Wholesale Electricity Market Rule Change Proposal Submission

RC_2019_01
The Relevant Demand Calculation

Submitted by

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1. Please provide your views on the proposal, including any objections or suggested revisions.

The Australian Energy Market Operator (**AEMO**) appreciates the opportunity to provide this submission to the Rule Change Panel in response to the Rule Change Proposal: The Relevant Demand Calculation (RC_2019_01) (**Rule Change Proposal**).

The energy sector in Australia is undergoing a major transition that includes increased variability of both supply and demand, increased digitalisation, changing cost structures, and profound change in consumer preferences and expectations. The Wholesale Electricity Market (**WEM**) design must evolve to embrace flexibility and expand opportunities for competition between supply-side and demand-side participants. This must include equitable treatment of generation and Demand Side Programmes (**DSPs**) in administering the Reserve Capacity Mechanism (**RCM**).

AEMO agrees that changes to the Relevant Demand (**RD**) calculation are warranted to more accurately value DSP capacity, monitor availability of DSP capacity and measure DSP dispatch events. Different baseline measures of consumption for each of these processes may best enable the RCM to fulfil its role in ensuring power system reliability.

Current RD method undervalues DSP capacity

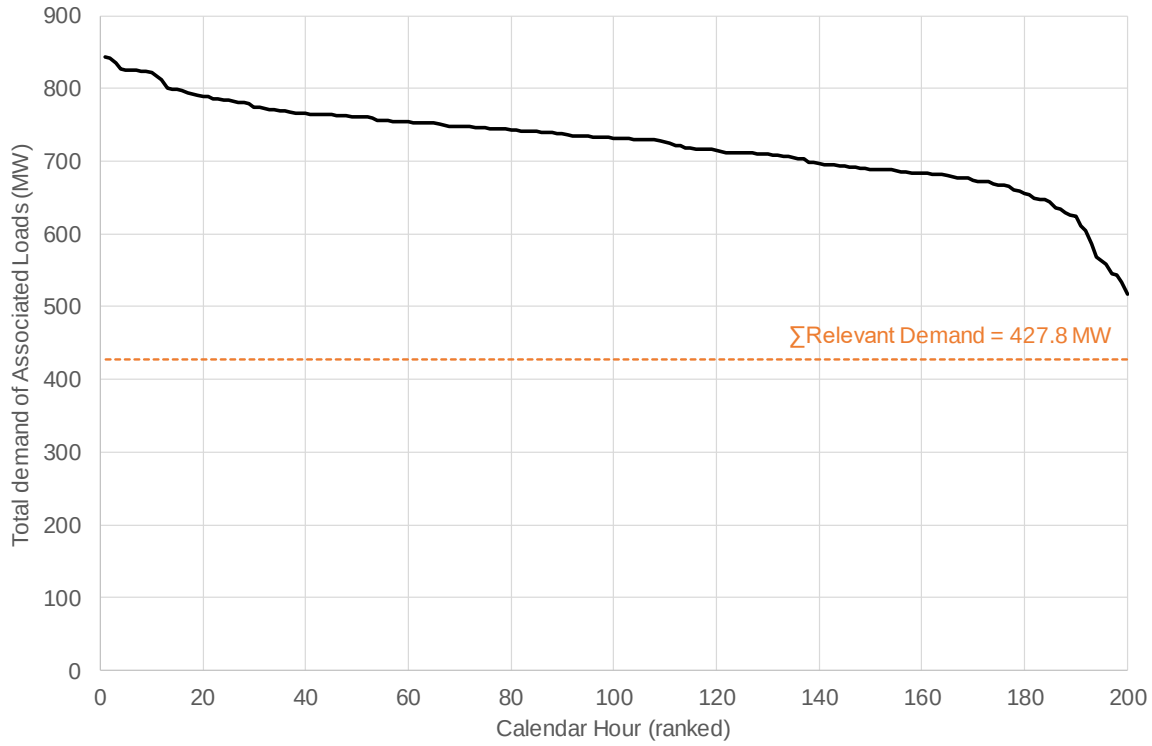
Conceptually, the valuation of DSP capacity should reflect a DSP's contribution to satisfying the Planning Criterion[1]. This requires a baseline that reflects the power system conditions upon which the Planning Criterion is based[2].

Under the current Planning Criterion[3], the most accurate DSP baseline would be the forecast consumption of a DSP's Associated Load(s) within the one-in-ten-year peak demand forecast.

The current RD calculation in Appendix 10 of the WEM Rules does not align with this principle. It uses the tenth lowest consumption hour of a DSP from the 200 hours with highest total system demand, yielding RD values that are significantly lower than expected consumption levels during peak demand conditions.

This is demonstrated in the figure below.

Figure 1 Comparison of RD with demand in 200 Calendar Hours of highest Total Sent Out Generation



This figure compares metered consumption from DSPs and Associated Loads that were registered as at 1 September 2017[4] with the RD that would be calculated today under the current method (based on consumption in the 2017-18 Capacity Year)[5]. The total RD for all

[1] The Planning Criterion is specified in clause 4.5.9 of the WEM Rules.
[2] This principle is consistent with the approaches for certifying the capacity of other technology types. Scheduled Generators are certified according to their expected performance in very hot temperature conditions (41 degrees Celsius) and Intermittent Generators are certified according to their observed or modelled performance in periods of lowest remaining reserve (under the Relevant Level Methodology).
[3] The forecast peak demand element of the Planning Criterion is expected to set the Reserve Capacity Requirement for the foreseeable future.
[4] 743 Associated Loads were aggregated into 27 DSPs as at 1 September 2017.
[5] No Consumption Deviation Applications were considered, as most of the loads are no longer Associated Loads. Consumption Deviation Applications will be formalised through Rule Change RC_2015_03: Formalisation of the Process for Maintenance Applications, which will commence on 1 October 2019.

DSPs is 17% lower than the lowest aggregate consumption in the 200 hours of highest Total Sent Out Generation.

The low values under the current RD calculation limit the Certified Reserve Capacity (**CRC**) that can be assigned to a DSP. This limit must not exceed "AEMO's reasonable expectation of the amount by which the Facility could reduce its consumption, measured as a decrease from the Facility's Relevant Demand"[6].

Purpose of Relevant Demand calculation

In the Rule Change Proposal, Enel X considers that the primary function of RD is "to be an estimate of a DSP's counterfactual demand when the DSP is dispatched". It further suggests that there is no need to consider RD for assigning CRC to a DSP and that continuous availability monitoring of DSPs is not required.

AEMO considers that a baseline measure of consumption is important for all three processes described above, but that more than one approach may be necessary for the different processes. Each of the three processes – dispatch, CRC and availability monitoring – is discussed further below.

Dynamic baselines for measuring dispatch

AEMO agrees that a dynamic baseline can offer material improvements in quantifying the availability of a DSP for dispatch and measuring dispatch performance, compared to a static baseline measure because it considers load variability. Accurate forecasts of DSP availability for dispatch are vital to avoid perverse Balancing Market outcomes and for managing power system security[7]. A dynamic baseline could also be used for assessing Reserve Capacity Tests and Verification Tests.

AEMO advises that:

- Work is needed to specify a dynamic baseline calculation, as the Rule Change Proposal did not do so. AEMO will be able to contribute to this work with knowledge gained from the use of baselines in its demand response trials in the National Electricity Market.

- Different baseline approaches may be better suited to different load types based on the main causes of load variation. These causes may include weather, work schedule or behind-the-meter generation.

- It will be necessary to consider the role of Consumption Deviation Applications.

Estimate of baseline consumption for CRC

The accuracy and integrity of the CRC process are important, due to the impact on the Reserve Capacity Price and AEMO's obligations to ensure that the Reserve Capacity Requirement has been met.

[6] Clause 4.11.1(j)(ii) of the WEM Rules.
[7] Consider an example where AEMO issues a Dispatch Instruction for 100 MW of demand reduction to DSPs, resulting in a physical demand reduction of 200 MW. This outcome could lower the final Balancing Price below the efficient spot price, and a supply-demand imbalance could lead to challenges in managing system frequency.

A dynamic baseline calculation is unsuitable for the CRC process, as insufficient information is available two years ahead of the relevant Capacity Year. However, AEMO considers that the CRC process must include verification that the assigned CRC does not exceed AEMO's reasonable expectation of the total demand of the Associated Loads under peak demand conditions. This verification should consider the following:

- It is preferable for the verification to be based on observable data, as has occurred under the current and previous RD calculations, which have used meter data in periods of high total system demand. It will not be possible to rely on observed data from one-in-ten-year peak demand conditions because of the rarity of such an event.

- It may be necessary to consider the role of Consumption Deviation Applications to address shortcomings of observable data.

- Reserve Capacity certification should, as much as possible, be based on observable contracts or agreements for load curtailment[8]. This would align with requirements for generators to provide evidence of network access and fuel contracts to support CRC applications.

- It is essential to retain the principle that a load that does not export energy should not be able to sell more capacity than it buys. Consequently, the CRC for a DSP should not exceed the sum of the Individual Reserve Capacity Requirement Contribution(s) of their Associated Load(s).

Monitoring of DSP availability and Capacity Cost Refunds

AEMO is responsible for ensuring the reliability of the power system and may enter into Supplementary Capacity Contracts if it expects a capacity shortfall relative to the Reserve Capacity Requirement. This assessment requires AEMO to monitor the availability of all certified capacity.

Further, a Market Participant holding Capacity Credits must ensure its Facilities are available for dispatch, according to the requirements of the relevant Facility type, with Capacity Cost Refunds payable for failure to meet Reserve Capacity Obligations. It is important that DSPs are treated equitably, compared with other capacity types, in these processes.

Consequently, AEMO considers that a method is required to quantify the ongoing availability of a DSP, reflecting its contribution to satisfying the Planning Criterion. To achieve equity with supply-side capacity, Capacity Cost Refunds should be payable for failure to satisfy Reserve Capacity Obligations. The design of these elements must ensure that sufficient capacity is being presented to market to satisfy Reserve Capacity Obligations, while recognising that it may be uncommon for the consumption of the DSP to be at levels that would be expected in one-in-ten-year peak demand conditions.

[8] Where the Market Customer is also the owner of the load(s), the Market Customer can provide alternative evidence of commitment to provide demand response from its load(s).

2. Please provide an assessment whether the change will better facilitate the achievement of the Wholesale Market Objectives.

As proposed, the Rule Change Proposal would have a range of positive and negative impacts on the achievement of the Wholesale Market Objectives.

- More accurate estimates of DSP dispatch could improve equity between supply-side and demand-side capacity resources. This could result in improved economic efficiency and competition, reduced discrimination between resources, and may encourage measures to manage consumption.

- However, the less rigorous certification of DSP capacity and monitoring of availability proposed could be detrimental to the safe and reliable production and supply of electricity, could discriminate in favour of demand-side resources, and may increase reliance on intervention to address capacity shortfalls, all of which may impose higher costs on consumers.

This submission advises that the proposal should revise, not remove, the role of consumption baselines in assigning CRC and monitoring DSP availability. AEMO considers that these revisions could address the detrimental impacts above. This would allow a revised proposal to better facilitate the achievement of all the Wholesale Market Objectives.

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3. Please indicate if the proposed change will have any implications for your organisation (for example changes to your IT or business systems) and any costs involved in implementing these changes.

AEMO anticipates that changes to the RD calculation will affect the following processes that are implemented in AEMO's IT systems:

- Determination of CRC for DSPs.

- Calculation of Required Level.

- Assessment of Reserve Capacity Tests and Verification Tests.

- Calculation of DSP Capacity Cost Refunds.

- Determination of the Non-Balancing Dispatch Merit Order.

- Calculation of Deemed DSM Dispatch (subject to the progression of the Reserve Capacity pricing rule changes being developed by the Public Utilities Office).

Based on the information available at this time, AEMO expects the implementation cost to be within the $150k-$500k range, in line with the estimate in AEMO's response to the ERA's AR5 draft decision[9]. However, AEMO notes that the ERA did not approve the inclusion of AEMO's proposed allowance for "Business-as-usual rule changes" (which included this proposal), in

[9] See Table 4 of AEMO's response, which is available at https://www.erawa.com.au/cproot/20471/2/AEMO---sub-on-AR5-draft-decision.pdf.

the Forecast Capital Expenditure for the AR5 period[10]. AEMO will provide a revised estimate when the rule drafting is provided.

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4. Please indicate the time required for your organisation to implement the change, should it be accepted as proposed.

AEMO agrees with the Rule Change Panel that additional consultation is preferable to make design decisions and develop rule drafting. AEMO recommends the following approach:

- Conduct consultation to develop the design elements to the extent necessary to prepare rule drafting. This consultation could comprise one or more stakeholder workshops, further discussion at the Market Advisory Committee, and an additional round of formal consultation, guided by a 'Call for Further Submissions'.

- Publish a Draft Rule Change Report that is a complete decision in draft form, including proposed rule amendments.

- Consult on the Draft Rule Change Report and produce the Final Rule Change Report, as per the Standard Rule Change Process.

AEMO considers that it would be infeasible for the proposal to apply from the 2019 Reserve Capacity Cycle (2021-22 Capacity Year), as sought by Enel X. Applications for CRC for the 2019 Reserve Capacity Cycle closed on 1 July 2019 and AEMO is required to assign CRC by 19 August 2019. Given that CRC for a DSP must not exceed "AEMO's reasonable expectation of the amount by which the Facility could reduce its consumption, measured as a decrease from the Facility's Relevant Demand" (clause 4.11.1(j)(ii) of the WEM Rules), it is too late to apply a revised RD calculation for the 2019 Reserve Capacity Cycle, particularly as details of the Rule Change, including drafting, have not been finalised and extended consultation may be required.

While implementation for the 2020 Reserve Capacity Cycle is more likely to be achievable, subject to the duration of the rule change process, AEMO cannot confirm an implementation timeframe at this time, as the Rule Change Proposal does not include a specific design recommendation or proposed rule amendments. Also, AEMO will need to consider the broader budgetary impacts of this project and whether this influences implementation timing, given that the ERA did not approve an allowance for business-as-usual rule changes in AEMO's Forecast Capital Expenditure. AEMO will work closely with the Rule Change Panel to estimate implementation costs and timeframes once the design of rule amendments is better understood.

[10] See Table 6 of the ERA's final determination, which is available at https://www.erawa.com.au/cproot/20521/2/AR5-Final-determination-v3_clean.PDF.