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Dear Dr Challen

SUBMISSION TO THE ELECTRICITY MARKET REVIEW POSITION PAPER ON REFORMS TO THE RESERVE CAPACITY MECHANISM

The Australian Energy Market Operator (AEMO) welcomes the opportunity to provide a submission in response to the Electricity Market Review (EMR) Position Paper on Reforms to the Reserve Capacity Mechanism published on 3 December 2015.

AEMO supports reforms to the Reserve Capacity Mechanism (RCM) to better reflect the economic value of capacity in the South West interconnected system and to better achieve the Wholesale Market Objectives.

In general, AEMO considers that the RCM reforms will better achieve economically efficient outcomes in the Wholesale Electricity Market, working together with other proposed EMR reforms.

The attached submission provides AEMO's comments on each of the proposed reforms, and information relevant to the implementation based on the information provided in the Position Paper.

If you would like to discuss any matters raised in this submission, please contact Erin Stone, A/Group Manager Development and Capacity (WA) on (08) 9254 4304 or by email at erin.stone@aemo.com.au.

Yours sincerely

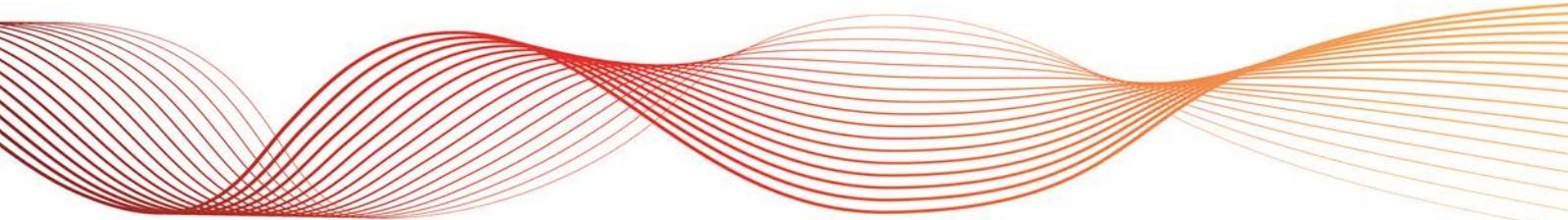
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SUBMISSION TO THE ELECTRICITY MARKET REVIEW

POSITION PAPER ON REFORMS TO THE RESERVE CAPACITY
MECHANISM



EXECUTIVE SUMMARY

As the market operator for the Wholesale Electricity Market (WEM), the Australian Energy Market Operator (AEMO) has significant experience in operating and evolving the Reserve Capacity Mechanism (RCM). AEMO welcomes the opportunity to provide input into the State Government's Electricity Market Review, and in particular the proposed reforms to the RCM.

This submission details AEMO's feedback on the proposed reforms and focuses on the:

1. introduction of a capacity auction;
2. transitional arrangements for the RCM;
3. harmonisation of the treatment of demand-side and supply-side capacity resources; and
4. introduction of stronger commercial incentives for dispatch.

AEMO agrees with and supports the reform objectives and principles stated in the Position Paper¹ on the basis that the RCM should provide the incentives necessary to deliver an efficient level of capacity, driving additional investment when supply is short and efficient retirement when there is excess supply. However, AEMO considers that the RCM should also be designed to be as technology neutral as possible and should work in concert with the energy market to ensure that demand is met in the most efficient manner.

We note that this will require a dynamic, incentive driven, capacity and energy market design that allows participants to respond to uncertainty in the demand outlook, the introduction of new technologies and any externalities such as government policy initiatives.

AEMO supports the need for revision of the RCM through transitional arrangements ahead of the adoption of a capacity auction to realign the funded capacity with the efficient quantity needed to reliably meet demand in the South West interconnected system (SWIS). However, AEMO considers that more certainty regarding the timing of the change to an auction mechanism would be valuable to reduce uncertainty for participants.

With respect to the transitional arrangements, AEMO supports aligning the slope of the capacity price curve more closely to the value that extra capacity offers to customers. However, this should be done in a way that mitigates any price shock to participants and moderates any volatility in the RCM to ensure that investor confidence is maintained, and that changes do not result in increased capacity and energy costs in the long-run. AEMO considers that the proposed reforms can reach a balance to allow both of these to occur.

In addition, AEMO supports the proposed changes to align the treatment of demand-side and supply-side capacity resources, the introduction of dynamic reserve capacity refunds, refund recycling to market generators and scheduled generator availability reforms; as these will improve incentives for participants to operate efficiently in the energy market. It should, however, be noted that market arrangements should not discriminate against particular energy options and technologies. A technology neutral design is more likely to deliver the most efficient outcomes.

AEMO notes that the Position Paper does not consider the relationship between the proposed changes to the RCM and the proposed changes to the design of the energy market. The RCM should work together with the energy market, providing the appropriate incentives to deliver efficient dispatch and secure and reliable supply. Therefore, the proposed changes to the RCM and energy market need to be considered together to fully understand the operation and impact of the reformed WEM.

¹ Department of Finance – Public Utilities Office, 2016, *Position Paper on Reforms to the Reserve Capacity Mechanism*, Government of Western Australia, p 9.



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1. INTRODUCTION OF A CAPACITY AUCTION

The Position Paper proposes to implement a three year ahead, single sealed bid capacity auction in place of the current administered price mechanism.

A capacity auction with suitable transitional provisions would meet the reform objectives and principles outlined in the Position Paper² and incentivise the introduction or retirement of capacity in the WEM in an economically efficient manner.

AEMO supports the adoption of a capacity auction in principle as it would realign the funded capacity with the efficient quantity needed to reliably meet demand in the SWIS. However, under the proposed arrangements an auction would not be triggered in the medium-term.

Given the significant uncertainties in the market, AEMO is concerned that a trigger based on a particular level of excess capacity creates risks both to customers and suppliers and may prevent private investment in efficient energy sources. The proposed option creates uncertainty as to when the trigger might be reached. Estimating the actual time when auctions will commence will be very difficult for participants and will be exacerbated by renewable uptake, forecasting risk, market manipulation opportunities and the reliance on facility retirements.

Furthermore, if a capacity auction is implemented AEMO considers that it should remain technologically neutral in order to competitively source capacity at the lowest cost to the market and consumers.

AEMO notes that the design of an auction mechanism would also be dependent on the energy market design, in particular the move to constrained dispatch and enhanced real time market mechanisms.

AEMO estimates that it would require approximately 12 months to implement the necessary systems and processes to facilitate a capacity auction, once the detailed design is complete.

Further information around these issues are provided in the sections below.

1.1 Auction trigger

The Position Paper proposes to move from the RCM to a capacity auction at the point in time where the level of excess capacity in the WEM reaches five to six per cent. AEMO notes that this may take a significant amount of time. Table 4.2 of the Position Paper presents three potential scenarios for the reduction of excess capacity, but the likelihood of these being achieved has not been discussed.

AEMO considers that the potential scenarios are optimistic given that we face:

- a changing economic outlook leading to consumption and peak demand uncertainty;
- the entrance of new technologies into the market;
- new capacity from renewable energy sources as a result of the Renewable Energy Target;
- other externalities including new and existing energy subsidies and continued direct government participation in the energy sector; and
- no publically announced facility retirements.

It is therefore difficult to evaluate when we expect to reach five to six per cent excess capacity, and therefore when we expect to move to an auction mechanism. AEMO recommends that, while it could result in a price shock if not transitioned appropriately, a fixed date transition to an auction mechanism would provide more certainty for participants.

² Department of Finance – Public Utilities Office, 2016, *Position Paper on Reforms to the Reserve Capacity Mechanism*, Government of Western Australia, p 9.

AEMO also notes that a trigger based on the level of excess capacity could be exposed to market manipulation through the withholding or flooding of capacity. AEMO recommends that this is considered in the broader market power mitigation arrangements.

1.2 Forecasting uncertainty

The Position Paper proposes that a capacity auction will be run three years ahead of the Capacity Year for which capacity is procured. This will require consumption, peak demand and network capacity forecasts three years ahead instead of the current two years ahead.

As previously noted, the characteristics of the SWIS as a small, isolated network coupled with today's environment of significant uncertainty is likely to result in substantial volatility in demand. This makes it very difficult to accurately forecast the capacity required in the SWIS.

AEMO notes that increasing the time between the forecast of required capacity and the delivery of capacity will only exacerbate any forecast errors. Analysis undertaken by AEMO recommends that historically every year closer to the forecast year, the peak demand forecast has become approximately 3.5 per cent more accurate. AEMO therefore recommends that further consideration of a two year ahead auction is warranted.

1.3 Market power mitigation

AEMO considers that market power mitigation provisions are essential to the efficient operation of any market and agrees with the principles relating to market power mitigation stated in the Position Paper.

The market power mitigation measures are crucial to the effectiveness of the capacity auction. AEMO agrees that significant work would need to be done to design effective market power mitigation measures that would not overly constrain a capacity auction.

AEMO considers that measures to mitigate the abuse of market power should be considered more holistically as they apply to participants' commercial interests across both the energy and capacity markets. Further detail on the proposed market power mitigation measures should be provided for public consideration and feedback.

1.4 Linkages to energy market design

AEMO notes that the design of an auction mechanism would also be dependent on the energy market design, in particular the move to constrained dispatch and enhanced real time market mechanisms.

Further details regarding the proposed design of the auction as it relates to the design of the energy market is required. AEMO recommends that options such as a simultaneous feasibility assessment model should be considered to ensure that the capacity paid for is able to deliver that output to customers under peak load conditions in a constrained network.

1.5 Implementation

AEMO estimates that it would require approximately 12 months to implement the necessary systems and processes to facilitate a capacity auction once the detailed design is complete.

It should be noted that if uncertainty regarding the timing of the move to a capacity auction remains in the final design, this could impose additional costs in preparing for auctions which may not proceed.

2. TRANSITIONAL ARRANGEMENTS FOR THE RESERVE CAPACITY MECHANISM

The Position Paper proposes to introduce a number of changes to make the RCM more responsive to market conditions as a transitional step ahead of the introduction of a capacity auction.

AEMO agrees that modifications to the RCM are required to ensure that capacity prices better reflect the economic value of capacity. Any changes to the RCM must provide the necessary incentives for efficient investment, and should not be biased towards any specific participant or technology in order to competitively source capacity at the lowest efficient cost.

AEMO agrees that the slope of the capacity price curve should be steepened. However, AEMO recommends that in order to mitigate any price shock, this ideally should be done in increments instead of an immediate step increase as proposed in the Position Paper.

AEMO supports increasing the capacity price cap to 110 per cent of the Maximum Reserve Capacity Price (MRCP) for the same reasons outlined in the Position Paper.

AEMO estimates that it would require the detailed RCM design to be complete by 1 May 2016 to implement the necessary changes for the 2015 and 2016 Reserve Capacity Cycles.

Further information around these issues are provided in the sections below.

2.1 Capacity price curve

AEMO agrees that the slope of the capacity price curve needs to be steeper to better reflect the economic value of capacity and provide the necessary incentives to drive additional investment when supply is short and dis-investment when there is excess supply.

While acknowledging the need for a more responsive mechanism, AEMO notes that the proposed slope of negative five, without any intermediate steps, could be expected to result in a sharp drop in price. As shown in Table 7.1 of the Position Paper³, the capacity price is estimated to reduce by \$40,000 as a result of this change, assuming no changes to the MRCP.

While this will initially expedite the exit of some capacity from the market, AEMO does not consider that it is consistent with principle two; that the RCM should not be overly susceptible to volatility but delivers clear and consistent medium term price signals⁴. An immediate 30 per cent reduction in the capacity price may be considered too rapid and may result in reduced investor confidence.

AEMO supports the alternative option in the Position Paper of phasing in the steeper capacity price curve. AEMO considers that a sequential steepening of the slope of the capacity price curve will incentivise the highest-cost capacity to progressively exit, which will allow current and future participants time to adapt and adjust expectations, while still reducing excess capacity.

AEMO recommends that modelling on the likely break-even capacity prices for each facility in the WEM would allow for a measured steepening of the capacity price curve to moderate price volatility, and ensure that an appropriate generation mix is maintained.

³ Department of Finance – Public Utilities Office, 2016, *Position Paper on Reforms to the Reserve Capacity Mechanism*, Government of Western Australia, p 46.

⁴ *Ibid*, p14

2.2 Capacity price cap

AEMO supports the increase in the capacity price cap to 110 per cent of the MRCP to reflect the increased economic value of capacity when there is a shortage.

AEMO recommends changing the name of the MRCP to reflect that, once the change has been made, it will no longer represent a maximum.

2.3 Implementation

AEMO does not predict any impact on its systems or processes as result of implementing the steeper capacity price curve or the increase in the capacity price cap beyond the cost of having its software and settlement systems certified as required under the WEM Rules.

3. HARMONISATION OF THE TREATMENT OF DEMAND-SIDE AND SUPPLY-SIDE CAPACITY RESOURCES

AEMO notes that under the current arrangements, demand-side participants are paid the same price as generators but the service they are committed to supply is inconsistent and their ability to participate in the energy market is restricted. The reforms proposed in the Position Paper use the distinction in the service provided by demand-side and supply-side resources to differentiate the price paid for each. AEMO recommends that, rather than differential pricing, the products should instead be harmonised.

AEMO considers that market arrangements that would discriminate against particular energy options and technologies could not be expected to deliver an economically efficient solution. Each megawatt of reliable capacity has equal value in scarcity situations, meaning that a market will have no preference or influence on the technology mix.

It should also be noted that the proposed reforms appear to be inconsistent with Wholesale Market Objectives (c) and (e):

- (c) to avoid discrimination in that market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions
- (e) to encourage the taking of measures to manage the amount of electricity used and when it is used

AEMO considers that demand-side participants who are prepared to meet the requirements to participate in the energy market as scheduled generators would provide a comparable service and therefore warrant full capacity payments. AEMO recommends that demand-side resources that cannot provide a comparable solution which is monitored and dispatched in the real time market could continue to be paid, albeit at a lower value and as a different service. It should be noted that customers also have the option to use demand-side response to manage their capacity obligations.

AEMO notes that the proposed changes are likely to create volatility in the capacity price which will lead to mothballing rather than retirements and decommissioning of facilities. This will result in the level of excess capacity fluctuating significantly, and potentially return to current levels within the transition period.

Further information around these issues are provided in the sections below.

3.1 Requirements to participate in the energy market

Demand Side Programmes (DSPs) currently are unlikely to be dispatched in the WEM as they are only dispatched for system security reasons, or once supply-side capacity has been exhausted. The Position Paper proposes changes to better align the treatment of demand-side and supply-side capacity resources in the energy market. AEMO supports the proposed harmonisation of the availability requirements for demand-side and supply-side capacity resources.

AEMO supports reforming the WEM Rules so that different technologies can participate and compete on more level terms in the RCM and energy market. However, AEMO considers the harmonisation should be taken further. Having DSPs actively participate in the energy market will harmonise their probability of dispatch with peaking generation. This will allow demand-side participants who provide a comparable service to receive full capacity payments, thereby harmonising rather than differentiating the service provided and better meeting the Wholesale Market Objectives.

3.2 Efficient capacity mix

The Position Paper states that “during the transition demand side management capacity should face similar incentives to other forms of generation capacity to adjust to an efficient level of participation in the Reserve Capacity Mechanism.” AEMO notes that the Position Paper does not provide a view on the “efficient level of participation” or how this may be determined. Presumably an efficient generation mix should be determined by the market, given a robust market design. AEMO agrees that the level of excess capacity in the WEM should be moderated, but does not consider separate arrangements specifically targeting DSPs are required or desirable.

The decision to invest in different technology (base-load, mid-merit, peaking generators or DSPs) should be as a result of outcomes in the energy market and not due to government intervention. Low average wholesale energy prices and high capacity prices will incentivise peaking generation and DSPs to participate in the RCM; while high average wholesale energy prices will incentivise new base-load plants (with operating costs below those typically found in the market).

The Position Paper states that “supply-side resources have a commercial incentive to be dispatched.” This statement is not true for all supply-side resources in the WEM. There are several facilities for which the short run marginal cost together with start-up costs are high enough that these costs cannot be recouped when the facility is only dispatched for a limited number of consecutive intervals. These facilities operate on the same commercial logic as DSPs; they require enough money to be left over from capacity payments to make a profit once dispatch costs have been accounted for. When the capacity price reduces, the potential profit decreases, causing unprofitable facilities to exit the market, raising the likelihood of dispatch for remaining peaking generation and DSPs. However, this in turn will further reduce the profitability of these forms of generation, which may incentivise them to exit the market, thus reducing excess capacity. In the medium-term, an equilibrium will be established balancing the revenue from capacity payments against the costs incurred by dispatch.

3.3 Differential capacity prices

AEMO recognises that under the current arrangements, demand-side resources are being paid the same price as supply-side resources but the service they are committed to supply is inconsistent and their ability to participate in the energy market is restricted.

The Position Paper proposes to remedy this in the transition period by developing an alternative capacity baseline, which differentiates the price paid to demand-side resources to reflect the reduced service.

The Position Paper states that the transitional arrangements for DSPs would require AEMO to calculate expected dispatch hours and value of lost load (VOLL) to arrive at the amount to be paid per megawatt of DSP capacity. If those changes were to proceed, AEMO would require further information on the

proposed operation in sufficient detail to support implementation. We currently have issues in understanding the description and example calculation provided.

It should be noted that requiring DSP providers to sell Capacity Credits only to AEMO prevents participants from entering long-term contracting arrangements and hedging with purchasers of Capacity Credits. In the event there are large changes in excess capacity or the VOLL, DSP providers will have less ability to limit their financial exposure compared to supply-side generation.

As previously noted, AEMO considers that the RCM should be technology neutral, and demand-side participants who are prepared to meet the requirements to participate in the energy market as scheduled generators would provide a comparable service and therefore warrant full capacity payments. However, if differential pricing is decided to be progressed, AEMO recommends adopting a simpler model of implementing the proposed reforms; for example, if the proposed price of DSP capacity is to be reduced, this can be achieved by reducing the number of Capacity Credits allocated to each megawatt of DSP capacity proportionally. This will minimise the changes required to AEMO's systems and the allocation of capacity costs.

3.4 Allocation of capacity costs

The Position Paper proposes changes to the recipients of Capacity Credits and introducing a new methodology for their allocation, however, there is no discussion of any changes to the funding of capacity, or the Individual Reserve Capacity Requirement (IRCR) mechanism. As the funding mechanism for Capacity Credits, the IRCR is an important price signal and incentive to consumers that are able to change their behaviour to moderate system demand peaks.

The Position Paper does not propose changes to the IRCR, however, AEMO considers that the continued operation of the IRCR in its current form should be stated explicitly in the Position Paper if this is the intent. This would confirm for IRCR exposed customers that the methodology used to calculate their IRCR charges will not change as a result of the proposed reforms to the RCM or adoption of a capacity auction.

Currently the capacity cost allocation methodology uses the same price for all participants. AEMO notes that if DSP capacity is to be priced differently, changes will be required to this methodology, the Wholesale Electricity Market System and AEMO's settlement system.

3.5 Price volatility in the RCM

The Position Paper proposes to introduce transition provisions to reduce the capacity payment to DSPs to better reflect the different service provided. The proposed changes will result in a substantially reduced capacity price for DSPs. Taken with other proposed changes this could lead to a significant reduction in DSP capacity in the WEM.

It is AEMO's view that excess capacity in the WEM should be moderated progressively in a technologically neutral manner, based on the cost to provide that capacity.

The loads supplying reserve capacity will, however, not disappear and will most likely participate in the RCM once it becomes financially viable. The Position Paper proposes to allow demand-side capacity resources to participate in the auction together with supply-side capacity resources, with a single common clearing price.

Assuming that very few loads will cease operation a result of losing capacity payments through the transition period, and that the clearing price in the first capacity auction will be several times higher than the transitional arrangement payment to DSPs, it is likely that the first auction will incentivise the re-activation of a significant number of DSPs that were removed through the transitional arrangements.

AEMO considers that this may create unintended volatility in the capacity price and greater excess capacity than anticipated for the first capacity auction.



3.6 Implementation

AEMO notes that the operation of the proposed changes will need to be considered in more detail before it is able to provide an estimate for the costs or time required to implement the proposed changes to the treatment of DSPs.

4. INTRODUCTION OF STRONGER COMMERCIAL INCENTIVES FOR DISPATCH

The Position Paper proposes to implement a number of previously proposed rule changes to introduce a more dynamic refund regime, recycle refunds to capacity providers rather than customers, and improve the incentives for scheduled generators to be available for dispatch.

AEMO supports the proposed changes as these proposals will better incentivise capacity to be available during system peaks and will improve incentives for participants to operate efficiently in the energy market.



ABBREVIATIONS

Abbreviation	Expanded name
AEMO	Australian Energy Market Operator
DSP	Demand Side Programme
IRCR	Individual Reserve Capacity Requirement
MRCP	Maximum Reserve Capacity Price
RCM	Reserve Capacity Mechanism
RCP	Reserve Capacity Price
RET	Renewable Energy Target
SWIS	South West interconnected system
VOLL	Value of Lost Load
WA	Western Australia
WEM	Wholesale Electricity Market
WEMS	Wholesale Electricity Market System