Economic Regulation Authority

WEM Procedure

Benchmark Reserve Capacity Prices

Version 9

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Name:	Jenness Gardner
Title:	Chief Executive Officer, Economic Regulation Authority

ELECTRICITY INDUSTRY ACT 2004

ELECTRICITY INDUSTRY (ELECTRICITY SYSTEM AND MARKET) REGULATIONS 2004

ELECTRICITY SYSTEM AND MARKET RULES

COMMENCEMENT

This Procedure took effect from 8:00am (AWST) on the same date as the Wholesale Electricity System and Market (**ESM**) Rules (formerly the Wholesale Electricity Market Rules).

VERSION HISTORY

Version	Effective Date	Notes
1	13 October 2008	Market Procedure developed to determine the Maximum Reserve Capacity Price resulting from procedure change PC_2008_06.
2	4 December 2008	Amendments resulting from procedure change PC_2008_14.
3	1 April 2010	Amendments resulting from procedure change PC_2009_12.
4	11 October 2010	Amendments resulting from procedure change PC_2010_04.
5	24 October 2011	Amendments resulting from procedure change PC_2011_06.
6	15 January 2013	Amendments resulting from procedure change PC_2012_08.
7	9 November 2020	Amendments resulting from procedure change EEPC_2020_02.
8	1 August 2024	Amendments resulting from procedure change EEPC_2024_01.
9	19 January 2026	Amendments resulting from procedure change EEPC_2025_01.

Contents

1. BACKGROUND

1.1 Purpose of this WEM Procedure

1.1.1 Unless otherwise specified, a reference in this WEM Procedure to:

(a) Benchmark Reserve Capacity Prices (**BRCPs**) means both the Peak Benchmark Reserve Capacity Price (**Peak BRCP**) and the Flexible Benchmark Reserve Capacity Price (**Flexible BRCP**);

(b) Benchmark Technology means both the Benchmark Flexible Technology and the Benchmark Peak Technology and

(c) Capacity Credits means both Peak Capacity Credits and Flexible Capacity Credits.

1.1.2 This WEM Procedure documents the method and processes that the Economic Regulation Authority (**ERA**) must follow in determining the BRCPs for each Reserve Capacity Cycle. **[ESM Rule 4.16.3]**

1.1.3 The ERA must manage the development of, amendment of, and replacement of this WEM Procedure. **[ESM Rule 2.9.2B]**

1.1.4 The ERA, the Australian Energy Market Operator (**AEMO**) and Rule Participants must follow this WEM Procedure when conducting any review and consultation in accordance with this WEM Procedure. **[ESM Rule 4.16.3(a)]**

1.2 Relationship with the ESM Rule

1.2.1 References to specific ESM Rules within this Procedure are in bold and square brackets **[ESM Rule #]** and are current as of 1 January 2026.[1] These references are included for convenience only and are not part of this WEM Procedure.

1.2.2 Unless the contrary intention is expressed:

(a) Terms used in this WEM Procedure have the same meaning as those given in the ESM Rules.

(b) To the extent that this WEM Procedure is contrary or inconsistent with the ESM Rules, the ESM Rules prevail to the extent of the inconsistency. **[ESM Rule 1.5]**

1.3 Associated WEM Procedures and Guidelines

1.3.1 The following WEM Procedures and Guidelines are associated with this WEM Procedure:

(a) Procedure Administration [Coordinator of Energy Procedure];

(b) Mid Peak and Flexible Electric Storage Resource Obligation Intervals [AEMO Procedure];

[1] Electricity System and Market Rules (WA), 1 January 2026, (online).

(c) Capacity Credit Allocations [AEMO Procedure];

(d) Communications and Control Systems [AEMO Procedure]; and

(e) Offer Construction Guideline [ERA guideline].

1.4 Annual determination of the BRCPs

1.4.1 The ERA must annually revise the value of the BRCPs using the method described in this WEM Procedure. **[ESM Rule 4.16.3(b) and 4.16.5]**

1.4.2 The ERA must determine the BRCPs and publish them by the date required by the ESM Rules. **[ESM Rules 4.1.4, 4.1.19 and 4.16.3(b)]**

1.4.3 The ERA must prepare a draft report describing how it has arrived at the BRCPs' revised values. The ERA must publish this report on its website and request submissions from all sectors of the Western Australia energy industry, including end-users. **[ESM Rule 4.16.6]**

1.4.4 After considering the submissions on its draft report, the ERA must publish final revised values for the BRCPs in a final report that includes the submissions received on the draft report. The ERA must publish the revised values and the final report on its website. **[ESM Rule 4.16.7]**

1.4.5 Proposed revised values for the BRCPs become the BRCPs after the ERA has posted a notice on its website of the new values of the BRCPs, with effect from the date and time specified in the ERA's notice. **[ESM Rule 4.16.8]**

1.4.6 Within five days of publication of the BRCPs by the ERA, AEMO must publish the BRCPs on the WEM Website. **[ESM Rule 4.16.8A]**

1.5 Review of this WEM Procedure

1.5.1 The ERA must review this WEM Procedure and undertake a public consultation process as part of that review:

(a) at least once in every five-year period; and

(b) within one year of the Coordinator of Energy's review of the BRCPs, where the Coordinator of Energy's review determines a change to any Benchmark Technology. **[ESM Rule 4.16.9]**

1.5.2 If the ERA recommends changes in its review, the ERA must either submit a Rule Change Proposal or initiate a Procedure Change Process, as appropriate, to implement those changes. **[ESM Rule 4.16.10]**

1.5.3 The development, amendment or replacement of this WEM Procedure must follow the process in the ESM Rules. **[ESM Rule 2.9.3(a)]**

1.5.4 If the WEM Procedure must be amended or replaced to maintain consistency with the Amending Rules, the ERA must amend or replace this WEM Procedure by following the process in the ESM Rules. **[ESM Rule 2.9.3(b)]**

2. DETERMINATION OF THE BRCPs

2.1 Benchmark Technology

2.1.1 The Benchmark Peak Technology is a notional new Facility which is expected to be able to provide Peak Capacity at the lowest annual capital cost and annual fixed operating and maintenance costs. **[Glossary in the ESM Rules]**

2.1.2 The Benchmark Flexible Technology is a notional new Facility which is expected to be able to provide Flexible Capacity at the lowest annual capital cost and annual fixed operating and maintenance costs. **[Glossary in the ESM Rules]**

2.1.3 The Coordinator of Energy must determine the Benchmark Technology by the earlier of:

(a) within six months of the revised Electricity Storage Resource (**ESR**) Duration Requirement being published in the Electricity Statement of Opportunities, if the ESR Duration Requirement determined by AEMO is different from the ESR Duration Requirement for the previous Reserve Capacity Cycle; or

(b) within three years of the previous determination of the Benchmark Technology. **[ESM Rule 4.16.11]**

2.1.4 When determining the Benchmark Technology, the Coordinator of Energy must determine:

(a) the appropriate reference technology to be used for each Benchmark Technology;

(b) the technical parameters to be used for each Benchmark Technology, including size and capabilities;

(c) the uncongested network location to be used for each Benchmark Technology, or if there is no uncongested network location, a network location with relatively low congestion; and

(d) whether the relevant Benchmark Reserve Capacity Price is to be assessed on the basis of:

(i) the gross capital cost of the relevant Benchmark Technology; or

(ii) the capital cost of the relevant Benchmark Technology less any expected contribution to capital costs from participation in the Real-Time Market. **[ESM Rule 4.16.12]**

2.1.5 The Benchmark Technology is a lithium battery energy storage system (**BESS**) with:

(a) 200 megawatt (MW) injection;

(b) 1,200 megawatt hours (MWh) of energy storage;

(c) a 330 kilovolt (kV) connection; and

(d) located in an unconstrained connection on Clean Energy Link - North. [2,3]

2.1.6 Further to Clause 2.1.5 of this WEM Procedure, the Benchmark Technology must:

(a) Use a lithium iron phosphate sub-chemistry;

(b) Have an installed capacity that enables 200 MW injection on 1 October of Year 3 of the Reserve Capacity Cycle;

(c) Have enough energy storage capacity to enable 1,200 MWh discharge on 1 October of Year 3 of the Reserve Capacity Cycle; and

(d) Include the minimum level of equipment or systems required by the ESM Rules.

2.1.7 The ERA may engage a suitably qualified consultant to identify the appropriate factors affecting power and energy capacity requirements as per Clauses 2.1.6(b), 2.1.6(c) and 2.1.6(d) of this WEM Procedure. These factors include but are not limited to:

(a) Power capacity, which include:

(i) Temperature derating for operation at 41 degrees Celsius **[ESM Rule 4.10.1(fA)(ii)]**;

(ii) Reactive power compensation for required levels according to the ideal generator performance standards in the ESM Rule **[ESM Rule A12.3.3]** and expected equipment losses;

(iii) Voltage stability requirements in accordance with ESM Rules **[ESM Rule A12.4.2]**; and

(b) Energy capacity, which includes capacity loss from time based (calendar fade) and temperature-based battery degradation that occurs during the time between battery enclosure delivery and energisation.

2.2 Components of the BRCPs

2.2.1 The BRCPs must include all reasonable costs expected to be incurred in the development of the Benchmark Technology.

2.2.2 The BRCPs must reflect the expected annualised capital cost and the annual fixed operating and maintenance cost of the Benchmark Technology, expressed in dollars per megawatt of Capacity Credits expected to be assigned to the Benchmark Technology. **[ESM Rules 4.16.2 and 4.16.2A]**

2.2.3 The ERA must use the following formula to determine the BRCPs:

$$BRCP = \frac{CAPITAL\ COST_{Annualised} + FIXED\ O\&M\ COST_{Annual}}{CAPACITY\ CREDITS}$$

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

[3] Energy Policy WA, 9 October 2025, *2025 Review of Benchmark Capacity Providers: Coordinator of Energy Determination, Addendum*, (online).

Where:

(a) $CAPITAL\ COST_{Annualised}$ is a Benchmark Technology's annualised capital cost in Australian Dollars per year ($/Year) as estimated in Section 3 of this WEM Procedure, that is:

(i) Calculated using the formula in Clause 3.1.1 of this WEM Procedure;

(ii) Annualised over a 15-year period using a nominal Weighted Average Cost of Capital (**WACC**) as estimated in Section 4.2 of this WEM Procedure; and

(iii) Adjusted by a tilt factor as explained in Section 4.1 of this WEM Procedure.

(b) $FIXED\ O\&M\ COST_{Annual}$ is a Benchmark Technology's annual fixed operating and maintenance cost in Australian Dollars per year ($/Year) as determined in Section 5 of this WEM Procedure; and

(c) $CAPACITY\ CREDITS$ are the Benchmark Technology's Capacity Credits expected to be assigned by AEMO for Year 3 of the Reserve Capacity Cycle in megawatts (MW).

3. CAPITAL COSTS

3.1 Determination of capital costs

3.1.1 The ERA must estimate $CAPITAL\ COST$ using the following formula:

$$CAPITAL\ COST = [PC \times (1 + M) + TC + LC] \times (1 + WACC)^{0.5}$$

Where:

(a) PC is the estimate of plant costs as per Clauses 3.3, 3.6, 3.8 and 3.9 of this WEM Procedure;

(b) M is a margin to cover legal, financing and insurance costs, expressed as a fraction of plant costs (PC), as per Section 3.7 of this WEM Procedure;

(c) TC is the estimate of transmission costs as per Section 3.4 of this WEM Procedure;

(d) LC is the estimate of land cost as per Section 3.5 of this WEM Procedure; and

(e) $WACC$ is the WACC as per Section 4.2 of this WEM Procedure.

3.2 Summary of capital cost components

3.2.1 The ERA must estimate the following capital costs of the Benchmark Technology:

(a) Supply and installation costs as per Section 3.3 of this WEM Procedure;

(b) Transmission connection capital cost and land cost as per Section 3.4 and Section 3.5 of this WEM Procedure;

(c) Other reasonable costs, including:

(i) Owner's design and project management as per Section 3.6 of this WEM Procedure;

(ii) Legal, financing and insurance costs as per Section 3.7 of this WEM Procedure;

(iii) Environmental and development approvals as per Section 3.8 of this WEM Procedure; and

(iv) Connection agreement, market registration and licencing costs as per Section 3.9 of this WEM Procedure.

3.3 Supply and installation costs

3.3.1 The ERA must estimate the following supply and installation costs for the Benchmark Technology:

(a) Battery containers or enclosures that typically include racks of battery modules, thermal management systems such as air conditioning or liquid cooling, control equipment, and a fire detection and suppression system;

(b) Power conversion systems that typically comprise of multiple inverters placed in close proximity to the battery containers;

(c) Electrical and control balance of plant incurred in developing the Benchmark Technology and typically include all enabling electrical infrastructure, cables, conduits, transformers, switchgear, protection and control equipment for the:

(i) BESS; and

(ii) BESS substation;

(d) Civil balance of plant incurred in developing the Benchmark Technology that typically includes bulk earth works, the foundations, transformer bunds, equipment pads/hardstands and equipment structures for the:

(i) BESS; and

(ii) BESS substation;

(e) Installation labour and temporary equipment hire that typically includes:

(i) Construction labour to develop the site and install the BESS; and

(ii) Hiring of temporary equipment during the BESS construction phase.

3.4 Transmission connection capital costs

3.4.1 The transmission costs (TC) must include the costs to directly connect a Benchmark Technology to the transmission network to accommodate the capacity of that Benchmark Technology.

3.4.2 The ERA must request for Western Power to estimate transmission costs. The ERA may also rely on an estimate of transmission costs from an alternative provider with experience in estimating network transmission connection costs.

3.4.3 Reference to **provider** in this section of the Procedure refers to either Western Power or the alternative provider engaged to estimate transmission costs.

3.4.4 The provider must follow the process outlined in Section 3.4 of this WEM Procedure to estimate transmission costs.

3.4.5 The alternative provider must use, where possible, the same information and data sources available to Western Power. To the extent where its information sources differ from Western Power's, the alternative provider must use the best available information and data sources available.

3.4.6 The provider must estimate the cost to connect the Benchmark Technology from the high voltage (HV) bus bar to the shared transmission network using the following process:

(a) Estimate the capital cost (procurement, installation and commissioning, excluding land cost) of a generic, industry standard 330 kV substation that facilitates the connection of the Benchmark Technology and:

(i) Is located:

(A) adjacent to an existing 330 kV transmission line;

(B) on 50% flat - 50% undulating land, 50% rural - 50% urban location; and

(ii) Includes 2 kilometres of 330 kV overhead single circuit line to the power station that will have one road crossing; and

(b) The estimate in Clause 3.4.6(a) must:

(i) include all the components and costs associated with a standard substation;

(ii) comply with the relevant planning criteria in the Technical Rules;

(iii) be based on a generic three breaker mesh substation configured in a breaker and a half arrangement; and

(iv) Exclude any:

(A) unforeseen environmental or civil costs associated with the development; and

(B) costs associated with any staging works; and

(v) Comply with the requirement of Clause 3.10.1 of this WEM Procedure; and

(c) The provider must assume that the costs of the works described in Clause 3.4.6 are fully borne by the Benchmark Technology; and

(d) The connection of the substation into the existing transmission line is cut-in, cut-out and is based on the most economical (i.e. least cost) solution. The provider must assume that the existing transmission line does not require modification to allow the substation's connection, with the exception of sufficient new towers located at the substation to allow a point of connection; and

(e) The ERA must estimate and provide to the provider the shallow connection easement costs, which will be based on land cost as estimated in Section 3.5 of this WEM Procedure; and

(f) Any other reasonable fixed transmission capital costs.

3.4.7 When estimating transmission costs as per Clause 3.4.6 of this WEM Procedure, the provider may use historical data where the provider considers these are appropriate.

3.4.8 The provider must detail how it estimated transmission costs in a report that may be published as part of the ERA's draft determinations of the BRCPs. The ERA may request the provider to update its report after considering any stakeholder feedback on the ERA's draft determinations of the BRCPs.

3.4.9 The provider must provide an assurance as to the accuracy of the information it has used in developing its estimate, why it considers the information is an appropriate source and how it has complied with the process to estimate transmission costs as outlined in Section 3.4 of this WEM Procedure. For example, the provider may engage an independent auditor to provide this assurance.

3.4.10 Further to clause 3.4.1., the ERA must include in TC the Fixed Capital Charge payable by all new and expanded generation storage and load connections that are 10 MW or larger.

3.5 Land costs

3.5.1 The ERA must estimate land costs (LC) to accommodate the Benchmark Technology.

3.5.2 The ERA must engage Landgate under a consultancy agreement to provide valuations on parcels of land as specified in this Section 3.5. The ERA may also rely on an estimate of land costs from an alternative provider with experience in estimating land costs.

3.5.3 Reference to **land valuer** in this Section 3.5 includes both Landgate and an alternative provider with experience in estimating land costs.

3.5.4 As specified in Clause 2.1.5(d) of this WEM Procedure, the land valuer must assess the following regions of the Clean Energy Link – North:

(a) Three Springs

(b) Eneabba

(c) Badgingarra

(d) Cataby

(e) Gingin

(f) Muchea

(g) Pinjar

(h) Neerabup

3.5.5 The land valuer must use a consistent method to estimate the land cost of a 7.3 hectare area within the specified regions.

3.5.6 If the land valuer considers the minimum land size available in a specific region is greater than 7.3 hectares, the land valuer must assess the minimum available land size.

3.5.7 The ERA's estimate of land costs LC must be based on the average land costs of the eight regions specified in Clause 3.5.4 of this WEM Procedure as provided by the land valuer.

3.6 Owner's design and project management costs

3.6.1 The ERA must estimate the following costs for:

(a) Owner's engineer and design services, which typically include:

(i) Feasibility studies; business case development and all site-related studies; specification; tendering; engineering, procurement and construction (EPC) contractor selection; and contract negotiations up to financial close; and

(ii) Construction management services to include, design drawing and document reviews, overseeing construction activities, witness testing and commissioning activities and ensuring that the operating and maintenance manuals and as-built drawings are correct; and

(b) Project management services, which typically includes costs associated with:

(i) Concept, pre-feasibility and full feasibility studies;

(ii) Engaging an Owner's Engineer;

(iii) Engaging of legal and financial services; and

(iv) Engaging a project team.

3.7 Legal, financing and insurance costs

3.7.1 The ERA must estimate legal costs associated with the development and construction of the Benchmark Technology, which typically include legal costs for:

(a) Contract conditions for specifications, tender analysis, and negotiations;

(b) Negotiation of any purchase power agreements or capacity contracts;

(c) Negotiation of the grid connection agreement;

(d) Financing or loan procurement; and

(e) Contracts for construction phase.

3.7.2 The ERA must estimate financing costs associated with financial advisory and transaction costs associated with raising capital and setting up the project vehicle for financing during the construction phase of the Benchmark Technology.

3.7.3 The ERA must estimate costs to insure the Benchmark Technology for loss due to irreparable damage, including fire, to the major plant components during the project development phase.

3.8 Environmental and development approval costs

3.8.1 The ERA must estimate environmental and development approval costs associated with the development and construction of the Benchmark Technology.

3.9 Connection, registration and licencing costs

3.9.1 The ERA must estimate the costs involved in connecting and registering the Benchmark Technology to the South West Interconnected System (SWIS) which typically include the following costs:

(a) Network connection agreement with Western Power;

(b) Market registration with AEMO;

(c) Certification of reserve capacity with AEMO; and

(d) Obtaining a generation licence from the ERA.

3.10 Adjustment for future price movements

3.10.1 The ERA must estimate capital costs for the Benchmark Technology as at 1 April in Year 3 of the Reserve Capacity Cycle, as outlined in Section 3.1 of this WEM Procedure.

3.10.2 Where capital cost components have been estimated at a date that is different to 1 April in Year 3 of the Reserve Capacity Cycle, and the ERA reasonably expects these costs to change over time, the ERA must adjust the costs by using a reasonable adjustment method and use these adjusted costs in its BRCP determination.

4. ANNUALISATION OF CAPITAL COST

4.1 Annualisation of capital costs and the annuity tilt

4.1.1 The annualisation process converts the capital cost of Benchmark Technology as detailed in Clause 3 into $CAPITAL\ COST_{Annualised}$, the annualised capital cost.

4.1.2 The ERA will estimate the $CAPITAL\ COST_{Annualised}$ according to the following method:

Step	Required calculation
$\boldsymbol{A}$: Constant Annuity Amount	Using a constant annuity formula with the capital costs as estimated in Section 3, the WACC as estimated in Section 4.2 and the annuity period as provided in Clause 2.2.3(a)(i).
$\boldsymbol{B}$: Multiple of Constant Annuity Amount	Applying an annuity tilt adjustment through a multiple equal to 1.0 of the constant annuity amount.
$CAPITAL\ COST_{Annualised}$	$\boldsymbol{A} \times \boldsymbol{B}$

4.2 WACC

4.2.1 The ERA must estimate the cost of capital to be applied to various costing components of the BRCPs.

4.2.2 The WACC will be applied directly:

(a) in the annualisation process used to convert the BESS project capital cost into an annualised capital cost; and

(b) to account for the cost of capital in the time period between when capital is raised and when the revenue from Capacity Credits is expected to be realised. To maintain computational simplicity, the ERA must assume that the Capital Cost of the BESS will be incurred as at 1 April of Year 3 of a Reserve Capacity Cycle.

4.2.3 The methodology adopted by the ERA to estimate the WACC will involve a number of components that require review. These components are classed as those which require review annually (**Annual Components**) and those structural components of the WACC which require review less frequently (**Fixed Components**) as detailed in Clause 4.2.7 of this WEM Procedure.

4.2.4 In estimating the WACC, the ERA:

(a) must annually review and estimate values for the Annual Components; and

(b) may review and estimate values for the Fixed Components that differ from those in Clause 4.2.7 of this WEM Procedure if, in the ERA's opinion, a significant economic event has occurred since the ERA's latest determination of the BRCPs and, as a result, the ERA considers these values must be updated.

4.2.5 The ERA must compute the WACC on the following basis:

(a) The WACC must use the Capital Asset Pricing Model (**CAPM**) as the basis for calculating the return to equity.

(b) The WACC must be computed on a pre-tax basis.

(c) The WACC must use the standard Officer WACC method as the basis of calculation.

4.2.6 The pre-tax Officer WACC must be calculated using the following formulae:

$$WACC_{nominal} = \frac{1}{(1 - t(1 - \gamma))} R_e \frac{E}{V} + R_d \frac{D}{V}$$

Where:

(a) R_e is the nominal return on equity (estimated using CAPM) and is calculated as:

$$R_e = R_f + \beta_e \times MRP$$

Where:

(i) R_f is the nominal risk-free rate;

(ii) β_e is the equity beta; and

(iii) MRP is the market risk premium.

(b) R_d is the nominal return on debt and is calculated as:

$$R_d = R_f + DM$$

Where:

(i) R_f is the nominal risk free rate;

(ii) DM is the debt margin, which is calculated as the sum of the debt risk premium (DRP) and debt issuance cost (d);

(c) t is the benchmark rate of corporate income taxation, established at either an estimated effective rate or a value of the statutory taxation rate;

(d) γ is the value of franking credits;

(e) $\frac{E}{V}$ is the market value of equity as a proportion of the market value of total assets;

(f) $\frac{D}{V}$ is the market value of debt as a proportion of the market value of total assets;

(g) The nominal risk-free rate is based on the annualised yield on Commonwealth Government bonds with a maturity of 10 years:

(i) using the indicative mid rates published by the Reserve Bank of Australia; and

(ii) averaged over a 20-trading day period;

(h) The debt risk premium, DRP, is a margin above the risk free rate reflecting the risk in provision of debt finance. This will be estimated by the ERA as the margin between the annualised yields of Australian corporate bonds

which have a BBB (or equivalent) credit rating from Standard and Poors and the nominal risk free rate;[4]

(i) If there are no Commonwealth Government bonds with a maturity of 10 years on any day in the period referred to in Clause 4.2.6(g) of this WEM Procedure, the ERA may estimate the nominal risk free rate by interpolating on a straight line basis from the two bonds closest to the 10 year term and which also straddle the 10 year expiry date; and

(j) If the methods used in Clause 4.2.6(i) of this WEM Procedure cannot be applied due to suitable bond terms being unavailable, the ERA may estimate the nominal risk free rate by means of an appropriate approximation.

4.2.7 The CAPM must use the following:

CAPM Parameter	Notation / Determination	Component	Value
Nominal risk free rate of return (%)	R_f	Annual	TBD[5]
Market risk premium (%)	MRP	Fixed	5.80
Equity beta	β_e	Fixed	1.2
Debt risk premium (%)	DRP	Annual	TBD
Debt issuance costs (%)	d	Fixed	0.165
Corporate tax rate (%)	t	Annual	TBD
Franking credit value	γ	Fixed	0.50
Debt to total assets ratio (%)	$\frac{D}{V}$	Fixed	40
Equity to total assets ratio (%)	$\frac{E}{V}$	Fixed	60

5. FIXED OPERATING AND MAINTENANCE COSTS

5.1 Fixed O&M cost components

5.1.1 The ERA must estimate the following annual fixed O&M costs:

(a) Fixed maintenance costs of the BESS including the service, inspection and preventative maintenance of:

(i) Inverter stations;

[4] The ERA applies the revised bond yield approach to estimate the debt risk premium. The revised bond yield approach is detailed in the 2022 final gas rate of return instrument. Economic Regulation Authority, 2023, *2022 final gas rate of return instrument*, Amended 12 September 2023, (online).

[5] TBD stands for “To Be Determined”.

(ii) Battery modules, racks, energy management system, battery temperature monitoring and control, and container auxiliaries;

(iii) Earthing;

(iv) Protection, breakers, fuses, isolation;

(v) Cables;

(vi) SCADA and controls; and

(b) Corporate overheads, consulting services and other reasonable fixed costs including but not limited to:

(i) Corporate overheads such as contribution to corporate office lease, the cost for office staff in the corporate office, ongoing training of staff, work cover contributions, and employee insurance;

(ii) Legal, regulatory and engineering support;

(c) Transmission costs, including:

(i) Maintenance of the transmission line, the 330 kV connection switchyard and associated substation;

(ii) Transmission network service charges; and

(d) Any other reasonable fixed O&M costs.

5.2 Adjustment for future price movements

5.2.1 The ERA must estimate fixed O&M costs for the Benchmark Technology as outlined in Section 5.1 as at 1 October in Year 3 of the Reserve Capacity Cycle.

5.2.2 Where fixed O&M cost components have been estimated at a date that is different to 1 October in Year 3 of the Reserve Capacity Cycle, and the ERA reasonably expects these costs to change over time, the ERA must adjust the costs using a reasonable adjustment method, and use these costs in its BRCP determination.

Appendix 1 Evolution of the WEM Procedure

Table 1 summarises the changes to this WEM Procedure since its inception in 2008.

Table 1: Timeline of amendments to the WEM Procedure

Version of Procedure	Effective date of Procedure	Procedure change proposal	Key amendments
1	13 October 2008	PC_2008_06	• The new Market Procedure for determining the MRCP was developed following the approval of the Rule Change Proposal (RC_2008-11) in July 2008, amending a range of clauses in the Market Rules in respect of the determination of the MRCP based on outcomes from the working of the MRCP Advisory Group.
2	4 December 2008	PC_2008_14	• Amended to correct a typographic error in the equation for the nominal return on debt in the WACC calculation.
3	1 April 2010	PC_2009_12	• Removed the prescribed values of the Major components of the WACC to allow updated values to be included in the determination of the WACC.
4	11 October 2010	PC_2010_04	• Restated the values for the Major components of the WACC that were removed under PC_2009_12.
5	24 October 2011	PC_2011_06	• Included a provision for an inlet air cooling system in the definition of the model power station (step 2.1). • Amended the Fixed Fuel Cost to include an allowance to initially fill the fuel tank with sufficient distillate for 14 hours of operation. • Included in step 2.7.2(a) where the minimum land size available is greater than 3ha. • Amended the effective compensation period for the total investment costs from 2 years to 6 months, after the escalation of values in the cost estimates in respect of power station, transmission, switchyard and O&M costs is to be performed to April of Year 3. • Included an allowance for annual asset insurance costs for the model power station within Fixed O&M Costs. • Amended the methodology for forecast Transmission Connections Works costs to be based on historical connection costs and relevant access offers determined by Western Power.

Version of Procedure	Effective date of Procedure	Procedure change proposal	Key amendments
			• Included debt issuance costs within the WACC and removed the corresponding debt financing costs from within margin M. • Renamed the “Minor” and “Major” components of the WACC in step 2.9.8 to “Annual” and “5-yearly” and reclassified the Review Frequency of some WACC components. • Provided the IMO with a discretion to nominate a method for determining the Debt Risk Premium that is consistent with current accepted Australian regulatory practice
6	15 January 2013	PC_2012_08	• Amended the value of Franking Credit (Gamma) used in the calculation of the WACC from 0.5 to 0.25. • Amended the footnote on page 15 of the MRCP Market Procedure to note that the ‘Bond-Yield Approach’ methodology was broadly upheld on appeal to the Australian Competition Tribunal in June 2012 and the IMO’s intent to amend this Market Procedure in the near future to implement the ‘Bond-Yield Approach’. • Other amendments of administrative nature to ensure consistency with the Amending Rules resulting from the Rule Change Proposal: Competitive Balancing and Load Following Market (RC_2011_10).
7	9 November 2020	EEPC_2020_02	• Updated references to ‘BRCP’ from ‘MRCP’ and to ‘AEMO’ from ‘IMO’ in line with changes to the WEM Rules. • Amended the form of the WACC from a real to a nominal WACC.
8	1 August 2024	EEPC_2024_01	• Complete re-write of the Procedure to reflect various changes to the Reserve Capacity Mechanism, including the Coordinator of Energy’s determination of Benchmark Capacity Providers and the introduction of Flexible Capacity Credits and Flexible BRCP.
9	19 January 2026	EEPC_2025_01	• Update of the Procedure to reflect changes to the Benchmark Technology, incorporation of the Fixed Capacity Charge and terminology changes to ensure consistency with the ESM Rules.