



## Minutes

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

<b>Attendees</b>	<b>Company</b>	<b>Comment</b>
Dora Guzeleva	Chair	
Paul Aires	Bluewaters Power	
Rhiannon Bedola	Synergy	
Oscar Carlberg	Alinta Energy	Subject matter expert ( <b>SME</b> )
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 ( <b>RBP</b> )	
Ajith Sreenivasan	RBP	
Tim Robinson	RBP	
Stephen Eliot	Energy Policy WA ( <b>EPWA</b> )	
Laura Koziol	EPWA	

Apologies	From	Comment
Andrew Stevens	Clear Energy	
Dale Waterson	Merredin Energy	

Item	Subject	Action
1	<b>Welcome</b> The Chair opened the meeting at 9:30am.	
2	<b>Meeting Apologies/Attendance</b> The Chair noted the attendance as listed above.	
3	<b>Minutes of RCMRWG meeting 2022_02_17</b> 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.  <b>Action: RCMRWG Secretariat to publish the minutes of the 17 February 2021 RCMRWG meeting on the RCMRWG web page as final.</b>	<b>RCMRWG Secretariat</b>
4	<b>Action Items</b> The paper was taken as read.  <b>Action item 3:</b> 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	<b>International Review Scope</b> Mr Robinson presented an overview of the international review scope.	
6	<b>Market Summaries</b> Mr Sreenivasan presented a summary of the jurisdictions investigated. The following key points were raised: <ul style="list-style-type: none"> <li>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.</li> </ul>	

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	<p>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.</p> <ul style="list-style-type: none"> <li>• In regard to the capacity mechanism in PJM, Mr Carlberg considered that: <ul style="list-style-type: none"> <li>○ Locational pricing will be too complex for the Wholesale Electricity Market (<b>WEM</b>) given its size.</li> <li>○ 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.</li> <li>○ An auction would also cause price volatility.</li> </ul> </li> </ul> <p>Mr Tayal agreed with Mr Carlberg's comments.</p> <ul style="list-style-type: none"> <li>• Mr Robinson confirmed that the methodology used to determine the Benchmark Reserve Capacity Price (<b>BRCP</b>) is similar to the concept of (gross) cost of new entry (<b>CONE</b>).</li> </ul> <p>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.</p> <p>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.</p> <p>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.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 (<b>ELCC</b>).</li> <li>• Mr Carlberg considered that a target loss of load expectation (<b>LOLE</b>) is still useful even though it does not account for the</li> </ul>	

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	<p>magnitude and duration of the loss of load event. For example, it could be used to set fuel requirements for Scheduled Generators.</p> <ul style="list-style-type: none"> <li>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.</li> <li>Mr Robinson confirmed that PJM introduced the minimum offer price rule as a market power mitigation measure.</li> <li>Mr Robinson clarified that the UK introduced strict emission criteria for the determination of a facility's eligibility to participate in the capacity mechanism.</li> <li>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.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>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 from the customers to the generators.</li> </ul> <p>Mr Carlberg considered that:</p> <ul style="list-style-type: none"> <li>Forced Outages should not be considered when allocating Certified Reserve Capacity (<b>CRC</b>) to generators and that this would increase risk to generators without improving reliability.</li> <li>There are adequate incentives for generators to be available.</li> <li>Historic outages do not predict future performance and derating capacity for past outages will disadvantage generators that run</li> </ul>	

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	<p>more often because they have the greatest outage risk while also have the highest incentive to be available.</p> <p>Ms Ng, Ms White and Mrs Bedola agreed with Mr Carlberg.</p> <p>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.</p> <ul style="list-style-type: none"> <li>Ms Ng asked where the energy price caps are set in the jurisdictions investigated.</li> </ul> <p>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.</p>	
<p><b>7</b></p>	<p><b>Potential Applications for the WEM</b></p> <p>Mr Robinson presented the potential lessons for the WEM. The following points were made:</p> <ul style="list-style-type: none"> <li>Mr Carlberg considered that, given the penetration of intermittent generation will decrease the traditional revenue streams of facilities, capacity payments will need to pay a larger role in incentivising and sustaining investment in generation.</li> <li>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.</li> <li>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.</li> </ul> <p>The Chair noted that this issue will be assessed through the modelling.</p> <ul style="list-style-type: none"> <li>Ms Ng noted that, when considering excluding diesel generators from the RCM, the issue of fuel diversity and technology diversity</li> </ul>	

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	<p>should be considered. Ms Ng considered that the timing of any exclusion is important.</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p>Mr Carlberg agreed with Mr Peake and considered that this is why excess capacity should not influence the Reserve Capacity Price.</p> <p>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.</p> <ul style="list-style-type: none"> <li>Mr Carlberg cautioned not to be too confident in the ability to accurately forecast excess capacity.</li> <li>Mr Peake considered that the RCM should not only consider expected unserved energy but also defined energy shortage risk events.</li> <li>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.</li> </ul> <p>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.</p> <p>Ms White agreed that less complexity and less volatility would be an advantage.</p> <ul style="list-style-type: none"> <li>Mr Robinson agreed that a facility's minimum generation affects its flexibility and will be considered in the assessment to the extent possible.</li> <li>Ms White and Mrs Bedola supported that the RCM should also consider the correlation of output from different resources, not only different technologies.</li> </ul> <p>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.</p> <p>Mr Carlberg considered that correlation can be overstated and the impact be overestimated if only a few events of system stress are considered.</p> <p>The Chair re-assured members that RBP is aware of the different views about how to account for output correlation under the ELCC</p>	

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	<p>method that were raised during the Rule Change Panel’s consultation on the Rule Change Proposal: Method used for the assignment of Certified Reserve Capacity to Intermittent Generators (RC_2019_03).</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p>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.</p> <p>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.</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p>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.</p> <p>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.</p> <p>Mr Carlberg agreed with Mr Peake and noted that different periods may be required for different technologies.</p> <ul style="list-style-type: none"> <li>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:</li> </ul>	

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	<ul style="list-style-type: none"> <li>○ Given the size of our market excess is boom or bust, making price very volatile. A 10% excess in WA is only ~400-500MW.</li> <li>○ 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.</li> <li>○ There is a significant level of capacity in the market that does not respond to economic signals and therefore capacity price.</li> <li>○ 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.</li> <li>○ 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.</li> <li>○ 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.</li> </ul> <p>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.</p> <p>The Chair repeated that the Reserve Capacity Price is out of scope for the RCM Review, but these comments will be noted.</p> <ul style="list-style-type: none"> <li>● 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.</li> <li>● Mr Tayal noted that the Energy Security Board (<b>ESB</b>) is currently consulting on the options for a reserve capacity mechanism for the National Electricity Market (<b>NEM</b>) beyond the three options presented in their recent paper. Mr Tayal suggested that EPWA consult with the ESB directly on that matter.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>● Mrs Bedola noted that the determination of the Individual Reserve Capacity Requirement is only considering consumption in the Hot Season.</li> </ul>	



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8	<p><b>Modelling Assumptions</b></p> <p>The slides were taken as read. The following points were made:</p> <ul style="list-style-type: none"> <li>• Mr Robinson clarified that the demand forecast will be undertaken for energy and capacity for each Trading Interval.</li> <li>• The Chair noted that the modelling will assume transmission capacity is upgraded where needed.</li> <li>• Mrs Bedola considered that assuming 5 kW of PV on every household for the demand forecast is too high.</li> <li>• 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.</li> </ul>	
9	<p><b>Next Steps</b></p> <p>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.</p> <p>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.</p>	
10	<p><b>General Business</b></p> <p>No general business was discussed.</p> <p>The next RCMRWG meeting is scheduled for 17 March 2022.</p>	

**The meeting closed at 11:50am.**