Economic Regulation Authority

Procedure Change Report: Benchmark Reserve Capacity Prices

[EEPC_2025_01]

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Executive summary

In Western Australia's Wholesale Electricity Market (WEM), the Reserve Capacity Mechanism (RCM) is used to signal opportunities for investment in capacity to meet system reliability requirements. The Benchmark Reserve Capacity Prices (BRCPs) are used, along with the level of excess capacity in the WEM and reserve capacity requirements, to determine reserve capacity prices.

The BRCPs must reflect the fixed costs of developing and operating a hypothetical Benchmark Technology. The Flexible BRCP and Peak BRCP comprise annualised capital costs and annual fixed operating and maintenance (O&M) costs, expressed per unit of Flexible Capacity Credit and Peak Capacity Credit respectively that is expected to be assigned to the capacity provider.[1]

In October 2025, the Coordinator of Energy determined both the Flexible and Peak Benchmark Technologies as lithium Battery Energy Storage System (BESS) with 200-megawatt (MW) injection and 1,200-megawatt hour (MWh) storage capacity (i.e. 6-hour BESS) connected at a 330-kilovolt (kV) transmission line on the Clean Energy Link – North.[2,3 4]

The Coordinator's determination triggered the ERA's review of the WEM Procedure for determining the BRCPs. Any amendments to the WEM Procedure must be consistent with the State Electricity Objective, Electricity System and Market (ESM) Rules, the *Electricity Industry Act 2004* and *Electricity Industry* (*Wholesale Electricity Market Regulations*) *2004*.[5]

In November 2025, the ERA published a procedure change proposal and draft WEM Procedure for stakeholder feedback.[6,7] This procedure change report explains how stakeholder submissions have been considered and outlines the ERA's changes to the updated WEM Procedure.

The introduction of the larger BESS, with capital costs calculated on a gross cone of new entry basis, is expected to result in larger BRCPs. Stakeholder feedback in response to the ERA's proposal expressed concern regarding the substantially higher capacity costs expected due to the changes to the BRCPs determination method.

The ERA acknowledges that changes to the Benchmark Technology in recent years – from a 160 MW open cycle gas turbine to a 4-hour BESS in 2023 and then subsequently to a 6-hour BESS in 2025 – has resulted in changes to the BRCP determination method which will lead to increased capacity costs. The ERA considers that the reserve capacity price, through the

1 A capacity credit is a notional unit equivalent to 1 megawatt (MW) of capacity provided by a facility during a capacity year that reflects the contribution of facility to meeting the reliability standard of the system. Capacity suppliers receive payments consistent with the number of capacity credits they hold, and in return, commit to providing their capacity to AEMO in a capacity year. The capacity payments provide incentives for investment when the system requires new capacity.

2 The Coordinator of Energy issued its determination on 30 September 2025, followed by an addendum on 9 October 2025. See: Energy Policy WA, 2025, *Review of the Benchmark Capacity Providers: Coordinator of Energy Determination* (online); Energy Policy WA, 9 October 2025, *2025 Review of Benchmark Capacity Providers: Coordinator of Energy Determination, Addendum*, (online).

3 Prior to October 2025, both Peak and Flexible Benchmark Technology were a 200 MW / 800 MWh (i.e. 4-hour) lithium BESS connected at a 330 kV line near Kwinana or Pinjar.

4 Prior to 1 January 2026, the Benchmark Technologies were named the Benchmark Capacity Providers.

5 Electricity System and Market Rules (WA), 1 January 2026, Rule 2.9.3(a) (online).

6 Ibid, Rule 2.10.7.

7 Economic Regulation Authority, 2025, *Procedure Change Proposal EEPC_2025_01: Benchmark Reserve Capacity Price,* (online), and Economic Regulation Authority, 2025, Draft WEM Procedure – Benchmark Reserve Capacity Prices (online).

BRCP, must provide the correct price signals to encourage capacity investments and deliver sufficient revenue for the investment required to ensure system reliability for electricity consumers. The scope of the ERA's review of the WEM Procedure must reflect the Coordinator's changes to the Benchmark Technology.

The new WEM Procedure will commence on 19 January 2026 so it can be applied to the ERA's 2026 BRCPs determination.[8] The ERA must determine the BRCPs prior to 16 March 2026 for the 2026 Reserve Capacity Cycle.[9]

Summary of amendments to the WEM Procedure

Table 1 summarises the key changes to the WEM Procedure.

Table 1: Summary of key amendments to the WEM Procedure

Topic (Report Section)	Summary of Key Amendments
Transmission connection costs (4.2.2)	The WEM Procedure will account for potential other direct and upfront costs that may arise as well as the Fixed Capital Charge (FCC), which the ERA will incorporate into BRCP transmission connection costs from 1 July 2026 when it the FCC is expected to take effect if implemented.
Land costs (4.2.1)	The WEM Procedure requires the ERA to estimate a single, average land cost based on average land process across eight locations on Clean Energy Link – North.
Procedure administration (4.3)	Appendix 1 of the WEM Procedure includes a timeline of amendments to the WEM Procedure since its inception in 2008. Sections 1 and 2 of the WEM Procedure outline the requirements from the ESM Rules so the WEM Procedure explains all aspects of the BRCP.

8 Electricity System and Market Rules (WA), 1 January 2026, Rule 1.68.2. (online).

9 Ibid, Rule 1.68.1.

1. Introduction

To ensure the reliable supply of electricity, there needs to be enough electricity available to continuously meet consumer demand. To achieve this in Western Australia, the Reserve Capacity Mechanism (RCM) provides an investment signal to install capacity in the South West Interconnected System (SWIS).

The Australian Energy Market Operator (AEMO) procures capacity two years in advance of a Capacity Year.[10] AEMO determines the level of capacity required to maintain system reliability as per the Planning Criterion outlined in ESM Rules to establish each forecast year's reserve capacity targets.[11] These targets are an input into the Reserve Capacity Credit price.

AEMO invites capacity suppliers (generators, storage, etc) to offer their available capacity for a capacity year and assigns Capacity Credits to those suppliers consistent with their estimated contribution to meeting that year's reserve capacity target.[12] Capacity suppliers receive payments consistent with the number of Peak Capacity Credits and Flexible Capacity Credits they hold provided they make that capacity available over the associated Capacity Year. If a Capacity Credit holder does not make the capacity available that is associated with those credits, they must pay refunds.[13]

1.1 The BRCPs

The BRCPs are derived from the fixed costs incurred in developing and operating a hypothetical Benchmark Technology (BT), which is to reflect the most efficient, least cost new entry technology expected to enter the WEM to provide capacity.

The ESM Rules specify a Peak Reserve Capacity Price curve and Flexible Reserve Capacity Price curve to calculate the price of their respective Capacity Credits, expressed in dollars per MW, per Capacity Year ($/MW/Year).[14] The Capacity Credit prices depend on the BRCPs, the reserve capacity targets required to meet the Planning Criterion and the level of excess capacity in the WEM.[15]

The ERA determines the BRCPs annually following the method outlined in a WEM Procedure.[16] The ERA must also review the WEM Procedure at least once every five years or within one year of the Coordinator of Energy's determination of the BT.[17,] The Coordinator of

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10 A Capacity Year commences on 1 October each year. For example, the 2028/29 Capacity Year commences on 1 October 2028. Electricity System and Market Rules (WA), 1 January 2026, Rule 4.6.1 and 4.6.1A, (online).

11 Electricity System and Market Rules (WA), 1 January 2026, Rule 4.5.9, (online).

12 A capacity credit is a notional unit equivalent to 1 MW of either peak capacity or flexible capacity provided by a facility during a Capacity Year. A Facility can hold peak Capacity Credits and flexible Capacity Credits for the same MW of capacity, but it cannot hold more flexible Capacity Credits than peak Capacity Credits. For example, a facility with 100 MW nameplate capacity could receive up to 100 MW of peak Capacity Credits and 100 MW of flexible Capacity Credits. Each product has separate peak and flexible reserve capacity obligation quantities.

13 Except in the case of planned outages, which are outages authorised by AEMO. Capacity credit refunds are not paid for planned outages to not penalise proper maintenance of plant and equipment.

14 Electricity System and Market Rules (WA), 1 January 2026, Rule 4.29.1, (online).

15 The calculation of the BRCP, together with its application in the determination of capacity price, seeks to balance the cost to consumers of procuring Capacity Credits against the benefits to consumers of improving the reliability of electricity supply. Coordinator of Energy, 2023, *BRCP Reference Technology Review, Consultation paper*, p. 9, (online).

16 Electricity System and Market Rules (WA), 1 January 2026, Rule 4.16.9, (online).

17 Ibid, Rule 4.16.9(b).

Energy determined a new Benchmark Technology on 30 September 2025.[18] Subsequent to this determination, the ERA commenced its review of the BRCPs WEM Procedure on 13 October 2025.

The ERA's review of the BRCPs WEM Procedure:

- Includes changes to ensure its consistency with the State Electricity Objective, ESM Rules, the *Electricity Industry Act 2004* and *Electricity Industry (Wholesale Electricity Market Regulations) 2004*.[19]

- Followed the procedure change process outlined in the ESM Rules and a WEM Procedure.[20,21] These obligations are summarised in section 1.3.

This procedure change report is published as part of the ERA's procedure change process outlined in the ESM Rules.[22,23] The ERA received four submissions in response to its procedure change proposal and also received feedback from the Market Advisory Committee (MAC). The ERA's responses to the feedback are discussed in Chapter 3.

The ERA has considered stakeholder feedback to update the WEM Procedure. This report outlines stakeholders' feedback, provides the ERA's responses and summarises the ERA's amendments to the BRCPs WEM Procedure.[24] This paper is structured as follows:

- The rest of Chapter 1 summarises the current WEM Procedure and the procedure change process.

- Chapter 2 explains the scope of the ERA's review of the WEM Procedure.

- Chapter 3 outlines the stakeholder consultation process. The ERA's response to these submissions is included in the relevant sections of chapter 4.

- Chapter 4 outlines changes to the WEM Procedure and the ERA's reasons for the changes.

- Appendix 1 contains the updated WEM Procedure.

The ERA engaged GHD to provide advice on BESS technical specifications, capital and fixed O&M costs and future cost estimation and adjustments. GHD's report is provided in Appendix 2.

18 The Coordinator of Energy determined the Benchmark Technology on 30 September 2025. See: Energy Policy WA, 2025, *Review of the Benchmark Capacity Providers: Coordinator of Energy Determination* (online).

19 Electricity System and Market Rules (WA), 1 January 2026, Rule 2.9.3(a) (online).

20 Ibid, Rule 2.10.

21 Energy Policy WA, 2021, *WEM Procedure: Procedure Administration,* (online).

22 Energy Policy WA, 2021, *WEM Procedure Administration*, (online).

23 Economic Regulation Authority, 2025, Procedure Change Proposal: Benchmark Reserve Capacity Price, (online), and Economic Regulation Authority, 2025, Draft WEM Procedure – Benchmark Reserve Capacity Prices (online).

24 To amend a WEM Procedure, the ERA must publish a procedure change proposal which includes the proposed amendment to the WEM Procedure and the reasons for the amendment. Electricity System and Market Rules (WA), 1 January 2026, Rule 2.10.6, (online).

1.2 Coordinator of Energy's determination of the Benchmark Technology

On 30 September 2025, the Coordinator determined that both Flexible and Peak Benchmark Technology must be a lithium BESS with 200 MW injection and 1,200 MWh (6-hour) energy storage, with a 330 kV connection. [25] On 9 October 2025, the Coordinator published an addendum to its determination and specified the location of the BT to be along the Clean Energy Link – North.[26,27]

The Coordinator also determined that the BRCPs will be calculated on a gross cost of new entry (CONE) basis, consistent with the current approach for determining the BRCPs.

1.3 The procedure change process

The ERA must publish a procedure change proposal that includes the proposed amended drafting for the WEM Procedure and the reasons for those amendments.[28] The ERA must seek feedback on its proposal.[29]

The ERA may seek advice from the Market Advisory Committee (MAC) when conducting this review.[30] The MAC may provide feedback to the ERA through meetings or by delegating its role to a working group of Rule Participants and other stakeholders.[31]

After considering stakeholder feedback on its proposal, the ERA must publish a procedure change report that outlines:

- The wording of amendments to the WEM Procedure and the reasons for the amendments.
- All submissions received before the submissions due date, a summary of these submissions, and the response of the ERA to the issues raised in those submissions.
- A summary of the views expressed by the MAC or, if the MAC has delegated its role to consider the procedure change proposal to a working group, a summary of the views expressed by that working group.
- A proposed date and time for the amendments to commence, which must, in the ERA's opinion, allow enough time after the date of publication of the procedure change report for rule participants to implement the changes required.[32]

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25 Energy Policy WA, 30 September 2025, *2025 Review of the Benchmark Capacity Providers: Coordinator of Energy Determination,* (online).

26 Energy Policy WA, 9 October 2025, *2025 Review of Benchmark Capacity Providers: Coordinator of Energy Determination, Addendum*, p. 1 (online).

27 Western Power, Clean Energy Program, Clean Energy Link – North, (online)

28 Electricity System and Market Rules (WA), 1 January 2026, Rules 2.10.5B and 2.10.6, (online).

29 The consultation period must be at least 20 business days. The ERA can extend the consultation period at its discretion by publishing a notice of extension. Electricity System and Market Rules (WA), 1 January 2026, Rules 2.10.7, 2.10.17 and 2.10.18, (online).

30 Ibid, Rule 2.10.9.

31 Ibid, Rule 2.3.17.

32 Ibid, Rules 2.10.10 and 2.10.12B, 2.10.13.

1.4 Current WEM Procedure

The current WEM Procedure outlines the method to determine the BRCPs based on the expected cost incurred to construct and install a lithium iron phosphate BESS with 200 MW injection and 800 MWh (4-hour) BESS in Kwinana or Pinjar.

The BRCPs calculation estimates the following components:

- Total capital cost comprising engineering, procurement and construction costs, transmission interconnection costs, fixed fuel cost, land cost, a contingency margin, and cost of capital.
- Fixed O&M costs for the reference facility and the transmission interconnection including fixed network access charges and insurance costs.

These cost components are annualised through a 15-year annuity using a discount rate – currently set using a weighted average cost of capital (WACC). The BRCPs are then calculated by dividing the annuity amount by the amount of Capacity Credits expected to be assigned to the reference facility.

The current WEM Procedure also has a mechanism – the annuity tilt – to address investors' expectations of future decreases in BESS capital costs, due to technological advances and manufacturing economies of scale, to appropriately incentivise investment in capacity. This mechanism provides more cashflow upfront when compared to a constant annuity, which it does by applying a tilt factor to the reserve capacity price. The annuity tilt has been set at 1.0, effectively rendering it neutral.

2. Scope of the ERA's review

To scope this review of the BRCPs WEM Procedure, the ERA considered the purpose of the RCM in providing appropriate price signals for capacity providers to participate in the RCM and ensure there is sufficient capacity in the SWIS.

The ERA considers that the objective of its review, consistent with its previous BRCPs WEM Procedure review, is to ensure that when the ERA follows the BRCPs WEM Procedure to annually determine Flexible BRCP and Peak BRCP that it:

- Reflects the Coordinator of Energy's determination of the Benchmark Technology (BT), including the technical parameters and location of the capacity provider.
- Includes:
  - All reasonable and material fixed costs expected to be incurred in the development of the Benchmark Technology, including capital expenditure and fixed O&M costs incurred in developing and operating the facility in the WEM.
  - A reasonable method to annualise costs which suitably aligns with investors' practices in raising funds to develop the Benchmark Technology.
- Allows the ERA to undertake a technical bottom-up cost evaluation of the entry of the Benchmark Technology for the relevant Capacity Year.
- Is clear and unambiguous in its interpretation; provides certainty to industry on how the BRCPs will be determined annually; and complements energy market reforms.
- Is consistent with the State Electricity Objective, ESM Rules, the *Electricity Industry Act (2004)* and WEM Regulations.

The ERA sought technical advice from GHD, Landgate and Western Power to inform its review and identify the material changes to the BRCPs calculation expected due to the change in the BT. This informed our assessment of which cost components needed updating. We also considered whether the change in reference technology changes investors' expectations of future cashflows, and how that may affect the method to annualise costs in the BRCP calculation.

2.1 Matters outside the ERA's scope

As part of this review, the ERA has not reviewed the parameters of the BRCP that are within the Coordinator of Energy's determination of the BT, such as the appropriateness of the reference technology, its technical parameters and location.[33]

The ERA has not considered a BESS investor's expected revenue streams from the Real-Time Market or Frequency Co-optimised Essential System Services markets that could offset the BESS's capital costs. This is consistent with the Coordinator's determination that the BRCPs must be calculated on a gross CONE basis and to not consider expected revenues from participation in other markets.[34]

[33] Electricity System and Market Rules (WA), 1 January 2026, Rule 4.16.12, (online)

[34] Energy Policy WA, 2025, *2025 Review of the Benchmark Capacity Providers: Coordinator of Energy Determination*, p. 4, (online).

Given the Coordinator has determined an unconstrained network location for the BT along the Clean Energy Link – North, the application of the network access quantities regime will not affect the allocation of Capacity Credits to the BT, and subsequently the method to determine the BRCPs.[35]

2.2 Summary of the ERA's procedure change proposal

On 13 November 2025, the ERA published procedure change proposal with a draft WEM Procedure for a 4-week public consultation period.[36] The proposal advocated to retain:

- Lithium iron phosphate as the BESS sub-chemistry, given it remains the benchmark for reliability and market acceptance for BESSs in Australia.
- Existing capital cost and fixed O&M cost components, as these cost drivers are typical of BESS facilities. Land cost, as a component of capital cost, will remain, and the approach to estimate the input as an average of land costs in the specified areas also remain; however, there are changes to the size and location of land, discussed below.
- An annualisation period of 15 years, as the approach to plant life and operational assumptions remain unchanged. This continues to align with investors' expectations and typical BESS project financing periods.
- The rate of return as a nominal pre-tax weighted average cost of capital (WACC), with annual parameters being reviewed and fixed parameters remaining the same.
- An annuity tilt of 1.0 to provide certainty to investors and to not impose additional costs on consumers.

The material changes proposed to the BRCPs WEM Procedure were:

- Changing the BESS design specifications to align with the Coordinator's determination on the BTs (i.e. 1,200 MWh/ 6-hour BESS storage capacity).
- Greater land size of 7.3 hectares to accommodate the larger facility, based on advice from GHD.[37]
- Identifying areas along the Clean Energy Link – North transmission line to be used to determine land prices consistent with the Coordinator's BTs determination.

35 The network access quantity is a new element of the RCM that provides a cap on the amount of Capacity Credits a facility can receive based on the available network capacity at the relevant connection point. AEMO determines each facility's network access quantity. See: Electricity System and Market Rules (WA), 1 January 2026, Clause 4.15, (online).

36 Economic Regulation Authority, 2024, *Procedure Change Proposal: Benchmark Reserve Capacity Price – EEPC_2025_01*, (online).

37 GHD, 12 November 2025, *Benchmark Lithium BESS Costs WEM Procedure – BRCP Update*, p.8, (online).

3. Stakeholder feedback on the ERA's proposal

This chapter outlines the stakeholder received from:

- The MAC
- Public submissions from Perth Energy, WA Expert Consumer Panel (ECP), Alinta Energy and Synergy.

On 2 December 2025, the ERA also hosted a public industry forum to discuss its proposal. Stakeholders provided feedback that was reiterated in their written submissions, which is discussed further below.

3.1 MAC

At the MAC meeting on 4 September 2025, the ERA Secretariat sought the MAC's views on whether it would convene a working group to inform the BRCP WEM Procedure review.[38] The MAC Chair consulted with MAC members, ultimately deciding that the MAC would provide feedback to the ERA directly at a future MAC meeting.

At the MAC meeting on 16 October 2025, the ERA Secretariat discussed the proposed scope and timeline for the WEM Procedure review.[39]

At the MAC meeting on 20 November 2025, the ERA Secretariat discussed the procedure change proposal and Draft WEM Procedure with the MAC and considered their feedback in developing this procedure change report.[40] The MAC was generally supportive of the ERA's proposal, and provided additional comments for consideration regarding:

- The level of 'oversizing' of the Benchmark Technology to meet capacity obligations. This is further discussed in section 4.1of this report.
- Inclusion of additional fixed O&M cost components, such as the Construction Training Fund Levy and community benefit sharing arrangements. This is further discussed in section 4.2.3 of this report.

3.2 Public submissions

The ERA sought feedback on its procedure change proposal by 11 December 2025. The ERA received four stakeholder submissions from Perth Energy, WA Expert Consumer Panel (ECP), Alinta Energy and Synergy. [41,42,43,44] A summary of stakeholder responses and the ERA's response is detailed in Appendix 3.

38 Market Advisory Committee, 4 September 2025, Meeting Minutes – Item 6(d), (online).

39 Market Advisory Committee, 16 October 2025, Meeting Minutes – Item 6, (online).

40 Market Advisory Committee, 20 November 2025, Meeting Minutes – Item 6, (online).

41 Perth Energy, 2025, *Submission to the ERA's procedure change proposal EEPC_2025_01,* (online).

42 Expert Consumer Panel, 2025, *Submission to the ERA's procedure change proposal EEPC_2025_01*, (online).

43 Alinta Energy, 2025, *Submission to the ERA's procedure change proposal EEPC_2025_01*, (online).

44 Synergy, 2025, *Submission to the ERA's procedure change proposal EEPC_2025_01*, (online).

3.2.1 Concern regarding the general increase in costs

The ECP expressed concern about the higher costs that will be borne by electricity consumers following the change in the Benchmark Technology to a 6-hour BESS. In their submission to the ERA's proposal, the ECP highlighted the potential for extra capacity costs being transferred away from investors to consumers due to the BESS capital cost, the extra allowance for energy storage (10%) and a change to the cost estimate accuracy class from +/-50 per cent to AACE Class 5 (+100 per cent/-50 per cent).

The ECP also urged the ERA to avoid unnecessary inclusion in the WEM Procedure that would increase costs to consumers, and consider the material net revenues being earned by BESS in the Real-Time and FCESS markets.

The ERA acknowledges the expected increase in cost to consumers. The ERA has drafted the WEM Procedure to balance providing the market with certainty and clarity on how the ERA will determine the BRCPs annually, while complying with the Coordinator's BT determination. The ERA did not consider the BESS's expected revenues from participation in other markets consistent with the Coordinator's determination that the BRCP be estimated on a gross CONE basis.

4. The updated WEM Procedure

This chapter outlines the ERA's amendments to the WEM Procedure. The relevant clauses of the updated WEM Procedure (Appendix 1) are described in the yellow boxes.

4.1 Operational specifications

The ERA has assumed that the BESS must be able to provide 200 MW injection capacity and 1,200 MWh energy storage on its first day of operation, that is, 1 October in Year 3 of a Reserve Capacity Cycle. For this 2026 Reserve Capacity Cycle, this would be 1 October 2028 (for the 2028/29 capacity year).

Alinta Energy supported the continuation of the approach to adequately size the BESS to ensure that it receives enough capacity credits. Alinta agreed with GHD's suggestion that the size of the BESS, with any additional capacity (25 per cent uplift in power capability and 10 per cent uplift in energy capacity) be specified in the WEM Procedure to remove ambiguity.

Perth Energy suggested that additional battery capacity to meet capacity credit requirements should be in relation to its "deliverable" or "usable" capacity rather than its "installed" capacity. Perth Energy considered this can be achieved through a direct reference to the minimum charge level, as BESS operators do not fully discharge these facilities and a minimum charge of 20 per cent is usually always held. Perth Energy suggested the following modifications to the WEM Procedure:

- Clause 2.1.6(d) to read: *Include the minimum level of equipment or system required by the ESM Rules and to sustain the maximum discharge level*, instead of having enough energy storage capacity to enable 1,200 MWh charge and discharge.
- Clause 2.1.7 by adding an obligation on the consultant to determine "*(c) the maximum discharge level"*.

The ECP queried whether a 20 per cent minimum discharge level is too high and would unnecessarily add to the capital cost of the BESS. The ECP suggested that a BESS can discharge to as low as 3 per cent without degrading its life. Given that a 10 per cent uplift in the BESS's size is already proposed, the ECP queried whether a minimum discharge level is really needed.

Similar concerns around minimum discharge and additional capacity sizing were also raised by representatives from Perth Energy and Alinta Energy at the MAC meeting on 20 November 2025.[45]

After considering stakeholder feedback and additional advice from GHD, the ERA will retain the current approach of *not* specifying the uplift or the minimum state of charge (SOC) in the WEM Procedure, but will continue to determine these parameters in the ERA's annual BRCP determinations.[46]

This approach will require the BT's size to comply with certification requirements and not be at a size and cost greater than necessary to meet the BT requirements. This way, the WEM Procedure allows the ERA to incorporate BESS technological advancements which can change the level of additional sizing required to meet the minimum BRCP requirements,

[45] Market Advisory Committee, 20 November 2025, Meeting Minutes – Item 6, (online).

[46] In December 2025 after considering stakeholder feedback, GHD provided the ERA with an additional memorandum of advice, which is available in Appendix 2 of this report.

particularly as energy density and battery cell chemistry advances. Additionally, this approach allows the ERA's BRCPs determination to adapt to the ESM Rule reserve capacity certification requirements at the time of determination. To summarise, the WEM Procedure will explicitly specify the Coordinator's requirements for power capacity (200 MW injection) and usable energy storage capacity (1,200 MWh charge and discharge) for the BESS.

Additionally, given that the maximum discharge level for a BESS is an operational consideration and is dependent on the facility, with system recommended minimum state of charge varying between original equipment manufacturers, the WEM Procedure will not specify a maximum discharge or minimum state of charge level.

Further, the ERA proposes to retain lithium iron phosphate (LFP) as the appropriate sub-chemistry in the WEM Procedure. This is consistent with the ERA's proposal, which noted that GHD advised that the LFP sub-chemistry remains an investors' technology of choice and has the best technical characteristics – such as cost, life span, safety risk, performance and energy density – compared to other lithium sub-chemistries.[47]

4.2 Capital costs

4.2.1 Land costs

The current WEM Procedure outlines the approach to estimate land costs, which is based on a 6.5-hectare land area in the Pinjar and Kwinana regions. At present, the land cost estimate is based on the average land cost of these two regions as provided by Landgate.

The ERA is amending the land size and method to estimate land costs to be consistent with the Coordinator of Energy's BT determination.

4.2.1.1 Size

The capital cost of a BT must include land costs, which includes the cost of land that is large enough to accommodate the BT, a substation, and transmission network connection assets such as the Western Power substation and buffer zones.

GHD advised that a larger land size is required, primarily due to additional battery containers being required to meet the 200 MW, six-hour BESS (1,200 MWh) requirements (previously a 200 MW, four-hour BESS (800 MWh)).

Consistent with its proposal, the ERA is amending the land size specified in the WEM Procedure to 7.3 hectares, based on:

- the expected increase in the BESS facility area (3.8 hectares).[48]
- GHD and Western Power's advice that land size for the BESS substation, connecting assets to the Western Power substation, including the Western Power substation, and all buffer zones remain the same as the existing Procedure (3.5 hectares).

[47] Economic Regulation Authority, 2024, *Procedure Change Proposal: Benchmark Reserve Capacity Price* – EEPC_2025_01, p. 11, (online).

[48] GHD's draft report is provided in Appendix 2. See: GHD, 2025, *Benchmark Lithium BESS costs, WEM Procedure BRCP Update*, Report for the Economic Regulation Authority, pp 8-9.

4.2.1.2 Location

As noted earlier, the Coordinator has determined that the Benchmark Technology must be located on a 330kV transmission line located on the Clean Energy Link – North.[49]

The WEM Procedure specifies a single land cost based on the average land price of the following eight locations on the Clean Energy Link – North:

1. Three Springs
2. Eneabba
3. Badgingarra
4. Cataby
5. Gingin
6. Muchea
7. Pinjar
8. Neerabup.

This is unchanged from the ERA's proposal.

4.2.1.3 Approach to estimating land cost

The ERA will retain its approach of using the average of the land costs across the eight locations along the Clean Energy Link – North. This is consistent with its previous approach and its proposal.[50]

Synergy suggested that the ERA's approach will mask the land variations in property uses, zonings and locations. Synergy proposed alternative valuation approaches, such as segmented averages along the Clean Energy Link – North and relying on analysis of comparable land sale data in the vicinity to derive a more accurate assessment.

The ERA acknowledges that there can be a range of appropriate methods to estimate land costs. The ERA's approach of an average land cost complements the generic cost estimation approach to estimate the BRCP inputs and is also consistent with the method to estimate the land cost input in the previous determination methods.

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49 The Coordinator of Energy determined the Benchmark Technology on 30 September 2025 and made an addendum to the location of the determination on 9 October 2025. See: Energy Policy WA, *2025 Review of the Benchmark Capacity Providers: Coordinator of Energy Determination* (online).and Energy Policy WA, 2025 *Review of the Benchmark Capacity Providers: Coordinator of Energy Determination Addendum* (online).

50 For the 4-hour BESS, the ERA calculated a single average price based on generic prices across both the Pinjar and Kwinana regions. The ERA proposes to retain the method of averaging a single land cost across the eight locations on the Clean Energy Link- North regions

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- Clauses 3.5.4 and 3.5.7 require the ERA to estimate land costs to accommodate the Benchmark Technology based on the average land cost for the eight locations on the Clean Energy Link – North.
- Clauses 3.5.4 and 3.5.5 require the land valuer to assess the eight locations along the Clean Energy Link – North and estimate land costs of a 7.3-hectare area within each of these locations.

4.2.2 Fixed Capital Charge

In its procedure change proposal, the ERA proposed a new clause in the draft WEM Procedure which would allow the ERA's annual BRCP determinations to include "any other reasonable fixed transmission capital costs". Since then, the State Government has proposed a fixed capital charge to apply to new capacity providers as part of their transmission connection costs.

On 4 December 2025, the Department of Energy and Economic Diversification published a consultation paper outlining a new Fixed Capital Charge (FCC).[51] If adopted, all new and expanded generation storage and load connections that are 10 MW or larger must pay a $100,000 per MW charge. Applicable from 1 July 2026, the FCC would replace the current capital contribution arrangements for shared assets on the transmission system only with generation, storage and load applicants that are 10 MW or larger continuing to pay all of their direct connection costs.

The ECP expressed concern that including the FCC as a transmission cost in the WEM Procedure will transfer shared transmission costs, normally covered by network tariffs, into the WEM's reserve capacity cost. The ECP queried whether the FCC should be added to the fixed costs assumed for the BRCPs in future as this will increase total WEM capacity market costs more than necessary to provide an adequate revenue stream to new entrant generators only.

The ERA considers that the aim of the BRCP determination is to derive a price reflective of all fixed costs expected to be incurred when constructing the Benchmark Technology into the SWIS. Ignoring this cost could result in inadequate compensation of potential capacity investment, which would undermine the objective of the RCM. Further, the FCC is a fixed capital cost, and therefore it is appropriate to incorporate into the BRCP determination which must include fixed capital costs. Consequently, the ERA has included a new clause in the WEM Procedure that includes the FCC in the ERA's annual BRCP determinations.

While the FCC is not expected to take effect until 1 July 2026, it will be applicable to the BT commissioned in 2028/29. As a result, the FCC will be included in the ERA's 2026 BRCP determination for 2028/29, which is due by 15 March 2026.

Consistent with the ERA's proposal, the WEM Procedure will include an additional line item of "any other reasonable fixed transmission capital costs" to incorporate any reasonable costs that may arise which are not explicitly stated in the WEM Procedure.

[51] Department of Energy and Economic Diversification, 2025, *Consultation Paper: Fixed Capital Charge,* (online).

Changes to the WEM Procedure

- Clause 3.4.6(f) Any other reasonable fixed transmission capital costs.
- Clause 3.4.10 The Fixed Capital Charge (FCC) is payable by all new and expanded generation storage and load connections that are 10 MW or larger

4.2.3 Other direct and upfront costs

Alinta considered that provisions to recover "direct and upfront" costs and fixed O&M costs should include the costs of ongoing community benefit sharing arrangements as well as compulsory monetary contributions to third parties. Alinta considered there are additional costs beyond technical construction and operational expenses, which may include:

- the establishment, administration and disbursement of community benefit sharing arrangements, which are expected as part of responsible project development; and
- any compulsory monetary contributions to third parties such as the Construction Training Levy.

Alinta considered that these additional costs should be incorporated into the cost recovery framework to ensure that the regulated pricing arrangements capture all necessary compliance and social obligations, so that the BRCP accurately reflects the expected annualised capital cost and the annual fixed operating and maintenance cost of the BT.

The ERA notes Alinta's feedback, but considers that these cost components do not need to be explicitly specified in the WEM Procedure. The current WEM Procedure already includes allowances for a range of indirect and compliance-related costs. For example, the estimate for environmental and development approvals was originally developed to account for compulsory contributions, including the Construction Training Fund.

Given the existing provisions, the ERA considers that the WEM Procedure is sufficiently robust to capture typical compliance and administrative costs associated with the BT's project delivery and the ERA can consider these costs as part of the annual BRCP determination process on a case-by-case basis.

4.2.4 Annuity tilt

The ERA is retaining the annuity tilt factor at 1.0, consistent with its approach in its proposal.

Alinta suggested amending the annuity tilt from a fixed to variable parameter in the WEM Procedure. Alinta noted that an annuity tilt of 1.0 was appropriate while the BRCP is not declining. In circumstances where capital costs are reducing, the tilt should be adjusted to avoid under-recovery of fixed costs by new entrants. Alinta recommended the WEM Procedure list the circumstances where the tilt can be adjusted such as where the BRCP is lower than the previous determination, which would support investment certainty associated with future BRCP determinations and allow the ERA to adjust the annuity tilt without further amendment to the Procedure.

The ERA acknowledges Alinta's concern but considers that there are benefits for retaining the tilt at 1.0 as outlined in our proposal.

The introduction of the BESS as the reference technology in 2023, with capital costs calculated on a gross cost of new entry basis, have already set the BRCP for the WEM substantially

higher than when the reference technology was an open cycle gas turbine. The recent change in the reference technology to a larger 6-hour BESS will further increase capital costs. The tilt factor will then add significantly to the already substantially higher BRCP in the early years of investment. Given the potential for an immediate and considerable increase in prices for consumers, and having regard to the State Electricity Objective, the ERA considers there is merit in retaining the tilt factor to address concerns regarding falling capital costs in the future, and to retain its value of 1.0 to neutralise it at the present time.

The ERA will monitor the market over the coming years and reevaluate the value of the tilt factor if necessary.

4.2.5 WACC

The ERA is retaining its approach of using the WACC as the appropriate rate of return for the funding costs required by investors to provide investment capital for the project and compensates investors for the risk of committing funds.

The ECP stated that in considering the procedure change the ERA had discretion to ensure the risk premiums applied in calculating the WACC should reflect the actual level of risk associated with BESS projects. The ECP considered that BESS revenue streams are more certain under the RCM and therefore risk is lower compared to other energy projects (especially in different regulatory markets that do not have a capacity market). The ECP requested that the ERA review the risk premiums currently assumed and consider lowering them to better align with the true risk profile of BESS investments if this is appropriate.

The ERA acknowledges the ECP's position to ensure that the BRCP appropriately recognises the risks, and therefore returns, of a new BT (6-hour BESS). While the RCM does have an effect to reduce risksthere are also other ways BESS projects reduce risk. For example, BESS projects can manage risk through entering into long-term bilateral agreements. In assessing the appropriate WACC for the BRCP, the ERA recognises that other BESS projects commonly enter into such long-term agreements to manage risk and therefore revenues are more certain.

The ERA considers that the WACC approach reflects the characteristics of a new BT BESS project for the purposes of satisfactorily determining the BRCP. Therefore, the WACC approach in the procedure remains unchanged.

4.3 Procedure administration and guidance on future reviews

The ERA has made the following administrative changes to the WEM Procedure, largely to reflect changes in timing and terminology in updated ESM Rules.

WEM Procedure

- Clause 1.4.2 defines the timeline when the BRCPs are required to be published according to the ESM Rules.
- References to:
  - "WEM Rules" changed to "ESM Rules"
  - "Benchmark Capacity Provider" changed to "Benchmark Technology".

Appendix 1 Updated WEM Procedure

The updated *WEM Procedure: BRCP* (version 9) is available on the ERA's website (online).

The *WEM Procedure: BRCP* will take effect on 19 January 2026.

Appendix 2 GHD's report

The ERA engaged GHD to provide advice on the cost components, estimation method and drivers of BESS technologies for the purpose of reviewing and updating the WEM Procedure. GHD's report was published on the ERA's website as part of the ERA's procedure change proposal (online).

After considering stakeholder feedback on the ERA's procedure change proposal, GHD provided a memorandum with advice to further clarify BESS operational specifications in December 2025.

GHD's memo is available on the ERA's website (online).

Appendix 3 Summary of stakeholder submissions

Table 2: Summary of stakeholder submissions

Entity	Stakeholder feedback	The ERA's response
Operational specifications – BESS minimum charge		
Perth Energy	The MWh capacity of the BESS needs to be defined as its deliverable or usable capacity rather than its installed capacity because a minimum charge of around 20% or so is always held. Suggest modifying clauses 2.1.6(d) and 2.1.7.	The ERA specifies the usable charge and discharge energy capacity as 1,200 MWh in the WEM Procedure as per the Coordinator's determination. Given the operational variability and the emphasis on usable energy capacity (required MWh charge/discharge), the WEM Procedure will not be modified to include the suggested additional clauses. Further explanation is provided in GHD's memo.
ECP	Discharge limit of 20% seems unnecessary high as with current technology BESS can discharge to much lower charge levels (like 3-4%) without degrading the life and performance of the BESS unacceptably. Further, the 10% oversizing may already cover a more realistic minimum discharge level given the assumed oversizing of energy storage capacity may be higher than necessary to cover degradation up to the point of initial operation of the BESS.	Specific values for uplift and sizing have not been specified in the WEM Procedure as they are dependent on the technology at the time of the BRCP determination.
Operational specifications – Oversizing		
Alinta Energy	Support the continuation of the approach to 'over-size' the BESS (power capability (total inverter capacity and oversizing of energy capacity (amount of installed battery modules)) uplift of 25 per cent to enable compliance with the Coordinator's BT determination. This approach is essential to ensure sufficient incentive is provided to invest in facilities to meet forecast demands of the SWIS. The WEM procedure should specify the degree of oversizing required to maintain confidence in the determination of the BRCP and uphold the integrity of the RCM.	Specific values for BESS sizing are not specified in the Procedure due to variation in uplift and sizing that will be considered at the time of the BRCP determination (as addressed above).
Input costs		
ECP	While the proposed FCC is unlikely to be implemented in time for incorporation into this WEM Procedure change, it raises the question of whether it should be added to the fixed costs assumed for the BRCP. In our view, it does not appear to be a good practice to transfer shared transmission costs covered by network tariffs into the reserve capacity mechanism. This may	This cost will apply from 1 July 2026 if the FCC is adopted. The FCC would be a fixed capital cost and should be part of total efficient costs. A new clause has been added to the WEM Procedure to explicitly include the Fixed Capacity

Entity	Stakeholder feedback	The ERA's response
	have perverse outcomes and may increase the already high BRCP further.	Charge as a BRCP transmission cost component.
Synergy	While the ERA's proposed approach to determining land costs is reasonable for high-level benchmarking, it will mask the land variations in property uses, zonings and locations. Synergy proposes alternative valuation approaches.	Using the average land cost of the eight locations identified along the Clean Energy Link – North is a balanced approach consistent with achieving the long-term interests of consumers as per the State Electricity Objective.
Alinta Energy	Provisions for recovering 'direct and upfront' and 'fixed O&M' costs should explicitly recognise obligations that extend beyond technical construction and operational expenses. These should include the costs associated with: The establishment, administration and disbursement of community benefit sharing arrangements which are expected as part of responsible project development Any compulsory monetary contributions to third parties such as the Construction Training Levy Fund.	The current WEM Procedure already includes allowances for a range of indirect and compliance-related costs. The existing provisions in the WEM Procedure sufficiently capture these typical compliance and administrative costs associated with constructing the Benchmark Technology. The ERA can consider these costs as part of the ERA's annual BRCP determination process on a case-by-case basis.
Annualisation elements		
ECP	The risk premiums applied in calculating the WACC should reflect the actual level of risk associated with BESS projects. The RCM provides stable and secure source of income meaning the risk for debt and equity are relatively low. The ECP urges the ERA to review the risk premiums currently assumed and consider lowering them to better align with true risk profiles of BESS investments if this is appropriate.	The risk premiums outlined in the Procedure continue to be appropriate for the BRCP. The WACC in the BRCP is based on other BESS projects with similar levels of revenue certainty. BESS projects commonly manage risk by entering into long-term bilateral arrangements.
Alinta Energy	The annuity tilt should be modifiable if certain criteria are met. While the annuity tilt of 1.0 is appropriate while the BRCP is not declining, in circumstances where capital costs are reduced, the tilt should be adjusted to avoid under-recovery of fixed costs by new entrants. Alinta recommended the WEM Procedure list the circumstances where the tilt can be adjusted such as where the BRCP is lower than the previous determination, which would support investment certainty associated with future BRCP determinations and allow the ERA to adjust the annuity tilt without further amendment to the Procedure.	The Procedure retains a tilt of 1.0. The introduction of the BESS as the reference technology in 2023, with capital costs calculated on a gross cost of new entry basis, have already set the BRCP for the WEM substantially higher than when the reference technology was an open cycle gas turbine. The recent change in the reference technology to a larger 6-hour BESS will further increase capital costs. The tilt factor will then add significantly to the already substantially higher BRCP in the early years of

Entity	Stakeholder feedback	The ERA's response
		investment. Given the potential for an immediate and considerable increase in prices for consumers, and having regard to the State Electricity Objective, the ERA considers there is merit in retaining the tilt factor to address concerns regarding falling capital costs in the future, and to retain its value of 1.0 to neutralise it at the present time. The ERA will monitor the market over the coming years and reevaluate the value of the tilt factor if necessary.
Other		
Perth Energy	Perth Energy supports proposed changes to the WEM Procedure.	Noted.
Synergy	Synergy supports the ERA's review of the WEM Procedure. Synergy also responded to the questions posed in the procedure change proposal. Overall, Synergy considers the ERA's approach outlined in the procedure change proposal reasonable noting it does not expect significant implications or implementation costs for its organisation.	
ECP	The ECP supports the ERA's proposed changes to the WEM procedure to reflect the Coordinator's BT determination and support retention of the aspects of the current procedure that are listed in the procedure change proposal.	
	The ECP asks the ERA to avoid unnecessary inclusion in the WEM Procedure that would increase costs to consumers and take into account (or at least bear in mind) the material net revenues being earned by BESS in real-time and FCESS markets where the ERA has discretion and uses judgement to decide.	
	It is concerning that GHD's new cost estimates to be up to higher than actual as GHD proposes to update its cost estimate accuracy class from +/-50 per cent in its previous report to +100/-50 per cent. The ECP asks the ERA to consider whether this is reasonable and suggest GHD's accuracy should be revised.	GHD advised that although most of its estimates are greater than the AACE Class 5 (+100% / -50%), since some of their estimates are at this level, they cannot state that their overall estimate is at a higher level of accuracy. Additionally, the contingency amounts incorporated into the estimates have increased which is part of this change in estimating accuracy.

Entity	Stakeholder feedback	The ERA's response
		The AACE Class 5 estimate is consistent with the valuation Western Power uses in its transmission costs estimates during initial scoping. This is further presented in GHD's memo.

Appendix 4 List of Tables