Government of Western Australia
Energy Policy WA

Meeting Agenda

Meeting Title:	Market Advisory Committee
Date:	Tuesday 17 May 2022
Time:	9:30 AM – 11:30 AM
Location:	Online, via TEAMS.

Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda	Chair	Noting	5 min
2	Meeting Apologies/Attendance	Chair	Noting	5 min
3	Minutes of Meeting 2021_04_05	Chair	Decision	5 min
4	Action Items	Chair	Discussion	5 min
5	Market Development Forward Work Program	Chair/Secretariat	Discussion	5 min
6	Update on Working Groups			
	(a) AEMO Procedure Change Working Group	AEMO	Discussion	5 min
	(b) RCM Review Working Group	Working Group Chair	Discussion	40 min
	(c) CAR Working Group	Working Group Chair	Discussion	20 min
7	Rule Changes			
	(a) Overview of Rule Change Proposals	Chair/Secretariat	Noting	5 min
8	General Business	Chair	Discussion	5 min
	Next meeting: Tuesday 28 June 2022			

Please note, this meeting will be recorded.

Government of Western Australia
Energy Policy WA

Minutes

Meeting Title:	Market Advisory Committee (**MAC**)
Date:	5 April 2022
Time:	9:30am – 11:32am
Location:	Videoconference (Microsoft Teams)

Attendees	Class	Comment[1]
Sally McMahon	Chair	
Martin Maticka	Australian Energy Market Operator (**AEMO**)	
Dean Sharafi	AEMO	
Zahra Jabiri	Network Operator	
Genevieve Teo	Synergy	
Paul Keay	Small-Use Consumer Representative	
Noel Schubert	Small-Use Consumer Representative	
Geoff Gaston	Market Customer	
Timothy Edwards	Market Customer	
Patrick Peake	Market Customer	
Wendy Ng	Market Generator	
Jacinda Papps	Market Generator	
Rebecca White	Market Generator	
Paul Arias	Market Customer	
Peter Huxtable	Contestable Customer	
Noel Ryan	Observer appointed by the Minister	
Adrian Theseira	Observer appointed by the Economic Regulation Authority (**ERA**)	Proxy for Rajat Sarawat

Also in Attendance	From	Comment
Dora Guzeleva	MAC Secretariat	Observer
Laura Koziol	MAC Secretariat	Observer
Shelley Worthington	MAC Secretariat	Observer

Also in Attendance	From	Comment
Richard Bowmaker	Robinson Bowmaker Paul (**RBP**)	Observer
Tim Robinson	RBP	Presenter
Apologies	**From**	**Comment**
Rajat Sarawat	ERA	

Item	Subject	Action
1	**Welcome** The Chair opened the meeting at 9:30am with an Acknowledgement of Country. The Chair reminded members and statutory observers that the role of the MAC is to advise the Coordinator and that any advice must consider the interest of the WEM. The Chair reminded members that she is available to meet members individually offline and thanked Mr Peake for taking the time to meet her since the last MAC meeting. The Chair advised that: • she ceased working as Head of Economic Regulation and Energy Policy at Spark Infrastructure in March; and • her position as expert panel member on the WA Electricity Review Board remains current. Mr Robinson advised that RBP has been asked by a Market Participant to assist with the Participant system readiness for the start of the new market. Mr Robinson considered that this engagement does not present a conflict of interest for RBP's engagement with the Coordinator's review of the Reserve Capacity Mechanism. Mr Robinson noted that RBP is implementing measures to mitigate any potential perceived conflict of interest including segregating the teams working on the two engagements. The Chair noted that she had discussed the matter with Ms Guzeleva and they both considered that RBP's engagement does not present a conflict of interest.	
2	**Meeting Apologies/Attendance** The Chair noted the attendance as listed above.	
3	**Minutes of Meeting 2021_12_14** Draft minutes of the MAC meeting held on 1 March 2022 were circulated on 16 March 2022. The MAC accepted the minutes as a true and accurate record of the meeting. **Action: The MAC Secretariat to publish the minutes of the 1 March 2022 MAC meeting on the Coordinator's Website as final.**	**MAC Secretariat**

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4	**Action Items** Action Item 2/2022: The Chair noted that she met with Mr Gaston, Mr Maticka and Ms Guzeleva and discussed issue ID 22 from the Market Development Forward Work Program. The outcome of this meeting will be discussed under agenda item 5. The MAC closed the action item.	
5	**Market Development Forward Work Program** The paper was taken as read. The following topics were discussed. **Cost Allocation Review** Ms Guzeleva provided an update on the Cost Allocation Review advising that: • work on the Cost Allocation Review had commenced; • EPWA has engaged Marsden Jacob to assist with the review; • EPWA is in the process of establishing a working group and planning to schedule the first meeting in early May; • the work program will be shared with the MAC at its next meeting and this will include an international review of cost recovery mechanisms that exist in other jurisdictions. **Issue ID 22** The Chair reported that, as per action item 2/2022, she met with Mr Gaston, Mr Maticka and Ms Guzeleva on 29 March 2022 and discussed the issue. The meeting concluded that this issue can be closed because of AEMO's recent change to the WEM Procedure: Prudential Requirements, addresses the main issue by eliminating the duplication of prudential burden on Market Participants. The Chair noted that any remaining issues may be raised as new issues. Mr Gaston noted that he was preparing a summary of the remaining issues that he will send to Ms Guzeleva and Mr Maticka. Mr Maticka noted that he was investigating with the relevant project team at AEMO if any further changes can be included in the work package implementing the system changes for the new WEM. He noted that upon first assessment no further changes can be included but that he would report back with the final findings.	
6	**Update on Working Groups**	
	(a) AEMO Procedure Change Working Group (APCWG) The paper was taken as read. The Chair noted that nothing new was reported in the paper and asked Mr Maticka if there was any other information to be provided under this agenda item. Mr Maticka advised that this standing paper provides a status update and will contain more detail when a Procedure Change Proposal is progressed. Mr Maticka offered for AEMO to change the reporting under this agenda item if requested.	

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The Chair asked the MAC members if any other information should be discussed under this agenda item.

The MAC agreed that the reporting under this agenda item is currently serving its purpose.

(b) RCM Review Working Group (RCMRWG)

The paper was taken as read.

Ms Guzeleva noted that the purpose of the presentation on the international review is for the MAC members to:

- increase general knowledge on international reserve capacity mechanisms;
- note the lessons that can be learned for the WEM Reserve Capacity Mechanism;
- note feedback received by the RCMWG; and
- provide additional feedback.

Mr Robinson presented the findings from the review of various international reserve capacity markets, drawing lessons for the WEM and summarising comments and discussions from the RCMRWG. Mr Robinson advised that the Energy Security Board's (ESB's) Summary of International Case Studies, circulated with the meeting papers, contained markets similar to those reviewed by RBP and noted that EPWA and RPB intended on meeting with the ESB to discuss the issues of common interest.

The following key issues were discussed by the MAC:

- Mr Dean Sharafi requested that RBP considers transmission buildout in the model because it will be required for storage capacity to meet short to medium term capacity and firming of Intermittent Generators.
  Mr Robinson advised that:
  - the model assumes that new facilities will be built in places with sufficient network capacity and that the network will be upgraded as needed;
  - the timeline for the RCM Review, unlike the Whole of System Plan (**WOSP**), does not allow for the modelling of different transmission network investment options; and
  - the need for storage and firming of Intermittent Generators is considered in all scenarios and that additionally demand side participation will be important.

  Ms Guzeleva added that all 2050 scenarios are based on net zero emissions by 2050 and that there is one scenario where all conventional baseload retires by 2030.
- Mr Huxtable, sought clarification about the nature of the demand side participation considered.
  Mr Robinson clarified that the demand side participation considered for 2050 includes behind the meter consumption

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such as air conditioning as well as batteries and that reduction of behind the meter PV is considered separately.
Ms Guzeleva noted that a further review will be needed to assess how dispatchable loads may be included in all aspects of the WEM.
Mr Schubert commented that the largest source of demand response is likely to be available from larger customers.

- Ms White asked how the Government's decarbonisation policies, including the Sectoral Emissions Reduction Strategies (SERS) will inform the RCM Review. Ms White considered that enabling renewable generation to participate is good but quite different from incentivising it. Ms White suggested that a government policy decision would be needed to inform the RCM Review.
  The Chair noted that while a government policy direction on that matter would be beneficial, she did not consider it a prerequisite for the RCM Review. The Chair considered that it is sufficient if the RCM anticipates and does not prevent or disincentivise the increase of renewable generation.
- Mr Sharafi considered that network constraints should not affect the assignment of CRC because they are already accounted for through the Network Access Quantity (NAQ) regime.
- Mr Schubert considered that the Individual Reserve Capacity Requirement (IRCR) is a good mechanism to motivate smaller retailers and customers to manage demand on the hottest days but not the dominant retailers.
- Mr Sharafi noted that the RCM does not need to solve all system stress events and should only address the issues it is best placed to mitigate. Mr Sharafi suggested that the modelling could be extended to the whole of system costs.
  Mr Sharafi also commented that with any application of Effective Load Carrying Capability (ELCC) it is important to consider simplicity and transparency given that developers need to base investment decision on certainty.
  Mr Robinson noted that different options to apply ELCC will be presented to the RCMRWG at a future working group meeting, take feedback and then undertake further analysis.
- Mr Sharafi suggested the alternative to implementing ELCC would be retaining or modifying the existing methods for assigning Certified Reserve Capacity (**CRC**) using minimum requirements to ensure that fleet reflects system needs in regard to dispatchability and firm capacity.
- Mr Peake considered that the RCM as a package must be sellable to investors and that it is important that the RCM is simple to explain for investors. He also said that the multiple

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changes over the last few years have been detrimental to setting the ground rules.
Mr Robinson noted that the purpose of the review is undertaken with the WEM Objectives in mind to design an RCM for the benefit of the consumers because they will pay the price if the design of the RCM is inefficient.

- Mrs Papps considered that the objective for designing methods to assign CRC should be to streamline where possible rather than insisting on design of a single method for all technology types.
- Mrs Papps supported the objective to simplify the methods to assign CRC and noted that it is difficult to explain the current RCM to investors.
  Mr Robinson confirmed that this was the objective.
- Mr Schubert supported the importance of keeping consumers in mind. He considered that consumers want reliable supply at the lowest costs. He also considered that the application of a net cost of new entry -(**CONE**)[1] would be in the interest of consumers as it accounts for the generators' different income streams.
  Mr Robinson noted that the review will assess the impact of different measures on revenue streams for existing and potential new participants.
- Ms Ng noted that when looking at the capacity mechanisms in other jurisdictions the relevant energy price caps should also be considered. Ms Ng raised concerns that the current Energy Price Limits (EPLs) may not allow generators to recover sufficient revenue in the new market to make the application of CONE or Net-CONE workable. Ms White agreed with Ms Ng.
  Mr Robinson said that the other markets reviewed have higher energy price caps than the WEM.
  Ms Guzeleva noted that the STEM and balancing market rarely settle at the price limits. In 2021, in the STEM no Trading Interval settled at the maximum or alternative maximum STEM price; and in the balancing market only 23 Trading Intervals (approx. 0.1% of the Trading Intervals) settled at the maximum STEM Price. She added that EPWA's Market Power Mitigation workstream will examine the level of the price caps.
- Mr Sharafi suggested that more clarification should be provided about the modelling assumptions for the ESS

[1] **CONE =** capital investment costs plus operational and maintenance expenses incurred during the first year of operation of the new entrant
Net-CONE = CONE less an estimate of the energy/ancillary services market profits for the entrant. This measure assumes that the marginal new entrant would receive some contribution to capital costs from the energy market.

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requirements, the use of electric vehicles, hydrogen and distributed energy resources (DER) at net zero emissions in 2050. He also suggested that for the modelling, RBP should use the ESOO forecast for the first 10 years and the WOSP for the remaining years and the work on low load to inform any changes to the ESOO load projections.
Mr Robinson noted that for the first round of modelling, the assumptions Mr Sharafi mentioned are less important because the focus is on assessing system stress. However, for the second modelling round they will be important.
Mr Robinson suggested to meet with Mr Sharafi offline to discuss the assumptions.
Ms Guzeleva noted that, as presented at the previous MAC meeting, all the modelling scenarios include a technology-neutral firming component for 2050.

- Mr Keay considered that customers should not pay for non-performing capacity in the RCM and asked how the issue of non-performance will be addressed.
  Mr Robinson noted that to address the issue the following two aspects will be considered:
  - Setting of the Planning Criterion: The Planning Criterion sets the level of desired reliability. Therefore, it sets the amount of capacity that needs to be paid for. It is possible to set the Planning Criterion by minimising the value of unserved energy and the cost of capacity.
  - Penalising capacity providers that don't perform: As part of Stage 1 the RCM Review will assess how historic outages should be considered when assigning CRC, and as part of stage 2 the review will assess the refund mechanism.

  The Chair noted that the bigger picture is to develop a mechanism that achieves the outcome at lowest possible cost to consumers. The Chair considered that this will include the design of requirements and incentives such as refunds.
- Ms Guzeleva noted the review will proceed following the steps and stages outlined in the scope of work and that all of the issues that have been identified in one step will be addressed by the following steps and every stage will consider the findings of the previous stages.
- The Chair asked whether the timelines outlined in the scope were still on track and what will be discussed at the next MAC meeting.
  Ms Guzeleva confirmed the timelines are on track and advised that the plan is to discuss initial modelling results

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	from the system stress analysis as well as preliminary design options at the next MAC meeting.	
7	**Rule Changes**	
	(a) Overview of Rule Change Proposals The paper was taken as read.	
8	**General Business** No other business was discussed.	

The meeting closed at 11:32 am.

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Agenda Item 4: MAC Action Items

Market Advisory Committee (**MAC**) Meeting 2022_05_17

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
1/2022	MAC Secretariat to publish the minutes of the 5 April 2022 MAC meeting on the Coordinator's Website as final.	MAC Secretariat	2022_04_05	**Closed** The minutes were published on the Coordinator's Website on 5 April 2022.

Item	Action	Responsibility	Meeting Arising	Status
2/2022	MAC Chair, Mr Maticka and Mr Gaston to meet to discuss Id 22 from the Market Development Forward Work Program.	MAC Chair, AEMO and Mr Gaston	2022_03_01	**Closed** The Chair, Mr Maticka and Mr Gaston met on 29 March 2022. It was determined the issue can be closed as AEMO's recent change to the WEM Procedure: Prudential Requirements, addresses the main issue by eliminating the duplication of prudential burden on Market Participants. Ms Guzeleva responded, in consultation with AEMO, to Mr Gaston's summary of the remaining issues on 10 May 2022.

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Agenda Item 5: Market Development Forward Work Program

Market Advisory Committee (**MAC**) Meeting 2022_05_17

1. Purpose

- To provide an update on the Market Development Forward Work Program provided in Table 1, including:
    - the Chair of the Reserve Capacity Review Working Group (**RCMRWG**) is to update the MAC on the work done by the Working Group to date – see Agenda Item 6(b); and
    - the Chair of the Cost Allocation Review Working Group (**CARWG**) is to update the MAC on the work done by the Working Group to date – see Agenda Item 6(c).
- To provide an update on other issues to be addressed via the Market Development Forward Work Program provided in Table 4:
    - No updates.
- 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 reviews and discusses 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@energy.wa.gov.au.

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

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
RCM Review	A review of the RCM, including a review of the Planning Criterion.	• The MAC has established the RCM Review Working Group. Information on the Working Group is available at https://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group, including: ○ the Scope of Works for the review, as approved by the Coordinator; ○ the Terms of Reference for the Working Group, as approved by the MAC; ○ the list of Working Group members; ○ meeting papers and minutes from the Working Group meeting on 20 January 2022 and 17 February 2022; and ○ meeting papers for the Working Group meeting on 17 March 2022 and 5 May 2022. • The Chair of the Working Group will update the MAC on the work done by the Working Group to date. The Chair will update the MAC on the initial results of the system stress modelling – see Agenda Item 6(b).
Cost Allocation Review	A review of: • the allocation of Market Fees, including behind the meter (**BTM**) and Distributed Energy Resources (**DER**) issues; • cost allocation for Essential System Services; and • Issues 2, 16, 23 and 35 from the MAC Issues List (see Table 3).	• The MAC has established the Cost Allocation Review Working Group. Information on the Working Group is available at https://www.wa.gov.au/government/document-collections/cost-allocation-review-working-group, including: ○ the Scope of Work for the review, as approved by the Coordinator; ○ the Terms of Reference for the Working Group, as approved by the MAC; and ○ the list of Working Group members; and ○ meeting papers for the Working Group meeting on 9 May 2022.

Table 1 – Market Development Forward Work Program		
Review	**Issues**	**Status and Next Steps**
		• EPWA has engaged Marsden Jacob Associates for the consultancy services to assist with the Cost Allocation Review. • The Chair will update the MAC on the Working Group's progress to date – see Agenda Item 6(c).
Procedure Change Process Review	A review of the WEM Procedure Change Process to address issues identified through Energy Policy WA's consultation on governance changes.	• This review will commence in mid-2022.
Forecast quality	Review of Issue 9 from the MAC Issues List (see Table 4).	• This review has been deferred.
Network Access Quantity (**NAQ**) Review	Assess the performance of the NAQ regime, including policy related to replacement capacity, and address issues identified during implementation of the Energy Transformation Strategy (ETS).	• This review will be commenced after completion of the RCM Review.
Short Term Energy Market (**STEM**) Review	Review the performance of the STEM to address issues identified during implementation of the ETS.	• This review has been deferred.

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

Table 2 – Issues to be Addressed in the RCM Review			
Id	**Submitter/Date**	**Issue**	**Status**
		Bluewaters recommended imposing seasonal, monthly and/or daily caps on the capacity refund. Bluewaters considered that reviewing capacity refund arrangements and reducing the excessive refund exposure is likely to promote the Wholesale Market Objectives by minimising: • unnecessary business interruption to capacity providers and in turn minimising disruption to supply availability; which is expected to promote power system reliability and security; and unnecessary excessive insurance premium and prudential support costs, the saving of which can be passed on to consumers.	
30	Synergy November 2017	**Reserve Capacity Mechanism** Synergy would like to propose a review of WEM Rules related to reserve capacity requirements and reserve capacity capability criteria to ensure alignment and consistency in determination of certain criteria. For instance: • assessment of reserve capacity requirement criteria, reserve capacity capability and reserve capacity obligations; • IRCR assessment; • Relevant Demand determination; • determination of NTDL status; • Relevant Level determination; and • assessment of thermal generation capacity. The review will support Wholesale Market Objectives (a) and (d).	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	**Issues with Reserve Capacity Testing** • Market Generators that fail a Reserve Capacity Test may prefer to accept a small shortfall in a test (and a corresponding reduction in their Capacity Credits) than to run a second test. • There is a discrepancy between the number of Trading Intervals for self-testing vs. AEMO testing. • There is ambiguity in the timing requirements for a second test when the relevant generator is on an outage. There is ambiguity on the number of Capacity Credits that AEMO is to assign when certain test results occur.	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	**Outage scheduling for dual-fuel Scheduled Generators** '0 MW' outages are currently used to notify System Management when a dual-fuel Scheduled Generator is unable to operate on one of its nominated fuels. There is no explicit obligation in the WEM Rules or the Power System Operation Procedure: Facility Outages to request/report outages that limit the ability of a Scheduled Generator to operate using one of its fuels. In terms of the provision of sent out energy (the service used to determine Capacity Cost Refunds), it is questionable whether this situation qualifies as an outage at all. More generally, the WEM Rules lack clarity on the nature and extent of a Market Generator's obligations to ensure that its Facility can operate on the fuel used for its certification, what (if anything) should occur if these obligations are not met, and the implications for outage scheduling and Reserve Capacity Testing. • (See section 7.2.2.5 of the Final Rule Change Report for RC_2013_15.)	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	BTM generation is treated as reduction in electricity demand rather than actual generation. Hence, the BTM generators are not paying their fair share of the network costs, Market Fees and ancillary services charges. Therefore, the non-BTM Market Participants are subsiding the BTM generation in the WEM. Subsidy does not promote efficient economic outcome. Rapid growth of BTM generation will only exacerbate this inefficiency if not promptly addressed. Bluewaters recommends changes to the WEM Rules to require BTM generators to pay their fair share of the network costs, Market Fees and ancillary services charges. This is an example of a regulatory arrangement becoming obsolete due to the emergence of new technologies. Regulatory design needs to keep up with changes in the industry landscape (including technological change) to ensure that the WEM continues to meet its objectives. If this BTM issue is not promptly addressed, there will be distortion in investment signals, which will lead to an inappropriate generation facility mix in the WEM, hence compromising power system security and in turn not promoting the Wholesale Market Objectives.	To be considered in the Cost Allocation Review.
23	Bluewaters November 2017	Allocation of Market Fees on a 50/50 basis between generators and retailers may be overly simplistic and not consider the impacts on economic efficiency. In particular, the costs associated with an electricity market reform program should be recovered from entities based on the benefit they receive from the	To be considered in the Cost Allocation Review.

Table 3 – Issues to be Addressed in the Cost Allocation Review			
Id	**Submitter/Date**	**Issue**	**Status**
		reform. This is expected to increase the visibility of (and therefore incentivise) prudence and accountability when it comes to deciding the need and scope of the reform. Recommendations: to review the Market Fees structure including the cost recovery mechanism for a reform program. The cost saving from improved economic efficiency can be passed on to the end consumers, hence promoting the Wholesale Market Objectives.	
35	ERM Power November 2017	**BTM generation and apportionment of Market Fees, ancillary services, etc.** The amount of solar PV generation on the system is increasing every year, to the point where solar PV generation is the single biggest unit of generation on the SWIS. This category of generation has a significant impact on the system and we have seen this in terms of the daytime trough that is observed on the SWIS when the sun is shining. The issue is that generators that are on are moving around to meet the needs of this generation facility but this generation facility, which could impact system stability, does not pay its fair share of the costs of maintaining the system in a stable manner. That is, they are not the generators that receive its fair apportionment of Market Fees and pay any ancillary service costs but yet they have absolute freedom to generate into the SWIS when the fuel source is available. There needs to be equity in this equation.	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.
22	Bluewaters November 2017	Prudential arrangement design issue: clause 2.37.2 of the WEM Rules enables AEMO to review and revise a Market Participant's Credit Limit at any time. It is expected that AEMO will review and increase Credit Limit of a Market Participant if AEMO considers its credit exposure has increased (for example, due to an extended plant outage event). In response to the increase in its credit exposure, clause 2.40.1 of the WEM Rules and section 5.2 of the Prudential Procedure allow the Market Participant to make a voluntary prepayment to reduce its Outstanding Amount to a level below its Trading Limit (87% of the Credit Limit). Under the current WEM Rules and Prudential Procedure, AEMO can increase the Market Participant's Credit Limit (hence increasing its prudential support requirement) despite that a prepayment has already been paid (it is understood that this is AEMO's current practice). The prepayment would have already served as an effective means to reduce the Market Participant's credit exposure to an acceptable level. Increasing the Credit Limit in addition to this prepayment would be an unnecessary duplication of prudential requirement in the WEM. This unnecessary duplication is likely to give rise to higher-than-necessary prudential cost burden in the WEM; which creates economic inefficiency that is ultimately passed on the end consumers.	**Close:** Action Item 2/2022 from MAC_2022_03_01 was closed because it was determined that AEMO's recent change to the WEM Procedure: Prudential Requirements addresses the main issue by eliminating the duplication of prudential burden on Market Participants. Action Item 2/2022 from MAC_2022_03_01 was for the MAC Chair, AEMO and Mr Gaston to meet discuss and to advise if this item has been adequately addressed. This meeting is to occur on 29 March 2022. An update will be provided by the MAC Chair at the 5 April 2022 meeting. AEMO is considering this issue via Procedure Change Proposal AEPC_2021_04. AEMO will discuss this matter under Agenda Item 6(a). At its meeting on 21 September 2021, the MAC agreed to keep Issue 22 open until it is clear whether AEMO's Procedure Change Proposal to amend the WEM Procedure: Prudential Requirements will address all of Issue 22.

Table 4 – Other Issues			
Id	**Submitter/Date**	**Issue**	**Status**
		Recommendation: amend the WEM Rules and/or procedures to eliminate the duplication of prudential burden on Market Participants. The resulting saving from eliminating this unnecessary prudential burden can be passed on to end consumers. This promotes economic efficiency and therefore the Wholesale Market Objectives.	

MARKET ADVISORY COMMITTEE MEETING, 17 May 2022

FOR NOTING

SUBJECT: UPDATE ON AEMO'S MARKET 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	30 November 2021	TBC
Market Procedures for discussion	Market Procedure: Prudential Arrangement	TBC

3. AEMO PROCEDURE CHANGE PROPOSALS

The status of AEMO Procedure Change Proposals is described below, current as at 17 May 2022. 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**
None				

Government of Western Australia
Energy Policy WA

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

Market Advisory Committee (**MAC**) Meeting 2022_05_17

1. Purpose

- The Chair of the Reserve Capacity Review Working Group (**RCMRWG**) is to update the MAC on the activities of the RCMRWG since the last MAC meeting, including the initial results of the system stress modelling.
- The MAC is to:
  - note the preliminary results of the system stress modelling; and
  - provide guidance on the preliminary directions considered by the RCMRWG.

2. Recommendation

That the MAC:

(1) notes the minutes from the RCMRWG meeting on 17 March 2022;

(2) note the resulting actions and responses regarding the MAC's feedback at the 5 April 2022 MAC meeting;

(3) notes the update on the RCMRWG meeting on 5 May 2022, including:

  (a) the RCMRWG's discussion of the initial results of the system stress modelling;

  (b) the RCMRWG's comments on the initial modelling results; and

(4) provides guidance on the preliminary directions considered by the RCMRWG.

3. Process

- The MAC established the RCMRWG to support the Coordinator's review of the Reserve Capacity Mechanism (**RCM**) under clause 2.2D.1 of the WEM Rules.
- On 20 January 2022, the RCMRWG discussed the structure of the RCM Review (outcomes were discussed at the 1 March 2022 MAC meeting).
- On 17 February 2022, the RCMRWG discussed the modelling methodology, assumptions and scenarios for the RCM Review and the MAC supported the modelling methodology, assumptions and scenarios at its meeting on 1 March 2022.
- On 17 March 2022, the RCMRWG discussed outcomes from the international review of reserve capacity mechanisms and the detailed modelling assumptions (see **Attachment 1** for the minutes of this RCMRWG). These outcomes were presented at the 5 April 2022 MAC meeting, when the MAC:
  - discussed the RCMRWGs comments on the outcome of the international review and the detailed modelling assumptions; and

- provided further comments to be taken into account in the RCM Review.

- The RCMRWG's comments about the international review will be taken into account, as follows:
  - comments about the setting of the Benchmark Reserve Capacity Price (**BRCP**) will be considered as part of the assessment of the BRCP under step 4 of stage 1 of the RCM Review;
  - comments about the possible application of the effective load carrying capability (**ELCC**) and the determining of Certified Reserve Capacity (**CRC**) for intermittent and scheduled generators (including accounting for historic outages) will be considered as part of the assessment of options for determining CRC methodologies to be discussed in next RCMRWG meeting;
  - comments about the Planning Criterion, including how to set the Reserve Capacity Target and the reserve margin, will be considered as part of the review of the Planning Criterion under step 2 of stage 1, to be discussed with the RCMRWG prior to the MAC meeting on 28 June 2022; and
  - concerns about the alignment of the RCM Review with the Coordinator's market power mitigation workstream that includes the assessment of the Energy Price Limits (EPLs) will be considered during the modelling under step 2 of stage 1 of the RCM Review.
- On 5 May 2022, the RCMRWG discussed the initial results of the system stress modelling – see **Attachment 2** for a summary of the initial modelling results and the RCMRWG discussion.
- Attachment 2 will be taken as read at the MAC meeting on 17 May 2022 and only the key results from the working group meeting (the main body, i.e. the first 22 slides) will be presented. The purpose of this presentation is to:
  - inform MAC of the initial outcomes of the system stress modelling;
  - inform MAC of the discussions of the working group;
  - provide an opportunity for MAC to provide guidance on the preliminary directions considered by the RCMRWG. The MAC is requested to confirm whether:
    - curtailed injections should not be part of the Reserve Capacity Mechanism (slide 11);
    - the next stage of modelling should be used to determine whether fleet capability is likely to have sufficient ramp capability or whether options for encouraging ramping capability in CRC allocation methodologies should be developed (slide 14); and
    - a two-limbed Planning Criterion should be retained, and modeling should be undertaken of the alternative planning criteria to assess effect on the Reserve Capacity Target and system reliability (slide 19); and
  - update the MAC on the project timeline and next steps (slides 6 and 22).

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-working-group.

4. Background

The Scope of Works for the Reserve Capacity Mechanism review included modelling to identify system stress:

> *Modelling of the current SWIS demand and the demand and demand profile expected in 2030 under different credible scenarios. The analysis will assess daily, seasonal and annual demand profiles and load duration curves as well as demand profiles for 1 in 10 year weather conditions. The modelling will account for the current generation fleet, other existing identified capacity sources and expected developments, and will reflect the DER Roadmap and the findings of, and information from, the Whole of System Plan and expected demand-response capacity and storage uptake. The objective is to identify causes of system stress such as:*
>
> - *maximum demand (including extreme peaks);*
> - *minimum demand (including extreme lows);*
> - *fluctuation of demand (including rate and speed of change);*
> - *generation volatility, including rapid changes of availability from intermittent generation (including DER);*
> - *forced outages and maintenance planning; and*
> - *any other aspects identified in the course of the modelling work.*

5. Attachments

(1) RCMRWG 2022_03_17 – Minutes of Meeting

(2) Reserve Capacity Mechanism Review – MAC Update

Government of Western Australia
Energy Policy WA

Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (**RCMRWG**)
Date:	17 March 2022
Time:	9:35am – 11:50am
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Paul Aires	Bluewaters Power	
Rhiannon Bedola	Synergy	
Oscar Carlberg	Alinta Energy	Subject matter expert (**SME**)
Manus Higgins	AEMO	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	
Wendy Ng	Shell Energy	
Patrick Peake	Perth Energy	
Jacinda Papps	Alinta Energy	
Toby Price	AEMO	SME
Matt Shahnazari	Economic Regulation Authority	
Noel Schubert	MAC Small-Use Consumer representative	Observer
Dev Tayal	Tesla Energy	
Andrew Walker	South32 (Worsley Alumina)	
Rebecca White	Collgar Wind Farm	
Richard Bowmaker	Robinson Bowmaker Paul (**RBP**)	
Ajith Sreenivasan	RBP	
Tim Robinson	RBP	
Stephen Eliot	Energy Policy WA (**EPWA**)	
Laura Koziol	EPWA	

Apologies	From	Comment
Andrew Stevens	Clear 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	**Minutes of RCMRWG meeting 2022_02_17** Draft minutes of the RCMRWG meeting held on 17 February 2022 were distributed in the meeting papers on 10 March 2022. The RCMRWG accepted the revised minutes as a true and accurate record of the meeting, subject to some minor corrections. **Action: RCMRWG Secretariat to publish the minutes of the 17 March 2021 RCMRWG meeting on the RCMRWG web page as final.**	**RCMRWG Secretariat**
4	**Action Items** The paper was taken as read. **Action item 3**: The Chair noted that Mr McKinnon had provided the MAC Secretariat with Western Power's assumptions about the value of lost load (VOLL) on 10 March 2022. The RCMRWG closed action item 3.	
5	**International Review Scope** Mr Robinson presented an overview of the international review scope.	
6	**Market Summaries** Mr Sreenivasan presented a summary of the jurisdictions investigated. The following key points were raised: • Mr Dev Tayal asked if the international review had identified any markets that explicitly focused on fast ramping or flexible capacity. Mr Robinson answered that none of the markets investigated is addressing flexibility in the capacity mechanism. However, the issue that the capacity product from slow ramping facilities is less flexible than form fast ramping facilities has been raised and is being investigated in some markets, and a submission to the Federal Energy Regulatory Commission has been made that seeks to address the issue.	

Item	Subject	Action

Mr Tayal asked if Western Australia was also the first market having to address minimum operational load. Mr Robinson confirmed that this is the case.

- In regard to the capacity mechanism in PJM, Mr Carlberg considered that:
  - Locational pricing will be too complex for the Wholesale Electricity Market (**WEM**) given its size.
  - PJM's price curve would be too steep for the WEM as it would be too sensitive and therefore volatile. This would undermine certainty when it is needed the most due to the increase of intermittent generation.
  - An auction would also cause price volatility.

  Mr Tayal agreed with Mr Carlberg's comments.
- Mr Robinson confirmed that the methodology used to determine the Benchmark Reserve Capacity Price (**BRCP**) is similar to the concept of (gross) cost of new entry (**CONE**).

  Mr Carlberg considered that using the Net-Cone concept may be problematic in the WEM considering the ongoing increase of generation from intermittent generation. Mr Carlberg considered that the RCM should play a bigger role and account for all the costs a new entrant will face.

  Mr Shahnazari noted that considering Net-CONE will be more valuable if the benchmark technology for setting the BRCP changes. Currently the BRCP is based on a generator using liquid fuel that does not participate much in other markets. However, if the benchmark technology changes to renewable generators or batteries, the revenues from other markets should be considered to avoid excess capacity.

  Mr Robinson noted that the BRCP only sets the price cap and that the price curve will also influence the setting of the Reserve Capacity Price.
- Mr Carlberg supported PJM's approach to assess the reliability of intermittent generators based on their performance during defined time bands because of its simplicity.
- Mr Shahnazari clarified that the capacity value of scheduled generators in the PJM is estimated based on historical performance during system stress periods using the equivalent demand forced outage rate to derate the installed capacity of scheduled generators. This aligns with the concept underpinning the effective load carrying capability (**ELCC**).
- Mr Carlberg considered that a target loss of load expectation (**LOLE**) is still useful even though it does not account for the

Item	Subject	Action

magnitude and duration of the loss of load event. For example, it could be used to set fuel requirements for Scheduled Generators.

- Mr Carlberg considered that a higher LOLE target (more hours of outage) will lower the Reserve Capacity Requirement and has the potential to lengthen the amount of fuel/storage availability required.
- Mr Robinson confirmed that PJM introduced the minimum offer price rule as a market power mitigation measure.
- Mr Robinson clarified that the UK introduced strict emission criteria for the determination of a facility's eligibility to participate in the capacity mechanism.
- Mr Walker asked which of the investigated jurisdictions is most similar to the WEM in regard to the load shape, considering the mix of industrial and residential load as well as anticipated electrification.

  Mr Robinson noted that the WEM had a flatter industrial load than all of the other jurisdictions investigated, and no other jurisdiction is experiencing the WEM's level of mid-day low load. However, Ireland is the most similar jurisdiction having the highest penetration of renewable generation and having to address the resulting volatility and variability. Additionally, Hawaii is currently addressing the issue of low load at midday but without a capacity mechanism.
- Mr Robinson clarified that, in jurisdictions with multi-year auctions, the capacity requirement is updated based on the latest forecast so that the participants can adjust their position close to the delivery period.

  The Chair noted that the WEM allows participants to declare bilateral trading, without checks and balances, which provides certainty while allowing the same position adjustment as an auction.
- Mr Shahnazari considered that the current RCM lacks a mechanism that accounts for the uncertainty of availability in the capacity evaluation, especially for renewable generators. Mr Shahnazari considered it is important to investigate performance mechanisms to ensure that the risk of renewable generators not delivering their capacity value is shifted form the customers to the generators.

  Mr Carlberg considered that:

  - Forced Outages should not be considered when allocating Certified Reserve Capacity (**CRC**) to generators and that this would increase risk to generators without improving reliability.
  - There are adequate incentives for generators to be available.
  - Historic outages do not predict future performance and derating capacity for past outages will disadvantage generators that run

Item	Subject	Action

more often because they have the greatest outage risk while also have the highest incentive to be available.

Ms Ng, Ms White and Mrs Bedola agreed with Mr Carlberg.

Mr Shahnazari noted that the ERA identified several areas of concern about the risk to the reliability of the system from generators not delivering capacity when needed, including scheduled generators and renewable generators. The ERA also found that a review of the Reserve Capacity Obligation Quantity is important.

- Ms Ng asked where the energy price caps are set in the jurisdictions investigated.

  Mr Robinson noted that the energy price caps in other jurisdictions are higher than in the WEM and offered to circulate this information to members, if desired.

7 Potential Applications for the WEM

Mr Robinson presented the potential lessons for the WEM. The following points were made:

- Mr Carlberg considered that, given the penetration of intermittent generation in the WEM, it is important that capacity payments increase the life of facilities.
- Mr Carlberg considered that, in terms of sending locational signals and penalising or derating capacity in constraint areas, there seems to be consensus that the bigger issue is to ensure that sufficient transmission capacity is available. Mrs Bedola agreed with Mr Carlberg.
- Mr Carlberg considered that the problem Ireland encountered where Intermittent Generators did not participate in the capacity mechanism because of the penalty regime, is a good lesson for WA. Intermittent generation is already marginally economic, and this will get worse with lower energy prices, and CRC continuing to reduce under the current RCM. Applying overly onerous penalties and creating missing money for intermittent generation needs to be avoided to meet the net-zero emissions target. Mr Carlberg suggested that one way to achieve this could be having different capacity buckets, potentially with different periods where they have guaranteed capacity payments.

  The Chair noted that this issue will be assessed through the modelling.
- Ms Ng noted that, when considering excluding diesel generators form the RCM, the issue of fuel diversity and technology diversity should be considered. Ms Ng considered that the timing of any exclusion is important.

Item	Subject	Action

- Mr Peake noted that the limitation of focusing on a 1 in 10 year event that other jurisdictions are experiencing will become even more pronounced if surplus renewable generation is needed to minimise the need for storage capacity.

  Mr Carlberg agreed with Mr Peake and considered that this is why excess capacity should not influence the Reserve Capacity Price.

  The Chair noted that, in the absence of a reserve capacity auction, the only way to send appropriate price signals is by reflecting reserve capacity excess in the Reserve Capacity Price.

- Mr Carlberg cautioned not to be too confident in the ability to accurately forecast excess capacity.
- Mr Peake considered that the RCM should not only consider expected unserved energy but also defined energy shortage risk events.
- Mr Carlberg considered that the ELCC method has some merit for the assessment of intermittent generators because it assesses the contribution during system stress events, but cautioned that if there are only few system stress events the ELCC method may deliver very volatile outcomes and therefore may not send clear signals as to when intermittent generators should be available.

  Mr Carlberg further noted that the ELCC method is complex and difficult to explain to investors. Mr Carlberg noted that he would prefer a more approximate method that is less volatile so it sends a clearer signal and is easier understood by investors.

  Ms White agreed that less complexity and less volatility would be an advantage.

- Mr Robinson agreed that a facility's minimum generation affects its flexibility and will be considered in the assessment to the extent possible.
- Ms White and Mrs Bedola supported that the RCM should also consider the correlation of output from different resources, not only different technologies.

  Mr Price noted that, because of the output correlation, it is important to consider the impact on the Network Access Quantities if applying the ELCC method.

  Mr Carlberg considered that correlation can be overstated and the impact be overestimated if only a few events of system stress are considered.

  The Chair re-assured members that RBP is aware of the different views about how to account for output correlation under the ELCC method that were raised during the Rule Change Panel's consultation on the Rule Change Proposal: Method used for the

Item	Subject	Action

assignment of Certified Reserve Capacity to Intermittent Generators (RC_2019_03).

- Mr Peake considered that, if gas plants will be only used to back up intermittent generation, they will be used to generate large quantities for short periods. This will result in expensive gas contracts and supply surges that may be difficult to handle.

  Mr Carlberg considered that coal plants are currently posing a higher risk because, while the WEM has a diversified amount of gas supply points, the supply points for coal are limited.

  Ms White considered that reliance of generation from a single location can also be an issue e.g. in case of outages or network congestion.

- Mr Carlberg reiterated his concern that high penalties and derating of capacity for non-performance may disproportionately impact the generators that run more often and currently have the greatest incentives to be available, as these generators are more exposed to outages. Mr Carlberg further considered that accounting for Forced Outages when assigning CRC may also result in double counting the impact of Forced Outages in the RCM, as the Planning Criterion already includes a margin for expected forced outages. This would result in unnecessary over-procurement.

  Mr Shahnazari considered that it is important to review the purpose of the reserve margin and whether it is the best way to manage the effect of outages as it creates a free riding problem. Mr Shahnazari noted that other jurisdictions use the reserve margin for a different purpose.

- Mr Carlberg noted that the current WEM mechanism that allows a generator to secure a guaranteed capacity price for five years is only available under very limited circumstances.

  The Chair noted that the five-year price guarantee is available whenever AEMO cannot secure sufficient capacity to meet the Reserve Capacity Requirement under the annual Reserve Capacity Price.

  Mr Peake noted that any period for which a guaranteed capacity price may be available should enable the payback of investment and the required length will depend on the price level.

  Mr Carlberg agreed with Mr Peake and noted that different periods may be required for different technologies.

- Mr Carlberg considered that the Reserve Capacity price should not be based on excess capacity and provided the following reasons in writing via the chat function:

Item	Subject	Action

- Given the size of our market excess is boom or bust, making price very volatile. A 10% excess in WA is only ~400-500MW.
- Volatile capacity pricing has not really changed investment decisions, a more crucial factor are power purchase agreements. Volatile capacity pricing will not incentivise capacity in a high renewable world.
- There is a significant level of capacity in the market that does not respond to economic signals and therefore capacity price.
- An alternative is to have different buckets of capacity we need to fill, and turning the tap off when we have enough, and limiting the length of time these capacity types are paid for, potentially to 10 years.
- The risk of a capacity shortage going forward will be a much bigger issue than excess capacity, particularly as the WEM is a small system.
- It is not possible to measure excess accurately. The POE10 forecast has been exceeded many times at the start of this year and it is very difficult to schedule outages. At the recent WA electricity consultation forum (WAECF) AEMO mentioned capacity was tight, yet the capacity price is below the floor.

Mrs Bedola noted that the curve for the Reserve Capacity Price should be shallower considering the high impact of a single facility in the WEM.

The Chair repeated that the Reserve Capacity Price is out of scope for the RCM Review, but these comments will be noted.

- The Chair reminded members that the price curves are out of scope for the RCM Review but that stakeholders can specify any related issues via email and EPWA will log them for noting and further assessment.
- Mr Tayal noted that the Energy Security Board (**ESB**) is currently consulting on the options for a reserve capacity mechanism for the National Electricity Market (**NEM**) beyond the three options presented in their recent paper. Mr Tayal suggested that EPWA consult with the ESB directly on that matter.

  Mr Robinson agreed that it would be beneficial to be aware on the development of the reserve capacity mechanism in the NEM beyond the consultation papers published.
- Mrs Bedola noted that the determination of the Individual Reserve Capacity Requirement is only considering consumption in the Hot Season.

Item	Subject	Action
8	**Modelling Assumptions** The slides were taken as read. The following points were made: • Mr Robinson clarified that the demand forecast will be undertaken for energy and capacity for each Trading Interval. • The Chair noted that the modelling will assume transmission capacity is upgraded where needed. • Mrs Bedola considered that assuming 5 kW of PV on every household for the demand forecast is too high. • Mr Robinson clarified that the system stress modelling will focus on the shape of the demand curve and that the actual level of the demand is less relevant.	
9	**Next Steps** The RCMRWG agreed that the report to the MAC should focus on the comments from the working group. The Chair noted that RCMRWG members could send any additional comments that they wished to be included in the report to the MAC until COB 18 March 2022. The RCMRWG agreed to hold the next meeting in early May 2022 to discuss the outcome of the initial findings of the system stress modelling.	
10	**General Business** No general business was discussed. The next RCMWG meeting is scheduled for 17 March 2022.	

The meeting closed at 11:50am.

Government of **Western Australia**
Energy Policy WA

Reserve Capacity Mechanism Review

Update to the Market Advisory Committee

17 May 2022

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

Agenda

Item	Item	Duration
	Feedback received last meeting	
1	Project Timeline	5 min
2	Capacity Service	10 min
3	Planning Criterion	10 min
4	General Discussion	10 min
5	Next Steps	5 min
Appendix	System Stress Modelling Outputs	

Feedback from last MAC meeting

MAC comment/feedback	Response/action
The largest source of demand response is likely to be available from larger customers	To be considered in design of demand response certification method.
The RCM does not need to solve all system stress events and should only address the issues it is best placed to mitigate	Considered in preliminary direction for capacity service definition (particularly on minimum load).
Any application of ELCC must consider simplicity and transparency given that developers need to base investment decision on certainty	Options for CRC methodologies to be discussed in next working group session
Objective for designing methods to assign CRC should be to streamline where possible rather than insisting on design of a single method for all technology types	
RCM as a package must be sellable to investors and it is important that the RCM is simple to explain for investors	Working group to provide input on design directions as project progresses.
More clarification on modelling assumptions. RBP should use the ESOO forecast for the first 10 years and the WOSP for the remaining years and the work on low load to inform any changes to the ESOO load projections	ESOO forecast used as discussed, WOSP considered for remaining years. Assumptions meeting with AEMO on 10 May 2022.

Purpose of this Session

- Initial results of the system stress modelling are included in the appendix. This modelling was performed to inform the characteristics of the capacity service needed in the WEM.
- We will discuss preliminary directions for the defined capacity service and the planning criterion, and report on the input, guidance, and endorsement provided by the working group.
- As these issues are part of an overall design package, later stages may cause us to revisit these directions.

Purpose of this Session: MAC to provide guidance on preliminary directions as indicated on each relevant slide

1. Project timeline

Project timeline and next steps

06/05

Stage	Step	Short description	Analysis	21/01	28/01	4/02	11/02	18/02	25/02	4/03	11/03	18/03	25/03	1/04	8/04	15/04	22/04	29/04	6/05	13/05	20/05	27/05	3/06	10/06	17/06	24/06	1/07	8/07	15/07	22/07	29/07	5/08	12/08	19/08	26/08	2/09	9/09	16/09	23/09
1	Working group meetings		RCM Working Group meetings	WG				WG				WG							WG						WG						WG					WG			
1	MAC meetings		MAC meetings							MAC					MAC						MAC						MAC						MAC						MAC
1	Step 1	Requirements analysis	(a)International Literature review																																				
1	Step 1		Gather assumptions and set up models																																				
1	Step 1		(b)Model system stress																																				
1	Step 1		(c)Analyse the required capacity services																																				
1	Step 2	Review Planning	(d)Assess the Planning Criterion																																				
1	Step 2	Criterion	(e)Assess the ICAP and UCAP Concepts																																				
1	Step 3	Review CRC allocation	(f)Assess CRC Allocation and identify options																																				
1	Step 5	Model CRC allocation	(h)Scenario Analysis - Model CRC allocation options																																				
1	Step 4	Review BRCP	(g)Analysis of the BRCP																																				
1	Consultation paper		Consultation paper																																				

2. Capacity Service

What are the characteristics of the capacity we need?

The analysis indicated the need for future capacity to have specific characteristics over and above a simple MW requirement:

- Assuming a 100% zero-carbon emission capacity mix by 2050, significant capacity to balance generation and demand is required.
- The hours that capacity services are required will broaden to cover up to at least 4:00pm to 10:00pm by 2050.
- Demand flexibility: Assuming lower firming capacity and renewables overbuild, a high capacity of demand flexibility is required.
- Minimum demand / curtailment: see slides 9-11
- Ramping: see slides 12-13

Should Curtailed Injection be part of a Capacity Mechanism?

A key consideration is whether the future RCM will include a ‘reverse capacity’ product.

This product would give people credits for increasing load or reducing injection when needed.

This load increase or injection reduction would largely be there to ‘soak up’ behind the meter solar PV.

The RCM would need to define a planning criterion for low load situations, but instead of being there to avoid unserved energy, it would be there to avoid curtailed injection. Similar metrics could be used:

- Loss of injection probability
- Loss of injection hours
- Un-injected energy MWh

Based on the system stress modelling results, such a service could be called on more than 2200 hours per year (25% of periods) – much more often than the regular capacity service is needed to avoid unserved energy.

Curtailed Injection – Working Group Feedback

General agreement that low load is an issue that must be addressed, but it is probably best dealt with through real-time activity rather than including curtailed injection as a separate product in the RCM.

- It is possible that if customers face restrictions on injection, they may go off grid altogether, leaving a more volatile load behind.
- Adding capability to increase load/curtail injection at large sites requires long lead times. Accessing load increase/injection curtailment capability from aggregated small loads will not require long lead times.
- Participants in the capacity market making large capital investments face uncertainty if they compete with generation from outside the market (that can potentially be paid for not injecting). Without a registration process for such generation, investors are deterred from making capital investments in market registered capacity.
- “Consumers should be required to pay for the consequences of their choices”
- The current disparity in the rights and responsibilities of transmission connected facilities and distribution connected facilities should not continue.
- Low load issues link back to the need for the right tariff structures to incentivise demand flexibility.

[EPWA noted that DER participation and low load management are the subject of dedicated workstreams, and not in scope for the RCM review]

Curtailed injection – preliminary direction

Three key questions:

1. Should end users have a right to inject whatever energy they wish onto the SWIS?
2. Does the load increase/BTM injection curtailment capability require significant capital expenditure with multi-year lead times?
3. Will connected facilities provide this service without a price signal?

Arrangements for end user injection curtailment are being addressed through the DER roadmap, and will not require multi-year lead times, and there is a backstop of emergency DPV curtailment. Load increase can therefore be dealt with as an operational matter through Essential System Services and real-time market mechanisms to provide pricing.

Preliminary direction: curtailed injection not to be included in RCM.

Does MAC agree with the preliminary direction?

Should Ramping Capability be part of a Capacity Mechanism?

From the modelling results, we draw the following conclusions regarding ramping:

- By 2050, demand ramp rates in excess of 2 GW/hour are experienced (from demand and BTM generation – intermittent volatility still being explored).
- This is well within the capabilities of current technologies (e.g. OCGT and battery) as long as sufficient capacity is available (i.e. > 2GW)
- In a zero-carbon future, OCGT may not be an option, and the fast-ramping capacity required is in excess of the storage required for other purposes
- Therefore it may be necessary to ensure that sufficient fast-ramping capacity is available

Design options to achieve this:

- Build into the new RCM:
  - As a specific capacity product
  - As part of availability class considerations
  - Note that DSPs can assist with demand ramping, but in doing so will need to perform and be assessed on a different basis than they are currently
- Procure as an ESS (as AEMO is currently planning)

Ramping – working group feedback

Mixed feedback on whether the RCM should incorporate flexibility:

- Need to delineate between “capacity that is capable of ramping quickly” (planning horizon) and “service of providing fast ramping” (operational horizon)
- Natural investment in generation capacity may be sufficient to meet ramping needs, which would preclude the need for a specific product. [This will be assessed in the fundamental modelling.]
- ESS alone may not attract sufficient investment in capable capacity.
- Combining a ramping service with an adequacy product may discriminate against resources that can provide one service but not the other. Another option would be to procure separate adequacy products using separate demand curves.
- Operational ramping service can be procured via NCESS (and if defined as FCESS in future with shortfall forecast, operational ramping service could be procured via SESSM) but administrative option should be backstop only.
- Alternative framing: RCM pays for peak MWs (regardless of operating characteristics) vs RCM pays for MWs with specific characteristics.

Ramping – preliminary direction

Three key questions:

1. Should customers have a right to increase or decrease load at whatever rate they want?
2. Does the fast ramping capability require significant capital expenditure with multi-year lead times?
3. Will connected facilities provide this service without a price signal?

The WEM is built on the premise of serving whatever load is. Fast ramping does require capital expenditure with multi-year lead times. Connected facilities may be able to provide this service without a specific price signal.

Preliminary direction: Use next stage of modelling to inform whether fleet capability is likely to have sufficient ramp capability without further encouragement. Include options for encouraging ramping capability in CRC allocation methodologies.

Does MAC agree with the preliminary direction?

3. Planning Criterion

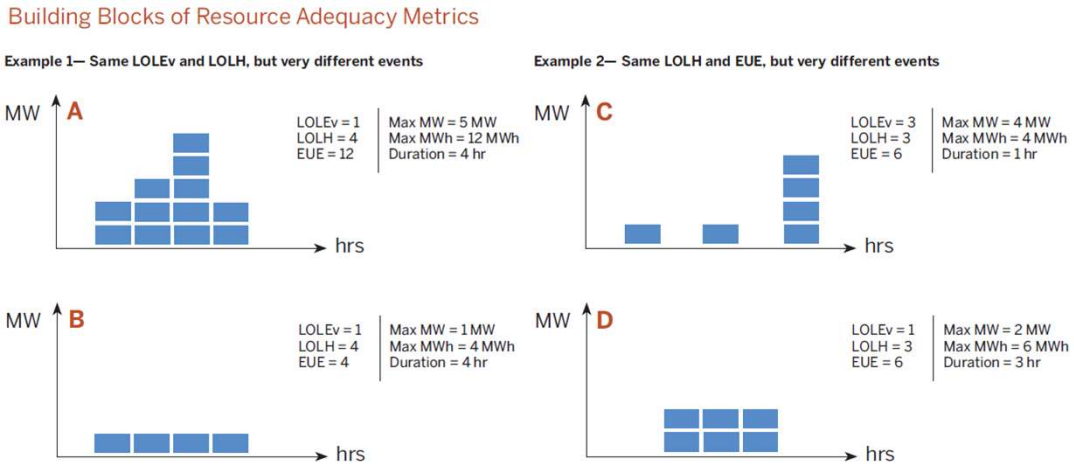
Planning Criterion Dimensions

International review highlighted need for a multi-dimensional reliability criterion. But which dimensions?

- Lost load:
  - LOLEv (# of events/yr)
  - LOLH (# of hours/yr)
  - EUE (MWh unserved)
- Peak load (equivalent to LOLP if load is only lost in peak)

Three options for the WEM:

1. Retain current EUE% and peak load + reserve margin
2. EUE% and LOLEv (instead of system peak load)
3. EUE% only



Aspects of the current peak load component

The current planning criterion includes an additional reserve margin "*equal to the greater of:*

i. 7.6% of the forecast peak demand (including transmission losses and allowing for Intermittent Loads); and

ii. the maximum capacity, measured at 41ºC, of the largest generating unit;

while maintaining the SWIS frequency in accordance with the Normal Operating Frequency Band and the Normal Operating Frequency Excursion Band."

Subclause i relates to the expected outage rate (so that the expected remaining capacity is sufficient to meet the 10% POE peak load). This value was last updated in 2012.

Subclause ii relates to the need for spinning reserve. It is not aligned with the current spinning reserve requirement (current largest contingency is transmission-related rather than a generation unit) and is not aligned with the future approach to co-optimisation of energy and contingency reserve.

We will consider these elements further as we review options for using ICAP or UCAP, to ensure there is no double counting.

Planning Criterion – working group feedback

General support for retaining a two limbed planning criterion, support for further assessment of different options.

- Deep outages are more problematic for customers. Regular but small outages can be spread around so no one customer is greatly affected.
- Although EUE is clearly important, it would be inappropriate to jump straight to EUE as the sole criterion.
- Using only a peak demand measure would undervalue the assets that contribute during other system stress periods.
- A weakness of the current planning criterion is that it doesn't set an evidence-based period for how long we want to capacity to be available for.
- If the reserve margin accounts for facility outages it would risk free riding in the system (and pass risk to consumers).
- We need to be realistic about the duration of interruptions demand side providers will offer, especially if relying heavily on demand side reductions.
- If using an ELCC approach to set CRC, a facility may have different contributions under each limb of the planning criterion.

Planning Criterion – preliminary direction

Preliminary direction:

- System stress modelling shows increasing importance of EUE measure
- International scan identified need for multi-dimensional planning criterion
- No compelling reason to choose both LOLH and LOLEv, or to choose LOLH over LOLEv.

➡ **Therefore retain a two-limbed planning criterion**

- Unclear whether using peak load or LOLEv is more appropriate.
- Model alternative planning criteria and assess effect on capacity target/system reliability.

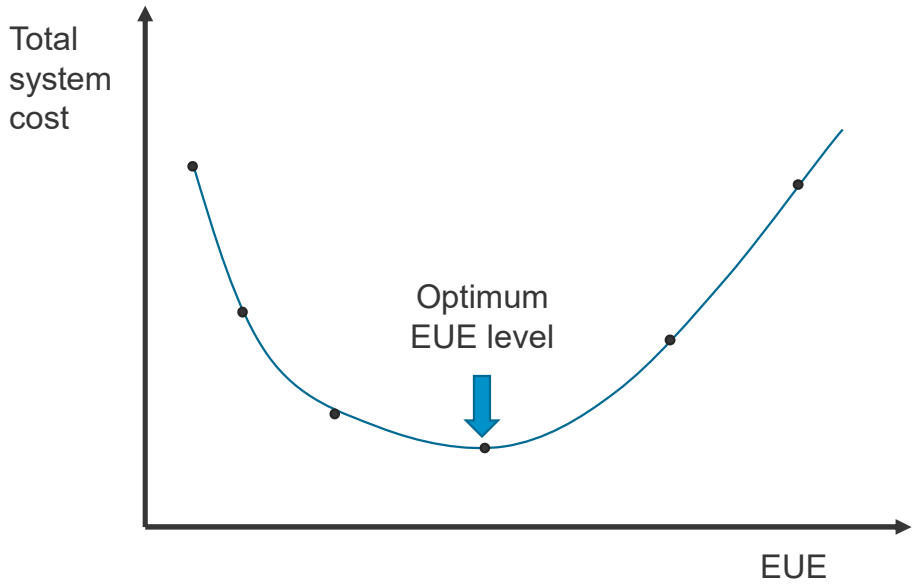
Does MAC agree with the preliminary direction?

Recap: Approach to revising the Planning Criterion

To determine an appropriate metric for each limb of the planning criterion, we need to explore the trade-off between higher reliability requirements and cost (noting that the outcome of the review should not erode the current reliability standard).

For the EUE limb the methodology would be as follows:

1. Determine the lowest cost new entrant technology (previous studies assumed an OCGT, could be PV + firming)
2. Determine a Value of Customer reliability (VCR) for the SWIS (used Western Power value)
3. Perform system adequacy modelling (CAPSIM) with various levels of new capacity of the type determined in step 1 to determine the level of EUE (in MWh)
4. Determine total system cost at each level of new capacity, as EUE x VCR + cost of new capacity
5. Chart total system cost vs EUE, and determine the level of EUE at which minimum total system cost occurs.



The approach for an LOLEv limb would be similar, with an X axis of lost load frequency.

10. Next Steps

Next steps

- **Model alternative planning criteria and assess effect on capacity target/system reliability.**
- **Review options for using ICAP or UCAP, and interaction with planning criterion reserve margin**
- **Next Working Group meetings June 2022**
  - Discussion: CRC allocation approaches
  - Capacity service and planning criterion update
- **Questions or feedback can be emailed to energymarkets@energy.wa.gov.au**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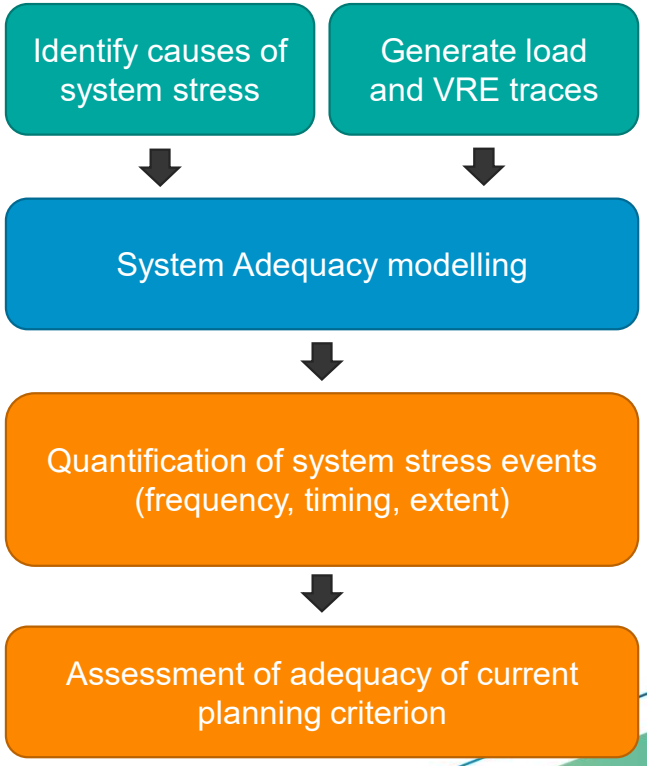
Appendix: System Stress Modelling Outputs

Modelling Methodology – Recap

System Stress Modelling Objectives:

- Identify causes of system stress – current and future
- Quantify how the current generation mix (and other capacity sources) accommodate the identified types of system stress under credible demand scenarios (current, 2030 and 2050) and identify any deficiencies
- Assess whether the current Planning Criterion is adequate for meeting the capacity requirements of the SWIS

System Stress Modelling Methodology:



Modelling Methodology - Scenarios

Retirement Scenarios:

	2022	2030	2050
R1	Current capacity mix	Muja retires on schedule	All thermal plant retired
R2		All thermal baseload plant retires	

New Build Scenarios:

	2022	2030	2050
S1	Current capacity mix	New capacity as required in line with respective 2050 targets	Sufficient PV + wind by 2050 to meet energy requirement. Large storage capacity Some demand flexibility
S2			PV + Wind overbuild by 2050 reducing amount of storage required Less storage capacity Large demand flexibility
S3			Sufficient PV + wind by 2050 to meet energy requirement Green H2 thermal Some storage Some demand flexibility

Modelling Results – Capacity Additions

Capacity additions (MW) to achieve unserved energy (EUE) close to current reliability criterion:

Retirement scenario	New Build Scenario	Year	Solar	Wind	Green thermal (e.g. H2)	DSM/IR	Firming Resource (e.g. Storage)	Unserved Energy
R1	S1	2022	0	0	0	0	0	0.0000%
		2030	0	0	0	0	0	0.0000%
		2050	4445	4423	0	444	1333	0.0032%
	S2	2022	0	0	0	0	0	0.0000%
		2030	0	0	0	0	0	0.0000%
		2050	5721	5738	0	956	478	0.0031%
	S3	2022	0	0	0	0	0	0.0000%
		2030	0	0	0	0	0	0.0000%
		2050	5225	5200	522	522	522	0.0032%
R2	S1	2022	0	0	0	0	0	0.0000%
		2030	662	657	0	400	133	0.0001%
		2050	4445	4423	0	444	1333	0.0032%
	S2	2022	0	0	0	0	0	0.0000%
		2030	804	837	0	133	267	0.0013%
		2050	5721	5738	0	956	478	0.0031%
	S3	2022	0	0	0	0	0	0.0000%
		2030	662	657	133	133	267	0.0001%
		2050	5225	5200	522	522	522	0.0032%

Key:
New Build Capacities (MW)
Unserved Energy (%)

Modelling Results – Capacity Additions

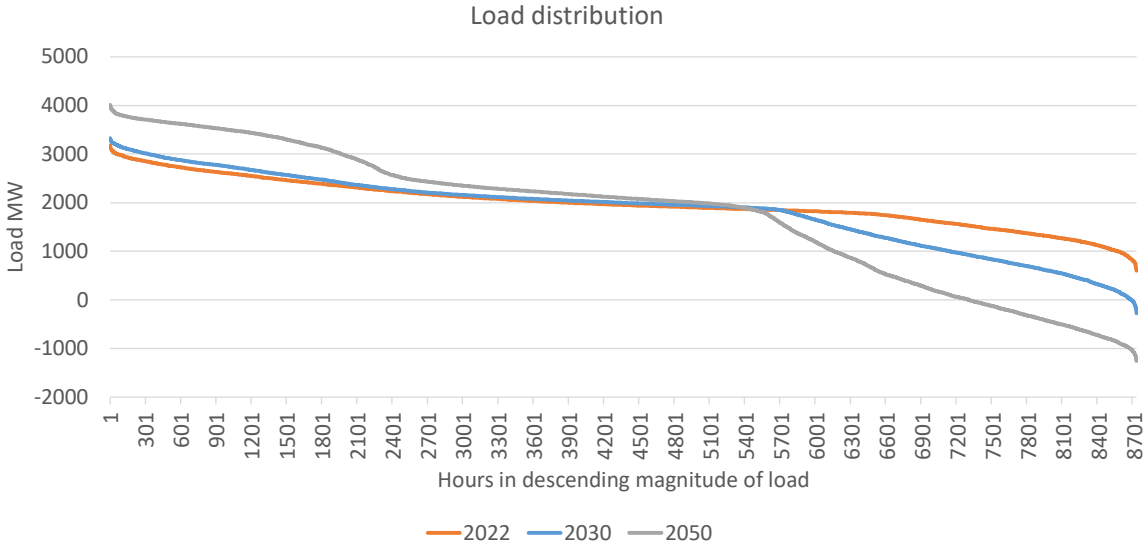
Key findings:

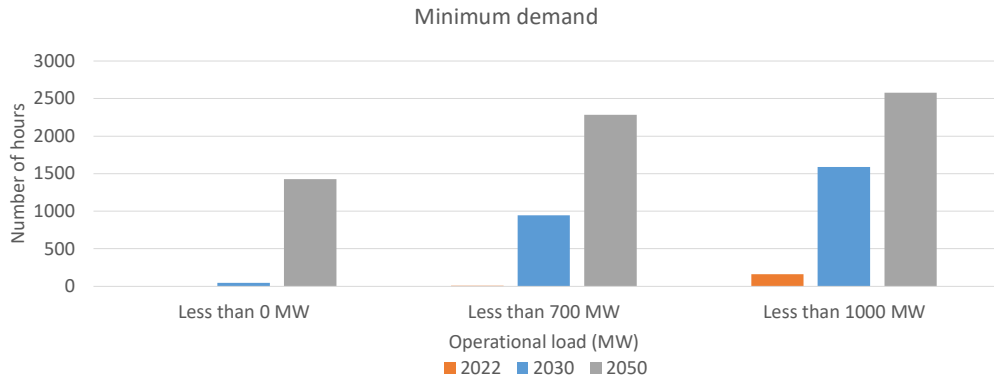
- Current excess of capacity in 2022
- Under retirement scenario R1 (Muja retires as planned), no additional capacity is required in 2030, and zero EUE results.
- Under retirement scenario R2 (All thermal baseload plant retires by 2030), > 1300 MW renewables build is required, plus storage/DSM to balance. EUE well under the current reliability criterion (0.002%) results
- New build scenario S1 (Sufficient PV + wind by 2050 to meet energy requirement) requires > 1.3GW firming resource to avoid excessive EUE
- New build scenario S2 (PV + Wind overbuild by 2050 reducing amount of storage required) requires almost 1GW of demand flexibility to avoid excessive EUE

Refinement of these scenarios is ongoing:

- Keep EUE of all scenarios within current planning criterion
- New build scenario S3 – More green thermal, less PV/wind

Modelling Results – Minimum Demand



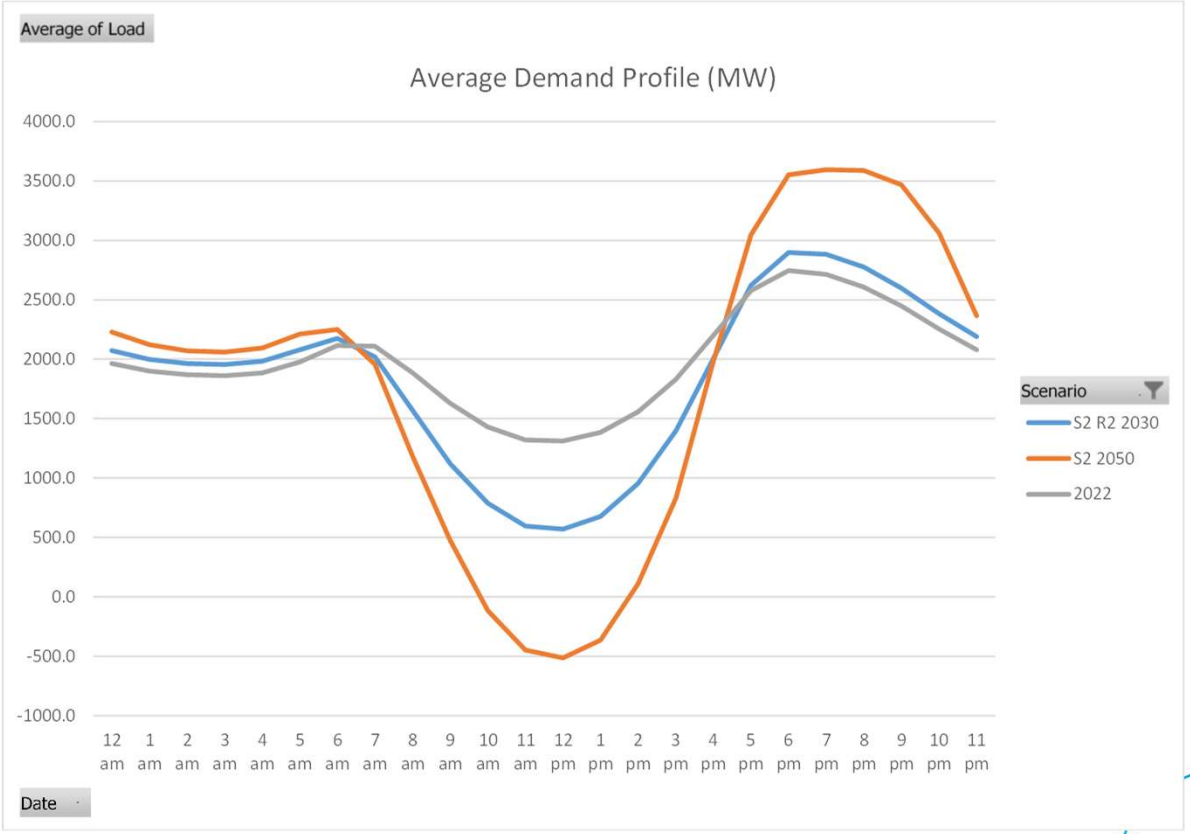


- Negative operational load experienced by 2030
- Significant negative operational demand experienced in 2050
- By 2050, demand is less than 700 MW for >2200 hours per year (25% of all periods)

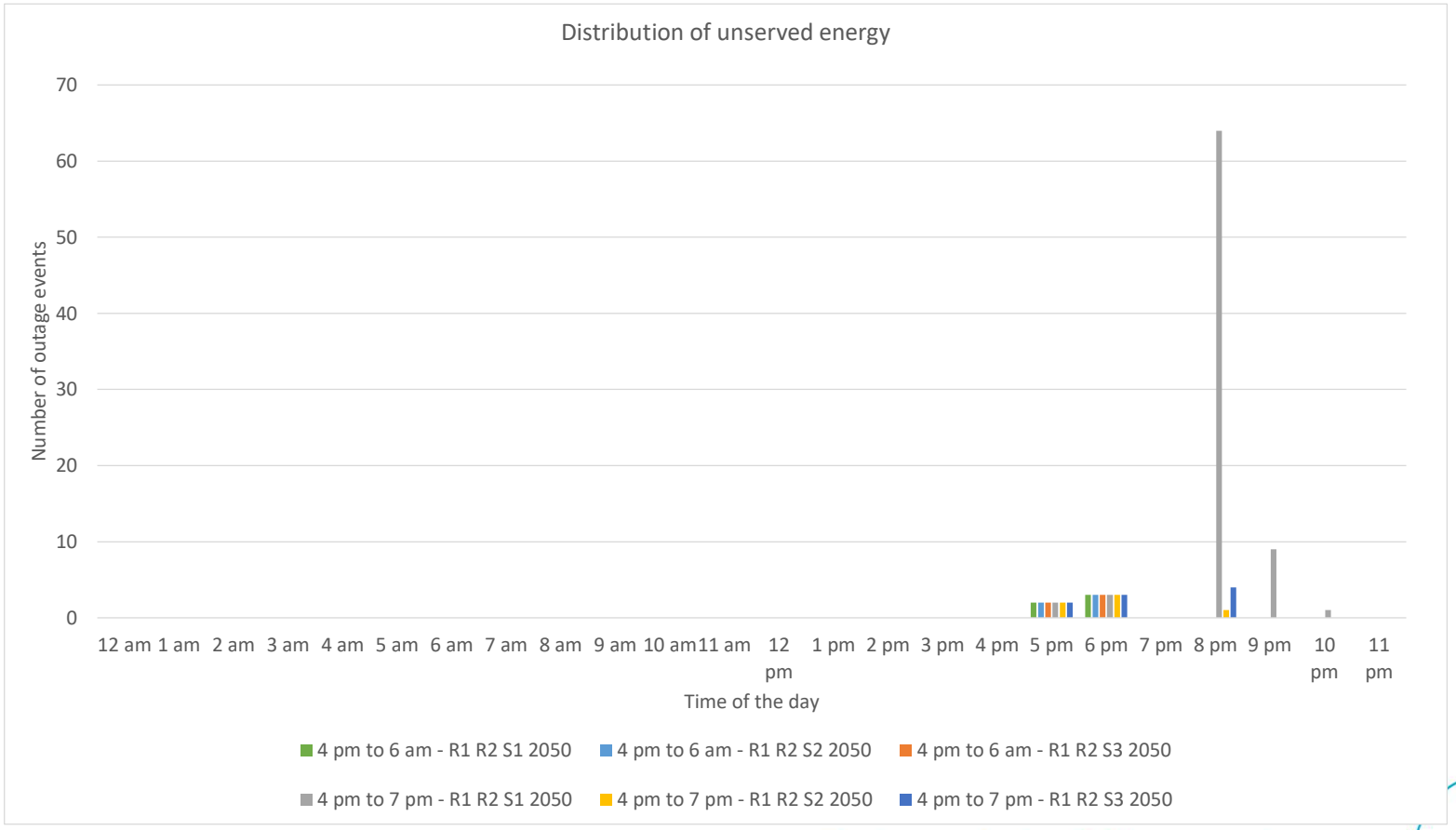
AEMO have previously cited 700 MW as the minimum level of operational demand for system stability – see https://www.aemo.com.au/-/media/Files/Electricity/WEM/Security_and_Reliability/2019/Integrating-Utility-scale-Renewables-and-DER-in-the-SWIS.pdf

Modelling Results – Evolving demand shape

System peak becomes later and flatter by 2050, occurring from 6:00pm to 9:00pm:

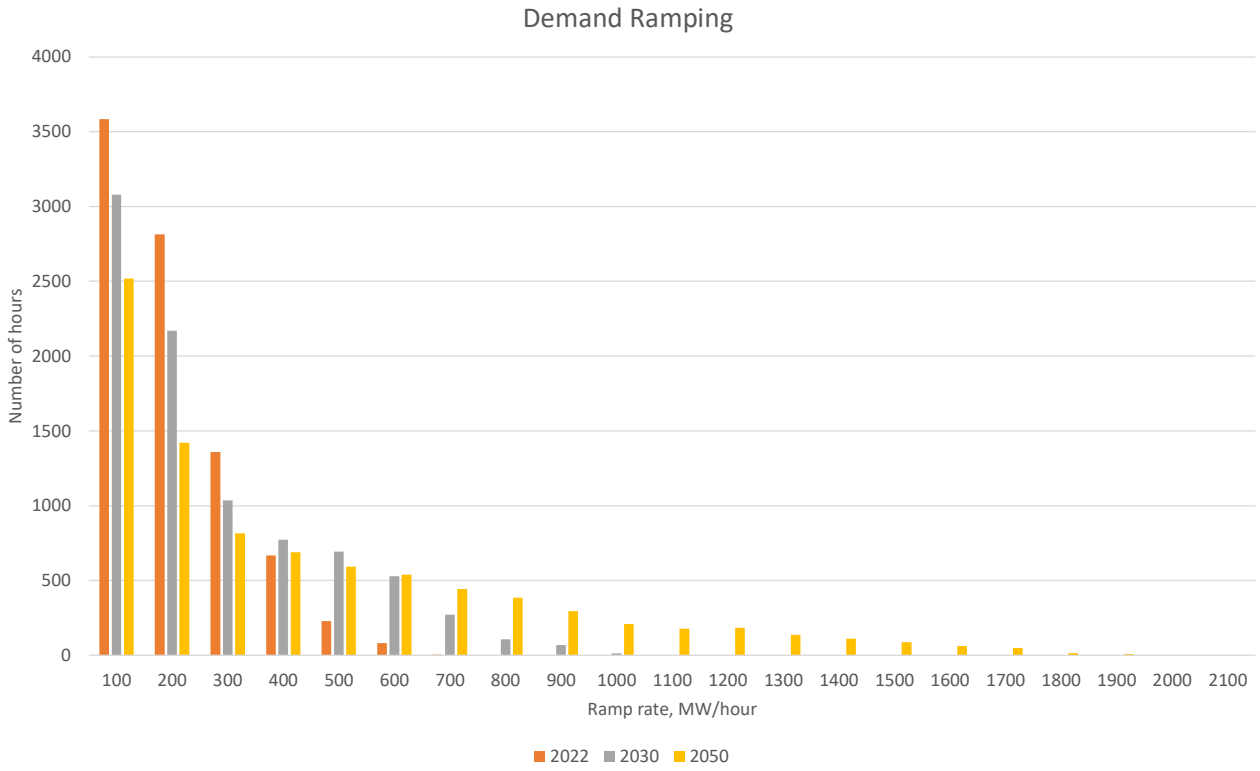


Modelling Results – Timing of firming resource



- If storage discharge periods are limited to the current RCM setting, unserved energy occurs up to 10:00pm in 2050 scenarios
- Extending storage availability overnight prevents this
- This indicates that capacity services are required for a broader range of hours in 2050, up to 10:00pm

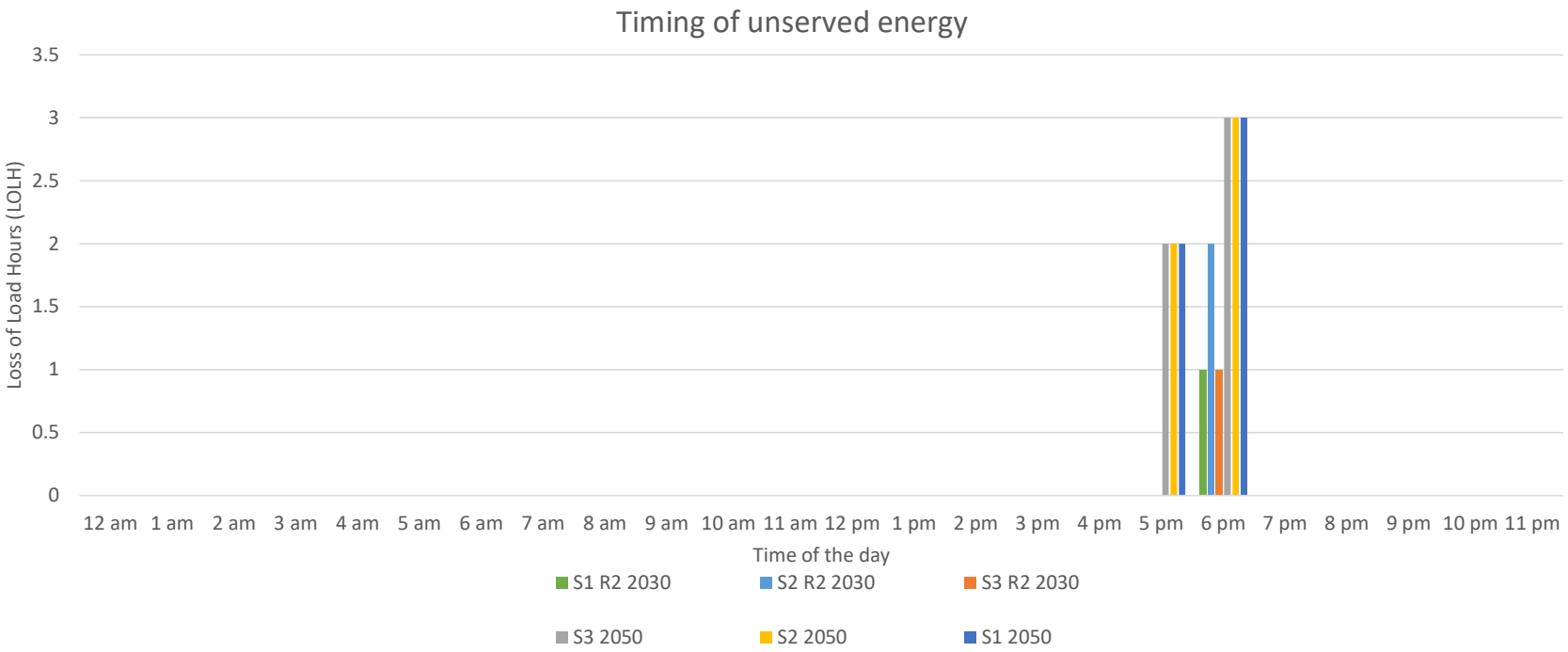
Modelling Results – Demand Ramping



- In later years, much higher demand ramping is experienced.
- The highest ramp rates in 2050 are >2000 MW/hr, 3x those in 2022
- However, these ramp rates are still well within the capabilities of current technologies (e.g. OCGT), as long as sufficient capacity is available.
- By 2050, >2GW of fast-ramping capacity (e.g. OCGT or battery) will be required.
- However, under a zero-emissions policy, options for ramping capacity are much more limited.

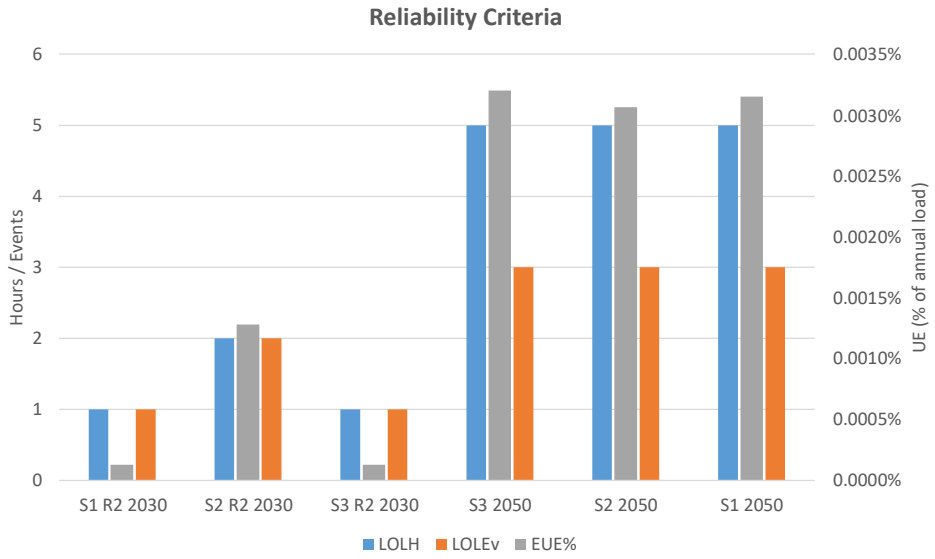
Modelling Results – Timing of Unserved Energy

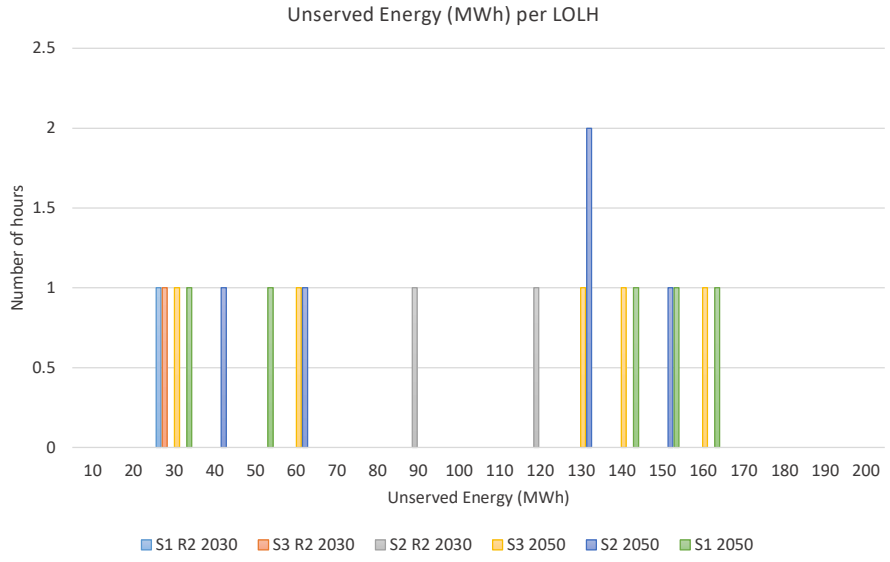
Unserved energy events concentrated around 5:00pm to 6:00pm:



Modelling Results – Measurements of unserved energy

- Unserved energy at current reliability criteria levels represents a very small number of loss of load hours (LOLH) or events (LOLEv)
- Each LOLH can represent a very wide range of MWh outage quantities
- UE remains the most nuanced measure of reliability impact.





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Energy Policy WA

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

Market Advisory Committee (**MAC**) Meeting 2022_05_17

1. Purpose

- The Chair of the Cost Allocation Review Working Group (**CARWG**) is to update the MAC on the activities of the CARWG.
- The MAC is to note the early findings from the international research and provide guidance to the Working Group, including on the feedback from the CARWG and the responses to that feedback.

2. Recommendation

That the MAC:

(1) notes the update on the CARWG meeting on 9 May 2022 (see **Attachment 1**); and

(2) provides guidance to the CARWG, including by providing views on the responses to the CARWG feedback.

3. Background

On 14 December 2021, the MAC:

- endorsed the Scope of Works for the Cost Allocation Review;
- approved the formation of the CARWG; and
- approved the Terms of Reference for the CARWG.

In December 2021 to February 2022, the Coordinator:

- sought nominations and made appointments to the CARWG; and
- ran a tender and appointed Marsden Jacob Associates to assist with the Cost Allocation Review.

The CARWG held its first meeting on 9 May 2022 to discuss:

- the stakeholder engagement plan;
- the CARWG's approach to policy assessment;
- the early findings from the international research; and
- the feedback provided by the CARWG and the responses to that feedback.

Attachment 1 provides a summary of the discussions at the 9 May 2022 CARWG meeting, the feedback provided by the CARWG and the responses to that feedback.

Attachment 1 will be taken as read at the MAC meeting on 17 May 2022 and only the key results from the working group meeting (the main body, i.e. the first 20 slides) will be presented. The purpose of this presentation is for MAC to:

- note the early findings from the international research (slides 14 to 17); and
- provide guidance to the CARWG, including by providing views on the responses to the CARWG feedback (slides 19 to 20).

The following additional information is available on the CARWG page of the Coordinator's website (https://www.wa.gov.au/government/document-collections/cost-allocation-review-working-group):

- the Scope of Works for the Cost Allocation Review;
- the Terms of Reference for the CARWG;
- a list of the CARWG members; and
- the meeting papers for the CARWG meeting on 9 May 2022.

4. Attachments

(1) WEM Cost Allocation Review – Update to the Market Advisory Committee 17 May 2022

Government of Western Australia
Energy Policy WA

WEM Cost Allocation Review

Update to the Market Advisory Committee

17 May 2022

Presenter: Grant Draper, Marsden Jacob Associates

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

Agenda

Item	Item	Duration
1	Project Scope/Timeline	4 min
2	Stakeholder Engagement Plan	2 min
3	Policy Assessment Approach	2 min
4	Early findings from International Research	4 min
5	CARWG Feedback and Responses	7 min
6	Next Steps	1 min
Appendix:	Identifying Causers and Beneficiaries	

Project Scope

Objectives

Develop methods to align the allocation of market fees and ESS costs with the causer-pays principle, to the extent practicable and efficient.

Guiding Principles

1. Meet the Wholesale Market Objectives (i.e., economic efficiency, safe and reliable, technology neutral, encourage competition, minimise long term costs, and encourage energy efficiency);
2. Be cost-effective, simple, flexible, sustainable, practical, and fair;
3. Provide effective incentives to Market Participants to operate efficiently to minimise the overall cost to consumers; and
4. Use the causer-pays principle, where practicable and efficient.

Fees and Charges in Scope

Market Services

- Market Fees to recover AEMO's costs for its market operation services, system planning services and market administration services;
- System Operation Fees to recover AEMO's costs for its system operation services;
- Regulator Fees to recover the ERA's costs for its monitoring, compliance, enforcement and regulation services; and
- Coordinator Fees to recover the Coordinator's costs for the Coordinator's functions under the WEM Rules plus the costs and expenses for the Chair of the MAC.

Co-optimised ESS

- From 1 October 2023, there will be co-optimised ESS:
  - Regulation services:
    - Regulation Raise;
    - Regulation Lower;
  - Contingency Reserve services:
    - Contingency Reserve Raise;
    - Contingency Reserve Lower; and
  - Rate of Change of Frequency (RoCoF) control service.

Other ESS

- System Restart service; and
- Non-Co-optimised ESS (NCESS).

Out of Scope

- Response that is mandated under the minimum standards in the technical rules (e.g. droop response)
- Matters covered by the Reserve Capacity Mechanism Review (e.g. changes to peak demand or reductions of load as a result of the Individual Reserve Capacity Requirement)
- Cost allocation matters recently considered by the Energy Transformation Taskforce that have resulted in recent changes to the WEM Rules, such as changes to the runway method (apart from any known issues) or the RoCoF cost recovery method in Appendix 2B of the WEM Rules

Timeline

Steps/Tasks	Duration/Timing
Project Initiation	
Inception Meeting with EP WA	Completed
Initial CARWG Meeting	9 May 2022
Initial Meeting with MAC	17 May 2022
Step 1 – Policy Assessments	
Literature review of the methodologies to allocate Market Fees and ESS costs in other jurisdictions.	Mid-April to Mid-May 2022
In consultation with the MAC Working Group, assess whether, and to what extent, the current allocation method for the Market Fees and for the costs for each of the ESS are aligned with the causer-pays principle and, if not, whether they should be.	Mid-May to Mid-June 2022
Step 2 – Practicability Assessments	
In consultation with the MAC Working Group, for the fees and costs that are not aligned, or not fully aligned, with causer-pays principle: • Identify the options that can be practically and efficiently applied in the WEM to allocate the Market Fees and each ESS cost; • Assess each option against the guiding principles; • Model the impact of each of the options on Market Participants; and • Recommend a preferred option for the allocation of the Market Fees and each ESS cost.	July-August 2022
Step 3 – Methodology Development	
Develop the details of the cost allocation methodologies in consultation with the MAC Working Group	September-October 2022
Develop and publish a consultation paper on the design for the allocation methodologies and seek stakeholder comments.	November-January 2023
Develop publish an information paper on the detailed design for the allocation methodologies.	March 2023
Step 4 – Formal Rule Change	
Develop one or more Rule Change Proposals for consideration by MAC, and approval by the Coordinator and Minister.	April 2023

Stakeholder Engagement Plan

Market Advisory Committee

It is a requirement under clause 2.5.1C of the WEM Rules that the Coordinator consult with the MAC before commencing the development of a Rule Change Proposal.

Stakeholder engagement will primarily occur through briefing and feedback sessions with CARWG and the MAC.

Proposed Briefing and Feedback Session Dates

Topic	CARWG Meeting Date	MAC Meeting Date
Initial Policy Discussions	9 May 2022	17 May 2022
Policy assessment	7 June 2022	28 June 2022
Methodology development		
Detailed cost allocation methodology	30 August 2022	20 September 2022
Consultation paper – findings and options	22 November 2022	13 December 2022
Information paper – preferred approach	Late February 2023	Mid March 2023
Rule change proposal submitted to MAC	Early April 2023	Mid April 2023

Policy Assessment Approach

A Potential Framework for Determining Cost Allocation

Our focus for this review are fees and charges that are covered by WEM Rules.

Potential framework:

1. What is the nature of the good or service that is being provided?
2. What are the costs of providing that service and what are the key driver of those costs?
3. Whose actions (causer) are influencing cost drivers and affecting the total cost of providing those services?
4. Who is bearing the costs or is the beneficiary of changes to the total cost of providing these services?
5. Can the causer be charged for any detriment that results from their actions?
6. If the causer cannot be charged easily, can the beneficiary be charged?
7. If the causer or beneficiary can be charged, how much should they pay? Equity and efficiency considerations are important here.
8. If the above cannot be easily charged, can we allocate costs broadly across industry and customers to recover costs (e.g., industry levies)?

Notes: Adapted from frameworks developed by IPART NSW for Local Land Services and Rural Water Services.

Identity of Causers/Beneficiaries

Our initial analysis identifying causers and beneficiaries is provided in the Appendix. In summary:

- All formal wholesale market participants are both causers and beneficiaries of WEM services. Hence, there is some justification for allocating market and ESS costs to market participants on the basis of causer and beneficiary pays principles.
- Many other organisations or groups of users that are not formal participants in the WEM are also causers and/or beneficiaries. This includes Embedded Storage/Generation owners, microgrid owner/operators, Final Customers, TNSPs and DNSPs and the WA State Government.
- Ultimately, Final Customers, embedded generators and owners of microgrids will incur WEM costs or earn net revenue from the provision of WEM services by Market Participants. However, the way in which WEM service costs are passed through by multiple parties to Final Customers, embedded generators and owners of microgrids can have equity and efficiency concerns.

Early Findings from International Research

Literature Review

As part of the preparation of the Policy Assessment report we shall undertake a comprehensive literature review of methodologies used to allocate Market Fees and ESS costs in other jurisdictions.

This includes the following jurisdictions:

- the WEM;
- the NEM (National Electricity Market) Australia;
- The National Electricity Market of Singapore (NEMS);
- the California Independent System Operator (CAISO) in California, USA;
- Electricity Reliability Council of Texas (ERCOT), USA;
- the Pennsylvania, New Jersey, and Maryland (PJM) Interconnection, USA;
- I-SEM, Ireland; and
- UK electricity market.

Treatment of Demand

- If grid demand is reducing due to growth in behind the meter demand, should we be levying charges based on gross or underlying demand?
- Ofgem (UK) recommended that Balancing Service Use of System (BSUoS) charges should be recovered from “final demand” and not from transmission-connected generation from 2021:

> *“charging balancing services charges for demand on the basis of gross demand at the Grid Supply Point so that suppliers cannot reduce their liability for balancing services charges by contracting with Smaller Distributed Generators (and exporting on-site generation).”*
>
> Ofgem, Targeted charging review: decision and impact assessment, 21 November 2019, p. 163.

Allocation of Fees between Generator and Retailers

- AEMO initiated a comprehensive review of NEM fee structures in 2020 in part due to the need to accommodate new technologies and new participants that were not being charged in the current fee structure. Many issues concerning user versus beneficiary pays principles were raised in this review, including:
  - With declining operational consumption in many NEM regions, charging based on $/MWh may no longer be an appropriate cost allocation driver. While most stakeholders supported the existing charging mechanism of $/MWh, others supported a change to a per connection point charge ($/NMI) or a combination of both variable and fixed rates.
  - Some participants wanted to extend NEM fee recovery to Network Service Providers.
  - Recovery of major transformational initiatives undertaken by AEMO (e.g., Five Minute Market Settlement, DER integration, Energy Consumer Data Right etc) could be based on recovery from either market customers only, DER resources (based on beneficiary pays principle), and/or existing market participants.

Source: AEMO, Electricity Fee Structures, Draft Report and Determination, A draft report and determination on electricity fee structures to apply to Participant fees from 1 July 2021, November 2020.

NEM Fee Structures

- Changes implemented 1 July 2021 to 30 June 2023 included:
  - SGAs and MASPs/DRSPs will now be included in the Generators/MNSP allocation and charged in a similar manner (collectively referred to as “Wholesale Participants”); and
  - Removal of the division of costs between Non-market generators/MNSPs and Market generators/MNSPs.
- From 1 July 2023 to 30 June 2026, the following changes were made:
  - Wholesale Participants to be allocated 55.9% of AEMO direct costs and charged on the same basis to the existing structure;
  - Market Customers to be allocated 26.6% of AEMO direct costs and charged a combination of $/MWh and $/NMI on a 50/50 basis; and
  - TNSPs to be allocated 17.5% of AEMO direct costs and charged on a basis of energy consumed for the latest completed financial year.
- For transformational initiatives, allocate costs directly to relevant participants, where reasonably practicable.

Notes: Managed Network Service Provider (MNSP), Small Generation Aggregators (SGAs), Market Ancillary Services Provider (MASP), and Demand Response Service Provider (DRSP).

Source: AEMO, Electricity Fee Structures, Final Report and Determination, A final report and determination on electricity fee structures to apply to Participant fees from 1 July 2021, March 2021.

CARWG Feedback / Responses

CARWG Feedback and Responses

Feedback 1: Can we focus on the larger cross subsidies that exist because of current cost allocation methods? This could include Market Fees and Regulation. Behind the meter most likely receiving the biggest subsidy under current practices.

Response 1: Market Fees and Regulation are priorities for the Review, and we will continue to prioritise major opportunities to introduce ‘causer pays’ where appropriate.

Feedback 2: Focusing on fees and charges is the “stick” approach to modifying behavior and allocating costs. Can a “carrot” approach also be considered for modifying behavior to reduce costs?

Response 2: We are limiting the scope to focus on existing service definitions and the allocation of costs, not the introduction of new services. However, we will look at opportunities to recognize the provision of benefits as well as the imposition of cost by the causers/beneficiaries of these costs.

Feedback 3: To a large extent, both Federal and State Governments drive costs in the WEM through their policies (e.g., LRET, SRES, emission reduction targets etc). Hence, they are a “causer” and could be attributed costs.

Response 3: We acknowledge that government policies can cause some of the burden of fees and charges (i.e., they can be the “causer” of costs), but our scope is limited to what changes we can make to better allocate costs and drive efficiency under the WEM Rules.

CARWG Feedback and Responses

Feedback 4: In terms of AEMO market fees, can we separate out BAU costs (costs allocated to wholesale market participants) versus significant reform costs that may be caused by increased deployment of DER, intermittent generation, government policy, etc.

Response 4: AEMO has identified these separate cost pools as part of its NEM market fee allocation review (2020/21). Assessment of this approach is in scope for this Review.

Feedback 5: In terms of the identification of causers/beneficiaries (see the Appendix), it would be good to update the table to reflect how causers' drive costs in the WEM by category.

Response 5: This is part of our existing approach

Feedback 6: While this Review cannot recommend the allocation of costs caused by WA Government policies, it would be useful for transparency to highlight this cost and show how they are being allocated to participants.

Response 6: Quantifying costs and attributing them to different users is part of the scope of work.

Feedback 7: DER uptake and peak demand is being partially driven by lack of cost reflective retail tariffs.

Response 7: This Review cannot recommend change to retail tariffs but can highlight whether the allocation of market fees and ESS charges to different classes of participants can change behavior and lead to reduction of overall costs.

Appendix: Identifying Causers and Beneficiaries

Agency, organisation of class of user	Enforced or Voluntary Participants	Enabler of Market & ESS	Causer of Market & ESS	Beneficiary of Market & ESS
Commonwealth Government			Commitment to zero net emissions by 2050. Provides subsidies to behind the meter and large-scale renewable generation technologies that has required considerable reform of WEM and increased ESS requirements.	
WA Government		Initiated formation of WEM and set WEM objectives.	Commitment to zero net emissions by 2050 Government policy can impact market operations and require WEM Rule changes.	Long term safe, secure and reliable supply of electricity for consumers Shareholder representative of state-owned energy utilities (i.e., Western Power and Synergy).
Energy Policy WA (Policy and Rule Changes)		Implements government policy and makes WEM rule changes.		

Agency, organisation of class of user	Enforced or Voluntary Participants	Enabler of Market & ESS	Causer of Market & ESS	Beneficiary of Market & ESS
Regulation Authority (ERA)		Approves the setting of market fees and allocation of costs.		
AEMO		Market and system operator.		
Market Participant that controls energy producing facilities exceeding 10 MW and/or loads	Enforced participant class.		Provider and user of services in the market and can initiate rule changes.	Can earn profits from trade in WEM mechanisms.
Owners of energy producing systems >5MW and ≤10 MW	Can apply for exemption, otherwise must register as Market Participant. Can be a voluntary participant.		Provider and user of services in the market and can initiate rule changes.	Can earn profits from trade in WEM mechanisms.
Owners of energy producing systems <5 MW	Can be a voluntary participant.		Provider and user of services in the market and can initiate rule changes.	Can earn profits from trade in WEM mechanisms.

Agency, organisation of class of user	Enforced or Voluntary Participants	Enabler of Market & ESS	Causer of Market & ESS	Beneficiary of Market & ESS
Market Participant with loads (former Market Customer class)	Retailers and large customers are enforced participants.		Provider and user of services in wholesale markets and can initiate rule changes.	Retailers can earn profits from trade in the WEM, while large-customers can purchase reliable, secure and competitively priced power.
Market Aggregators (i.e., virtual energy producing system operators)	Voluntary participants.		Provider and user of services in the market and can initiate rule changes.	Can earn profits from trade in WEM mechanisms. Profits will be shared with Final Customers, Embedded storage/generators or Microgrid owners.
Transmission Network Service Providers	Network operator class.	WEM requires information from TNSP to ensure power system reliability and security. Provides connections for market participants (loads, generation and storage).	Configuration of the network and network outages impacts wholesale market operations (e.g., thermal losses, thermal and non-thermal network constraints) and wholesale market costs.	TNSPs are an indirect beneficiary. An investment in generation or storage facilitated by the wholesale market can relieve a network constraint and defer network CAPEX (and vice versa).
Distribution Market Operator (DMO)	Enable market operators to aggregate loads/DER to trade in wholesale markets.			

Agency, organisation of class of user	Enforced or Voluntary Participants	Enabler of Market & ESS	Causer of Market & ESS	Beneficiary of Market & ESS
Distribution Network Service Providers	Network operator class.	WEM requires information from DNSP to ensure power system reliability and security. Provides network connections for final customers and distribution connected facilities.	Distribution connected storage assets owned by a DNSP can impact wholesale market operations.	DNSPs are an indirect beneficiary. An investment in behind the meter technologies in response to wholesale market signals (peak energy prices and/or ancillary services) can cause a need for additional CAPEX (or vice versa).
Final Customers			End-use appliances and DER can drive changes in grid demand which impact market operations and require necessary rule changes to ensure a reliable and secure power system.	Direct beneficiaries through WEM services on-sold to them by retailers. Direct beneficiaries through provision of WEM services via retailers/aggregators.
Embedded Generation /Storage Owner/Operators			Operation of facilities can impact grid demand and network configuration.	Direct beneficiaries through provision of WEM services via retailers/aggregators.
Microgrid Owner/Operators			Operation of facilities can impact grid demand and network configuration.	Direct beneficiaries through provision of WEM services via retailers/aggregators.

Government of Western Australia
Energy Policy WA

Agenda Item 7(a): Overview of Rule Change Proposals (as of 10 May 2022)

Market Advisory Committee (**MAC**) Meeting 2022_05_17

- 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 Proposals

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	31/12/2022
Standard Rule Change Proposals with Second Submission Period Open						
None						

Reference	Submitted	Proponent	Title	Urgency	Next Step	Date
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	31/12/2022
RC_2018_03	01/03/2018	Collgar Wind Farm	Capacity Credit Allocation Methodology for Intermittent Generators	Medium	Publication of Draft Rule Change Report	31/12/2022
RC_2019_01	21/06/2019	Enel X	The Relevant Demand calculation	Medium	Publication of Draft Rule Change Report	31/12/2022
Standard Rule Change Proposals with the First Submission Period Open						

Pre-Rule Change Proposals

Reference	Proponent	Description	Next Step	Date
RC_2020_04	Rule Change Panel	Balancing Facility Loss Factor Adjustment	Consult with the MAC on the priority for development of a Rule Change Proposal	TBD

Rule Changes Made by the Minister and Awaiting Commencement

Gazette	Date	Title	Commencement
2021/212	17/12/2021	Wholesale Electricity Market Amendment (Tranche 5 Amendments) Rules 2021	• Schedule E will commence on 01/07/2022. • Schedule F will commence on 01/09/2022. • Schedule G will commence on 01/01/2023. • 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	• Schedule E will commence on 01/06/2022. • Schedule F will commence on 01/07/2022. • Schedule G will commence at times specified by the Minister in notices published in the Gazette. ○ The Amending Rules specified in Part 1 of the commencement notice published on 17/12/2021 in Gazette 2021/212 will commence on 01/07/2022.

2021/96	28/05/2021	Wholesale Electricity Market Amendment (Miscellaneous Amendments No. 1) Rules 2021	• Schedule D will commence immediately after the commencement of the *Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020* specified in Part 4 of the commencement notice published on 28/05/2021 in Gazette 2021/96, that commence on 01/03/2022.
			• Schedule E will commence at times specified by the Minister in notices published in the Gazette:
			  ○ The Amending Rules specified in Part 1 of the commencement notice published on 28/09/2021 in Gazette 2021/166 will commence on 01/03/2022.
			  ○ The Amending Rules specified in Part 2 of the commencement notice published on 28/09/2021 in Gazette 2021/166 will commence on 01/07/2022.

20201/17	18/01/2021	Wholesale Electricity Market Amendment (Governance) Rules 2021	• Schedule C will commence immediately after the commencement of the Amending Rules in clauses 50 and 62 of Schedule C of the *Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020.*

Gazette	Date	Title	Commencement
2020/214	24/12/2020	Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020	• Amending Rules in Schedule C will commence at the times specified by the Minister in notices published in the Gazette: ○ The Amending Rules specified in Part 4 of the commencement notice published on 28/05/2021 in Gazette 2021/96 will commence on 01/03/2022. ○ The Amending Rules specified in Part 3 of the commencement notice published on 28/09/2021 in Gazette 2021/166 will commence immediately after the commencement of the Amending Rules in Schedule D of the *Wholesale Electricity Market Amendment (Miscellaneous Amendments No. 1) Rules 2021*, that commence on 01/03/2022. ○ The Amending Rules specified in Part 2 of the commencement notice published on 17/12/2021 in Gazette 2021/212 will commence on 01/03/2022. ○ The Amending Rules specified in Part 3 of the commencement notice published on 17/12/2021 in Gazette 2021/212 will commence on 12/04/2022. ○ The Amending Rules specified in Part 4 of the commencement notice published on 28/09/2021 in Gazette 2021/166 will commence on 01/09/2022. ○ The Amending Rules specified in Part 4 of the commencement notice published on 17/12/2021 in Gazette 2021/212 will commence on 01/09/2022. ○ The Amending Rules specified in Part 5 of the commencement notice published on 28/09/2021 in Gazette 2021/166 will commence on 06/12/2022.