

**To** Energymarkets@dmirs.wa.gov.au  
**Subject** Exposure draft: WEM Investment Certainty and RCM Review Amending Rules  
**Date** 4 December 2024

Good Afternoon

Thank you for the opportunity to provide comment on the recently published WEM Investment Certainty and RCM Review Amending Rules.

Perth Energy supports these rules and looks forward to their implementation. They reflect the positions that have been expounded and discussed at the Market Advisory Committee Working Group. For potential investors, they provide a good balance between the provision of investment certainty and taking appropriate business risks. We note and appreciate the substantial amount of work that Energy Policy WA staff, and their consultants, have put into these comprehensive changes.

In going through these amending rules, Perth Energy has identified three matters associated with the assignment of certified reserve capacity to electric storage systems (ESR) that need to be addressed. We consider that this needs to be done before commencement of the next reserve capacity cycle to minimise the risk of any potential shortfall.

### ***Definition of the ESR Duration Requirement***

The Electric Storage Resource Duration Requirement for the 2024 Reserve Capacity Cycle is defined as four hours. Perth Energy understands that the certified capacity assigned to ESR systems that enter service through this cycle will be retained for a period of five years. We strongly support this approach as it provides a level of financial certainty required to underwrite investment in the WEM. It fully aligns with the overall objective of the reserve capacity mechanism.

However, the 2024 Statement of Opportunities Report, published by AEMO, identifies an availability gap for 2026/27 of one trading interval such that the electricity storage resource obligation duration (ESROD) is nine trading intervals. (This is the lower figure which AEMO calculated using the flexible indicative peak rather than the process currently set out in the market rules).

Around 1500 MW of battery storage is expected to be in service in 2026/27. Because it is assigned certified capacity based on an ESROD of eight trading intervals whereas the actual ESROD is nine, these 1500 MW of storage can only provide around 1330 MW of reserve. This leaves a physical shortfall of around 170 MW. Because of the guarantee, this physical shortfall will increase proportionately if the ESROD increases beyond nine intervals over the coming five years.

To avoid this shortfall, AEMO should calculate the size of this shortfall and add that figure to the reserve capacity target. This adjustment will only be required for the period of the guarantee.

### ***Potential conflict in the provision of both peak and flexible reserve capacity***

A second matter is whether a BESS can provide both peak reserve capacity and flexible reserve capacity.

Flexible capacity is reserve capacity that can respond at very short notice to manage changes in load during high ramp rates. This response must be provided over the Flexible Electric Storage Resource Obligation Intervals (FESROI) which AEMO must determine by considering the magnitude, slope and duration of the demand ramp over the four hours prior to the system peak.

While the FESROI has not yet been determined for the coming reserve capacity cycle, the high ramp rates which define this period are expected to include the trading intervals when solar generation drops away late in the afternoon. BESS certified for flexible reserve capacity are likely to be called on to inject substantial quantities of electricity into the system to maintain supply during this period. At the end of these trading intervals, they are likely to be partially discharged - occasionally they will be close to fully discharged.

The FEROSI will include the trading intervals leading up to the electric storage obligation intervals associated with the supply of peak reserve capacity. BESS supplying flexible capacity are therefore likely to regularly be only partially charged at the start of the peak capacity obligation trading intervals.

These injections of electricity are to be expected during normal operation of a BESS fulfilling its flexibility obligations. As a result, the maximum sent out capacity of the BESS that can be guaranteed to be available to provide peak reserve capacity, as defined in market rule 4.10.1(fA) will be less than its installed capacity.

This rules states that:

*(fA) for an Electric Storage Resource, except if clause 4.10.1(fD) applies:*

- i. ...
- ii. **the maximum sent out capacity, net of Loads, that can be *guaranteed to be available* for supply to the relevant Network from the Electric Storage Resource when it is *operated normally* at an ambient temperature of 41 degrees Celsius;**

A simplistic assessment suggests that a MW of BESS capacity committed to flexible capacity is a MW that cannot also be committed to peak capacity. A probabilistic assessment, akin to the relevant level method, may show that a reduction ratio less than one-to-one may be acceptable. This matter needs to be determined before the certification process for flexible capacity is commenced.

### ***Current clash in the provision of multiple services***

A BESS can provide a range of services to the market including certified reserve capacity, regulation and contingency reserve. However, it cannot provide all these services simultaneously at its full capacity. For example, consider a BESS that registers to provide certified reserve capacity. To comply with its reserve capacity obligations, the BESS must be fully charged at the start of the Electric Storage Resource Obligation Duration (ESROD). This means that in the

trading intervals running up to the start of this period, it is restricted in the amount of any essential system service (ESS) it can provide. It cannot provide an ESS that requires it to substantially discharge because it can only discharge to a level that allows it enough time to re-charge to 100% by the start of the ESROD.

Similarly, during the four hours of the ESROD, a BESS cannot plan to provide regulation or contingency raise because its full capacity is committed to being able to provide a steady discharge to meet its capacity obligations. On the day, it may be able to provide these services if it is not dispatched to provide reserve capacity, but this is opportunistic and cannot be planned ahead. The BESS should not make any prior commitment to this.

Likewise, the BESS must also plan on potentially being fully discharged at the end of the ESROD, in accordance with its reserve capacity obligations. This means that it cannot plan to offer regulation or contingency support until it has recharged to a sufficient level. Again, on the day there may be the opportunity to provide ESS at the end of the ESROD, but this cannot be predetermined and should not be committed to.

In summary, if a BESS receives capacity credits for its full MW capacity, it cannot guarantee to provide ESS for the period leading up to, during or after the ESROD. Alternatively, the BESS operator may choose to commit to providing regulation or contingency services to the market but, if so, it cannot simultaneously offer the full facility capacity to provide reserve capacity.

By way of example, data published by AEMO shows that during October 2024, Kwinana ESR1 BESS provided a substantial quantity of ESS. At the same time, its charge level was frequently below the charge level required to comply with its reserve capacity obligations at the commencement of the BESS obligation period. If a similar operating practice is adopted by a significant proportion of the 1500 MW of BESS scheduled to be in service in 2026/27, there will be a substantial hidden capacity shortfall.

### ***Suggested resolution of these matters***

Perth Energy suggests a new market rule be developed to require AEMO to calculate the reserve capacity shortfall arising from the guaranteed capacity assignment to BESS over the period from 2026/27 and that this shortfall be added to the reserve capacity target.

Energy Policy and AEMO should assess the practicality of BESS providing both peak reserve capacity and flexible reserve capacity. If the full capacity of a BESS cannot be committed to both services, appropriate market rules or procedures should be developed to apportion the facility capacity.

AEMO should revise its WEM procedure entitled “*Certification of Reserve Capacity*” to include:

- Market participants should advise how they intend to operate any BESS, including what ESS they will offer, and how they have estimated the maximum sent out capacity when the facility is operating in line with that intention, as set out in market rule 4.10.1(fA);
- AEMO should set the certified reserve capacity for a BESS at a level no higher than they reasonably determine based on the above advice;

- AEMO should review the actual operating pattern of existing BESS systems and set the certified reserve capacity for future years based on their reasonable review of how the BESS is being operated.

If the Coordinator is planning to soon undertake a review of the effectiveness of certification of reserve capacity for electricity storage resources, as is required under market rule 4.13B, these matters could be considered in that review.

This work should be completed in time for the next reserve capacity cycle. Perth Energy is happy to help develop new draft market rules and procedure changes if this will assist the process.

Should you have any questions please do not hesitate to contact me at [p.peake@perthenergy.com.au](mailto:p.peake@perthenergy.com.au) or on 0437 209 972.

This submission may be made public.

Kind regards

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