

Minutes

Meeting Title:	Market Advisory Committee (MAC) Workshop on RC_2019_01 - The Relevant Demand Calculation
Date:	20 July 2020
Time:	1:00 PM – 3:00 PM
Location:	Online via Microsoft Teams

Attendees	Representing	Comment
Stephen Eliot	RCP Support	Chair
Jenny Laidlaw	RCP Support	
Laura Koziol	RCP Support	
Adnan Hayat	RCP Support	
Sandra Ng Wing Lit	RCP Support	
Natalie Robins	RCP Support	From 1:10 PM
Matthew Martin	Small-Use Consumer Representative	
Rebecca Petchey	Australian Energy Market Operator (AEMO)	
Manus Higgins	AEMO	
Wendy Ng	ERM Power	
Tom Frood	Bright Energy Investments	
Patrick Peake	Perth Energy	
John Nguyen	Perth Energy	
Peter Huxtable	Water Corporation	
Elisabeth Ross	Enel X	
Carl Hutchinson	Enel X	
Rando Yam	Enel X	
Dimitri Lorenzo	Bluewaters Power	
Erin Stone	Point Global	From 1:10 PM
Oscar Carlberg	Alinta Energy	From 1:10 PM

Subject	Action
<p>Welcome</p> <p>The Chair opened the meeting at 1:00 PM and welcomed attendees to the 20 July 2020 MAC Workshop on Rule Change Proposal: The Relevant Demand Calculation (RC_2019_01).</p>	
<p>Meeting Attendance</p> <p>The Chair noted the attendance as listed above.</p>	
<p>Introduction and Background</p> <p>Ms Laura Koziol provided a summary of the workshop paper circulated on 6 July 2020.</p> <p>Mr Adnan Hayat provided a summary of the AEMC’s decision from 11 June 2020 on the introduction of a wholesale demand response mechanism in the National Electricity Market (NEM), including the following key points:</p> <ul style="list-style-type: none"> • The new mechanism will allow consumers to sell demand response in the NEM either directly or through an aggregator. • AEMO will be required to develop one or more initial baseline methodologies in consultation with stakeholders, and to prepare metrics to assess whether the methodology can predict a load’s consumption with sufficient accuracy. • AEMO will prepare the wholesale demand response guidelines and other necessary details. • There will be regular and systematic testing to evaluate the baseline’s performance. • The new wholesale demand response mechanism commences on 24 October 2021. 	
<p>Proposed Criteria for Choosing the Baseline</p> <ul style="list-style-type: none"> • The Chair sought attendees’ feedback on the list of suggested criteria for selecting a baseline provided in the meeting paper circulated on 19 June 2020. Attendees did not provide any feedback regarding the criteria. 	
<p>Dynamic Baseline versus Static Baseline</p> <ul style="list-style-type: none"> • Mr Peter Huxtable noted that it was important to recognise that the Wholesale Electricity Market (WEM) had a Reserve Capacity Mechanism and that the capacity for all Demand Side Programmes (DSPs) should be measured using a static baseline, as it is for wind farms, because this is more reliable than a dynamic measurement. Dynamic 	

measurements would be required for other aspects of the market.

Ms Elisabeth Ross noted that most other markets, including those with capacity markets, were moving to dynamic baselines for the measurement of demand response and that the criteria to measure demand response should not be biased. In EnelX's view a dynamic baseline tended to meet this criterion of non-bias better than a static baseline.

- Ms Wendy Ng and Mr Oscar Carlberg commented that they were unsure if the baseline should be static or dynamic.

Ms Jenny Laidlaw asked attendees for their concerns about dynamic baselines.

Ms Ng noted that she was unsure why the assessment of capacity for DSPs should be dynamic while it was static for all other Facilities. Ms Ng asked how other facility types were measured in other markets that had adopted dynamic baselines for demand response. Ms Ross answered that the baseline was used to measure the counterfactual consumption of demand response for dispatch and that a counterfactual was not needed for generation facilities as their contribution would be exactly known after dispatch.

Mr Carl Hutchinson further explained that the purpose of the baseline was to determine what the consumption of a DSP would have been if it had not been dispatched. Peak demand in Western Australia is related to hot weather and demand conditions can vary depending on temperature, and dynamic baselines tend to better capture this context. A static baseline could also work as long as it is unbiased, but it would be easier to work with dynamic baselines, especially as there are internationally recognised baseline methods that have been proven in other markets.

- Mr Carlberg noted that the entrance of new DSPs could affect the incentive for the entrance of new generation facilities that were needed to keep the energy price low.
- Ms Laidlaw sought Mr Huxtable's view on how a static baseline would help to better determine the level from which a DSP's consumption was reduced, given that a dynamic baseline would recognise the variance of a load's consumption and therefore provide a better estimate of the actual reduction in case of dispatch.

Mr Huxtable noted that the consumption of many of Water Corporation's loads varied seasonally but was usually high at the key times, such as high temperature days, where the dispatch of DSPs was most likely. Requiring DSPs to be available all the time would reduce opportunities to accredit

DSPs and could result in lengthy debates over maintenance schedules.

Mr Huxtable noted that the Individual Reserve Capacity Requirements for loads were based on static measures and that DSPs were basically charged IRCR for the demand they were asked to reduce. Ms Laidlaw acknowledged the connection to the static IRCR charge but noted that the IRCR determination was a separate issue.

- Mr Carlberg considered that a dynamic baseline would increase the risk of the DSPs not being able to provide the accredited capacity because the current method to base the assignment of Capacity Credits on the 200 Calendar Hours with the highest system load appeared more conservative.

Ms Laidlaw noted that the issue of accreditation would be addressed at a later point in the meeting.

Baseline Options for the WEM

- The Chair noted that EnelX had proposed the X of Y method in its Rule Change Proposal and asked Ms Ross to explain why EnelX considered this baseline best suited.
- Ms Ross explained that the X of Y method was commonly used internationally and that EnelX considered it best suited for WA because it was able to address the specific demand distribution. By choosing only a few reference days (X) of the reference period (Y) it was possible to bias the shape of the baseline to recognise the weather correlation of the demand profile. Mr Hutchinson added that because the X of Y method was used widely internationally, it was proven in many markets across many gigawatts of capacity and also struck the best balance between accuracy, simplicity and integrity. It was also widely tested in regard to gaming.
- Mr Huxtable noted that previously DSPs had mainly been dispatched uncorrelated to the weather pattern during gas shortages.
- Mr Patrick Peake noted that the baseline method should account for the current change in the SWIS's daily load profile and sought clarification if historic data had been assessed to determine if there would be enough reference days to apply the X of Y method. Mr Peake expressed his concern that a peak day was usually non-typical and that it could be difficult to assess a DSP's counterfactual consumption in that case.
- Mr Hutchinson provided the following example for the application of a 4 of 5 baseline including adjustment:
 - If a demand response event was called on a Thursday at 4:00 PM from 4:00 PM to 6:00 PM, the lookback window

would include the last five weekdays with no demand response event.

- Out of these five days, the four days with the highest demand would be chosen for the determination of the baseline.
- The unadjusted baseline would be determined by calculating for each Trading Interval from 4:00 PM to 6:00 PM the mean of the consumption for these Trading Intervals over the four reference days.
- The adjusted baseline would then be determined by comparing the DSP's consumption on the event day before receiving the notification for dispatch with the consumption at the same time during the four reference days. The unadjusted baseline would then be adjusted upwards or downwards if applicable.

Mr Peake asked who would undertake the determination and the adjustment. Mr Hutchinson answered that this would be the market operator and that it was fairly simple as long as half-hourly meter data was available.

- Mr Hayat noted that the complexity of introducing a dynamic baseline was only justified if there were dynamic loads participating as DSPs. Mr Manus Higgins agreed that the dynamic baseline would not provide any benefit for flat load profiles.
- Mr Huxtable noted that Water Corporation's desalination plants were usually running as a base load but that the amount they would operate would depend on how often it rained which was uncertain at time of certification.
- Mr Huxtable noted that he was unsure how a DSP provider would apply for Capacity Credits two years ahead under a dynamic baseline regime.

Mr Hutchinson noted that this was the advantage of the dynamic baseline, because the DSP provider could assess which equipment could reduce consumption during a DSP dispatch and base its application for Capacity Credits on this reduction without knowing what its absolute level of consumption would be in the relevant year.

Mr Higgins asked if that meant that AEMO should certify DSPs based on what the DSP provider said they could provide without any actual evidence.

Mr Hutchinson answered that there were two traditional ways to handle certification in other markets. One was to require the DSP provider to provide technical papers proving the curtailment capability of the load upon certification, which was the approach in the Japanese

market. The other approach was to accredit the DSP on face value and audit the actual capability through testing.

- Mr Huxtable noted that he considered the Maximum Base Load methodology was preferable.
- Mr Hayat noted that the Maximum Base Load methodology would be cheaper and easier to implement, and that the X of Y methodology would be more accurate for loads that do not have a flat consumption profile. It may depend on the types of loads that would participate in DSPs in the WEM to determine which method would be preferable.

Ms Ross noted that, in her understanding, there was a range of software available for the calculation of dynamic baselines and that the WEM would not require a very sophisticated software program compared to larger markets. Therefore, the implementation of a dynamic baseline in the WEM might not be that expensive.

- Mr Hayat noted that it should be also considered how batteries may shift the peak demand.

Mr Hutchinson noted that the time of peak load was shifting in many other markets as well and that the dynamic baseline would work regardless as long as any testing would be done at a time of day where the DSP would be most likely to be dispatched. Mr Hutchinson referred to the Korean market where the time for audits (tests) of demand response resources had been shifted later and later in the day over the last five or six years, which influenced the selection of demand response resources while the baseline had not needed to be changed.

Single Baseline versus Multiple Baselines

- The Chair noted that he assumed that it would be preferable to have only one baseline to keep the costs down. Mr Huxtable agreed that a single baseline would most likely be cheaper and therefore preferable.
- Ms Ross noted that the approach in the NEM was to only develop one dynamic baseline and to consider an expansion to multiple baselines at a later stage and suggested to use the same approach for the WEM.

Monitoring of DSP Availability for Capacity Cost Refunds

- Mr Peake asked what would happen under a dynamic baseline if the DSP was not consuming enough to reduce its consumption by the required quantity (e.g. because the equipment that was specified to deliver the demand response was undergoing maintenance and therefore already not consuming).

Ms Koziol asked Mr Hutchinson how maintenance of equipment and outages were handled in other markets. Mr Hutchinson answered that there were different mechanisms used by different markets (e.g. to have forced outage provisions similar to generators that incentivise a participant to inform the operator if its capacity was not available).

- Ms Koziol noted that AEMO was monitoring for each Trading Interval if the DSP had sufficient Relevant Demand to reduce its consumption in accordance with its Reserve Capacity Obligation. With a dynamic baseline it would probably be more appropriate to look at the actual consumption of the DSP and to allow for some maintenance.

Mr Hutchinson noted that other markets around the world did not monitor the availability in real-time but undertook audits (tests) and applied penalties if the demand response resource did not deliver.

Ms Rebecca Petchey considered that DSPs would not have to be available 24 hours a day as other Facilities and that she was not sure if they should have the option for maintenance or outages. Ms Petchey added that the DSPs' availability should be monitored so AEMO would know if they were available and when to apply refunds.

- Mr Higgins noted that there was currently no real time information about the DSPs' consumption which made it hard for controllers to dispatch DSPs. Mr Higgins questioned the benefit of improving the baseline if DSPs would not be dispatched more because AEMO did not have any real time information.

Ms. Laidlaw noted that the reason why DSPs were not dispatched more often in the WEM was that they were dispatched outside of the Balancing Merit Order, after other Facilities, and that there had been excess capacity in the WEM for the last few years. Ms Laidlaw added that, in her experience, DSPs had been dispatched on the few occasions when they were needed.

- Ms Ross noted that if the right level of penalties was implemented DSPs would have sufficient incentives to ensure the demand response was available.
- Ms Ross added that EnelX was providing demand response for rare events in the NEM and had been called upon three times during the last three summers. The subsequent audits of those dispatches had all been positive.
- Ms Laidlaw noted that it had to be considered for which time periods DSPs should be available to earn their Capacity

Credits and if DSPs should be expected to be available for summer peak demand only or also for winter peak demand.

Basis for Assigning Capacity Credits

- Ms Koziol noted that, based on the examples Mr Hutchinson had given, there appeared to be different approaches for assigning Capacity Credits to demand response resources. One approach was to require the provision of detailed information (e.g. technical reports or contracts) at the time of certification and the other extreme was to take the demand side provider at face value and audit the capability upon the commencement of the service. Ms Koziol noted that in her understanding the first approach was similar with AEMO's current practice.
- Ms Petchey considered it would be inconsistent to assign Capacity Credits to DSPs on face value while placing quite rigorous requirements for the provision of documentation on other Facilities. Therefore, participants should be required to provide at least evidence that they could control consumption reduction of the relevant Associated Loads (e.g. contracts).
- Ms Petchey noted that AEMO was currently assessing a DSP's Relevant Demand when assigning Capacity Credits and that she questioned the relevance of this information because, in particular for loads, past performance is not necessarily an indicator of future performance.
- Ms Laidlaw noted that she understood that before the Energy Market Review changed the Reserve Capacity Price for DSPs, Capacity Credits had been assigned to DSPs based on face value. Ms Petchey noted that in her experience AEMO had always assessed contracts upon certification, especially for larger aggregators of demand side resources.

Ms Laidlaw noted that that AEMO's approach must have changed over time and asked if that meant that DSPs had been required to have contracts to be certified. Ms Petchey answered that AEMO would have to decide on a case by case basis but would potentially reject certification of a DSP that had no contracts and that this was outlined in the relevant Market Procedure. Ms Laidlaw noted that the Market Procedure was not specific about the relevant criteria for certification.

- Ms Laidlaw considered that a DSP needed to satisfy two criteria to be useful. One was if it had sufficient consumption and the other one was if it would actually comply when dispatched. The recently introduced random testing would address the latter criterion but assessing if the consumption

was sufficient was a different issue. Ms Petchey agreed and noted that it was difficult to find a way to determine a DSP's consumption two years in advance for certification.

Ms Petchey noted that the Market Rules required that AEMO would not certify a DSP if it was certain that the DSP would not deliver the required capacity.

Mr Hutchinson noted that requiring too much evidence from DSPs so far in advance would unnecessarily increase the costs of providing the service. In the Japanese market they had an auction four years ahead where the demand response provider had to provide a business plan to be certified, and if the business plan was to recruit the demand closer to the delivery time then the provider had to provide security as well as evidence closer to the delivery time.

- Mr Peake noted that if DSPs did not have to provide information upon certification, then other Facilities should also not be obliged to provide fuel contracts at the time of certification. Ms Ng added that the minimum time for the fuel requirement should also be reduced to match the availability requirement for DSPs.
- Mr Peake noted that it was still unclear how AEMO could be confident that DSPs had sufficient capacity available at any point in time under a dynamic baseline. Ms Laidlaw noted that AEMO faced a similar uncertainty with Intermittent Generators. Ms Laidlaw added that an appropriate dynamic baseline together with a requirement for the DSP to advise AEMO in advance if it was not consuming sufficiently, would give AEMO a good idea what it had available.
- Mr Peake noted that such an obligation would be useful and would be in line with the practice of AEMO expecting other Facilities to be available for dispatch if they had not informed AEMO otherwise.
- Mr Higgins noted that some mechanism should be developed to give the confidence to the controllers about the availability of DSPs.
- Ms Ng agreed that the controllers should have more visibility about the availability of DSPs and added that such visibility may have been able to avoid the recent Automatic Frequency Load shedding (**AFLS**) events in the WEM. Ms Laidlaw noted that the notice period for DSPs would have been too long to prevent these recent AFLS events. Ms Ng agreed but noted that in any case more visibility for AEMO would be beneficial.

Next Steps and Timing

Subject	Action
<ul style="list-style-type: none"> The Chair noted that RCP Support would cooperate with AEMO to design a straw man based on the workshop discussion, for further discussion with the MAC. Following the MAC discussion, a refined straw man together with a high-level estimate of the cost and practicality from AEMO could be consulted on. The Chair noted that it was not achievable for any new regime to apply for the 2020 Reserve Capacity Cycle and the objective was to process the Rule Change Proposal in time to allow any Amending Rules to be implemented for the next certification process, which was currently scheduled to commence on 1 May 2021. Mr Huxtable and Ms Ross welcomed the commitment to aim for the 2021 Reserve Capacity Cycle and supported the approach of RCP Support and AEMO to develop a straw man. 	
<p>Action: RCP Support and AEMO to develop a straw man for discussion with the MAC.</p>	<p>RCP Support/ AEMO</p>