the meeting. The Chair noted that the minutes will be provided to the members of the Market Advisory Committee (MAC) before their next meeting schedule for 02 February 2023 to inform the discussion.	
	Action: RCMRWG Secretariat to publish the minutes of the 15 December 2022 RCMRWG meeting on the RCMRWG web page as final.	RCMRWG Secretariat
	Action: RCMRWG Secretariat to circulate the minutes to the MAC members prior to the next MAC meeting.	RCMRWG Secretariat
4	Action Items The paper was taken as read.	
5	Peak IRCR Mr Robinson presented four identified options for determining the Individual Reserve Capacity Requirement (IRCR), a comparison of the options, the outcome of the analysis of historical high system demand intervals and suggestions for the detail of the proposed preferred Option 4. The four options identified are: <ul style="list-style-type: none"> • Option 1: Equivalent firm capacity; • Option 2: Ex-ante notification by AEMO; • Option 3: Ex-post intervals by reserve margin¹; and • Option 4: Ex-post intervals by demand. The following was discussed:	

¹ In the context of this meeting, reserve margin describes the quantity of available capacity that is not dispatched in a Trading Interval.

Item	Subject	Action
	<ul style="list-style-type: none"> <li data-bbox="316 253 1219 394">• Mrs Bedola considered that there should be an IRCR component for the consumption share outside of peak periods. Because the RCM requires facilities to be available all year and not only during peak. The Chair considered that the IRCR should provide a signal to reduce the Reserve Capacity Requirement (RCR). Mr Robinson acknowledged that capacity provides reliability outside of peak. He considered that the overall costs for customers are driven by the RCR that is set based on system peak demand. Mr Price considered that the method for setting IRCR aligns well with the first limb of the Planning Criterion (defining a peak demand scenario) but does not reflect the second limb of the Planning Criterion (setting a threshold for expected unserved energy). Mr Cameron considered that reducing consumption during system peak load would reduce the need for additional capacity. He considered that 99% of the year system demand is far below the available capacity. Based on supply and demand dynamics it appears appropriate that consumers get the reliability provided by the RCM for free outside of system peak demand. The Chair agreed to further assess Mrs Bedola's concern. <li data-bbox="316 1048 1209 1151">• Mr Schubert questioned the benefit of setting the IRCR intervals taking three intervals from each of four days instead of taking the 12 intervals with the highest system demand. <li data-bbox="316 1167 1241 1429">• The Chair noted that Option 1 could result in the IRCR being based on consumption during less Trading Intervals than under the current method. The Chair considered that Option 1 does not send a clear signal to customers to reduce consumption when needed. Mr Robinson noted that Option 1 would still reward customers for reducing consumption during high system demand. However, it would be less transparent which intervals drive the IRCR. <li data-bbox="316 1444 1238 1749">• The Chair questioned whether smaller loads would be able to react to the ex-ante declaration of an IRCR interval with only two hours notice. Mr Gaston noted that he was able to notify all types of customers but that a two hour notice would not provide enough time for loads to react. Mrs Bedola agreed that two hours reaction time would not be sufficient for most loads. <li data-bbox="316 1765 1235 1868">• Mr Arias questioned whether Option 2 would dilute the loads' response to the IRCR mechanism compared with the current IRCR regime. <li data-bbox="316 1883 1190 2031">• Mr Peake considered that Option 3 implies that the transition to renewable generation reduces system reliability. He considered that this is undesirable. Mr Gaston agreed with Mr Peake. 	

Item	Subject	Action
	<ul style="list-style-type: none"> Dr Shahnazari considered that Option 3 could be amended to exclude the effect of Forced Outages to focus on the volatility of intermittent generators. This would remove uncertainty for consumers when predicting IRCR intervals. Mr Carlberg, Mr Price and Mr Peake agreed with Dr Shahnazari that certainty is important. 	
	<ul style="list-style-type: none"> Dr Shahnazari suggested to also explore a hybrid option where a part of the IRCR is based on intervals that are set with a long prior notice and another part of the IRCR is based on intervals that are set with very little notice. 	
	<ul style="list-style-type: none"> Mr Schubert considered that a shorter notice would be better for AEMO but would likely result in less response to the signal. 	
	<ul style="list-style-type: none"> Mr Price suggested that, under Option 3, the IRCR intervals could also be based on the forecast reserve margin. Dr Shahnazari supported the suggestion. 	
	<ul style="list-style-type: none"> Mr Cameron questioned how Option 3 would align with allocation of Certified Reserve Capacity (CRC). Mr Robinson explained that CRC is allocated to facilities based on the expectation of the capacity that can be provided during extreme peak demand. IRCR is the means to distribute the cost of Capacity Credits procured to customers even if none of the IRCR intervals represents an extreme peak. 	
	<ul style="list-style-type: none"> Mr Cameron suggested that Option 3 could take the dispatch of Frequency Co-optimised Essential System Services (FCESS) into account by AEMO in declaring IRCR intervals to commence after the completion of FCESS dispatch. Mr Price noted that the obligation for FCESS (Contingency Reserve) is to sustain response for 15 minutes. Mr Robinson noted that the mechanisms providing special contracts are NCESS and supplementary reserve capacity. Mr Robinson considered that these mechanisms are a measure of last resort and the need for them should not be built into the RCM. 	
	<ul style="list-style-type: none"> Mr Higgins expressed his support for Option 3 because it reflects AEMO's reality. Mr Higgins referred to a recent day with very low wind generation resulting in system stress at only 3700 MW system peak demand. 	
	<ul style="list-style-type: none"> Mr Gaston noted that he is against basing IRCR on the reserve margin in an interval. Mr Gaston considered that the IRCR should be aligned with the method for setting the RCR and assigning CRC. Both are based on peak demand. Mr Carlberg agreed with Mr Gaston. Mr Gaston noted that as a retailer he must forecast the IRCR cost two years in advance when signing contracts with customers. Basing the IRCR on the spare capacity would make the forecasting more difficult. For most loads, consumption during last year's peak 	

Item	Subject	Action
	<p>demand is usually a good predictor for consumption during this year's peak demand.</p> <p>Because of the need for retailers to forecast a load's IRCR, Mr Gaston considered that Option 1 and Option 3 are not acceptable, and Option 2 and Option 4 are preferable.</p> <ul style="list-style-type: none"> • Mr Peake considered that volatility must be addressed on the supply side. • Mr Schubert considered that the analysis of peak demand (slide 17) should focus on intervals with demand close to the forecast 10% probability of exceedance. <p>The Chair agreed that years with low demand should not be used to determine the method for setting the IRCR intervals.</p> <p>Mr Robinson clarified that the purpose of the analysis is only to inform the understanding of the characteristics of high demand in different years.</p> <ul style="list-style-type: none"> • Mr Schubert suggested to show the relation of peak demand to sunset not to time of day (slide 18). • Mrs Bedola considered that the IRCR should not be set by intervals that all fall on the same day. <p>The Chair agreed with Mrs Bedola and noted that it is not intended to determine IRCR intervals during one day only.</p> <ul style="list-style-type: none"> • Mr Schubert considered that the reserve margin can be low in November because this is the time where most Planned Outages are scheduled. Scheduling of Planned Outages is in the control of AEMO. • Mr Cameron considered that the increased penetration of distributed energy resources has made peaks shorter and sharper and not longer and flatter (slide 19). <p>Mr Price agreed with Mr Cameron.</p> <p>Mr Robinson clarified that the system stress analysis forecasts peaks to become flatter and longer from around 2030 because of the expected increase in distributed storage capacity and uptake of electric vehicles.</p> <ul style="list-style-type: none"> • Mr Schubert questioned why the characteristics of future high load intervals showed forecast data for August and September which lay outside of the Hot Season (slide 19). <p>Mr Robinson noted that the chart will be updated with examples from the Hot Season.</p> <ul style="list-style-type: none"> • Mr Robinson suggested that the proposed approach (slide 21) could be amended to allow increasing the amount of IRCR intervals to ensure a number of days is selected. <p>Mrs Bedola supported this suggestion.</p> <ul style="list-style-type: none"> • In response to a question from Mrs Bedola, Mr Robinson clarified that the selected intervals under the proposed option don't need to 	

Item	Subject	Action
	<p>be restricted to the Hot Season. However, not restricting them to the Hot Season would allow the IRCR intervals to fall into winter during years with low summer system load, which does not align with the setting of the RCR.</p> <ul style="list-style-type: none"> • Mr Price suggested to limit the number of IRCR intervals that can be selected. Mr Cameron supported the suggestion. • In response to a question from Mr Arias, Mr Robinson clarified that: <ul style="list-style-type: none"> ○ The proposed new metrics for setting IRCR for new loads can only apply from the time that information is available; and ○ He considered that the current method for assigning IRCR to new loads does not provide a clear incentive for these loads to adjust consumption because their IRCR will be based on relative consumption during the 12 peak trading intervals in the next year. • Mr Gaston supported the removal of Non Temperature Dependent Load (NTDL) status. Mr Carlberg considered that the NTDL concept allows to reward flat loads which don't contribute to the need for capacity. Mr Robinson noted that a flat load would not incur any costs from the flexibility product which may remove the need for the NTDL concept altogether. Mrs Bedola commented that the NTDL and temperature dependent load (TDL) multipliers are used to uplift the IRCR from observed system peak demand to the Reserve Capacity Requirement (RCR). Mr Robinson noted that the questions to be explored are whether: <ul style="list-style-type: none"> ○ to apply different multipliers to TDLs than to NTDLs in general; and ○ different multipliers should be applied only to the Capacity Credits acquired in excess of the RCR. The Chair noted that the impact of removing the NTDL status will be further assessed. • Mr Gaston considered that, apart from removing the NTDL status, the current method does not need to be amended. Mr Gaston considered that using the maximum allowed network offtake capacity is inappropriate because it may be unrelated to the actual consumption. • Mr Huxtable supported the general principles of the proposed option. 	
6	<p>Flex IRCR</p> <p>Mr Robinson presented the two options identified for determining IRCR for the new flexible capacity product (slides 26 and 27).</p>	

Item	Subject	Action
	<p>The two options identified were:</p> <ul style="list-style-type: none"> • Option 1: Use the peak IRCR • Option 2: Base the flex IRCR on a load's expected contribution to the steepest ramp <p>The following was discussed:</p> <ul style="list-style-type: none"> • In response to a question from Mr Huxtable, Mr Robinson clarified that a load with a flat consumption profile does not contribute to the steepness of the system load ramp. Therefore, it does not contribute to the need for flexibility and the method should reflect that. • Mrs Bedola expressed concerns with allocating the cost of the flexible capacity to the loads who cause the ramp under Option 2. She noted that: <ul style="list-style-type: none"> ○ the least flexible loads will pick up the costs; and ○ distributed photovoltaics (DPVs) have shifted the system peak demand without getting capacity under the RCM and the flex IRCR under Option 2 will penalise them for it. • Mr Robinson clarified that there is currently no signal to DPV to reduce the contribution to the steepness of the system demand ramp. Mr Arias considered that Option 2 aligns with the causer pays principle. • Mrs Bedola considered that the evening ramp is an issue most days of the year. She suggested to use more days to set the IRCR. Mr Robinson noted that the analysis indicates that the ramping need will be set by more than one but less than 10 days which should be the basis for the flex IRCR. The Chair noted that the requirement for the flex product will be set by a defined scenario. • Mr Robinson invited RCMRWG members to provide feedback after the meeting. 	

7 DSP CRC

Mr Robinson presented the three options identified for determining CRC for Demand Side Programmes (**DSPs**):

- Option 1: Using an ELCC approach;
- Option 2: Based on load in historical IRCR intervals; and
- Option 3: Nomination of the CRC by the DSP proponent with provision of evidence.

The following was discussed:

- Mr Robinson explained that the current method for determining CRC for DSPs favors loads with a flat load profile. Variable loads with a strong correlation between consumption and system load will receive less CRC than a load with a flat load profile, even if its

Item	Subject	Action
	<p>consumption during system stress is higher than that of the load with the flat profile.</p> <ul style="list-style-type: none"> The Chair noted that, in the future, loads responding to market signals will have a bigger role to play. Therefore, signals must be strong and sustainable. The Chair suggested that the option of a minimum demand service for DSPs should be considered. Mr Robinson noted that this could be possible, given that DSPs are managed under contract. Mrs Bedola considered that DSP dispatch should be preferred over loads responding to the IRCR mechanism because AEMO has more control over the dispatch than over a load's voluntary reaction to the IRCR mechanism. <p>Mr Price agreed with Mrs Bedola's comment.</p> <p>Mr Gaston considered that for a customer it can be more lucrative to reduce IRCR than register as a DSP. He expressed his preference for assigning CRC to DSPs based on consumption during the IRCR intervals to prevent double dipping. Mrs Bedola agreed.</p> <p>The Chair noted that the preference for reduction of IRCR over registering as a DSP may change based on cost and scenarios of oversupply or undersupply of capacity.</p> <p>Mrs Bedola considered that in any situation IRCR reduction would be more beneficial for the customer than registering as a DSP.</p> <p>Mr Robinson considered that a removal of the NTDL status (considered under agenda item 5) may also affect the customers' preference between IRCR reduction and registering as a DSP.</p> <ul style="list-style-type: none"> Mr Schubert suggested to test whether the IRCR incentivises Synergy to manage consumption considering all of the market interactions and signals Synergy receives. <p>Mrs Bedola noted that dealing with the Notional Wholesale Meter includes more complexities than only IRCR.</p> <ul style="list-style-type: none"> Mr Gaston supported the idea of determining CRC for DSPs based on consumption during reserve margin stress event instead of the IRCR intervals. He commented that this can provide an opportunity for loads to react to both peak demand, and reserve stress scenarios. Mr Huxtable considered that a DSP should not have to operate at its Relevant Demand outside of the IRCR intervals which are the basis for the DSP's payment for Capacity Credits. This is because when it is operating below its Relevant Demand it is de facto delivering a load reduction even if it is by accident. <p>Mr Robinson considered that it is important for AEMO to know the quantity by which a DSP can be dispatched. However, the dynamic baseline would allow AEMO to dispatch a set quantity throughout</p>	

Item	Subject	Action
	<p>the year while allowing for variable overall consumption if not dispatched.</p> <ul style="list-style-type: none"> Mr Higgins expressed his preference for the dynamic baseline. It would help AEMO to assess the available value of DSP for dispatch. <p>Mr Carlberg asked if AEMO could obtain that same transparency without changing the mechanism for assigning CRC to DSPs (i.e. through telemetry or offers like those provided by generators).</p> <ul style="list-style-type: none"> Mr Schubert considered that for measuring performance, the dynamic baseline works better and for allocating CRC, the static baseline works better. <p>Mr Carlberg agreed with Mr Schubert.</p> <ul style="list-style-type: none"> Mrs Bedola's considered that, regarding the incentives for the provision of capacity, it is important to ensure that facilities are paid fairly. 	
8	Next Steps	
	<p>The RCMRWG agreed that the discussion about assigning CRC to DSPs should be continued at the next RCMRWG meeting (scheduled for 16 February 2023).</p> <p>The Chair invited RCMRWG members to provide comments on the presented slides via email.</p>	
	ACTION: RCMRWG members are to provide any further feedback and comments on the Peak IRCR, Flex IRCR and DSP CRC.	RCMRWG members
9	General Business	
	No general business.	

The meeting closed at 11:40am



Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (RCMRWG)
Date:	16 February 2023
Time:	9:30 AM to 11:35 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Manus Higgins	AEMO	
Toby Price	AEMO	Subject matter expert
Oscar Carlberg	Alinta Energy	
Kiran Ranbir	ATCO Australia	
Daniel Kurz	SSCP Power	Until 10:45 AM
Geoff Gaston	Change Energy	Subject matter expert
Jake Flynn	Collgar Wind Farm	
Matt Shahnazari	Economic Regulation Authority	
Owen Cameron	Enel X	Subject matter expert
Scott Cornish	Enel X	Subject matter expert
Tessa Liddelow	Shell Energy	
Paul Arias	Shell Energy	
Noel Schubert	Small-Use Consumer representative	
Andrew Walker	South32 (Worsley Alumina)	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (RBP)	
Ajith Sreenivasan	RBP	
Shelley Worthington	EPWA (EPWA)	
Laura Koziol	EPWA	
Stephen Eliot	EPWA	

Apologies	From	Comment
Patrick Peak	Perth Energy	
Andrew Stephens	Clear Energy Pty Ltd	
Dale Waterson	Merredin Energy	
Dev Tayal	Tesla Energy	

Item	Subject	Action
1	<p>Welcome</p> <p>The Chair opened the meeting at 9:30am.</p>	
2	<p>Meeting Apologies/Attendance</p> <p>The Chair noted the attendance as listed above.</p>	
3	<p>Minute of RCMRWG meeting 2023_02_01</p> <p>The draft minutes of the RCMRWG meeting held on 1 February 2023 were distributed in the meeting papers on 10 February 2023.</p> <p>The Chair noted the following changes that had been made since the circulation of the minutes:</p> <p>Page 5:</p> <ul style="list-style-type: none"> • Mr Schubert considered that the reserve margin can be low in November because this is the time where most Planned Outages are scheduled. Scheduling of Planned Outages is in the control of AEMO. <p>Page 8:</p> <ul style="list-style-type: none"> • Mr Schubert suggested to test whether the IRCR incentivises Synergy to manage consumption considering all of the market interactions and signals Synergy receives. <p>The RCMRWG accepted the minutes, as amended, as a true and accurate record of the meeting.</p>	
	<p>Action: RCMRWG Secretariat to publish the minutes of the 1 February 2023 RCMRWG meeting on the RCMRWG web page as final.</p>	<p>RCMRWG Secretariat</p>
4	<p>Action Items</p> <p>The paper was taken as read.</p>	
5	<p>DSP CRC</p> <p>Mr Robinson presented the proposal for assigning Certified Reserve Capacity (CRC) to Demand side Programmes (DSPs) and considerations about DSP dispatch.</p> <p>The three Options identified are:</p> <ul style="list-style-type: none"> • Option 1: Using an ELCC approach; • Option 2: Based on load in historical IRCR intervals; and • Option 3: Nomination of the CRC by the DSP proponent with provision of evidence. <p>The proposal was to implement two methods for assigning CRC to DSPs depending on the characteristics of the Associated Loads as follows:</p>	

Item	Subject	Action
	<ul style="list-style-type: none"> • Option 2 for DSPs made of a small number of large industrial loads that have consistent data of historical performance. • Option 3 for DSPs made up of a large number of smaller loads that are likely to change from year-to-year. 	
	<p>The following was discussed:</p>	
	<p>Availability requirements for DSPs</p>	
	<ul style="list-style-type: none"> • In response to a question from Mrs Bedola, Mr Robinson clarified that: <ul style="list-style-type: none"> – currently DSPs can declare in their application for certification during which hours they will be available;¹ – currently DSPs can be dispatched for 200 hours; – under Option 3 a DSP would need to be available to deliver the certified MW in every interval in which it must be available; and – the availability requirement under Option 3 could be amended, for example, to allow for lower MW availability during off-peak times. • Mrs Bedola noted that currently DSPs must be available to be dispatched for 200 hours but it is not specified in which months or hours of the day the 200 hours can fall. • The Chair clarified that the 200 hours are limiting the total hours a DSP can be dispatched. The purpose is not to define when a DSP can be dispatched. • Mrs Bedola considered that the availability requirements for DSPs should be consistent with the requirements for other capacity providers. Alternatively, it should be recognised that the availability requirements for DSPs are different and if they have to be available less they should get paid less. • Mr Carlberg agreed with Mrs Bedola. He expressed concerns that reducing the availability requirement to less than 200 hours would reduce the alignment with other capacity providers. Mr Carlberg considered that the 200 hour availability requirement had been introduced to harmonise the requirements for DSP with the requirements for Scheduled Generators. • The Chair noted that DSPs have never been dispatched for 200 hours in any year. • Mr Robinson clarified that DSPs must be available from 8 AM to 8 PM on Business Days. They incur refunds if they are not available during any of these hours. The 200 hours only limit the total amount of hours they can be dispatched for in a Capacity Year. • Mr Schubert considered that the availability requirement for DSPs should be based on the time they are expected to be actually 	

1 Clause 4.10.1(h) of the WEM Rules requires DSPs to be available to be dispatched:

- for a minimum of 200 hours; and
- at least during the periods between 8 AM and 8 PM on all Business Days.

Item	Subject	Action
	<p>needed. He considered that 8 AM to 8 PM is specifying a time span than that is much longer than what is actually needed from DSPs.</p> <ul style="list-style-type: none"> • Mr Cameron supported Mr Schubert's comment. • The Chair considered that it should be assessed whether DSPs have to be available for the same quantity of MW for every interval. • The Chair considered that DSPs should have to be available when they are needed. She noted that Electrical Storage Resources (ESR) have to be available from 4:30 PM to 8:30 PM and are getting the same capacity payments. This recognises that they cannot be available 24 hours a day and is based on the time they are actually needed. DSPs should be assessed the same way. • Mr Carlberg considered that ESR face a higher risk to be dispatched than DSPs. <p>Value DSPs bring to the market</p> <ul style="list-style-type: none"> • Mr Carlberg noted that he does not consider DSPs will provide a noticeable incremental benefit to the IRCR signal. • Mr Higgins considered that AEMO's experience during the 2022 Supplementary Reserve Capacity process indicated that there is not much additional potential beyond the loads that AEMO identified are reacting to the IRCR signal. • Mr Cameron considered that: <ul style="list-style-type: none"> – in years with mild weather, loads that react to the IRCR incentive have to reduce demand many times during summer when there are actually no reserve constraints which delivers only a small benefit to the system; – DSPs can be dispatched when needed, including times outside of the IRCR intervals; and – there are resources that cannot participate in IRCR or the RCM because they cannot reduce consumption for the 30 to 50 hours required to reduce their IRCR but could reduce consumption for 10 to 20 hours a year.. • Mrs Bedola considered that AEMO can rely less on loads to react to the IRCR signal than on a DSP that must respond to a dispatch instruction. If AEMO reduces its forecast demand because a load previously reduced consumption in response to the IRCR signal and the load does not react to the IRCR signal the next time this may cause issues for system reliability. • Mr Schubert considered that DSPs will have a substantial role in the future. He considered that the requirements for DSPs should not be too restrictive and avoid excluding useful resources from participation. For example, the requirement to be dispatched with two hours notice may exclude resources that would need three hours notice. 	

Item	Subject	Action
	<ul style="list-style-type: none"> • Mr Schubert considered that, while some DSPs may be dispatched often, others may only be dispatched once in ten years, which is much better than building a power plant for that purpose. • Mrs Bedola considered that DSPs should not receive capacity payments when there is a lot of overcapacity. She suggested that DSPs should be paid a lower availability payment and a higher dispatch payment. This would recognise that providing capacity is not the core business of a DSP. • Mr Higgins and Mr Kurz supported Mrs Bedola's suggestion. • Mr Higgins considered that this would help to ensure availability of the DSPs. • Mr Kurz considered that DSPs incur high costs when dispatched because this is reduction of their productivity. • Mr Cameron considered that, if a DSP can provide peaking capacity cheaper than a power plant, it should be preferred. It should not matter whether the facility providing peaking capacity is built for that purpose. • Mrs Bedola considered that loads will have a bigger role to play in the WEM but that this could also be through DER instead of DSPs. • Mr Schubert considered that the cheapest capacity for meeting the 1 in 10 year peak demand should be procured. • Mr Higgins considered that the actual consumption data needs to be available to AEMO in real-time to make DSPs useful for dispatch. 	
	<p>Dispatch</p> <ul style="list-style-type: none"> • Mr Huxtable noted that he was against the introduction of a dynamic baseline. Loads are paying for capacity based on their consumption during peak demand. Therefore, the reduction should be measured against the capacity loads are paying for. 	
	<p>Refunds and consumption deviation applications</p> <ul style="list-style-type: none"> • Mr Robinson clarified that under the proposal, a DSP that fails a test will be on a Forced Outage until it passes a test. The DSP will have to pay Reserve Capacity Refunds for the time it is on a Forced Outage. • Mr Higgins supported the proposal to remove the Consumption Deviation Applications because: <ul style="list-style-type: none"> – they are onerous to administer; and – can be used to game the market. • Mr Schubert agreed with Mr Higgins. • Mr Huxtable considered that a DSP that does not consume is not contributing to system stress. • Mr Robinson noted that this would be reflected in the load's IRCR for the next Capacity Year. 	

Item	Subject	Action
	<p>Assigning CRC to DSPs</p> <ul style="list-style-type: none"> Mr Gaston expressed his support for Option 3, provided sufficient testing is implemented. Mr Carlberg raised concerns that under Option 3 providers may nominate a DSP and then fail to contract the required loads. This has the potential to distort the Reserve Capacity Price and the associated investment signal. The Chair noted that Option 3 would require a punitive refund regime that goes beyond just reducing Capacity Credits if the DSP fails to deliver. Mr Schubert supported the approach of implementing two methods for the assessment of DSPs' CRC. Mr Carlberg considered that the benefit of the proposed changes to the DSP regime may not justify the effort of developing the changes given the work load of AEMO and other participants. <p>The Chair noted that the Relevant Demand must be considered under the scope of the RCM Review, as there is also an outstanding Rule Change Proposal on this.</p> <ul style="list-style-type: none"> Mr Carlberg expressed his concerns about the cost and effort of the implementation of the considered changes. Mr Price and Mrs Bedola agreed that the implementation costs of proposal should be assessed. The Chair agreed that implementation costs must be considered. However, the system stress modelling indicates that DSPs will become much more important from 2030. Therefore, the current issues with DSPs must be fixed to remove barriers for entry for the needed resources. 	
6	<p>IRCR</p> <p>Mr Robinson presented the proposed methods for setting the peak IRCR and the flexible IRCR.</p> <p>The following was discussed:</p> <p>Peak IRCR</p> <ul style="list-style-type: none"> Mr Schubert supported the proposal for setting the minimum of days on which IRCR intervals can fall to two. Mrs Bedola raised concerns that restricting the IRCR intervals to summer will result in not having a signal when the peak shifts into the winter. Mr Robinson considered that a shift in the peak from summer to winter should be predicted in the ESOO, which would leave sufficient time for a Rule Change Proposal. He noted that it should be assessed if a review of whether the peak is shifting to winter should be introduced. 	

Item	Subject	Action
	<ul style="list-style-type: none"> • Mr Gaston noted that he would prefer keeping the current method for setting the IRCR intervals. He expressed concerns about setting the minimum to only two IRCR days. This could penalise customers as currently they may be able to respond on some but not all of the four days. • The Chair noted that the current method can lead to setting the IRCR based on intervals that are not system stress intervals while some system stress intervals may not be accounted for. • Mr Gaston acknowledged the issue and suggested to expand the proposed method to select a minimum of 4 days. • Mrs Bedola considered that a load should not benefit from reducing consumption on a day which is not an extreme system load day. • Mr Cameron noted that from a load perspective it is easier to manage IRCR intervals that fall on four days. • Mr Carlberg suggested changing the minimum to three days. • Mr Gaston supported Mr Carlberg's proposal. 	
	<p>Flexible IRCR</p> <ul style="list-style-type: none"> • In response to a question from Mr Huxtable, Mr Robinson clarified that a load that is ramping down during the high ramp period would receive a flexible IRCR of zero. It may also be possible for such a load to receive flexible Capacity Credits. • Mr Gaston raised concerns that the mechanism for determining the flexible IRCR appears difficult to predict for customers. It may be more practicable to use the peak IRCR intervals also to allocate the cost for the flexible Capacity Credits. • In response to a question from Mr Gaston, Mr Robinson clarified that the intervals of highest ramp don't correlate with the high demand intervals. • Mr Carlberg suggested to assess whether the flexible IRCR intervals determined under the proposed method can be forecast to make this more transparent. • Mr Huxtable considered that predictability will help to react to the signal. • Mrs Bedola considered that it is a major flaw to use system demand instead of underlying demand. She considered that using underlying demand would reward DER for shifting the peak which is currently missing. • Mr Robinson noted that reducing the peak consumption gets rewarded if the service is provided through a market mechanism but not if it is provided outside of the market. • The Chair noted that the ramping issue which is to be addressed by the flexibility capacity product is caused by DER. 	

Item	Subject	Action
	<ul style="list-style-type: none"> Mr Cameron, Mr Gaston and Mr Huxtable supported removing the NTDL status. <p>Mr Cameron noted that removing the NTDL status will increase the incentive to react to the IRCR signal.</p>	
7	<p>Applying the IRCR Intervals to Intermittent Generators' CRC</p> <ul style="list-style-type: none"> In response to a question from Dr Shahnazari, Mr Robinson clarified that the allocation of the fleet's Expected Load Carrying Capability to individual facilities is based on average performance during the IRCR intervals. Mr Carlberg raised concerns to use the IRCR for allocating CRC to intermittent generators if the IRCR intervals could fall on only two days. He considered that it places too much risk on investors. Mrs Bedola considered that intermittent generators are not only providing capacity at peak but also for the duration gap. She expressed concerns to use the IRCR for any other purpose than allocating capacity costs to customers. 	
8	<p>Next Steps</p> <p>Mr Robinson summarised the next steps of the RCM Review.</p>	
9	<p>General Business</p> <p>No general business was discussed.</p>	

The meeting closed at 11:35am



Government of Western Australia
Energy Policy WA

Market Advisory Committee

Update from RCMRWG and Proposed Approach for Remaining RCM Components

16 March 2023

Working together for a
brighter energy future.

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1. DSPs



DSP CRC – Current Approach

Currently each DSP is allocated CRC based on the lower of:

- the aggregate IRCRs of its Associated Loads; or
- its historical 95% POE consumption during the 200 intervals with the highest generation

The CRC allocation needs to be performed ahead of time (so AEMO can be sure of having sufficient capacity), as it is for generators, rather than being assessed during the capacity year

The same value is used as the benchmark for DSP dispatch

- That is, a DSP is required to reduce its consumption from its “Relevant Demand”, which is the 95% POE consumption during the top 200 intervals

Participants can request to exclude intervals where the load was out for maintenance from the calculation by submitting a “consumption deviation application”

This method favours a flat load profile, significantly muting the incentive for loads with a variable profile to participate in the market, as noted in Rule Change Proposal RC_2019_01

DSP CRC – Options

Three options have been identified for allocating DSP CRC that align with the IRCR and intermittent generation CRC methods:

1. Using an ELCC approach (either by fleet or individually);
2. Basing the CRC on load in historical IRCR intervals; and
3. Having the DSP proponent nominate a CRC, accompanied by evidence that there is sufficient load associated with the programme to deliver that CRC at expected dispatch times

DSP CRC Assessment – Proposal

EPWA proposed the use of two methods for DSP CRC allocation to the RCMRWG, with the method dependent on the number and characteristics of Associated Loads:

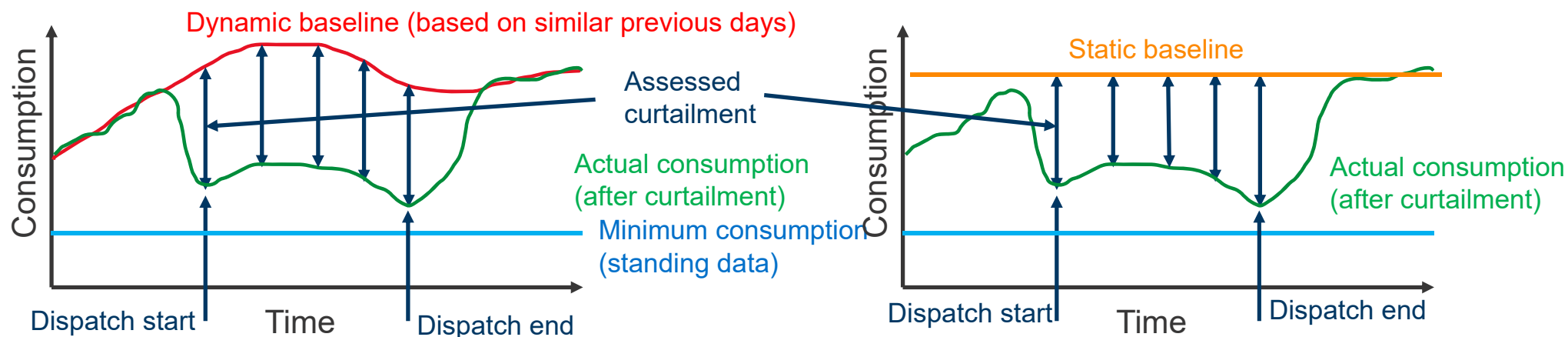
1. Option 2 for DSPs made up of a small number of large industrial loads where the same Associated Loads are retained from year-to-year; and
2. Option 3 for DSPs made up of a large number of smaller loads (including residential and commercial), and where the Associated Loads change from year-to-year.

This approach allows historical data to be used where it can be relied on, while putting the onus on aggregators to “oversubscribe the programme” to provide evidence that they have sufficient load to curtail when needed

DSPs assessed under Option 3 need to be tested robustly, and would need to be subject to refunds on failure, up to a maximum of the total capacity payments plus their DSM Reserve Capacity Security

DSP Dispatch – Dynamic Baseline

EPWA proposed to move DSP dispatch to a dynamic baseline, where curtailment is measured against a counterfactual derived from consumption in similar surrounding intervals, calculated closer to real time. The diagrams show examples of a curtailment



- Each DSP would have a specified minimum load and AEMO would restrict dispatch to the MW of CC held
- A dynamic baseline more accurately reflects the actual curtailment delivered by the DSP compared to if it were not called

DSP Testing and Refunds – Current Rules

The current Reserve Capacity testing regime requires:

- An annual Reserve Capacity test (4.25.1(c)) between December and March, showing that the DSP can deliver a level of reduction from its static baseline equal to its assigned CCs for two trading intervals
 - A DSP gets two chances to pass the test
 - On failing twice, its CCs are reduced to the level of reduction achieved
- An annual verification test (4.25A) in October/November, showing that the DSP can deliver a level of reduction from its static baseline of at least 10% of its assigned CCs for at least one trading interval
 - Failing once gets CCs reduced to zero until the test is repeated
 - Failing twice gets CCs reduced to zero for the year

If, in a capacity year, a DSP fails all tests and does not demonstrate an ability to curtail by at least 90% of its CCs, it forfeits its DSM reserve capacity security (25% of expected annual capacity payments)

DSPs are also subject to refunds if:

- When dispatched, they fail to deliver the requested demand reduction; and
- When required to be available, measured consumption less minimum demand is less than the MW of CCs held

DSP Testing and Refunds – Proposal

Testing would need to be adjusted to deal with a dynamic baseline:

- Measuring performance against the new baseline, calculated from similar (but non-curtailed) intervals in recent historical data
- Ensuring that testing is scheduled at times when DSPs are most likely to be dispatched to ensure the dynamic baseline is as close as possible to what it would be in times of system stress

Failure of a test would be treated like an ongoing forced outage, rather than enduring unavailability of capacity, meaning that the participant would incur refunds until it passes a retest.

The refund regime would also be amended to add the amount of DSM Reserve Capacity Security to the maximum refund amount, rather than having it forfeited in one lump sum

DSPs may not need to pay refunds when Associated Loads in the programme are not sufficient to deliver the curtailment (4.26.1A(a)(6)) required. All DSPs would continue to be subject to the dynamic refund rate if not performing when called.

Consumption Deviation Applications

The current DSP CRC allocation approach allows participants to nominate specific intervals as being affected by an AEMO instruction, or by maintenance, and to have those intervals excluded from the CRC assessment

- This is roughly equivalent to how generation facilities are assigned an RCOQ of zero when on an approved planned outage

Under any of the DSP CRC approaches:

- Any assessment using historical load for CRC must remove the effects of AEMO dispatch from historical data, similar to adjustment of intermittent facility output data to remove the effects of AEMO-directed curtailment
- Planned outages of schedulable generation are not approved to occur at times of expected system stress, and intermittent generation is assessed on all intervals. DSP associated loads should also be measured on their actual consumption during periods of system stress

EPWA proposes to remove consumption deviation applications for DSPs and instead adjust consumption records where necessary using AEMO records of DSP dispatch (including testing)

RCMRWG Discussions

The RCMRWG generally supported the approach proposed but raised some concerns, including:

- Potential for large numbers of uncertain proponents applying for DSP capacity but not following through
- The cost of maintaining two certification methods

RCMRWG members also raised concerns, in and outside of the meeting, about the overall treatment of DSPs, including:

- The need to not over-specify availability requirements, as doing so could restrict some loads from usefully contributing to reliability.
- The potential that the 200 hr limit may be set too high, resulting in a barrier to DSP participation, compared to the maximum hours a DSP may be required for to maintain reliability
- Potentially reflecting differential treatment of demand and supply sides through differential pricing, or pro-rating CRC based on availability

Summary of Proposed Approach to DSP CRC

In response to the concerns raised by the RCMRWG, EPWA notes that:

- “Uncertain” proponents will be deterred by the requirement to post security
- The two approaches to certification are simple enough and similar enough to avoid excessive cost.

In summary, EPWA proposes to:

- Allow two methods for DSP CRC allocation, with the method used dependent on the number and characteristics of Associated Loads
- Use a dynamic baseline for DSP dispatch
- Treat failed DSP reserve capacity tests as the start of an ongoing forced outage, with refunds payable up to a maximum of total capacity payments plus DSM reserve capacity security
- Remove the ability of DSP owners to lodge consumption deviation applications

Outside of the RCM Review, EPWA intends to carry out a holistic review of demand side participation in the WEM

Can MAC endorse the proposed approach and, if not, provide reasons?

2. Peak IRCR



IRCR Interval Selection

Feedback at the previous RCMRWG meeting generally supported retention of the current peak demand-focused metric (with potential amendments), and this consensus was reflected at the MAC. EPWA concurs that this is the most appropriate option

Remaining parameters include whether a minimum number of days should be required and whether the selection horizon should be restricted to the summer period. After further analysis and discussion with RCMRWG, EPWA proposes the following:

1. Identify the 12 intervals from the previous hot season (December-March) with the highest total sent out generation (SOG)
2. Identify the trading days on which those intervals fell.
3. If fewer than three days are identified in step 2, identify the additional days in the summer season with the highest SOG outside the top 12 intervals to make a total of **three days**, rather than one or two days.
4. For each identified day, select:
 - a. The interval with the highest SOG;
 - b. All other intervals that are in the top 12 intervals;
 - c. All intervals between the intervals selected in steps 4a and 4b; and
 - d. If fewer than three intervals have been selected, select the next highest SOG intervals on either side of the selected intervals to make up to three intervals

The following slides show the results of this method compared to the current IRCR intervals

Exploring Interval Selection Rules

Capacity year	Date	Time	TT30GEN (MW)	New IRCR - Summer - min 3 days	Current intervals
2017	15/02/2018	5:00 pm	3172.2		x
2017	15/02/2018	5:30 pm	3195.6		x
2017	15/02/2018	6:00 pm	3164.6		x
2017	12/03/2018	5:30 pm	3247.8	x	x
2017	12/03/2018	6:00 pm	3251.5	x	x
2017	12/03/2018	6:30 pm	3248.6	x	x
2017	13/03/2018	2:30 pm	3252.7		
2017	13/03/2018	3:00 pm	3300.3		
2017	13/03/2018	3:30 pm	3380.7	x	
2017	13/03/2018	4:00 pm	3451.6	x	
2017	13/03/2018	4:30 pm	3536.1	x	
2017	13/03/2018	5:00 pm	3585.6	x	x
2017	13/03/2018	5:30 pm	3609.5	x	x
2017	13/03/2018	6:00 pm	3565.7	x	x
2017	13/03/2018	6:30 pm	3561.2	x	
2017	13/03/2018	7:00 pm	3552.5	x	
2017	13/03/2018	7:30 pm	3496.0	x	
2017	13/03/2018	8:00 pm	3373.5	x	
2017	13/03/2018	8:30 pm	3266.7		
2017	21/03/2018	4:00 pm	3267.3		
2017	21/03/2018	4:30 pm	3343.6	x	x
2017	21/03/2018	5:00 pm	3382.1	x	x
2017	21/03/2018	5:30 pm	3360.2	x	x
2017	21/03/2018	6:00 pm	3288.4		
2017	21/03/2018	6:30 pm	3270.0		

1. Select top 12 intervals
2. Identify the trading days on which those intervals fell.
3. If fewer than three days are identified in step 2, identify the additional days in the summer season with the highest SOG outside the top 12 intervals to make a total of three days, rather than one or two days.
4. For each identified day, select:
 - a. The interval with the highest SOG;
 - b. All other intervals that are in the top 12 intervals;
 - c. All intervals between the intervals selected in steps 4a and 4b; and
 - d. If fewer than three intervals have been selected, select the next highest SOG intervals on either side of the selected intervals to make up to three intervals

Temperature Dependence – Current Approach

The current IRCR methodology provides different treatment for Temperature Dependent Loads (TDLs) and Non-Temperature Dependent Loads (NTDLs)

To qualify as an NTDL, consumption during the 4 peak demand intervals in each of 9 previous months must have a median greater than 1MWh, and must be narrowly distributed around the median

An NTDL receives a lower IRCR than an otherwise equivalent TDL, on the basis that it has relatively flat load, which has little variation between peak and off-peak periods

- This could be seen as conceptually similar to the runway method for spinning reserve, associating the 'first MW' of capacity with NTDLs, and the 'last MW' of capacity requirement to more variable loads

The NTDL/TDL process is non-trivial for participants and AEMO to manage

Temperature Dependence – Proposal

EPWA proposes to remove the use of TDL/NTDL multipliers. This is because:

- Each MWh of usage at peak times has an equivalent contribution to the RCR
- The use of multipliers reduces the incentive for a participant to make its consumption flexibility available to market dispatch by participating as a DSP
- The types of load which can qualify as NTDL are also likely to be the types of load which can adjust their consumption during IRCR intervals, meaning that such load already has an opportunity to manage its exposure to capacity charges
- The proposed IRCR approach for flexible capacity will inherently allocate low (or no) cost to a load with flat consumption profile without the need for a specific NTDL determination process

Conclusions of RCMRWG Discussions

RCMRWG members generally supported the proposed approach but expressed some concerns that:

- Using only two days would be difficult for consumers to manage, and three days would allow more consistent incentive for response
- The rules should include a prompt to review and amend the IRCR restriction to hot season if the SWIS becomes winter peaking
- The regime should consider the ability and incentive of smaller consumers to adjust their load, and avoid focusing solely on large loads
- Participants who are long on generation may have incentive to increase their load at peak times to drive up the reserve capacity target, and hence the reserve capacity price

One member proposed that capacity costs should not be recovered solely based on contribution to peak, and proposed that some portion of costs be recovered based on participant median demand.

Summary of Proposed IRCR Methodology

In summary, EPWA proposes to:

- Select peak capacity IRCR intervals using the proposed methodology, with a minimum of three days per year, selected from the hot season only;
- Include a prompt in the WEM Rules to identify if the SWIS looks to be transitioning to winter peaking; and
- Remove the use of TDL/NTDL multipliers in the IRCR calculation.
- The proposed approach:
 - adopts intervals over a minimum of 3 days per the RCMRWG suggestion;
 - ensures that there is a trigger to consider including winter peaks; and
 - removes the distortionary effect of the TDL and NTDL on cost recovery, levelling out the treatment of large and small loads.

Can MAC endorse the proposed approach and, if not, provide reasons?

3. Flex IRCR



Flexible Capacity IRCR Interval Selection

EPWA proposed the following steps to identify the periods to be used to determine IRCR for the flexible capacity product:

1. For each day in the previous capacity year:
 - a. Find the trading interval with the highest ramp up rate;
 - b. Select the interval adjacent to the interval identified in step a with the highest ramp rate;
 - c. Repeat step b until eight intervals have been selected; and
 - d. Find the difference between the total system load at the start of the earliest selected trading interval and the load at the end of the latest selected trading interval
2. Find the days with the highest total difference in MW in step 1d

RCMRWG agreed in principle, but wanted to understand which intervals would be selected

The following slides show which days would be selected under this proposal

Timing of Maximum Ramp (1)

- From the end of the midday trough through to the peak is generally around 4 hours
- In all years from 2015-2021, the four days with the highest 4-hour ramp quantities occur between June and September
- Until capacity year 2016, some of the highest 4-hour ramps were observed in the morning. Since 2017, they all occur in the lead up to the evening peak



Hours Making up the Highest Ramp Requirement							
Time of the day/Capacity year	2015	2016	2017	2018	2019	2020	2021
3:30 am	2	1					
4:00 am	2	1					
4:30 am	2	1					
5:00 am	2	1					
5:30 am	2	1					
6:00 am	2	1					
6:30 am	2	1					
7:00 am	2	1					
7:30 am	2	1					
2:00 pm	1	1	1	4	3	2	2
2:30 pm	2	3	4	4	4	4	4
3:00 pm	2	3	4	4	4	4	4
3:30 pm	2	3	4	4	4	4	4
4:00 pm	2	3	4	4	4	4	4
4:30 pm	2	3	4	4	4	4	4
5:00 pm	2	3	4	4	4	4	4
5:30 pm	2	3	4	4	4	4	4
6:00 pm	2	3	4	4	4	4	4
6:30 pm	1	2	3		1	2	2

Timing of Maximum Ramp (2)

Capacity year 2015			Capacity year 2016			Capacity year 2017		
Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)	Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)	Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)
2016-07-13 14:00:00	2169.0		2017-07-09 14:00:00	1772.1		2018-07-08 14:00:00	1522.2	
2016-07-13 14:30:00	2199.1		2017-07-09 14:30:00	1846.3		2018-07-08 14:30:00	1574.6	
2016-07-13 15:00:00	2258.0		2017-07-09 15:00:00	1941.8		2018-07-08 15:00:00	1651.9	
2016-07-13 15:30:00	2324.3		2017-07-09 15:30:00	2044.2		2018-07-08 15:30:00	1757.3	
2016-07-13 16:00:00	2423.6		2017-07-09 16:00:00	2192.0		2018-07-08 16:00:00	1901.5	
2016-07-13 16:30:00	2583.1		2017-07-09 16:30:00	2350.9		2018-07-08 16:30:00	2070.3	
2016-07-13 17:00:00	2816.2		2017-07-09 17:00:00	2545.7		2018-07-08 17:00:00	2278.2	
2016-07-13 17:30:00	3098.1		2017-07-09 17:30:00	2784.3		2018-07-08 17:30:00	2525.5	
2016-07-13 18:00:00	3272.6	1103.5	2017-07-09 18:00:00	2865.4	1093.3	2018-07-08 18:00:00	2652.6	1130.4
2016-07-24 14:30:00	1955.5		2017-08-02 14:30:00	2196.1		2018-08-11 14:30:00	1675.4	
2016-07-24 15:00:00	2022.1		2017-08-02 15:00:00	2233.6		2018-08-11 15:00:00	1742.7	
2016-07-24 15:30:00	2117.7		2017-08-02 15:30:00	2323.4		2018-08-11 15:30:00	1850.5	
2016-07-24 16:00:00	2256.8		2017-08-02 16:00:00	2448.7		2018-08-11 16:00:00	1984.8	
2016-07-24 16:30:00	2445.5		2017-08-02 16:30:00	2611.0		2018-08-11 16:30:00	2149.7	
2016-07-24 17:00:00	2681.4		2017-08-02 17:00:00	2814.7		2018-08-11 17:00:00	2348.9	
2016-07-24 17:30:00	2934.9		2017-08-02 17:30:00	3082.7		2018-08-11 17:30:00	2609.0	
2016-07-24 18:00:00	3081.2		2017-08-02 18:00:00	3288.0		2018-08-11 18:00:00	2824.5	
2016-07-24 18:30:00	3086.8	1131.3	2017-08-02 18:30:00	3329.4	1133.4	2018-08-11 18:30:00	2876.0	1200.6
2016-07-26 03:30:00	1657.0		2017-08-03 03:30:00	1892.2		2018-08-12 14:30:00	1533.6	
2016-07-26 04:00:00	1683.8		2017-08-03 04:00:00	1914.0		2018-08-12 15:00:00	1616.1	
2016-07-26 04:30:00	1725.3		2017-08-03 04:30:00	1960.0		2018-08-12 15:30:00	1721.3	
2016-07-26 05:00:00	1840.3		2017-08-03 05:00:00	2069.4		2018-08-12 16:00:00	1858.4	
2016-07-26 05:30:00	1990.5		2017-08-03 05:30:00	2199.9		2018-08-12 16:30:00	2031.8	
2016-07-26 06:00:00	2239.5		2017-08-03 06:00:00	2432.3		2018-08-12 17:00:00	2236.2	
2016-07-26 06:30:00	2485.3		2017-08-03 06:30:00	2645.5		2018-08-12 17:30:00	2477.7	
2016-07-26 07:00:00	2728.5		2017-08-03 07:00:00	2871.4		2018-08-12 18:00:00	2694.9	
2016-07-26 07:30:00	2816.6	1159.7	2017-08-03 07:30:00	2980.5	1088.4	2018-08-12 18:30:00	2768.1	1234.6
2016-08-02 03:30:00	1752.5		2017-08-10 14:30:00	2094.7		2018-09-15 14:30:00	1388.0	
2016-08-02 04:00:00	1770.7		2017-08-10 15:00:00	2124.2		2018-09-15 15:00:00	1458.4	
2016-08-02 04:30:00	1819.0		2017-08-10 15:30:00	2199.1		2018-09-15 15:30:00	1550.5	
2016-08-02 05:00:00	1929.7		2017-08-10 16:00:00	2309.5		2018-09-15 16:00:00	1667.7	
2016-08-02 05:30:00	2062.7		2017-08-10 16:30:00	2430.2		2018-09-15 16:30:00	1821.0	
2016-08-02 06:00:00	2319.3		2017-08-10 17:00:00	2601.7		2018-09-15 17:00:00	2008.7	
2016-08-02 06:30:00	2586.6		2017-08-10 17:30:00	2858.3		2018-09-15 17:30:00	2200.9	
2016-08-02 07:00:00	2833.7		2017-08-10 18:00:00	3098.7		2018-09-15 18:00:00	2378.5	
2016-08-02 07:30:00	2903.2	1150.7	2017-08-10 18:30:00	3168.7	1074.0	2018-09-15 18:30:00	2513.1	1125.1

- The interval with the highest ramp in each 4 hour period is shown with the total sent out MW highlighted in red
- The ramp rate (MW) is the difference between the total sent out between the first and the last interval of the 4 hour period
- The TIs in red font are high ramp periods experienced in the morning

Timing of Maximum Ramp (3)

Capacity year 2018			Capacity year 2019			Capacity year 2020			Capacity year 2021		
Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)	Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)	Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)	Datetime	Total Sent Out (MW)	4 hr Ramp rate (MW)
2019-06-18 14:00:00	1936.1		2020-07-10 14:00:00	1740.7		2021-06-24 14:00:00	1881.2		2022-07-03 14:00:00	1288.6	
2019-06-18 14:30:00	1976.2		2020-07-10 14:30:00	1801.2		2021-06-24 14:30:00	1950.0		2022-07-03 14:30:00	1384.9	
2019-06-18 15:00:00	2048.8		2020-07-10 15:00:00	1908.5		2021-06-24 15:00:00	2065.2		2022-07-03 15:00:00	1514.8	
2019-06-18 15:30:00	2163.6		2020-07-10 15:30:00	2041.2		2021-06-24 15:30:00	2236.7		2022-07-03 15:30:00	1712.8	
2019-06-18 16:00:00	2312.6		2020-07-10 16:00:00	2202.3		2021-06-24 16:00:00	2426.7		2022-07-03 16:00:00	1948.2	
2019-06-18 16:30:00	2508.8		2020-07-10 16:30:00	2426.0		2021-06-24 16:30:00	2683.1		2022-07-03 16:30:00	2244.7	
2019-06-18 17:00:00	2739.2		2020-07-10 17:00:00	2660.7		2021-06-24 17:00:00	2985.6		2022-07-03 17:00:00	2525.0	
2019-06-18 17:30:00	3011.6		2020-07-10 17:30:00	2913.3		2021-06-24 17:30:00	3268.2		2022-07-03 17:30:00	2749.7	
2019-06-18 18:00:00	3116.7	1180.6	2020-07-10 18:00:00	3040.0	1299.3	2021-06-24 18:00:00	3391.4	1510.2	2022-07-03 18:00:00	2875.2	1586.6
2019-06-19 14:00:00	1912.5		2020-07-11 14:00:00	1471.0		2021-06-26 14:00:00	1473.4		2022-08-07 14:00:00	1310.7	
2019-06-19 14:30:00	1970.7		2020-07-11 14:30:00	1535.1		2021-06-26 14:30:00	1571.0		2022-08-07 14:30:00	1412.3	
2019-06-19 15:00:00	2040.7		2020-07-11 15:00:00	1627.6		2021-06-26 15:00:00	1708.5		2022-08-07 15:00:00	1582.6	
2019-06-19 15:30:00	2159.2		2020-07-11 15:30:00	1771.2		2021-06-26 15:30:00	1875.2		2022-08-07 15:30:00	1799.6	
2019-06-19 16:00:00	2300.6		2020-07-11 16:00:00	1967.7		2021-06-26 16:00:00	2097.1		2022-08-07 16:00:00	1991.5	
2019-06-19 16:30:00	2515.1		2020-07-11 16:30:00	2210.7		2021-06-26 16:30:00	2351.8		2022-08-07 16:30:00	2225.8	
2019-06-19 17:00:00	2765.1		2020-07-11 17:00:00	2468.5		2021-06-26 17:00:00	2626.3		2022-08-07 17:00:00	2460.3	
2019-06-19 17:30:00	3020.9		2020-07-11 17:30:00	2705.4		2021-06-26 17:30:00	2879.7		2022-08-07 17:30:00	2705.1	
2019-06-19 18:00:00	3124.3	1211.8	2020-07-11 18:00:00	2819.9	1348.9	2021-06-26 18:00:00	2977.7	1504.4	2022-08-07 18:00:00	2850.5	1539.8
2019-07-07 14:00:00	1480.6		2020-07-12 14:00:00	1351.1		2021-09-04 14:30:00	1154.9		2022-08-22 14:30:00	1420.8	
2019-07-07 14:30:00	1560.8		2020-07-12 14:30:00	1436.6		2021-09-04 15:00:00	1248.4		2022-08-22 15:00:00	1539.8	
2019-07-07 15:00:00	1669.0		2020-07-12 15:00:00	1541.6		2021-09-04 15:30:00	1416.8		2022-08-22 15:30:00	1700.8	
2019-07-07 15:30:00	1791.9		2020-07-12 15:30:00	1680.6		2021-09-04 16:00:00	1602.9		2022-08-22 16:00:00	1921.1	
2019-07-07 16:00:00	1948.5		2020-07-12 16:00:00	1857.4		2021-09-04 16:30:00	1815.3		2022-08-22 16:30:00	2178.2	
2019-07-07 16:30:00	2115.4		2020-07-12 16:30:00	2095.0		2021-09-04 17:00:00	2081.1		2022-08-22 17:00:00	2460.1	
2019-07-07 17:00:00	2341.1		2020-07-12 17:00:00	2335.3		2021-09-04 17:30:00	2335.9		2022-08-22 17:30:00	2762.3	
2019-07-07 17:30:00	2576.9		2020-07-12 17:30:00	2571.1		2021-09-04 18:00:00	2533.5		2022-08-22 18:00:00	2986.0	
2019-07-07 18:00:00	2679.5	1198.8	2020-07-12 18:00:00	2696.3	1345.2	2021-09-04 18:30:00	2649.2	1494.3	2022-08-22 18:30:00	3080.6	1659.9
2019-07-14 14:00:00	1419.0		2020-08-30 14:30:00	1207.6		2021-09-12 14:30:00	1046.4		2022-08-23 14:30:00	1618.6	
2019-07-14 14:30:00	1487.8		2020-08-30 15:00:00	1315.0		2021-09-12 15:00:00	1168.3		2022-08-23 15:00:00	1742.5	
2019-07-14 15:00:00	1597.5		2020-08-30 15:30:00	1436.1		2021-09-12 15:30:00	1329.4		2022-08-23 15:30:00	1866.1	
2019-07-14 15:30:00	1712.4		2020-08-30 16:00:00	1631.2		2021-09-12 16:00:00	1502.9		2022-08-23 16:00:00	2087.6	
2019-07-14 16:00:00	1878.3		2020-08-30 16:30:00	1831.1		2021-09-12 16:30:00	1742.8		2022-08-23 16:30:00	2319.9	
2019-07-14 16:30:00	2070.3		2020-08-30 17:00:00	2026.8		2021-09-12 17:00:00	1990.5		2022-08-23 17:00:00	2590.5	
2019-07-14 17:00:00	2302.8		2020-08-30 17:30:00	2232.3		2021-09-12 17:30:00	2243.8		2022-08-23 17:30:00	2889.0	
2019-07-14 17:30:00	2556.0		2020-08-30 18:00:00	2415.2		2021-09-12 18:00:00	2448.8		2022-08-23 18:00:00	3103.7	
2019-07-14 18:00:00	2702.2	1283.2	2020-08-30 18:30:00	2500.6	1293.0	2021-09-12 18:30:00	2571.8	1525.4	2022-08-23 18:30:00	3165.5	1546.9

Conclusions of RCMRWG Discussions

RCMRWG members generally supported the proposed approach but expressed concern that the IRCR intervals should be simple, transparent to customers, and forecastable so that customers can actually respond to the signal.

Summary of Proposed IRCR Methodology

In summary, EPWA proposes to:

- Select flexible capacity IRCR intervals using the proposed methodology, using the three days with the highest four-hour ramp
- Have AEMO publish the forecast ramp so that consumers can monitor and respond to a transparent signal

The proposed interval selection methodology is clear and will allow participants to forecast the key periods.

This approach aligns with the three days used for the flex IRCR.

Can MAC endorse the proposed approach and, if not, provide reasons?

Flexible capacity product – other aspects

To date, the RCM Review project has covered:

- The need for a flexible capacity product to supplement the existing peak capacity product
- The method of setting the target for the new product
- The method for setting the price paid to facilities for providing flexible capacity
- The approach to setting IRCR to recover the costs

EPWA has identified consequential changes to other aspects of the capacity rules to incorporate flexible capacity, specifically:

- Capacity certification process
- Capacity obligations
- Outage requests and outage planning
- The capacity refund regime

These items will be discussed at the final RCMRWG and then included in the information paper

4. CRC for Intermittent Generators



Intermittent CRC Results using IRCR Intervals (1)

EPWA intends to align the intervals to allocate the Fleet ELCC to individual facilities with those used to calculate the peak IRCR.

This approach is consistent with the principle agreed at the last MAC meeting and addresses the previous concerns raised by the RCMRWG about the complexity of the alternative options.

Before endorsing this approach, some MAC members wanted to see the final IRCR interval selection rules and associated CRC outcomes.

The next slide shows the results for each facility using the current and proposed IRCR intervals as well as the current RLM-based CC.

EPWA considers that the results presented on the next slide confirm that there is no obvious bias in adopting the approach.

Intermittent CRC Results using IRCR Intervals (2)

There are no obvious distortions from using this method:

- Using IRCR intervals to distribute a fleet ELCC gives different results than the current RLM
- Collgar has the largest range across the methods (due to its volatile output), but the differences are not as prominent as they were under the Delta Method
- The year-to-year changes in IRCR are primarily driven by the change in fleet ELCC (2015-19: 271.5, 2016-20: 241.3) rather than by year-to-year facility performance
- Facility performance affects year-to-year changes (e.g. Yandin had a high expert report estimate in 2015 but low output in 2020 when actual data is used)

Facility	Nameplate capacity (MW)	Base - 2015 – 2019 less 2018			Base - 2016-2020 less 2018		
		Proposed intervals (MW)	Current intervals (MW)	2021 CC (MW)	Proposed intervals (MW)	Current intervals (MW)	2022 CC (MW)
ALBANY_WF1	21.6	11.2	8.6	5.3	10.4	8.1	5.5
ALINTA_WWF	89.1	18.7	21.7	17.2	16.9	19.1	15.5
AMBRISOLAR_PV1	0.96	0.2	0.2	0.2	0.2	0.2	0.2
BADGINGARRA_WF1	130	29.2	30.3	26.6	24.9	30.2	26.2
BIOGAS01	2	0.2	0.2	1.2	0.2	0.2	0.8
BLAIRFOX_BEROSRD_WF1	9.3	0.0	0.1	0.0	0.0	0.5	0.0
BLAIRFOX_KARAKIN_WF1	5	0.3	0.5	0.5	0.2	0.4	0.5
BREMER_BAY_WF1	0.6	0.3	0.2	0.2	0.2	0.2	0.2
DCWL_DENMARK_WF1	1.44	0.7	0.6	0.4	0.6	0.5	0.4
EDWFMAN_WF1	80	11.1	12.5	16.2	10.0	13.4	14.7
GRASMERE_WF1	13.8	7.6	5.8	3.7	7.1	5.5	3.9
GREENOUGH_RIVER_PV1	40	4.4	4.6	7.4	3.5	5.3	6.4
HENDERSON_RENEWABLE_IG1	3	1.2	1.1	1.6	1.1	1.0	1.6
INVESTEC_COLLGAR_WF1	206	41.5	31.7	15.8	41.1	23.3	21.8
KALBARRI_WF1	1.6	0.2	0.3	0.3	0.2	0.2	0.2
MERSOLAR_PV1	100	27.0	27.5	16.3	22.2	22.0	13.7
MWF_MUMBIDA_WF1	55	12.9	11.1	7.0	12.0	11.8	7.0
NORTHAM_SF_PV1	9.8	1.6	1.9	1.8	1.3	1.6	1.6
RED_HILL	3.6	2.1	1.9	2.8	1.9	1.8	2.8
ROCKINGHAM	4	1.7	1.3	2.3	1.5	1.2	2.2
SKYFRM_MTBARKER_WF1	2	1.0	0.8	0.5	0.9	0.8	0.6
SOUTH_CARDUP	4.2	2.3	2.0	3.0	2.0	1.7	2.9
TAMALA_PARK	4.8	3.2	2.8	4.4	2.9	2.6	4.3
WARRADARGE_WF1	180	38.2	45.5	30.2	33.9	43.3	30.2
YANDIN_WF1	214.2	54.9	58.2	36.2	46.2	46.4	34.1

5. Penalties on High Emission Technologies



Proposed Option

Two options were shortlisted in 2022:

- Option 1 – penalty on trading interval emissions
- Option 6 – emissions threshold for RCM participation

Option 6 is EPWA's preferred option, as it:

- Will provide more certainty of exit timing than option 1, maintaining reliability of supply
- Is simpler to implement and operate than Option 1
- Will have less effect on dispatch incentives, and thus less requirement to monitor and mitigate market power issues of cost pass-through
- Allows use of NGER data rather than requiring a new regime to be set up and run
- Received the most support from MAC and RCMRWG members

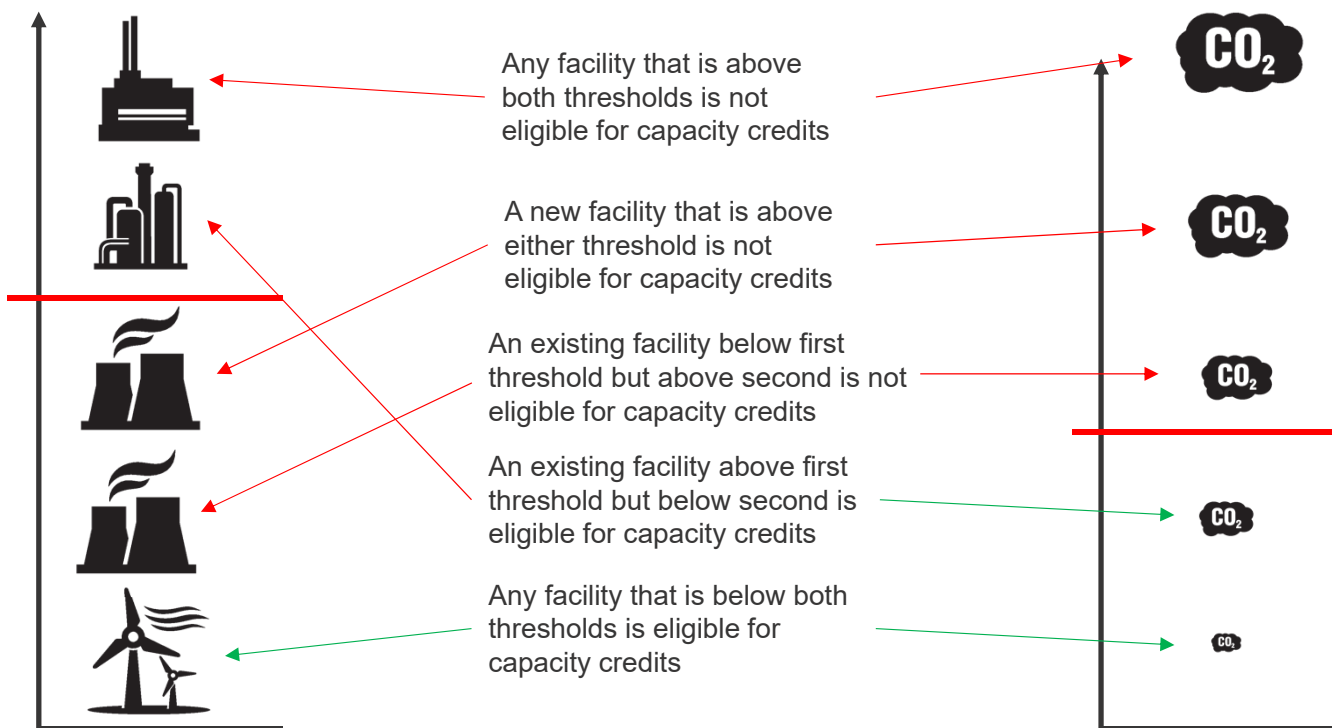
Discussion at the RCMRWG confirmed that this approach is preferred by most members

Option 6

For each capacity year

Threshold 1: Facility emission rate (tCO₂e/MWh)

Threshold 2: Facility emissions quantity (tCO₂e/MW)



Option 6 – Emission Rate Threshold

For each capacity year

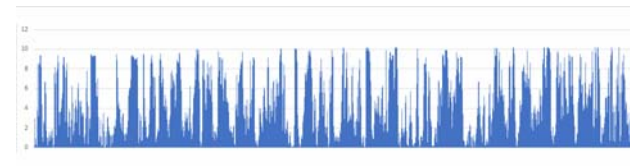
Facility annual scope 1 emissions (tCO₂e)



0



Previous capacity year facility generation (MWh)



Facility emission rate (tCO₂e/MWh)



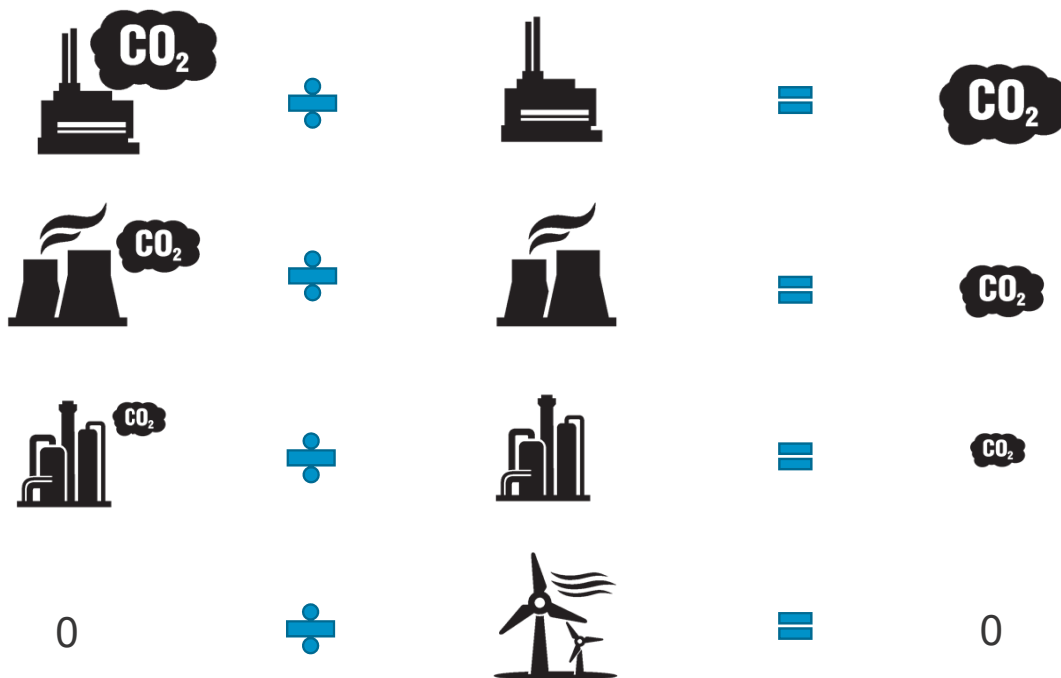
Option 6 – Emission Quantity Threshold

For each capacity year

Facility annual scope 1 emissions (tCO₂e)

Facility nameplate capacity (MW)

Facility emission quantity (tCO₂e/MW)



Proposal to the RCMRWG

EPWA proposed to the working group that:

- Both thresholds would apply to new facilities from implementation
- Only the emission quantity threshold would apply to existing facilities
- A process would be needed for co-generation facilities to divide emissions between electricity generation and process heat

EPWA proposed:

- An emission rate threshold of 0.4 tCO₂e/MWh to apply to all *new* facilities from the 2026 capacity cycle (for the 2028 capacity year)
- An emission quantity threshold of 1,000 tCO₂e/MW to apply to all *new* facilities from the 2026 capacity cycle (2028 capacity year)
- An emission quantity threshold of 7,000 tCO₂e/MW to apply to all *existing* facilities for the 2026 capacity cycle (2028 capacity year)
- Decreasing the existing facility quantity threshold by 500 tCO₂e/MW each year, until the threshold is the same for new and existing facilities in the 2036 capacity cycle

Summary of RCMRWG Discussions

The RCMRWG almost unanimously supported option 6 as the preferred option, if a penalty regime were to be implemented, but raised concerns that:

- The regime could come at a cost of system reliability by forcing early exit of facilities before replacement capacity is commissioned
- The proposed emission rate threshold would preclude new gas peaking generation
- Facilities built to act as baseload are not likely to be financially viable if forced to operate as peaking plant to reduce emissions.
- The threshold for a new facility should not be subject to change for at least ten years
- Facility operation is not entirely within participant control, as offer prices must reflect competitive costs, and AEMO may direct operations to resolve system emergencies
- As existing fossil-fueled facilities retire, remaining schedulable facilities are likely to operate more, increasing the likelihood of exceeding the threshold
- A facility being above the emissions threshold in one year would rule out capacity payments in future years even if the facility was below the emissions threshold at a later date

Revised Proposal for Penalties (1)

EPWA proposes an **emission rate threshold for *new facilities*** of 0.55 tCO₂e/MWh to apply from the 2026 capacity cycle (for the 2028 capacity year).

This threshold is:

- Slightly lower than the emission rate of the newest open cycle gas turbines on the SWIS (0.57 tCO₂e/MWh)
- Achievable by an efficient new gas-fired turbine or reciprocating engine (0.50 – 0.60 tCO₂e/MWh)

EPWA proposes an **emission quantity threshold for *new facilities*** of 1,000 tCO₂e/MW to apply from the 2026 capacity cycle (2028 capacity year).

This threshold is sufficient to allow a facility at the emission rate threshold to operate about 20% of the time, meaning that a gas-fired unit would be able to run as a peaker.

EPWA proposes an **emission quantity threshold for *existing facilities*** of 5,500 tCO₂e/MW to apply to for the 2026 capacity cycle (2028 capacity year), decreasing by 500 tCO₂e/MW each year, until the threshold is the same for new and existing facilities in the 2035 capacity cycle.

This aligns with government announcements to retire Collie and Muja, so that at current generation levels, they would be at or above the threshold to receive capacity credits around 2030.

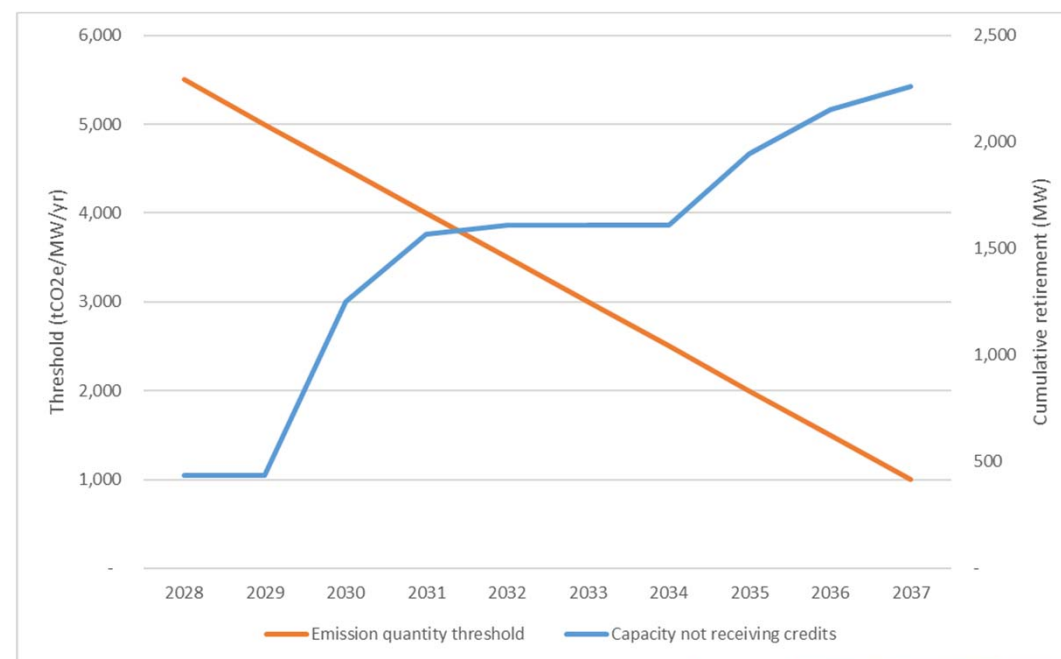
Projected Capacity Not Eligible For Capacity Credits

Applying an emissions quantity threshold to existing facilities is more supportive of ongoing reliability than applying an emissions rate threshold. Using a gradually decreasing threshold will allow orderly consideration of potential retirement decisions, and spread potential retirements over time.

The chart gives the projected impact of how much capacity would become ineligible for capacity credits as a result of this policy, assuming that:

- Cogeneration facilities are not affected
- Facility emissions rates do not improve. If they do, impact could be delayed
- Facility utilisation does not change. There is potential for utilisation of remaining facilities to increase as other facilities retire, but also for owners to reduce output to stay within the threshold.

Retirements announced by the Government are included in this chart.



Revised Proposal for Penalties (2)

EPWA proposes that:

- Both thresholds would apply to all new facilities at implementation
- For ten years, a new facility would remain subject to the thresholds under which it first received capacity credits
- Only the emission quantity threshold would apply to existing facilities
- A process will be needed for co-generation facilities to divide emissions between electricity generation and process heat

Can MAC endorse the proposed approach or, if not, provide reasons?

6. Revising the Duration Gap



Duration Gap – Recap

In future years, there will be a 'duration gap' between the end of the evening ramp (when flexible capacity that ramps up to meet the evening peak load may have exhausted its availability) and sunrise (when behind the meter and grid scale solar start to ramp up)

By 2030, firm capacity will be needed to shift energy from the middle of the day to the peak period, with a total duration of around six hours

- Initially, storage facilities which can discharge over the few peak hours will be sufficient to serve load and achieve adequate reliability

By 2050, with all thermal generation retired, the overnight gap must be filled primarily by wind, storage, and DSM across a total duration of around 14 hours

Duration Gap – Mitigation Options

In the consultation paper, EPWA proposed Option 1:

- use an availability duration target in setting CRC for Class 2 facilities
- allow new facilities to lock in their initial duration target for their first five years
- after this period, prorate allocated CRC based on the prevailing duration target

Under this approach the duration gap is assumed to be met by either generation (primarily overnight wind in later years) or by increasing storage volumes to allow a longer discharge period

Feedback to the consultation paper identified two more options:

- Option 2: Stack facilities with different durations to match the shape of the load
- Option 3: Separate post-peak supply as a third capacity product

Summary of RCMRWG Discussion

The RCMRWG agreed that:

- WEM arrangements need to provide incentives for the right capability to enter at the right time
- It will become important to encourage entry of longer-term firming capability, but not immediately

There was more support for option 3 than option 2, but support was not unanimous. Members commented that:

- It is reasonable to compensate facilities differently if their capabilities are different
- The duration gap is a function of the type and size of facilities participating in the market, rather than an uncontrollable factor like DPV penetration
- The more incentive signals the market provides, the less each of them factors into investment decision making
- It may be premature to spend time and effort designing an approach before the parameters of the issue are clearer

Revised Proposal for Duration Gap

EPWA proposes to:

- Retain the design elements identified in the consultation paper
- Not design a separate duration product at this stage, but set triggers for such a product to be added
- Include monitoring metrics in the rules to signal when the duration gap is at risk of not being met
- Require AEMO to calculate publish the metrics
- Add the duration gap to the items to be considered in the Coordinator's market reviews

Can MAC endorse the proposed approach and, if not, provide reasons?

7. Next steps



Next Steps

- Final RCMRWG meeting on 22 March to discuss:
 - details for the flexible capacity product
 - analysis on the proposed approach for the implementation of a penalty for high emission technology
- Financial analysis (as part of overall assessment of package) – March/April
- Information paper confirming outcome of phase 1 items – early May
- Consultation paper for phase 2 items – early May
- Questions or feedback can be emailed to energymarkets@energy.wa.gov.au

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Appendix – DSP CRC



Option 1: Determining DSP CRC by ELCC

Using an approach similar to the ELCC approach that is to be used for intermittent generators could allow more effective participation by a wider range of loads, while increasing consistency of incentives to perform across all types of participant

The ELCC could be calculated for each DSP individually, or as a fleet with fleet ELCC allocated to individual DSPs based on their available curtailment in the same intervals used for IRCR

- A fleet approach may be less appropriate given the different operating constraints of loads vs generators.

The overall contribution of registered DSPs to system reliability can be assessed in the same way as intermittent generators:

1. Using historical load and historical intermittent fleet output (adjusted for DER penetration, DSP dispatch, *and NCESS dispatch (if in place)*), find the load at which EUE is at a pre-set level
2. For each DSP, identify available curtailment in each interval in the previous capacity year
3. Adjust historical load trace to subtract available DSP curtailment
4. Increase load until EUE is the same as it was in step 1
5. Added load (MW) = DSP ELCC

Option 2: Determine DSP CRC based on IRCR Intervals

Set DSP CRC levels based on median consumption in the same intervals used to determine IRCR.

- In the language of RC_2019_01, this is an “X of Y” method, where the Y is the previous capacity year (a single year lookback is sufficient for the same reasons as for IRCR) and the X is the intervals selected from that year

This approach would mean a direct balance between a participant’s incentives to minimise IRCR (by having low load at times of system stress) and maximise DSP CRC (by having high load at times of system stress that can then be curtailed)

This approach would not account for synergies or antagonisms between the load profiles of different DSPs

This approach is most suited where historical consumption is a reliable indicator of future consumption – such as for large industrial loads. Where a DSP’s associated loads are likely to change from year to year, this method is open to potential gaming by selecting loads based on their performance in the previous year only

Option 3: Participant Nominated CRC

The responsible participant would nominate a performance level for the DSP – the MW of load response it commits to provide, when called

- Historical load data would not be used to directly set the CRC level, but the participant would need to show evidence that it has sufficient associated load to deliver the nominated reduction – this would be confirmed through reserve capacity testing
- On failure to provide the nominated level when dispatched or tested, immediate refunds would provide incentive to ensure the programme can deliver the nominated reduction

This method would be appropriate for aggregations of multiple small loads – particularly where the associated loads are likely to change from year to year – and would allow programme owners more leeway to manage their fleet of Associated Loads over time

DSP Dispatch – Static Baseline

When it is dispatched, a DSP's performance is currently measured against a static baseline called the Relevant Demand

- Relevant Demand is set in advance, and represents the level of demand against which the programme is curtailed

This approach could be continued under options 2 or 3, as there is a specific quantity of demand expected in specific intervals

Option 1 could potentially see a load credited for good performance weighted outside the specific highest demand intervals, so there is no longer a direct mapping from CRC to dispatch baseline

- In some intervals the expected load will be lower, but the overall contribution to system reliability remains at the higher level

Nevertheless, the expected level of demand could be set using the CRC level, on the assumption that ELCC performance aligns with DSP load at expected dispatch times

- This will not always be the case, so the programme may not be able to deliver its full CRC of reduction in the dispatched intervals, and in others dispatching for the CRC level only would underestimate the reduction assumed in the ELCC calculation

Hybrid Facilities

Some facilities may have load co-located with generation or storage. Generally a NMI will only be an Associated Load of a DSP if its generation or storage is smaller than the de-minimis registration threshold

- Where a participant has both load and storage at a single location, the site could choose to participate as part of a DSP if the storage were small enough to not require registration. Otherwise it could participate in the RCM as a Capability Class 2 Facility
- Where a participant has both load and intermittent generation at a single location, the magnitude of potential injection would determine whether the site could participate in the RCM as part of a DSP or whether it would need to be registered as a Capability Class 3 facility

Rules will be needed to ensure that a class 2 facility with collocated load and storage cannot self-discharge its storage so as to reduce its IRCR exposure while also receiving capacity credits for that capability

Assessing the Options (1)

Goal	1. ELCC	2. IRCR intervals	3. Nomination
Ensures that the system reliability objective is met	●	●	●
Adequately assesses facilities' contribution to system reliability	●	●	●
Minimises year-to-year volatility for investors	○	●	●
Is simple and easy to understand	○	●	●
Ideally can be replicated by potential investors and other stakeholders	○	●	●
Aligns with CRC methodology for intermittent generators	●	●	○

Assessing the Options (2)

- All options ensure system reliability is met, although options 1 and 2 only if historic data is a good indicator of future performance
- Options 1 and 2 could overestimate the quantity of reduction that is available from a DSP if future load is not correlated with past load
- Option 3 gives participants the control over changes in CRC from year-to-year
- Option 3 is the easiest to understand and replicate, while option 1 is the most complex and difficult to replicate
- Options 1 and 2 are closer to the method to be used for intermittent generation CRC, while option 3 is more like the approach used for schedulable generation
- All options would rebalance the incentive for participants to make demand flexibility available for dispatch via a DSP rather than just controlling it themselves via IRCR

Appendix – IRCR Intervals



IRCR Interval Selection Rules

The following slides compare the current IRCR intervals for each of the past six years with the intervals selected under variations of the rule below, with variations in bold:

1. Identify the 12 intervals from the [**previous year OR previous hot season (December-March)**] with the highest total sent out generation (SOG)
2. Identify the trading days on which those intervals fell
3. [**If fewer than four days are identified in step 2, identify additional days with the highest SOG outside the top 12 intervals to make a total of 4 days**]
4. For each identified day, select:
 - a. The interval with the highest SOG;
 - b. All other intervals that are in the top 12 intervals;
 - c. All intervals between the intervals selected in steps 3a and 3b; and
 - d. If fewer than three intervals have been selected, select the next highest SOG intervals on either side of the selected intervals to make up to three intervals

Exploring Interval Selection Rules (1)

Capacity year	Date	Time	TT30GEN (MW)	TT30GEN (MW)				Old - IRCR
				New IRCR - Summer - min 4 days	New IRCR - All year - min 4 days	New IRCR - Summer - no min days	New IRCR - All year - no min days	
2017	15/02/2018	5:00 pm	3172.2	x				x
2017	15/02/2018	5:30 pm	3195.6	x				x
2017	15/02/2018	6:00 pm	3164.6	x				x
2017	12/03/2018	5:30 pm	3247.8	x	x			x
2017	12/03/2018	6:00 pm	3251.5	x	x			x
2017	12/03/2018	6:30 pm	3248.6	x	x			x
2017	13/03/2018	3:30 pm	3380.7	x	x	x	x	
2017	13/03/2018	4:00 pm	3451.6	x	x	x	x	
2017	13/03/2018	4:30 pm	3536.1	x	x	x	x	
2017	13/03/2018	5:00 pm	3585.6	x	x	x	x	x
2017	13/03/2018	5:30 pm	3609.5	x	x	x	x	x
2017	13/03/2018	6:00 pm	3565.7	x	x	x	x	x
2017	13/03/2018	6:30 pm	3561.2	x	x	x	x	
2017	13/03/2018	7:00 pm	3552.5	x	x	x	x	
2017	13/03/2018	7:30 pm	3496.0	x	x	x	x	
2017	13/03/2018	8:00 pm	3373.5	x	x	x	x	
2017	21/03/2018	4:30 pm	3343.6	x	x	x	x	x
2017	21/03/2018	5:00 pm	3382.1	x	x	x	x	x
2017	21/03/2018	5:30 pm	3360.2	x	x	x	x	x
2017	6/08/2018	5:30 pm	3144.2		x			
2017	6/08/2018	6:00 pm	3227.4		x			
2017	6/08/2018	6:30 pm	3191.1		x			

Capacity year	Date	Time	TT30GEN (MW)	TT30GEN (MW)				Old - IRCR
				New IRCR - Summer - min 4 days	New IRCR - All year - min 4 days	New IRCR - Summer - no min days	New IRCR - All year - no min days	
2016	21/12/2016	3:30 pm	3474.5	x	x	x	x	
2016	21/12/2016	4:00 pm	3482.6	x	x	x	x	
2016	21/12/2016	4:30 pm	3496.9	x	x	x	x	x
2016	21/12/2016	5:00 pm	3515.8	x	x	x	x	x
2016	21/12/2016	5:30 pm	3503.5	x	x	x	x	x
2016	21/12/2016	6:00 pm	3431.7	x	x	x	x	
2016	4/01/2017	4:00 pm	3337.4	x				x
2016	4/01/2017	4:30 pm	3345.2	x				x
2016	4/01/2017	5:00 pm	3339.2	x				x
2016	1/03/2017	4:00 pm	3431.3	x	x	x	x	
2016	1/03/2017	4:30 pm	3504.2	x	x	x	x	x
2016	1/03/2017	5:00 pm	3512.4	x	x	x	x	x
2016	1/03/2017	5:30 pm	3509.9	x	x	x	x	x
2016	1/03/2017	6:00 pm	3459.7	x	x	x	x	
2016	1/03/2017	6:30 pm	3436.4	x	x	x	x	
2016	3/03/2017	4:00 pm	3315.2	x				x
2016	3/03/2017	4:30 pm	3347.6	x				x
2016	3/03/2017	5:00 pm	3329.4	x				x
2016	5/07/2017	5:30 pm	3302.8		x			
2016	5/07/2017	6:00 pm	3366.0		x			
2016	5/07/2017	6:30 pm	3334.5		x			
2016	9/08/2017	6:00 pm	3336.4		x			
2016	9/08/2017	6:30 pm	3367.5		x			
2016	9/08/2017	7:00 pm	3301.5		x			

Capacity year	Date	Time	TT30GEN (MW)	TT30GEN (MW)				Old - IRCR
				New IRCR - Summer - min 4 days	New IRCR - All year - min 4 days	New IRCR - Summer - no min days	New IRCR - All year - no min days	
2015	8/02/2016	4:30 pm	3978.4	x	x	x	x	x
2015	8/02/2016	5:00 pm	3990.3	x	x	x	x	x
2015	8/02/2016	5:30 pm	3995.0	x	x	x	x	x
2015	8/02/2016	6:00 pm	3942.3	x	x	x	x	
2015	8/02/2016	6:30 pm	3920.7	x	x	x	x	
2015	9/02/2016	4:30 pm	3889.4	x	x			x
2015	9/02/2016	5:00 pm	3886.3	x	x			x
2015	9/02/2016	5:30 pm	3860.6	x	x			x
2015	10/02/2016	4:30 pm	3776.5	x	x			x
2015	10/02/2016	5:00 pm	3772.8	x	x			x
2015	10/02/2016	5:30 pm	3759.3	x	x			x
2015	14/03/2016	4:00 pm	3934.8	x	x	x	x	
2015	14/03/2016	4:30 pm	3990.0	x	x	x	x	x
2015	14/03/2016	5:00 pm	3966.0	x	x	x	x	x
2015	14/03/2016	5:30 pm	3967.3	x	x	x	x	x
2015	14/03/2016	6:00 pm	3926.7	x	x	x	x	
2015	14/03/2016	6:30 pm	3948.4	x	x	x	x	
2015	14/03/2016	7:00 pm	3941.2	x	x	x	x	

Exploring Interval Selection Rules (2)

Capacity year	Date	Time	TT30GEN (MW)	TT30GEN (MW)					Old - IRCR
				New IRCR - Summer - min 4 days	New IRCR - All year - min 4 days	New IRCR - Summer - no min days	New IRCR - All year - no min days		
2019	12/12/2019	5:30 pm	3588.2	x	x	x	x	x	
2019	12/12/2019	6:00 pm	3571.0	x	x	x	x	x	
2019	12/12/2019	6:30 pm	3549.7	x	x	x	x	x	
2019	3/02/2020	5:30 pm	3554.5	x	x	x	x	x	
2019	3/02/2020	6:00 pm	3577.4	x	x	x	x	x	
2019	3/02/2020	6:30 pm	3596.6	x	x	x	x	x	
2019	4/02/2020	4:00 pm	3602.2	x	x	x	x		
2019	4/02/2020	4:30 pm	3719.2	x	x	x	x		
2019	4/02/2020	5:00 pm	3828.1	x	x	x	x		
2019	4/02/2020	5:30 pm	3918.8	x	x	x	x	x	
2019	4/02/2020	6:00 pm	3902.6	x	x	x	x	x	
2019	4/02/2020	6:30 pm	3901.9	x	x	x	x	x	
2019	4/02/2020	7:00 pm	3872.7	x	x	x	x		
2019	4/02/2020	7:30 pm	3873.6	x	x	x	x		
2019	4/02/2020	8:00 pm	3818.9	x	x	x	x		
2019	4/02/2020	8:30 pm	3701.3	x	x	x	x		
2019	14/02/2020	5:00 pm	3546.3	x	x				x
2019	14/02/2020	5:30 pm	3575.6	x	x				x
2019	14/02/2020	6:00 pm	3537.2	x	x				x

Capacity year	Date	Time	TT30GEN (MW)	TT30GEN (MW)					Old - IRCR
				New IRCR - Summer - min 4 days	New IRCR - All year - min 4 days	New IRCR - Summer - no min days	New IRCR - All year - no min days		
2020	23/12/2020	5:30 pm	3575.3	x	x	x	x	x	
2020	23/12/2020	6:00 pm	3608.1	x	x	x	x	x	
2020	23/12/2020	6:30 pm	3618.2	x	x	x	x	x	
2020	23/12/2020	7:00 pm	3558.8	x	x	x	x		
2020	24/12/2020	5:00 pm	3501.7	x	x				x
2020	24/12/2020	5:30 pm	3546.2	x	x				x
2020	24/12/2020	6:00 pm	3490.8	x	x				x
2020	8/01/2021	4:30 pm	3652.7	x	x	x	x		
2020	8/01/2021	5:00 pm	3695.3	x	x	x	x		
2020	8/01/2021	5:30 pm	3778.8	x	x	x	x	x	
2020	8/01/2021	6:00 pm	3788.8	x	x	x	x	x	
2020	8/01/2021	6:30 pm	3731.0	x	x	x	x	x	
2020	8/01/2021	7:00 pm	3636.4	x	x	x	x		
2020	8/01/2021	7:30 pm	3595.6	x	x	x	x		
2020	8/01/2021	8:00 pm	3571.2	x	x	x	x		
2020	23/02/2021	5:00 pm	3473.4	x					x
2020	23/02/2021	5:30 pm	3536.4	x					x
2020	23/02/2021	6:00 pm	3501.0	x					x
2020	22/06/2021	5:30 pm	3462.5		x				
2020	22/06/2021	6:00 pm	3537.3		x				
2020	22/06/2021	6:30 pm	3511.1		x				

Capacity year	Date	Time	TT30GEN (MW)	TT30GEN (MW)					Old - IRCR
				New IRCR - Summer - min 4 days	New IRCR - All year - min 4 days	New IRCR - Summer - no min days	New IRCR - All year - no min days		
2021	19/01/2022	5:30 pm	3950.8	x	x	x	x	x	
2021	19/01/2022	6:00 pm	3984.2	x	x	x	x	x	
2021	19/01/2022	6:30 pm	3976.3	x	x	x	x	x	
2021	21/01/2022	5:30 pm	3939.6	x	x	x	x	x	
2021	21/01/2022	6:00 pm	3952.6	x	x	x	x	x	
2021	21/01/2022	6:30 pm	3952.0	x	x	x	x	x	
2021	3/02/2022	6:00 pm	3958.9	x	x	x	x	x	
2021	3/02/2022	6:30 pm	3970.0	x	x	x	x	x	
2021	3/02/2022	7:00 pm	3906.0	x	x	x	x	x	
2021	14/02/2022	5:30 pm	3931.3	x	x	x	x		
2021	14/02/2022	6:00 pm	3940.8	x	x	x	x		
2021	14/02/2022	6:30 pm	3889.0	x	x	x	x		
2021	15/02/2022	5:30 pm	3949.8	x	x	x	x		
2021	15/02/2022	6:00 pm	3940.2	x	x	x	x		
2021	15/02/2022	6:30 pm	3890.8	x	x	x	x		
2021	16/02/2022	5:30 pm	3956.5	x	x	x	x	x	
2021	16/02/2022	6:00 pm	3971.6	x	x	x	x	x	
2021	16/02/2022	6:30 pm	3956.6	x	x	x	x	x	

IRCR Interval Selection Rules (2)

The following slides compare the current IRCR intervals for each of the past six years with the intervals selected under variations of the rule below, with variations in bold:

1. Identify the 12 intervals from the [**previous year OR previous hot season (December-March)**] with the highest total sent out generation (SOG)
2. Identify the trading days on which those intervals fell
3. **[If fewer than three days are identified in step 2, identify additional days with the highest SOG outside the top 12 intervals to make a total of 4 days]**
4. For each identified day, select:
 - a. The interval with the highest SOG;
 - b. All other intervals that are in the top 12 intervals;
 - c. All intervals between the intervals selected in steps 3a and 3b; and
 - d. If fewer than three intervals have been selected, select the next highest SOG intervals on either side of the selected intervals to make up to three intervals

Exploring Interval Selection Rules (3)

Capacity year	Date	Time	TT30GEN (MW)	Current intervals			
				New IRCR - Summer - min 3 days	New IRCR - All year - min 3 days	New IRCR - Summer - no min days	New IRCR - All year - no min days
2015	8/02/2016	4:30 pm	3978.4	x	x	x	x
2015	8/02/2016	5:00 pm	3990.3	x	x	x	x
2015	8/02/2016	5:30 pm	3995.0	x	x	x	x
2015	8/02/2016	6:00 pm	3942.3	x	x	x	x
2015	8/02/2016	6:30 pm	3920.7	x	x	x	x
2015	9/02/2016	4:30 pm	3889.4	x	x		x
2015	9/02/2016	5:00 pm	3886.3	x	x		x
2015	9/02/2016	5:30 pm	3860.6	x	x		x
2015	10/02/2016	4:30 pm	3776.5				x
2015	10/02/2016	5:00 pm	3772.8				x
2015	10/02/2016	5:30 pm	3759.3				x
2015	14/03/2016	4:00 pm	3934.8	x	x	x	x
2015	14/03/2016	4:30 pm	3990.0	x	x	x	x
2015	14/03/2016	5:00 pm	3966.0	x	x	x	x
2015	14/03/2016	5:30 pm	3967.3	x	x	x	x
2015	14/03/2016	6:00 pm	3926.7	x	x	x	x
2015	14/03/2016	6:30 pm	3948.4	x	x	x	x
2015	14/03/2016	7:00 pm	3941.2	x	x	x	x

Capacity year	Date	Time	TT30GEN (MW)	Current intervals			
				New IRCR - Summer - min 3 days	New IRCR - All year - min 3 days	New IRCR - Summer - no min days	New IRCR - All year - no min days
2016	21/12/2016	3:30 pm	3474.5	x	x	x	x
2016	21/12/2016	4:00 pm	3482.6	x	x	x	x
2016	21/12/2016	4:30 pm	3496.9	x	x	x	x
2016	21/12/2016	5:00 pm	3515.8	x	x	x	x
2016	21/12/2016	5:30 pm	3503.5	x	x	x	x
2016	21/12/2016	6:00 pm	3431.7	x	x	x	x
2016	4/01/2017	4:00 pm	3337.4				x
2016	4/01/2017	4:30 pm	3345.2				x
2016	4/01/2017	5:00 pm	3339.2				x
2016	1/03/2017	4:00 pm	3431.3	x	x	x	x
2016	1/03/2017	4:30 pm	3504.2	x	x	x	x
2016	1/03/2017	5:00 pm	3512.4	x	x	x	x
2016	1/03/2017	5:30 pm	3509.9	x	x	x	x
2016	1/03/2017	6:00 pm	3459.7	x	x	x	x
2016	1/03/2017	6:30 pm	3436.4	x	x	x	x
2016	3/03/2017	4:00 pm	3315.2	x			x
2016	3/03/2017	4:30 pm	3347.6	x			x
2016	3/03/2017	5:00 pm	3329.4	x			x
2016	9/08/2017	6:00 pm	3336.4		x		
2016	9/08/2017	6:30 pm	3367.5		x		
2016	9/08/2017	7:00 pm	3301.5		x		

Capacity year	Date	Time	TT30GEN (MW)	Current intervals			
				New IRCR - Summer - min 3 days	New IRCR - All year - min 3 days	New IRCR - Summer - no min days	New IRCR - All year - no min days
2017	15/02/2018	5:00 pm	3172.2				x
2017	15/02/2018	5:30 pm	3195.6				x
2017	15/02/2018	6:00 pm	3164.6				x
2017	12/03/2018	5:30 pm	3247.8	x	x		x
2017	12/03/2018	6:00 pm	3251.5	x	x		x
2017	12/03/2018	6:30 pm	3248.6	x	x		x
2017	13/03/2018	3:30 pm	3380.7	x	x	x	x
2017	13/03/2018	4:00 pm	3451.6	x	x	x	x
2017	13/03/2018	4:30 pm	3536.1	x	x	x	x
2017	13/03/2018	5:00 pm	3585.6	x	x	x	x
2017	13/03/2018	5:30 pm	3609.5	x	x	x	x
2017	13/03/2018	6:00 pm	3565.7	x	x	x	x
2017	13/03/2018	6:30 pm	3561.2	x	x	x	x
2017	13/03/2018	7:00 pm	3552.5	x	x	x	x
2017	13/03/2018	7:30 pm	3496.0	x	x	x	x
2017	13/03/2018	8:00 pm	3373.5	x	x	x	x
2017	21/03/2018	4:30 pm	3343.6	x	x	x	x
2017	21/03/2018	5:00 pm	3382.1	x	x	x	x
2017	21/03/2018	5:30 pm	3360.2	x	x	x	x

Exploring Interval Selection Rules (4)

Capacity year	Date	Time	TT30GEN (MW)	New IRCR - Summer - min 3 days	New IRCR - All year - min 3 days	New IRCR - Summer - no min days	New IRCR - All year - no min days	Current intervals
2019	12/12/2019	5:30 pm	3588.2	x	x	x	x	x
2019	12/12/2019	6:00 pm	3571.0	x	x	x	x	x
2019	12/12/2019	6:30 pm	3549.7	x	x	x	x	x
2019	3/02/2020	5:30 pm	3554.5	x	x	x	x	x
2019	3/02/2020	6:00 pm	3577.4	x	x	x	x	x
2019	3/02/2020	6:30 pm	3596.6	x	x	x	x	x
2019	4/02/2020	4:00 pm	3602.2	x	x	x	x	
2019	4/02/2020	4:30 pm	3719.2	x	x	x	x	
2019	4/02/2020	5:00 pm	3828.1	x	x	x	x	
2019	4/02/2020	5:30 pm	3918.8	x	x	x	x	x
2019	4/02/2020	6:00 pm	3902.6	x	x	x	x	x
2019	4/02/2020	6:30 pm	3901.9	x	x	x	x	x
2019	4/02/2020	7:00 pm	3872.7	x	x	x	x	
2019	4/02/2020	7:30 pm	3873.6	x	x	x	x	
2019	4/02/2020	8:00 pm	3818.9	x	x	x	x	
2019	4/02/2020	8:30 pm	3701.3	x	x	x	x	
2019	14/02/2020	5:00 pm	3546.3					x
2019	14/02/2020	5:30 pm	3575.6					x
2019	14/02/2020	6:00 pm	3537.2					x

Capacity year	Date	Time	TT30GEN (MW)	New IRCR - Summer - min 3 days	New IRCR - All year - min 3 days	New IRCR - Summer - no min days	New IRCR - All year - no min days	Current intervals
2020	23/12/2020	5:30 pm	3575.3	x	x	x	x	x
2020	23/12/2020	6:00 pm	3608.1	x	x	x	x	x
2020	23/12/2020	6:30 pm	3618.2	x	x	x	x	x
2020	23/12/2020	7:00 pm	3558.8	x	x	x	x	
2020	24/12/2020	5:00 pm	3501.7	x	x			x
2020	24/12/2020	5:30 pm	3546.2	x	x			x
2020	24/12/2020	6:00 pm	3490.8	x	x			x
2020	8/01/2021	4:30 pm	3652.7	x	x	x	x	
2020	8/01/2021	5:00 pm	3695.3	x	x	x	x	
2020	8/01/2021	5:30 pm	3778.8	x	x	x	x	x
2020	8/01/2021	6:00 pm	3788.8	x	x	x	x	x
2020	8/01/2021	6:30 pm	3731.0	x	x	x	x	x
2020	8/01/2021	7:00 pm	3636.4	x	x	x	x	
2020	8/01/2021	7:30 pm	3595.6	x	x	x	x	
2020	8/01/2021	8:00 pm	3571.2	x	x	x	x	
2020	23/02/2021	5:00 pm	3473.4					x
2020	23/02/2021	5:30 pm	3536.4					x
2020	23/02/2021	6:00 pm	3501.0					x

Capacity year	Date	Time	TT30GEN (MW)	New IRCR - Summer - min 3 days	New IRCR - All year - min 3 days	New IRCR - Summer - no min days	New IRCR - All year - no min days	Current intervals
2021	19/01/2022	5:30 pm	3950.8	x	x	x	x	x
2021	19/01/2022	6:00 pm	3984.2	x	x	x	x	x
2021	19/01/2022	6:30 pm	3976.3	x	x	x	x	x
2021	21/01/2022	5:30 pm	3939.6	x	x	x	x	x
2021	21/01/2022	6:00 pm	3952.6	x	x	x	x	x
2021	21/01/2022	6:30 pm	3952.0	x	x	x	x	x
2021	3/02/2022	6:00 pm	3958.9	x	x	x	x	x
2021	3/02/2022	6:30 pm	3970.0	x	x	x	x	x
2021	3/02/2022	7:00 pm	3906.0	x	x	x	x	x
2021	14/02/2022	5:30 pm	3931.3	x	x	x	x	
2021	14/02/2022	6:00 pm	3940.8	x	x	x	x	
2021	14/02/2022	6:30 pm	3889.0	x	x	x	x	
2021	15/02/2022	5:30 pm	3949.8	x	x	x	x	
2021	15/02/2022	6:00 pm	3940.2	x	x	x	x	
2021	15/02/2022	6:30 pm	3890.8	x	x	x	x	
2021	16/02/2022	5:30 pm	3956.5	x	x	x	x	x
2021	16/02/2022	6:00 pm	3971.6	x	x	x	x	x
2021	16/02/2022	6:30 pm	3956.6	x	x	x	x	x

Exploring Interval Selection Rules (5)

The current IRCR excludes some high demand intervals in favour of lower demand intervals

If there is no minimum number of days restriction, from 2015-2020 the selected intervals all appear in summer months

If a minimum of 4 days is required, peak intervals in winter are captured in half the years, unless there is a restriction on choosing just summer periods

In capacity year 2021, all the new method variations capture the same intervals because the 12 peak intervals fall on 6 different summer days

Restricting IRCR Intervals to the Summer Season

In mild years, with a relatively low summer peak demand, or in years where there is a single high demand event, it is possible that some of the top intervals may fall in winter

- These intervals do not represent stress events, and the demand is not reflective of a 1-in-10 year peak
- The SWIS currently experiences extreme peak demand only in the summer period, therefore facility generation or consumption in the summer period is the most important factor. Focusing generation and load incentives on this period also increases predictability

EPWA therefore proposes to retain the restriction on IRCR intervals to the December-March period

- This restriction should be revisited if winter peak values start to approach the extremes seen in summer in a 1-in-10 peak year

Appendix – Duration Gap



Duration Gap – Consultation Responses

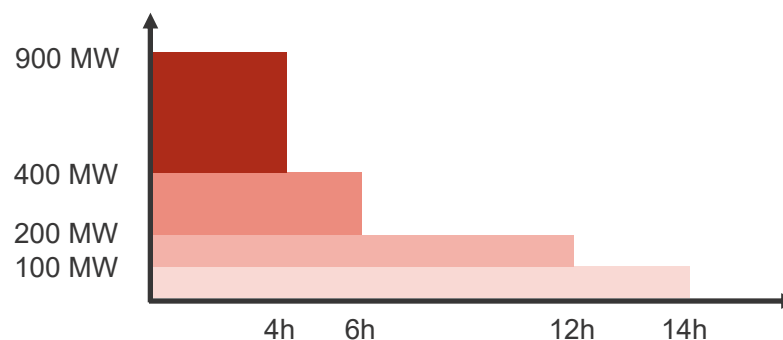
Responses to the stage 1 consultation paper supported the importance of encouraging longer term firming capability. Almost all thought that the lock-in period should be longer than 5 years, but whatever it is, it should be the same as the timeframe used by the ERA to set the BRCP

Participants suggested that the duration gap may need to be treated differently. Comments included that:

- Mitigating a duration gap is different to mitigating against peak demand stress or ramping requirements, so duration could be considered a product like peak capacity and flexible capacity
- A set of mixed duration ESRs could be stacked to match the load shape at lower cost than requiring all facilities to be available for the entire duration
- It is unfair for Class 2 facilities to receive the same CRC for meeting a lower duration requirement. Class 2 facilities could be separated based on their availability duration and receive a different capacity price, or have their CRC prorated based on duration
- Current requirements on storage may result in energy and ESS capacity being routinely withheld unnecessarily, and it could be more efficient to allow facilities to offer their entire MW capacity and have their MWh exhausted during the RCOQ window
- The ability for storage to charge will be dependent on renewable energy fuel availability, so *energy* availability is an important consideration, particularly for longer duration stress events

Duration Gap – Option 2

Some respondents suggested that AEMO could calculate separate the duration requirement into several parts and select Class 2 capacity of multiple durations to fill the aggregate requirement:



The same peak requirement would be procured, but the evolving shape of the post-peak would be accounted for by procuring capacity from facilities with a range of availability durations

Rather than prorating the MW based on duration, the duration would become a payment multiplier. Class 1 facilities would get a 100% price multiplier, and a 6h facility would receive a 6/24 multiplier

EPWA considers that this approach is not appropriate as it would move:

- Away from providing each MW of CRC available at peak with the same payment
- Towards treating capacity as a MWh contribution instead (at least for Class 2)
- The RCM towards a MWh target rather than a MW target

Duration Gap – Option 3

Some respondents suggested that a third capacity product be defined to explicitly deal with the duration gap

Under this option, the capacity mechanism would distinguish between peak capacity, flexible (ramping) capacity, and duration capacity – this would provide an additional incentive for duration rather than applying a derating to capacity based on its availability

The duration product would:

- specify availability over a certain number of hours post-peak (determined by AEMO and published in the ESOO), extending over time to eventually span the entire overnight period
- apply to facilities that could supply during the peak period *and* afterwards, so:
 - Facilities would need to be certified for peak capacity to provide duration capacity
 - Class 1 facilities could expect to receive the same MW of peak and duration capacity
 - The peak capacity CRC process for Class 2 facilities would revert to considering peak supply only
 - Class 2 facilities would only be certified for duration capacity if they have sufficient energy to be able to deliver during both the peak and overnight
 - Class 3 facilities would only be certified if they could provide supply in the post-peak
 - If peak capacity were sufficient to cover the duration required, no additional capacity payment would be required

Agenda Item 7(a): Overview of Rule Change Proposals (as of 9 March 2023)

Market Advisory Committee (**MAC**) Meeting 2023_03_16

- 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						
RC_2019_03	17/12/2020	ERA	Method used for the assignment of Certified Reserve Capacity to Intermittent Generators	High	Publication of Final Rule Change Report	30/09/2023
Standard Rule Change Proposals with Second Submission Period Open						
None						
Standard Rule Change Proposals with First Submission Period Closed						
RC_2014_05	02/12/2014	IMO	Reduced Frequency of the Review of the Energy Price Limits and the Maximum Reserve Capacity Price	Medium	Publication of Draft Rule Change Report	25/08/2023
RC_2018_03	01/03/2018	Collgar Wind Farm	Capacity Credit Allocation Methodology for Intermittent Generators	Medium	Publication of Draft Rule Change Report	25/08/2023

Reference	Submitted	Proponent	Title	Urgency	Next Step	Date
RC_2019_01	21/06/2019	Enel X	The Relevant Demand calculation	Medium	Publication of Draft Rule Change Report	25/08/2023

Standard Rule Change Proposals with the First Submission Period Open

None						
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Pre-Rule Change Proposals

Reference	Proponent	Description	Next Step	Date
None				

Rule Changes Made by the Minister and Awaiting Commencement

Gazette	Date	Title	Commencement
2022/184	20/12/2022	Wholesale Electricity Market Amendment (Tranche 6 Amendments) Rules 2021	<ul style="list-style-type: none"> • Schedule C commenced on 01/03/2023 • Schedule D will commence on 17/04/2023 • Schedule E will commence at times specified by the Minister in notices published in the Gazette
2022/67	17/05/2022	Wholesale Electricity Market Amendment (Network Access Quantities Procedure) Rules 2022	<ul style="list-style-type: none"> • Schedule B commenced on 01/03/2023
2021/212	17/12/2021	Wholesale Electricity Market Amendment (Tranche 5 Amendments) Rules 2021	<ul style="list-style-type: none"> • Schedule H will commence on 01/10/2023. • Schedule I will commence at times specified by the Minister in notices published in the Gazette.
2021/166	28/09/2021	Wholesale Electricity Market Amendment (Miscellaneous Amendments No. 2) Rules 2021	<ul style="list-style-type: none"> • Schedule G will commence at times specified by the Minister in notices published in the Gazette.
2021/96	28/05/2021	Wholesale Electricity Market Amendment (Miscellaneous Amendments No. 1) Rules 2021	<ul style="list-style-type: none"> • Schedule E will commence at times specified by the Minister in notices published in the Gazette.
2020/17	18/01/2021	Wholesale Electricity Market Amendment (Governance) Rules 2021	<ul style="list-style-type: none"> • Schedule C will commence immediately after the commencement of the Amending Rules in clauses 50 and 62 of Schedule C of the <i>Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020</i>.
2020/214	24/12/2020	Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020	<ul style="list-style-type: none"> • Amending Rules in Schedule C will commence at the times specified by the Minister in notices published in the Gazette.



Agenda Item 8: Approval of the Terms of Reference for the Demand Side Response Review Working Group

Market Advisory Committee (**MAC**) Meeting 2023_03_16

1. Purpose

- For EPWA to provide the MAC with the updated scope of works for the Demand Response (DSR) Review.
- For the MAC to approve:
 - the establishment of a Working Group to assist with the DSR Review; and
 - the Terms of Reference (TOR) for the DSR Review Working Group.

2. Recommendation

That the MAC:

- (1) notes the final scope of works for the DSR Review (Attachment 1);
- (2) approves the establishment of the DSR Review Working Group, and
- (3) approves the TOR for the DSR Review Working Group (Attachment 2).

3. Process

- Energy Policy WA has developed a draft scope of works for the review of the participation of DSR in the Wholesale Electricity Market (WEM) and consulted with the MAC on this draft on 11 October 2022.
 - The MAC supported the draft scope of works and indicated that it should be given high priority. Members provided comments, which have been incorporated into the final scope of works.
- The Coordinator has approved the scope of works (**Attachment 1**).
- The MAC Secretariat has developed draft Terms of Reference for a DSR Review Working Group (**Attachment 2**).
- Moving Forward:
 - the MAC Secretariat will establish the DSR Review Working Group following approval of the Terms of Reference;
 - Energy Policy WA will Chair the Working Group;
 - the MAC Secretariat will advise stakeholders that they may nominate representatives on the Working Group;
 - load participants will be invited to be part of the Working Group, and
 - the Working Group will commence operation in April 2023.

4. Attachments

- (1) Scope of Works for the Review of the Demand Side Response
- (2) Proposed Terms of Reference for the Demand Side Response Review Working Group



Scope of Work for the Review of the Participation of Demand Side Response in the Wholesale Electricity Market

1. Introduction

The Coordinator of Energy (**Coordinator**) intends to review the rules for participation of Demand Side Response in the Wholesale Electricity Market (**WEM**) under clause 2.2D.1 of the WEM Rules. Clause 2.2D.1(h) confers the function on the Coordinator to consider and, in consultation with the Market Advisory Committee (**MAC**), progress the evolution and development of the WEM and the WEM Rules.

The Coordinator considers that Loads/Demand Side Response will play an important role in the future of the WEM because of:

- the changes to the nature of the demand profile and generation in the SWIS since the market start; and
- the transition to a low emissions energy system characterised by increasing levels of intermittent and distributed generation.

Therefore, it is important to ensure that there are no barriers to the participation of Loads/Demand Side Response in all of the WEM components.

The purpose of this review is to ensure that Loads have adequate incentives to participate in the WEM, and are compensated appropriately for the provision of their services (neither over- nor under-compensated). The importance of Demand Side Response as a flexibility/firming resource in the WEM has also been highlighted during the Reserve Capacity Mechanism (**RCM**) Review scenario modelling work.

1.1 Current Participation of Loads in the WEM

Currently the direct participation of Loads in the WEM is limited to their participation as a:

- Demand Side Programme (**DSP**) or part of a DSP in the RCM; and
- Interruptible Load.

Loads also participate indirectly in the WEM as they:

- pay for the consumption of energy either through bilateral contracts or the Balancing Market; and
- pay for the RCM based on their Individual Reserve Capacity Requirement (**IRCR**).

While Loads will be able to register as Scheduled Facilities in the New WEM to provide other market services, analysis of the WEM Rules must be undertaken to ensure that they can provide services and extract value in all of the WEM components simultaneously, in the same way as other Scheduled Facilities.

1.2 Related Reviews

The Coordinator is currently undertaking a review of the RCM that may affect this review of participation of Loads in the WEM. Energy Policy WA's system stress analysis for stage 1 of the RCM Review indicated that Demand Side Response will be important for system reliability in all of the future modelled scenarios.

While Stage 2 of the RCM Review will consider the treatment of DSPs and IRCR, the RCM Review is not going to examine the participation of Demand Side Response across all of the WEM components.

The Coordinator is currently also undertaking the following projects that may impact the participation of Loads/Demand Side Response in the WEM:

- SWIS Demand Assessment;
- Sectoral Emissions Reduction Scheme; and
- DER Roadmap.

1.3 Participation of Loads in the New WEM

The new WEM is planned to commence on 1 October 2023. In theory, Loads will be allowed to participate in most aspects of the new WEM as long as they meet the relevant requirements.

The relevant WEM Rules that are expected to be in place for the new WEM include:

- Section 2.29 of the WEM Rules sets out the rules for registering facilities in the WEM. At a high level, the registration and participation framework for Loads sets out:
 - A Load (defined as one or more electricity consuming resources or devices, other than Electric Storage Resources, located behind a single network connection point or electrically connected behind two or more shared network connection points) is a Facility Technology Type (clause 2.29.1).
- The Facility Classes relevant to Loads are (clause 2.29.1A):
 - Scheduled Facility;
 - Semi-Scheduled Facility;
 - Non-Scheduled Facility;
 - Interruptible Load; and
 - Demand Side Programme.
- The following are Facilities that are relevant for Loads for the purposes of the WEM Rules (clause 2.29.1B):
 - a Small Aggregation;
 - a Demand Side Programme; or
 - an Interruptible Load.

1.4 Benefits that Loads can provide in the WEM

Energy Policy WA considers that loads can contribute by:

- participating as a Scheduled Facility in the Real Time Market;
- reducing consumption during system peak (i.e. by being part of a DSP in the RCM);

- shifting consumption from system peak to times of low load; and
- adjusting consumption to provide Essential System Services (**ESS**).

Different types of Loads have different characteristics that affect the benefit that they can provide to the system. The relevant characteristics include:

- how quickly and reliably a Load can respond to instructions;
- how long the Load can respond in a single instance;
- how frequently the Load response can be deployed over a period;
- whether there are any seasonal or time-of-day restrictions on use of the Load;
- the cost that the Load incurs for its response; and
- the impact on overall system demand, including by:
 - Load reduction (virtual generation);¹ and
 - Load shifting (storage/virtual storage).²

1.5 Future Changes in Load Technologies

As the energy system evolves, new sources of load flexibility are expected to emerge, including:³

- electrolysis for large-scale hydrogen production;
- electrification of metals and minerals processing;
- smart controls for commercial buildings;
- electric vehicles;
- behind the meter solar and battery storage; and
- orchestrated energy consumption devices.

2. Project Scope

The objective of this review is to:

- identify the different ways Loads/Demand Side Response can participate across the different WEM components;
- identify and remove any disincentives or barriers to Loads / Demand Side Response participating across all of the different WEM components; and
- identify any potential for over- or under-compensation of Loads/Demand Side Response (including as part of “hybrid” facilities”) as a result of their participation in the various market mechanisms and provision of Network Services.

¹ Where a load reduction is not compensated by an increase in demand at another time (e.g., if a customer sets their air conditioning at a warmer temperature during peak periods on a hot day, this would result in an absolute reduction in system demand).

² Some sources of flexibility must be compensated by an increase in demand at another time (e.g., if a customer pre-cools their building to avoid using the air conditioning during peak periods on a hot day, then this would not decrease the total system demand over the day, and may increase demand over the course of the day to account for inefficiency in pre-cooling relative to cooling when it is needed [i.e. the building is not perfectly insulated]). Like physical batteries, this type of load flexibility shifts energy use.

³ <https://arena.gov.au/assets/2022/02/valuing-load-flexibility-in-the-nem.pdf>

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

- certification and dispatch baseline for DSPs; and
- treatment of IRCR.

2.1 Guiding principles

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

- (1) Meet the Wholesale Market Objectives.
- (2) Enable the orderly transition to a low greenhouse gas emissions energy system.
- (3) Be cost-effective, simple, flexible and sustainable.
- (4) Allocate risks to those who can manage them best.
- (5) Provide investment signals and technical capability signals that support the reliable and secure operation of the power system.
- (6) Ensure that the value of Demand Side Response can be maximised for the benefit of those who provide it and the WEM as a whole.
- (7) Ensure that Loads are not under- or over-compensated for their participation and treatment in any of the WEM components.

2.2 Project stages

The review of the treatment of Loads in the WEM is planned to comprise the following elements.

- Step 1: High level assessment of the participation of Loads/Demand Side Response across all WEM components based on:
- A review of the participation of Loads/Demand Side Response in other markets in the context of what problems their electricity systems are facing or are expected to face in the future, and whether/how these arrangements relate to the WEM. Jurisdictions to be investigated include:
 - NEM;
 - UK;
 - PJM; and
 - any other jurisdictions identified by the MAC or Energy Policy WA.
 - The outcome of the system stress analysis from stage 1 of the RCM Review.
 - Identification of typical flexible loads (e.g. large cold stores) that exist in the WEM and don't participate.
 - Assessment of possibilities for over- or under compensation for different scenarios of Loads/Demand Side Response participating in various market mechanisms and Network Service provision.
- Step 2: A gap analysis identifying any barriers and disincentives for Loads to participate across all components of the WEM and provide the services identified under Step 1, including in:
- the registration framework;
 - the Real Time Market;

- the ESS market, including Non-Co-Optimised ESS; and
- the RCM.

This includes assessment why the non-participating flexible loads identified under Step 1 don't participate.

Step 3: Formulations of recommendations for further action, if any, and development of Rule changes, if necessary.

3. Stakeholder Engagement

The review of the participation of Loads in the WEM will be undertaken in close consultation with the MAC, directly through MAC meetings and, through the establishment of a Working Group. Participation in the Working Group will not be limited to MAC members and should include stakeholders operating loads.

Energy Policy WA will develop consultation papers based on the outcomes from the Working Group and MAC meetings and invite feedback from all stakeholders.

Under clause 2.5.1C of the WEM Rules, the Coordinator must consult with the MAC before commencing the development of a Rule Change Proposal.

4. Project Schedule

The following is a preliminary high-level project schedule for this.

Tasks/Milestones	Timing
Consult with the MAC on the Scope of Works for the Demand Side Response Participation Review and timing for commencement of the review	October 2022
Commence the review	March 2023
Engage a consultant(s) to assist with the review	April 2023
Establish a MAC Working Group	
Initial MAC Working Group meeting	April/May 2023
Step 1 - Assessment of the participation of Loads/Demand Side Response across all WEM components	
Literature review of the participation of Loads/Demand Side Response in other jurisdictions	June 2023
Assessment of the relevance of the jurisdictional review to the WEM in consultation with the MAC/MAC Working Group	
Assessment of the outcome of the system stress analysis from stage 1 of the RCM Review.	July 2023 July 2023
Identification of typical flexible loads (e.g. large cold stores) that exist in the WEM and don't participate.	
Assessment of possibilities for over- or under compensation for different scenarios of Loads/Demand Side Response participating in various market mechanisms and Network Service provision.	

Tasks/Milestones	Timing
Step 2 - Gap analysis identifying any barriers and disincentives for Loads to participate across all components of the WEM and provide the services.	
Gap analysis in consultation with the MAC/MAC Working Group	September 2023
Step 3 - Formulations of recommendations for further action	
Formulation of recommendations for further actions in consultation with the MAC/MAC Working Group	October 2023
Develop and publish a Consultation paper regarding the recommendations	November 2023
Submissions on consultation paper close	December 2023
Develop and publish an Information Paper on the changes to the participation of Loads in the WEM, and proposed Amending Rules for stakeholder consultation	February 2024
Stakeholder Consultation on the proposed Amending Rules	March 2024
Submit any necessary Rule Change Proposals for consideration and approval by the Coordinator and the Minister	April 2024
Commencement of rule changes	TBD



Terms of Reference

Demand Side Response Review Working Group

16 March 2023

1. Background

The Coordinator of Energy (**Coordinator**) has commenced a review of the rules for participation of Demand Side Response in the Wholesale Electricity Market (**WEM**) under clause 2.2D.1 of the WEM Rules. Clause 2.2D.1(h) confers the function on the Coordinator to consider and, in consultation with the Market Advisory Committee (**MAC**), progress the evolution and development of the WEM and the WEM Rules.

Energy Policy WA developed a Scope of Work for the Demand Side Response Review in consultation with the MAC. The Scope of Work is available on the Coordinator's Website at: [<Energy Policy WA will provide a link referring to the Working Group Page>](#)

The Scope of Work for the Demand Side Response Review includes:

- objectives and guiding principles for the review;
- issues to be considered;
- stakeholder engagement; and
- the project schedule.

The MAC has established the Demand Side Response Review Working Group under clause 2.3.17(a) of the WEM Rules to assist the Coordinator with the Demand Side Response Review.

2. Scope of the Working Group

The Demand Side Response Working Group has been established to provide expert advice and analysis on all aspects of the participation of Demand Side Response in the WEM identified in the Scope of Work, including to:

- identify the different ways Loads/Demand Side Response can participate across the different WEM components;
- identify and remove any disincentives or barriers to Loads / Demand Side Response participating across all of the different WEM components; and
- identify any potential for over- or under-compensation of Loads/Demand Side Response (including as part of "hybrid" facilities") as a result of their participation in the various market mechanisms and provision of Network Services.

3. Membership

Energy Policy WA will provide the Chair of the Demand Side Response Review Working Group.

Any Market Participant or other interested stakeholder may nominate a person for membership on the Demand Side Response Review Working Group for approval by the Chair.

All members of the Demand Side Response Review Working Group are required to contribute their time and resources to complete specific analysis and other tasks as requested by the Chair.

There are no restrictions on the number of Demand Side Response Review Working Group members. However, the Chair of the Demand Side Response Review Working Group may only approve one member from each organisation.

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

Energy Policy WA will provide administrative support to the Demand Side Response Review Working Group.

4. Documentation

Energy Policy WA will establish a Demand Side Response Review Working Group webpage on its website. Any discussion papers, meeting papers and meeting minutes will be posted to this page.

Market Participants and other stakeholders may register with Energy Policy WA to receive email communications regarding the Demand Side Response Review Working Group, including notices of publication of papers on the Demand Side Response Review Working Group webpage.

5. Responsibilities of Meeting Attendees

A person attending a Demand Side Response Working Group meeting is expected to:

- have suitable knowledge and experience to engage in and contribute to discussions relevant to the specific meeting;
- prepare for the meeting, including by reading any meeting papers distributed before the meeting;
- participate as a general industry representative rather than representing their company's interests; and
- complete actions requested by the Chair, which may include undertaking of analysis or preparation of papers for discussion by the Working Group.

6. Administration

Energy Policy WA will provide secretariat support for the Demand Side Response Review Working Group.

Energy Policy WA will ensure contact details for the Demand Side Response Review Working Group are maintained on the Demand Side Response Review Working Group webpage.

The Chair of the Demand Side Response Review Working Group will convene meetings of the working group in accordance with the timelines in the Scope of Work for Demand Side Response Review as outlined under Section 8 of these terms of reference.

Energy Policy WA will prepare and distribute all meeting correspondence to the Demand Side Response Review Working Group via email. Energy Policy WA will endeavour to

provide the following documentation by email to the Demand Side Response Working Group members:

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

All meeting documentation will be published on Energy Policy WA's website as soon as practicable after it has been sent to the Demand Side Response Review Working Group members.

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

7. Reporting Arrangements

The Demand Side Response Review Working Group Chair must provide a report to the MAC on the Demand Side Response Review Working Group's activities at each MAC meeting. The reports must include, at a minimum:

- details of all Demand Side Response Review Working Group meetings since the last report to the MAC, including the date and the key outputs of each meeting;
- the date of the next meeting and the issues to be considered (if known); and
- any recommendations from the Working Group to the MAC.

8. Projected Timeline

Tasks/Milestones	Timing
Consult with the MAC on the Scope of Works for the Demand Side Response Participation Review and timing for commencement of the review	October 2022
Commence the review	March 2023
Engage a consultant(s) to assist with the review	April 2023
Establish a MAC Working Group	
Initial MAC Working Group meeting	April/May 2023
Step 1 - Assessment of the participation of Loads/Demand Side Response across all WEM components	
Literature review of the participation of Loads/Demand Side Response in other jurisdictions	June 2023
Assessment of the relevance of the jurisdictional review to the WEM in consultation with the MAC/MAC Working Group	
Assessment of the outcome of the system stress analysis from stage 1 of the RCM Review.	July 2023

Tasks/Milestones	Timing
Identification of typical flexible loads (e.g. large cold stores) that exist in the WEM and don't participate.	July 2023
Assessment of possibilities for over- or under compensation for different scenarios of Loads/Demand Side Response participating in various market mechanisms and Network Service provision.	
Step 2 - Gap analysis identifying any barriers and disincentives for Loads to participate across all components of the WEM and provide the services.	
Gap analysis in consultation with the MAC/MAC Working Group	September 2023
Step 3 - Formulations of recommendations for further action	
Formulation of recommendations for further actions in consultation with the MAC/MAC Working Group	October 2023
Develop and publish a Consultation paper regarding the recommendations	November 2023
Submissions on consultation paper close	December 2023
Develop and publish an Information Paper on the changes to the participation of Loads in the WEM, and proposed Amending Rules for stakeholder consultation	February 2024
Stakeholder Consultation on the proposed Amending Rules	March 2024
Submit any necessary Rule Change Proposals for consideration and approval by the Coordinator and the Minister	April 2024
Commencement of rule changes	TBD

9. Contact Details

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