GHD Advisory

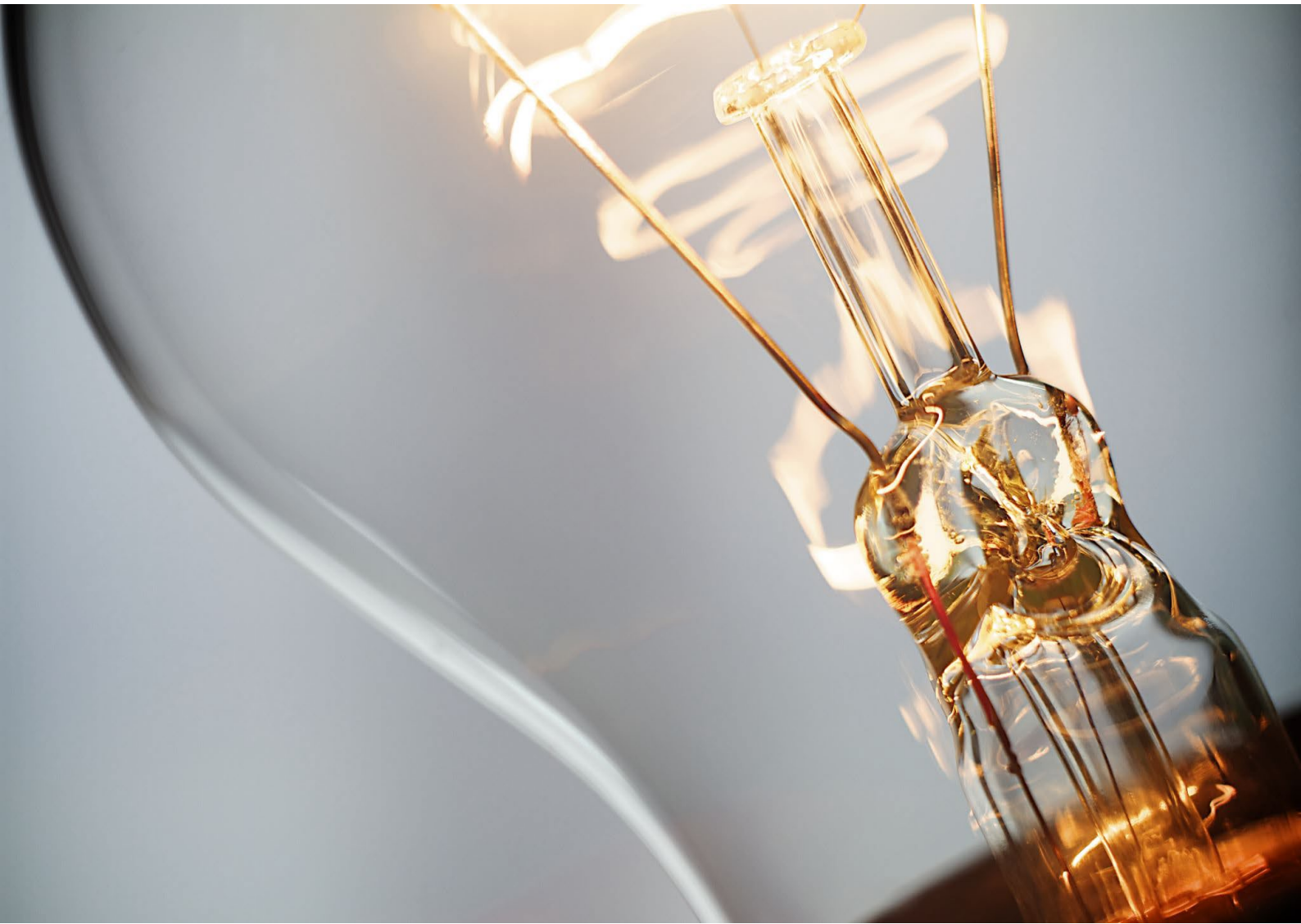
Benchmark Reserve Capacity Price costs

2028/29 Capacity Year

Economic Regulation Authority

28 January 2026

→ The Power of Commitment



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Acronyms and abbreviations

The following acronym and abbreviations are used in this report.

Table 1 Acronyms and abbreviations

Term	Definition
AC	Alternating current
AACE	Association for the Advancement of Cost Engineering
AEMO	Australian Energy Market Operator
BESS	Battery Energy Storage System
BoP	Balance of plant
BCP	Benchmark capacity provider
BRCP	Benchmark reserve capacity price
CPI	Consumer price index
DAP	Development Assessment Panel
DC	Direct current
DSOC	Declared sent-out capacity
EP Act	Environmental Protection Act 1986
EP Act	Environmental Protection Act 1986
EPBC Act	Environmental Protection and Biodiversity Conservation Act
ERA	Economic Regulation Authority
ESM Rules	Electricity System and Market Rules
ETAC	Electricity Transfer Access Contract
FEED	Front-end engineering design
GHD	GHD Pty Ltd
GPS	Generator Performance Standard
GRV	Gross rental value
HV	High voltage
IWC	Interconnection Works Contract
kV	Kilovolt
kW	Kilowatt
LFP	Lithium iron phosphate
MW	Megawatt
O&M	Operation and maintenance
OEM	Original Equipment Manufacturers
PCS	Power conversion system
PD Act	Planning and Development Act 2005
PPA	Power purchase agreement
RBA	Reserve Bank of Australia
RCM	Reserve capacity mechanism
SWIS	South West Interconnected System
WP	Western Power

Term	Definition
WPI	Wage price index

1. Introduction

1.1 Overview

In Western Australia's Wholesale Electricity Market (WEM), the reserve capacity mechanism (RCM) provides price signals to encourage investment in capacity to ensure that supply can meet consumer electricity demand, and to retire capacity when there is an excessive surplus.

Capacity suppliers receive payments for each unit of available capacity product (known as Capacity Credits) that they make available over a capacity year. The Benchmark Reserve Capacity Price (BRCP) is determined on a per megawatt (MW) of Capacity Credit basis. It is an estimate of the annualised total capital cost to build, and annualised fixed Operation and Maintenance (O&M) cost to maintain a hypothetical Benchmark Capacity Provider (BCP). The BCP as determined by the *Energy Coordinators 2025 Review of Benchmark Capacity Providers*[1] is to be a lithium battery energy storage system with 200MW injection and 1200 MWh energy storage.

The BRCP must reflect the fixed costs incurred in developing and operating the hypothetical 200MW / 1200MWh (6-hour duration) lithium-ion Battery Electric Storage System (BESS).

The Economic Regulation Authority (ERA) must calculate the 2028/2029 Benchmark Reserve Capacity Price (BRCP) following the *WEM Procedure: Benchmark Reserve Capacity Price (Market Procedure)*[2] as required by Clause 4.16 of the *Electricity System and Market Rules (ESM Rules)* [3].The WEM Procedure details the method and processes that the ERA follows annually to determine the Flexible BRCP and Peak BRCP for each Reserve Capacity Cycle. In accordance with 4.16.2 and 4.16.2A of ESM Rules, the two BRCPs going forward are:

– Peak BRCP expressed in $/MW of Peak Capacity Credits per year, that reflects the expected annualised capital cost and fixed operating and maintenance costs of the Benchmark Peak Capacity Provider. The Benchmark Peak Capacity Provider is a notional new facility expected to provide Peak Capacity at the lowest annual capital cost and fixed operating and maintenance cost.
– Flexible BRCP expressed in $/MW of Flexible Capacity Credits per year, that reflects the expected annualised capital cost and fixed operating and maintenance costs of the Benchmark Flexible Capacity Provider. The Benchmark Flexible Capacity Provider is a notional new facility expected to provide Flexible Capacity at the lowest annual capital cost and fixed operating and maintenance cost. Facilities receiving Flexible Capacity Credits must meet all the same requirements as Peak Capacity Credits and the Flexible Capacity ramping requirements as determined by the Coordinator of Energy.

The BESS considered for costing must achieve both the Peak and Flexible Capacity service requirements and be based on identical design assumptions & characteristics as determined by the Coordinator of Energy. Therefore, the capital and O&M costs associated with the peak & flexible capacity providers will be identical.

The ERA has commissioned GHD to provide annualised capital costs and fixed O&M costs associated with constructing a hypothetical 200MW / 1200MWh BESS that connects to Clean Energy Link - North..

The WEM Procedure defines the methodology for determining the BRCP. This calculation is performed through a technical cost assessment of a new BESS that must meet the following criteria:

– Use a lithium iron phosphate sub-chemistry.
– Have an installed capacity that enables 200 MW injection on 1 October of Year 3 of the Reserve Capacity Cycle.

[1] **2025 Review of Benchmark Capacity Providers: Coordinator of Energy Determination Addendum 9 October 2025**
[2] Economic Regulation Authority, *WEM Procedure: Benchmark Reserve Capacity Price*, Version 9, effective TBA.
[3] WA Gov, *Electricity System and Market Rules*, effective 30 October 2025.

– Have enough energy storage capacity to enable 1200 MWh charge and discharge on 1 October of Year 3 of the Reserve Capacity Cycle.
– Include the minimum level of equipment or systems required by the ESM Rules.

1.2 Scope

The ESM Rules mandate that the Benchmark Reserve Capacity Prices be determined each year. The corresponding scope of works sets out what is to be costed to assist the ERA's Benchmark Reserve Capacity Price determination:

– The capital costs and "M margin" (as per 3.1.1 of the WEM procedure to cover legal, financing and insurance costs, expressed as a fraction of plant costs); for a 200MW / 1200MWh BESS connecting to Western Power's transmission network. This includes cost components set out in Sections 3.2 to 3.9 of the WEM Procedure: Benchmark Reserve Capacity Price. This includes any reasonable cost escalations. This report addresses the following components of capital cost:
    - Supply and installation costs.
    - Owner's design and project management costs.
    - Legal, financing and insurance costs.
    - Environmental and development approval costs.
    - Connection, registration and licencing costs.
– The annualised fixed O&M costs for a 200MW / 1200MWh BESS connected to the transmission network. This includes cost components set out in Section 5 of the WEM Procedure: Benchmark Reserve Capacity Price. This report addresses the following components of annual fixed O&M costs:
    - Fixed maintenance costs of the BESS.
    - Corporate overheads and related consulting services.
    - Transmission related O&M costs.
    - Any other reasonable fixed O&M costs.

1.3 Limitations

This Report has been prepared by GHD for the Economic Regulation Authority and may only be used and relied on by the Economic Regulation Authority for the purpose agreed between GHD and the Economic Regulation Authority as set out in this Report.

GHD otherwise disclaims responsibility to any person other than the Economic Regulation Authority arising in connection with this Report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this Report were limited to those specifically detailed in the Report and are subject to the scope limitations set out in the Report.

The opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the date of preparation of the Report. GHD has no responsibility or obligation to update this Report to account for events or changes occurring subsequent to the date that the Report was prepared except as required under the ERA's Request for Quote for this project.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD described in this Report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this Report on the basis of information provided by the Economic Regulation Authority and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the Report which were caused by errors or omissions in that information.

GHD has prepared the cost estimates set out in this Report ("Cost Estimate") using information reasonably available to the GHD employee(s) who prepared this Report; and based on assumptions and judgments made by GHD, including inputs provided by others including the Economic Regulation Authority and its consultants.

The Cost Estimate has been prepared for the purpose of estimating the 2026 benchmark reserve capacity price for the 2028-29 capacity year and must not be used for any other purpose.

The Cost values provided are estimates to AACE Class 5 (-50%/+100%) accuracy. Actual prices, costs and other variables may be different to those used to prepare the Cost Estimate and may change. Unless specified otherwise in this Report, no detailed quotation has been obtained for actions identified in this Report. GHD does not represent, warrant or guarantee that the project can or will be undertaken at a cost which is the same or less than the Cost Estimate.

Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected as the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate.

2. BESS specifications

Table 2 below outlines BESS specifications mandated in the WEM Procedure Benchmark Reserve Capacity Prices. The capital and O&M cost estimates presented in this report were developed for a BESS whose specifications align with that mandated in the WEM Procedure.

Table 2 Peak & Flexible BRCP reference technology specifications[4]

Parameter	BRCP service requirement	Comment
WEM Rule requirements		
Capacity	200 MW injection	Have an installed capacity that enables 200 MW injection on 1 October of Year 3 of the Reserve Capacity Cycle.
Energy Storage	1200 MWh	Have enough energy storage capacity to enable 1200 MWh charge and discharge on 1 October of Year 3 of the Reserve Capacity Cycle.
Connection Voltage	330 kV	
Location	Located in an unconstrained part of the network connected to Clean Energy Link - North	
Operating temperature	41ºC	
Lithium sub chemistry	Lithium iron phosphate (LFP)	
Land requirements	7.3 ha	

[4] Clauses 2.1.5 and 2.1.6 of the WEM Procedure: Benchmark Reserve Capacity Price.

3. Development of capital cost estimate

The capital cost for the hypothetical 200MW / 1200MWh BESS facility connected to Clean Energy Link - North has been estimated utilising GHD benchmarks based on recent real-world project data, the previous year's BRCP and publicly available information. The pricing of the battery modules and power conversion system (PCS) were informed by recently obtained price estimates from various leading Tier-1[5] Original Equipment Manufacturers (OEMs).

Key components of the capital cost for a BESS system fall broadly into the following categories:

– Battery modules/enclosures.
– Power Conversion System (PCS).
– Balance of plant (BoP).
– Construction.
– Transmission connection costs.
– Land costs.
– Indirect costs.

Contingency costs are also considered within each of these categories.

A breakdown of these categories in relation to a simplified diagram for the BESS installation can be seen in Figure 1.

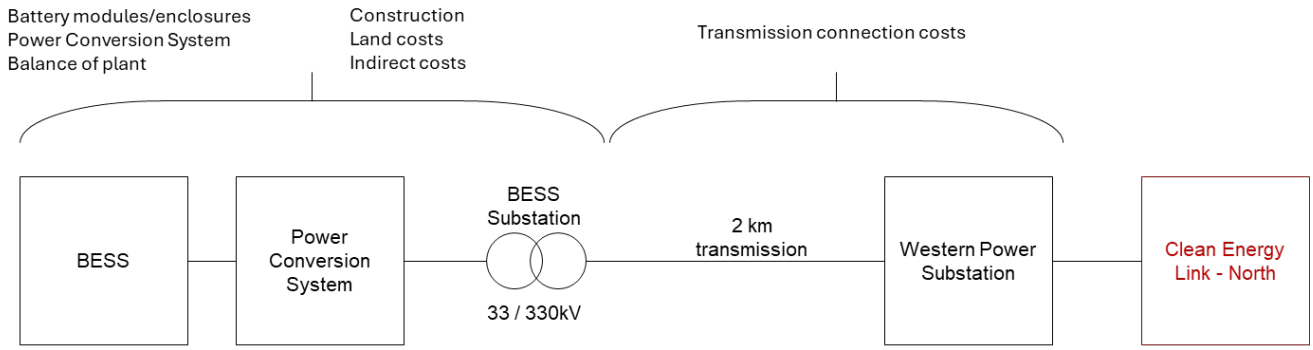

Figure 1 Simplified diagram of BESS facility and required Connections to the Clean Energy Link - North

3.1 Estimate qualifications and exclusions:

The following are the assumptions, qualifications and exclusions underpinning the cost estimate.

1. The expected estimate accuracy range is -50% to +100%. This translates to an AACE Class 5 accuracy (Table 3). This Class is appropriate because of the hypothetical design parameters which apply across all the elements of the project. Vendor pricing was provided on a non-binding and indicative basis only.

Table 3 Estimation class summary

Class	Definition Level	Typical Accuracy Range	Primary Use
5	0–2%	–50% to +100%	Concept screening
4	1–15%	–30% to +50%	Feasibility
3	10–40%	–20% to +30%	Budget approval / FEED
2	30–70%	–15% to +20%	Control planning / Tendering
1	65–100%	–10% to +15%	Definitive estimate / Contracting

[5] Direct suppliers of a final product.

2. The cost estimate is in Australian Dollars based on values at the start of Q4 2025 (1 October). Foreign exchange rates used to develop this estimate are the following[6]:
    a. AUD : USD | 1.00 : 0.66
    b. AUD : EUR | 1.00 : 0.56
3. Escalation factors used for the calculation of the BRCP determination to estimate costs for 1 April 2028 (for CAPEX) and 1 October 2028 (OPEX) are discussed in Section 5.
4. Cost of lithium-ion battery modules is informed by pricing information received from Tier 1 lithium-ion containerised battery energy storage suppliers and benchmarked against the GHD internal project database.
5. Cost of the power conversion system (PCS) is informed by pricing information received from Tier 1 BESS PCS providers and benchmarked against the GHD internal project database.
6. Remaining components were priced using GHD's internal project database and publicly available information, where relevant.
7. No allowance has been made to cover for industrial unrest, loss of shipment, and force majeure.
8. No allowance has been made for outside of battery limit scope of work (e.g. access roads, overhead/underground transmission lines, etc.)
9. No allowance has been made for a shared asset cost (i.e. the Proposed Fixed Capital Charge). It should be noted that the WEM Procedure – BRCP (2.1.5) defines Benchmark Capacity Providers to be located in an unconstrained section on Clean Energy Link - North, which is an existing asset.
10. Forward escalation and inflation beyond the estimate base date is excluded.

3.2 Supply & delivery cost

3.2.1 Battery modules/enclosures

Battery modules/enclosures are typically offered by OEMs as containers. The battery containers include racks of battery modules, thermal management systems such as air conditioning or liquid cooling, control equipment, and a fire suppression system.

Based on the obtained costing information from OEM supplier engagement, an average cost was derived. Since it was obtained directly from OEMs, an additional cost for Contractor's overheads (25%) and Contractor's margin (12%) are included in the full cost estimates.

The estimated cost for LFP battery containers (including delivery to site) is $246.7 million ($206 per kWh of rated battery capacity). This includes the estimated uplift to enable power and energy capacity that aligns with the specified technical requirements (200 MW/1200 MWh) at an ambient temperature of 41 degrees Celsius.

The estimated cost represents a slight reduction from last year's estimate ($222 per kWh). Battery container costs may have reduced slightly due to economies of scale, competition among suppliers and stabilisation in logistics costs have also contributed to the reduction[7]. However, battery container prices have not dropped significantly and this is attributed to broader system components such as structural components, thermal management, and safety systems that haven't benefited from similar cost reductions. Steel prices remain volatile, and compliance with stricter fire safety, ventilation, and insurance requirements adds complexity. Despite long-term declines in battery cell costs, battery container prices remain high due to the complex integration of HVAC, fire-suppression, and monitoring systems, as well as the significant logistics and installation expenses associated with large container units.

3.2.2 Power conversion system (PCS)

The PCS comprises of multiple inverters that convert DC power to AC. One inverter will be connected to multiple battery containers in uniform groups.

[6] Based on **Historical Data | RBA** October 1 2025 values
[7] IEA (2024), *Batteries and Secure Energy Transitions*, IEA, Paris https://www.iea.org/reports/batteries-and-secure-energy-transitions

Based on OEM supplier engagement, an average cost was derived. Since it was obtained directly from OEMs, an additional cost for the Contractor's overheads (25%) and the Contractor's margin (12%) were included.

The estimated cost for the PCS is $56.6 million ($283 per kW of rated capacity). The total cost includes standard PCS offerings, which now commonly incorporate grid-forming capability. Additional power capacity is also factored in to compensate for temperature-related derating. Further allowances are made for reactive power requirements and transformer losses. Together, these ensure the BESS can meet its fundamental performance and operational needs.

The updated estimate is a substantial increase from last year's value of $139 per kW. The rise in PCS costs is driven by several key factors:"

– Grid forming capability is now standard, adding to baseline system cost.
– Higher semiconductor prices, largely due to persistent global supply shortages.
– Tightening grid code and cybersecurity requirements, increasing design and compliance costs.
– Inflation in raw materials, particularly copper and aluminium.
– Rising labour and logistics expenses, contributing to overall cost escalation.
– Additional functional features—such as black start, synthetic inertia, and fast frequency response—further increase system complexity and cost.
– Higher expectations for efficiency, reliability, and longer warranties also contribute to the upward cost trend.

Additionally, given that the APAC region has led global PCS shipments and the BESS market since 2023[8], demand for PCS is trending upward in line with these market dynamics.

3.2.3 Balance of Plant (Materials & Equipment)

The Balance of Plant (BoP) covers the supply and delivery costs for supporting infrastructure required for a Battery Energy Storage System (BESS), including electrical and control BoP as well as civil BoP.

Electrical and control BoP covers enabling infrastructure such as cables, conduits, transformers, switchgear, protection systems, and control equipment for the battery system and associated substation. Civil BoP includes foundations, transformer bunds, and equipment pads for the batteries and substation.

Cost estimates have been developed using the following:

– GHD's internal knowledge base of similarly scoped projects based in Australia
– OEM vendor data
– Industry benchmarks based on GHD's experience and knowledge base

A consistent Work Breakdown Structure (WBS) was applied to derive unit rates based on whether items are primarily driven by energy capacity, power capacity, or both. For components influenced by both, scaling was applied using energy capacity, as battery containers represent the dominant proportion of facility size and cost.

Items primarily driven by energy capacity:

– Main 415V switchboard and auxiliary transformers

Items influenced by both energy and power capacity (scaled by energy capacity):

– 33 kV and DC cable supply
– Box culverts supply

Items primarily driven by power capacity:

– Kiosk substations supply
– 33 kV switchgear and switchroom supply
– 330/33 kV transformer supply and assembly
– 330 kV switchgear and instrument transformers

[8] Interact Analysis (2024) *Intelligence Report: Power conversion system revenues to reach $12.7bn by 2029, https://interactanalysis.com/wp-content/uploads/PCS-Energy-Storage-PR-Jan-2024.pdf*

Based on this methodology, the combined electrical, control, and civil BoP cost is estimated at approximately $45.9 million equivalent to around $38 per kWh of installed energy capacity. This is consistent with previous calculated costs.

3.2.4 Summary of material supply costs

Table 4 summarises the BESS supply and delivery (to site) costs of a facility which achieves the specified technical requirements.

Table 4 BESS supply and delivery costs

Item	Unit Cost	Unit	Estimated cost
Lithium-Ion Battery Modules	$206	$/kWh	$246,671,109
Power Conversion System	$283	$/kW	$56,575,409
Balance of Plant - Materials & Equipment	$38	$/kWh	$45,866,596
Total			**$349,113,114**

3.3 Construction cost

3.3.1 Site preparation construction contract

Site preparation construction works include costs for civil and bulk earthworks activities required to prepare the pad for the BESS facility, temporary construction facilities and laydown yard. This activity is completed before the arrival of the materials, equipment, and the main works contractor on site. A cost allowance of $12.1 million is allocated for the site preparation construction contract based on the GHD internal database which draws upon multiple real-world projects of a comparable scope.

3.3.2 Main works construction contract

The main works contractor (sometimes referred to as the BOP contractor) is responsible for constructing the BESS Facility. Cost for the main works contractor includes the following:

– 330kV switchyard construction
– BoP construction
– Control systems and comms configuration
– Commissioning services

Based on GHD's database, a cost of $116.7 million is estimated for the main works construction contract.

3.3.3 Summary of construction costs

Table 5 summarises the BESS construction costs.

Table 5 BESS construction costs

Item	Unit Cost	Unit	Estimated cost
Site Preparation Contract	$10	$/kWh	$12,148,862
Main Works Construction Contract	$97	$/kWh	$116,726,520
Total			**$128,875,382**

–

3.4 Transmission connection

The total transmission connection cost estimate provided by Western Power commissioned by the ERA includes the following as per 3.4.6 in the WEM procedure:

– Substation
– Procurement, installation, and commissioning (excluding land cost) of a generic, industry standard 330 kV substation that facilitates the connection of the Benchmark Capacity Provider. This includes:
  - Site works – terminal station 1 yard (3 bays)
  - 330kV breaker and a half scheme. For the Benchmark Capacity Provider, this includes, appropriately rated 3 x circuit breakers, 3 x gantry, 2 x circuits.
  - Terminal relay room, including new SCADA and communications facilities
– Transmission Line:
  - 2 km steel tower single circuit 330 kV, built over 50% flat urban and 50% rural undulating land
  - One set of live line scaffold
  - 2km Overhead Line Easement costs

These costs are provided in Table 6[9].

Table 6 Transmission connection costs

Item	Estimated cost
Substation	$13,100,000
Transmission line	$9,450,000
Line easement	$4,000,101
Total	**$26,550,101**

3.5 Land costs

Valuations have been provided by Landgate commissioned by the ERA for a 7.3-hectare parcel of land connected to Clean Energy Link - North. For the purposes of informing this estimate, an average value of eight land costs along Clean Energy Link - North was utilised as is documented in 3.5.4 of the WEM procedure this can observed in Table 7[10].

Table 7 Land cost

Item	Rate Per Hectare	Total Assessed Value
Three Springs	$20,000	$145,000
Eneabba	$40,000	$290,000
Badgingarra	$40,000	$290,000
Cataby	$40,000	$290,000
Gingin	$100,000	$730,000
Muchea	$1,300,000	$9,490,000
Pinjar	$1,250,000	$9,125,000
Neerabup	$1,500,000	$10,950,000
Average Total	**$536,250**	**$3,913,750**

[9] Provided by Western Power, via ERA (15/12/2025)

[10] Provided by Landgate, via ERA (28/11/2025)

3.6 Connection agreement and market registration costs

The direct, upfront costs involved in connecting and registering a BESS to the SWIS and the WEM include:

– A network connection agreement with Western Power.
– Market registration and capacity credit participation and certification with AEMO.

Each cost item is discussed in the Sections below.

3.6.1 Network connection agreement

The network connection agreement is negotiated with Western Power. The costs associated with Western Power and AEMO (the two parties involved in reviewing aspects of the connection) are passed on to connecting parties. As a battery storage facility is considered both a load and a generator, it's assumed that both generator and load assessments are required. Under current market conditions, the process can take around 2.5 years[11] prior to construction and generally consists of the following steps:

1. **Enquiry**

– Connection Option Assessment (up to 3 options): identifying network connection options and required modifications to the network required to facilitate the proposed connection to the network
– AACE Class 5 scope, cost and timeframe estimate for each identified network connection option

2. **Initiation**

– Network Study: assessment of the facility's Steady State Study for its compatibility with the SWIS, particularly
  - Thermal Loading (Assessing the thermal loading of the transmission elements following a credible contingency)
  - Voltage Step (Assessing step change resulting from switching operations)
  - Voltage Range (Ensuring Steady State Study voltage levels remain within optimal limits).
– Model Assessments (Dynamic)
  - Preparation of Grid Input Package, for Generator Performance Standards (GPS) submission and Load compliance
  - Model Due Diligence: Assessment of the owner's dynamic (R0) model both as a generator and as a load.
  - GPS Assessment R0 model validation (and registration with AEMO).

3. **Scoping**

– Assessment of initial community/landowner and stakeholder engagement, relating to the connection scope of works. Western Power determines the impact of any concerns or issues raised on the proposed network modification/connection options, and develop changes as required to mitigate the issues.
– Review environmental assessment and evidence of environmental approvals, relating to the connection scope of works, to determine the impact of any potential issues on the proposed network modification/connection options.
– Development of the Concept Design, preparation of AACE Class 4 or Class 3 cost estimate for the technical solution required to modify the network

4. **Planning**

– Preparation of the Access Offer and associated contracts and negotiation (where required)

5. **Execution**

  a. Pre-Construction Activities
    i. Dynamic Studies - RMS Networks
    ii. Stage 1: EMT Studies (Single Machine Infinite Bus)

[11] Western Power Connection process overview for Transmission loads, large distribution loads & large generators **Contracts, costs and timeframes**

iii. Stage 2: EMT Studies (Networks)
iv. Detailed Design

b. Construction and Commissioning
i. Procurement and Construction – covered by Section 3.4
ii. GPS Assessment R1 Validation
iii. Non-thermal Limits Equation Study
iv. Commissioning
v. GPS Assessment R2 Validation

c. Operation and Close Out

– These costs are summarised in Table 8.

Table 8 Network connection agreement costs

Stage	Activity	Estimated cost	Source
Enquiry	Connection Options Assessment	$25,000	Western Power's **Contracts, costs and timeframes** for Transmission loads, large distribution loads & large generators[12]
Initiation	Connection Application	$5,000	
	Connection Options Assessment	$25,000	
	Steady State Study (If Western Power completes study)	$35,000	
	Grid Input Package (Generators or Load)	$30,000	
	Model Due Diligence	$10,000	
	GPS Assessment R0 Validation (Generators only)	$15,000	
	Load Model Assessment (If Western Power completes assessment)	$30,000	
	Community Engagement and Environmental Desktop Assessment	$15,000	
	Scope Definition	$30,000	
Scoping	Project scoping including Concept Design and Class 3 Estimate	$127,500	
Planning	Access Offer Preparation	$55,000	
Execution	Dynamic Studies	$55,000	
	EMT Studies Stage 1	$30,000	
	EMT Studies Stage 2	$55,000	
	Detailed Design	$3,000,000	Project specific, based on GHD experience with comparable projects
	Procurement, Construction, Commissioning	-	Project specific, provided by Western Power, covered in section 3.4
	GPS Assessment R1	$300,000	Project specific, based on GHD experience with comparable projects
	GPS Assessment R2	$120,000	Project specific, based on GHD experience with comparable projects
	Non-thermal Limits Equation Study	$40,000	Western Power's **Contracts, costs and timeframes** for Transmission loads, large distribution loads & large generators[12]
	Project Close Out	$10,000	
Total		**$4,012,500**	

[12] Western Power Connection process overview for Transmission loads, large distribution loads & large generators **Contracts, costs and timeframes**

3.6.2 Market registration and reserve capacity certification

The market registration and accreditation process depends on the range of services being provided by the BESS. To provide Peak and Flexible Capacity services, the BESS must register as an Electric Storage Resource in the energy market and be certified for reserve capacity.

The market registration and accreditation process typically occurs in parallel with the BESS development, with registration and accreditation concluding at the same time as commissioning tests.

The Reserve Capacity Cycle runs two years ahead of the process for participation in the energy market. AEMO can make an early decision on the certifications of new facilities based on data including the Western Power Access Contract status, environmental approvals, financing etc. Certification happens in July and August annually (2 years ahead). Facility Tests (verification and testing of certified capacity) then occur in the commissioning phase.

It should be noted the market registration and reserve capacity participation costs can vary widely between projects depending on the maturity of the proponent and their existing systems. For example, for projects that will form part of an existing portfolio of generation, the processes may be well understood, and associated contract management and settlement systems will already be in place. These costs are summarised in Table 9.

Table 9 Market registration and reserve capacity certification

Item	Estimated cost	Source
Market registration with AEMO	$30,000	AEMO[13] + contingency
Reserve capacity certification	$25,000	

For clarity, we note that BESS can provide essential system services in addition to energy and there are different registration and accreditation processes for these services. These have not been contemplated as the purpose of the BRCP is to compensate the BESS for costs associated with the Peak and Flexible Capacity provider.

3.6.3 ERA licensing

The Electricity Industry Act[14] specifies requirements for those entities intending to construct and operate certain classes of assets or to operate as a retailer. This includes a requirement for those parties seeking to construct or operate generating works exceeding 100 MW to obtain a generator licence.

The Act defines generating works, storage activity, and storage works as follows:

– Generating works means any wires, apparatus, equipment, plant or buildings used, or to be used, for, or in connection with, or to control, the generation of electricity.
– Storage activity means an activity comprising all of the following:
  (a) receiving energy in the form of electricity;
  (b) storing the received energy in any form;
  (c) discharging the stored energy in the form of electricity;
– Storage works means any wires, apparatus, equipment, plant or buildings used, or to be used, for, or in connection with, or to control, a storage activity;

It is assumed that a BESS which is a BCP would be defined as storage works under the Act. It is unclear whether a BESS would also be considered as generation works. A BESS is able to generate electricity, however in net terms a BESS is a load as over time it will always consume more electricity than it generates, creating uncertainty.

On balance, GHD has assumed that a BESS will not be classified as generating works under the act and will therefore not require a generation licence.

[13] **aemo-final-budget-and-fees-fy26.pdf**
[14] Electricity Industry Act 2004

3.6.4 Summary of connection agreement and market registration costs

Table 10 summarises the connection agreement and market registration costs. These costs typically involve labour and independent of the size of the plant at the 200 MW / 1200 MWh level.

Table 10 Summary of connection and commissioning costs

Item	Stage	Estimated cost
Network Connection Agreement Costs	Enquiry	$25,000
	Initiation	$195,000
	Scoping	$127,500
	Planning	$55,000
	Execution	$3,610,000
Market registration with AEMO		$30,000
Reserve capacity certification		$25,000
Total		**$4,067,500**

3.7 Environmental and development approvals

There are several federal, state and local government permits and approvals that are applicable to the development of a BESS.

Initially, environmental approvals under Part IV of the *Environmental Protection Act 1986* (EP Act) and the *Environmental Protection and Biodiversity Conservation Act* (EPBC Act) are conducted, as well as development approval under the *Planning and Development Act 2005* (PD Act). Depending on the outcome of these initial approvals, there may be further approvals required such as:

– Part V works approval under the EP Act.
– Native vegetation clearing permit (NVCP) under the EP Act.
– Building permit under the Building Act 2011 (BA Act).

Recent legislative amendments mean that some BESS developments undertaken by the Crown, Governor, public authority[15] or local government may be eligible for an exemption for development approval under the PD Act. Given some BESS developers will not be eligible for this exemption (and some recent developments have sought approval despite being eligible for exemptions), it has been assumed an exemption does not apply and, therefore, development approval costs under the PD Act have been included.

3.7.1 Environmental Protection Act approvals

Approvals under the EPBC and EP Acts will only be triggered if there are areas on the site identified as containing matters of national environmental significance, for example, a threatened ecological community.

If approvals were triggered (as assumed), the costs associated with the Part IV Native Vegetation Clearance permit required would be around $31,200.

3.7.2 Development approval

Operating under the Development Assessment Panel Regulations 2011 (DAP Regulations), the Development Assessment Panel (DAP) is a panel that determines development applications as if it were the responsible planning authority, against the relevant local or regional planning scheme.

[15] A public authority is defined by section 4 of the PD Act to include a State Minister, a department of the public service, State trading concern, State instrumentality or State public utility, or any other person or body authorised to administer or carry on a social service or public utility for the benefit of the State.

DAP will determine development applications within certain class and value thresholds set in the DAP Regulations. There are three types of DAP applications:

– Mandatory DAP applications.
– Optional "Opt-in" DAP applications.
– Local government delegated applications.

The BESS development used for the purpose of this report has been assumed to trigger a mandatory DAP application. The DAP application submitted to the local government will comprise the following:

– Completed application forms including landowner signatures. Forms may comprise DAP, local authority and regional scheme forms.
– Copy of the Certificate of Title.
– A complete electronic set of development plans comprising a site plan, floor plan/s and elevations.
– Appropriate DAP and local government application fees.
– Supporting technical studies/reports, which may include:
    - Transport impact assessment (construction and operational traffic).
    - Modelling and noise impact assessment.
    - Hydrological study (flood risk, stormwater and fire water management).
    - Aboriginal heritage impact assessment.
    - Ecological assessment.
    - Geotechnical assessment.
    - Bushfire management plan/bushfire risk management plan.

Estimated costs associated with the preparation of a DAP application up to its lodgement are presented in Table 11.

Table 11 Development approval costs (required)

Item	Estimated cost
Prepare supporting technical studies for development application	
Transport impact assessment (construction and operational traffic)	$25,875
Modelling and noise impact assessment	$36,225
Hydrological study (flood risk, stormwater and fire water management)	$20,700
Aboriginal heritage impact assessment	$20,700
Ecological assessment	$41,400
Geotechnical assessment (preliminary / desktop)	$15,525
Bushfire management plan / bushfire risk management plan	$31,050
Hydrological Study	$31,050
Development Application Fees (based on approvals pathway applicable)	
Part 11b Significant Development Pathway	$71,810
Development Assessment Panel	$35,393
Local Authority	$11,629
Prepare, lodge and manage Development Application to determination	
Typical consultant cost to prepare, lodge and manage application	$36,225
Total cost (assuming Part 11b Significant Development Pathway)	**$330,560**

3.7.3 Development approval conditions

Development approval is typically granted subject to a number of conditions, including subsequent approvals. Development approval conditions will typically be associated with the following stages of a BESS development:

– Prior to construction commencement.
– Prior to operation.
– During operation (i.e. ongoing for the lifespan of the project).
– Decommissioning.

Several conditions will require the preparation of additional documentation for the local authority. Indicative costs associated with the preparation of such documents are presented in Table 12.

Table 12 Development approval conditional costs

Item	Estimated cost	Source
Landscape plan	$10,350	Retained pricing from last year, adjusted with WPI[17]
Construction & Operational Management Plan	$31,050	
Notifications on Certificates of Title	$5,175	
Noise monitoring / operational noise analysis & reporting	$20,700	
Total cost	**$67,275**	

3.7.4 Building approval

A building approval may be requested by the local authority where an operations and maintenance building associated with a BESS facility is also functioning as a bushfire refuge to satisfy a condition of development approval, typically associated with a bushfire management plan.

A building approval will also be required where the proposed works are not eligible for any exemptions under the PD Act.[16]

The indicative costs associated with the preparation of a building permit are presented in Table 13.

Table 13 Building approval costs

Description	Estimated cost	Source
National Construction Codes design consultancy	$5,163	Retained pricing from last year, adjusted with CPI[17]
Certificate of Design Compliance (BA3)	$5,163	
Certificate of Construction compliance (BA17)	$3,098	
Building Application fee	$115,988	0.09% of estimated building works value but not less than $110.00 or as prescribed by the Department of Energy, Mines, Industry Regulation and Safety Based on works value (including materials & construction) of electrical and civil BoP ($128,875,382).
Building Services levy	$176,559	0.137% where construction value >$45,000 or $61.65 minimum fee or as prescribed by the Department of Energy, Mines, Industry Regulation and Safety. Based on construction value (including materials & construction) of electrical and civil BoP ($128,875,382).
Construction Training Fund (CTF)	$257,751	0.2% where construction value >$20,000 (less $8.25 commission) or as prescribed by the Construction Training Fund. Based on construction (including materials & construction) value of electrical and civil BoP ($128,875,382).
Total cost	**$563,720**	

3.7.5 Dangerous goods licence

Lithium-ion batteries are regulated by the Department of Local Government, Industry Regulation and Safety under the Dangerous Goods Safety Act 2004. Based on our experience working with the Department on recent BESS

[16] Recent legislative amendments mean that some BESS developments undertaken by the Crown, Governor, public authority or local government may be eligible for an exemption for development approval under the PD Act.
[17] Obtained from **2025–26 Government Mid-year Financial Projections Statement** Table 1, 2025 - 26 Mid-year Revision

projects, we understand going forward BESS projects will no longer require a dangerous goods storage licence once installed.

Temporary storage of batteries during construction or any other storage other than the placement on their final support foundations requires a dangerous goods storage licence under the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007.

The costs associated with obtaining the dangerous goods licence required to store batteries prior to final installation are provided in Table 14.

Table 14 Dangerous goods storage licence costs

Description	Estimated cost	Source
Dangerous goods storage licence	$51,750	Retained pricing from last year, adjusted with WPI[18]

3.7.6 Summary of approval costs

Table 15 summarises the environmental and development approval costs. These costs typically involve labour and are independent of the size of the plant at the 200 MW / 1200 MWh level.

Table 15 Summary of environmental and development approval costs

Item	Estimated cost	Source
Part V Native Vegetation Clearance permit (EP Act)	$31,050	Retained pricing from last year, adjusted with WPI[18]
Development approval (required)	$330,560	
Development approval conditions	$67,275	
Building approval	$563,720	Retained pricing from last year, adjusted with CPI[18] Fees and levies based on construction costs
Dangerous goods licence	$51,750	Retained pricing from last year, adjusted with WPI[18]
Total	**$1,044,356**	

3.8 Owner's engineering and construction management and support

This refers to owner's costs for engineering support and construction management support services. This includes the owner's project management team which are employees of the project owner assigned to manage and oversee the complete delivery of the BESS facility project.

The project services considered in this section include project development by the developer, which will include all costs associated with the following:

– Concept/pre-feasibility study.
– Full feasibility.
– Engagement of an Owner's Engineer.
– Engagement of legal and financial services.
– The owner providing a project team.

The following costs were considered as part of the owner's engineer services:

– Feasibility studies, business case development and all site-related studies, specification, tendering, contractor selection and contract negotiations up to financial close.

[18] Obtained from **2025–26 Government Mid-year Financial Projections Statement** Table 1, 2025 - 26 Mid-year Revision

– Construction management services to include
  - Design drawing and document reviews
  - Overseeing of construction activities
  - Witness testing and commissioning activities and
  - Ensuring that the operating and maintenance manuals and as-built drawings are correct.

A cost of $26.0 million is allocated for the owner's engineering and construction management as well as support tasks. These estimations were based on the GHD internal database which draws upon multiple real-world projects of a comparable scope. This is consistent with last year's percentage (5.1%) allowance as a total of the supply & delivery, construction, transmission connection capital, and land costs.

3.9 Owner's Indirect Costs

The allowance for owner's indirect costs covers the following:

– 3rd party expediting and inspection.
– Legal costs associated with development and construction of the BESS including:
  - Contract conditions for specifications, tender analysis, and negotiations.
  - Negotiation of the capacity and offtake contract.
  - Finance procurement.
  - Contracts for the construction phase.
– Construction insurance which assumes several risks that may occur during the construction phase of the BESS. Insurance for a plant of this nature generally covers the following key risks:
  - Loss due to fire and irreparable damage to the major plant components.
  - Loss of income of the power plant due to lengthy delays during the construction phase.
– Financial advisory and transaction costs associated with capital raising and setting up the project vehicle for financing during the construction phase.
– Operations readiness and commissioning.
– Capital and commissioning spares.
– Construction water supply.
– Stakeholder engagement and community relations.
– Owner's temporary site facilities, site vehicles, travel, accommodation, etc.

A cost of $12.2 million has been allocated for this category. This is consistent with last year's percentage (2.4%) allowance as a total of supply & delivery, construction, transmission connection capital, and land costs.

3.10 Contingency

A deterministic contingency of 15% (of the pre-contingency total capital cost) has been assigned to the estimate to cover for project risk. Examples of these risks include market forces, schedule delays, damage to equipment, wet weather events, and scope omissions identified during construction. This amounts to $81.5 million.

3.11 Summary of total costs

Table 16 summarises the upfront development and capital costs for the BESS and indicates the proportion of total cost each item represents.

Table 16 Summary of development and capital costs

Item	Estimated total cost	Proportion of total costs
Supply & Delivery Cost	**$349,113,114**	**55.0%**
– Lithium-Ion Battery Modules	$246,671,109	38.9%
– Power Conversion System	$56,575,409	8.9%
– Balance of Plant - Materials & Equipment	$45,866,596	7.2%
Construction Cost	**$128,875,382**	**20.3%**
– Site Preparation Contract	$12,148,862	1.9%
– Main Works Construction Contract	$116,726,520	18.4%
Transmission connection capital costs[19]	**$26,550,101**	**4.2%**
Land cost[20]	**$3,913,750**	**0.6%**
Other Indirect Costs	**$43,312,361**	**6.83%**
– Connection agreement and market registration costs	$4,067,500	0.64%
– Environmental and development approvals	$1,044,356	0.16%
– Owner's Indirect Cost	$12,222,161	1.93%
– Owner's engineering and construction management and support	$25,978,344	4.09%
Deterministic Contingency	$82,764,706	**13.04%**
Total cost	**$634,529,415**	**100.0%**

4. Fixed operating & maintenance costs

The ongoing fixed operating and maintenance costs for the BESS broadly fall into the following categories:

– BESS, BESS substation and BoP maintenance services.
– Corporate overheads and various consulting services.
– Connection asset fixed maintenance services.
– Transmission storage service charges (for use of the Western Power network).
– Local government rates.
– Site security services.

The pricing of the fixed operating & maintenance costs was informed by the internal GHD database consisting of recent real-world project data and recently obtained price estimates from leading OEMs. Variable costs for the BESS plant such as battery module replacement have not been included in the fixed operating and maintenance costs.

As the capital cost estimates provided in Section 3 include costs associated with delivering the warranted performance across the warranty period, no insurance costs associated with the performance of the BESS are included in the estimate of fixed operating and maintenance costs. The cost for insuring the BESS against loss due to exogenous events, such as bush fires or floods, are included within the provision for corporate overheads as discussed in section 4.4.

[19] Provided by Western Power via ERA
[20] Provided by Landgate via ERA

4.1 BESS, BESS substation and BoP

The fixed operating and maintenance costs are derived from GHD's operating and maintenance database for BESS projects and is summarised in Table 17.

Table 17 Fixed operating and maintenance costs

Item	Estimated cost per annum	Source
BESS substation BESS substation costs include: – electrical testing, inspections and preventative maintenance on the primary and secondary electrical equipment, structures, footings, buildings and civil items, in accordance with the manufacturer's specifications. – transformer insulation liquid inspection and maintenance, as required.	$356,139	Retained pricing from last year, adjusted with WPI[21]
BESS and BoP Service Inspection and preventative maintenance of: – Inverter stations. – Battery modules, racks, energy management system, battery temperature monitoring and control, and container auxiliaries. – Earthing. – Protection, breakers, fuses, isolation. – Equipment dust and moisture ingress. – Cables. – SCADA and controls.	$6,517,395	Retained pricing from last year, adjusted with WPI[21], scaled to energy capacity
OEM extended warranty / firmware upgrades	$2,634,700	Provided by Tier 1 OEMs
Total	**$9,508,234**	

4.2 Connection asset fixed operation and maintenance

Since the connection arrangement is the same as the previous year, fixed operating and maintenance costs for the connection assets were retained from last year's BRCP, with adjustment for WPI. Costs were calculated from the isolator on the high-voltage side of the generator transformer. The assets being maintained are a substation and a 2 km high-voltage connecting line to the tie-in point.

Two types of ongoing maintenance were identified as needing to be separately accounted for:

– Connection switchyard maintenance. For the switchyard, routine maintenance is assumed to take an equivalent annual period of one week and would require the hire of a scissor lift and forklift, as well as project management, planning and organising by management and operations staff.
– Transmission line maintenance. For the overhead transmission line, we assume work would be organised by management and operations staff and that the inspection would be carried out by 2-3 people over a 2-day period and require the hire of a scissor lift, as well as requiring planning and project management. We assume this occurs approximately once every 5 years.

For both types of fixed operating and maintenance, the cost will change from year to year depending on what is required. The estimated costs are representative of a normalised spend over the period of the asset's lifetime.

The fixed operating and maintenance cost estimates can be seen in Table 18 and are inclusive of:

– Labour costs for routine maintenance.
– Overheads (management, administration, operations, etc.).
– Hire cost of machinery and equipment to support routine maintenance.

[21] Obtained from **2025–26 Government Mid-year Financial Projections Statement** Table 1, 2025 - 26 Mid-year Revision

Table 18 Fixed operating and maintenance costs – Connection substation and OHL

Item	Estimated cost per annum	Source
Switchyard fixed operating and maintenance	$107,640	Retained pricing from last year, adjusted with WPI[22]
Transmission line fixed operating and maintenance	$8,798	Retained pricing from last year, adjusted with WPI[22]
Total	**$116,438**	

4.3 Transmission network service charges

Western Power charges the following transmission storage services (TRT3) tariff for ongoing use of the transmission network:

– A user-specific charge that is an amount per day that reflects the costs to Western Power of providing the Connection Assets under an Access Contract, which may consist of capital and non-capital costs.
– A variable use of system charge.
– A variable control system service charge.
– A fixed metering charge per revenue meter.

The TRT3 tariff that applies to transmission storage services also provides for excess network usage charges where the peak half-hourly demand exceeds the nominated declared send-out capacity (DSOC). We have assumed the BESS operates within its DSOC, 200MW at all times.

Table 19 summarises the estimated ongoing transmission storage services charges for the use of the Western Power network. Prices are based on the 2025/26 price list[23].

Table 19 Transmission network service charges

Item	Rate	Units	Cost per annum	Source
Use of system	$0.019313	$/kW/day	$1,409,813	TRT3 pricing from Table 8.21 of the Western Power 2025/26 Price list. Assuming an average of the relevant prices (Badgingarra, Pinjar GTs (WPJR), Newgen Neerabup (WGNN), Yandin Wind Farm (WYDW)) assuming 200 MW.
Control system service price (Generators)	$0.002740	$/kW/day	$200,020	Table 8.23 in the Western Power 2025/26 Price List and assuming 200 MW.
Metering charge	$10.90	$/revenue meter/day	$3,979	Table 8.14 in the Western Power 2025/26 Price List and assuming one revenue meter.
Total			**$1,613,811**	

4.4 Corporate overheads and various consulting services

There are various ongoing corporate overheads and costs for consulting services that are necessarily covered in the fixed operating and maintenance costs. These can be seen in Table 20 and include:

– Corporate overhead. This cost covers items such as superannuation contributions, work cover contributions, contribution to corporate office lease, the cost for office staff in the corporate office, ongoing training of staff, and employee insurance. This cost includes insurance to cover events that are not associated with plant warranties (for example, damage from bushfires and flooding)[24]
– Legal and regulatory costs. Although corporate overheads will allow for some coverage of ongoing legal and regulatory costs, these costs often increase due to unforeseen circumstances (for example, if there are legal

[22] Obtained from **2025–26 Government Mid-year Financial Projections Statement** Table 1, 2025 - 26 Mid-year Revision
[23] Western Power, 2025/26 price list of the Western Power network. Available at: **https://www.westernpower.com.au/49b303/siteassets/documents/network-access-prices/2025-26-price-list.pdf**
[24] Note that specific costs for insurance are dependent on location and project specific information. The estimated costs assume the site selection and BESS design assists to reduce vulnerability to damage from exogenous events.

disputes or significant regulatory changes). We have provided for an allowance for legal and regulatory costs that is outside of the normal allowance provided for in corporate overheads.

– Subcontractors. Typically, a service agreement would be in place to oversee or perform the maintenance provider activities for the OEM equipment, particularly the battery inverters. In addition, specialist BESS fire suppression subcontractors may be included as part of the operating and maintenance regime. Performance testing and maintenance activities outside of inspections and checks are expected to be performed 6-monthly or annually depending on the BESS component. Subcontractors may also be engaged for operating and maintenance of the BESS substation.
– Engineering Support. As part of general operation, technical engineering support falls within the scope of the operation of the BESS.

Table 20 Fixed operating and maintenance costs – Corporate overhead and consulting costs

Item	Estimated cost per annum	Source
Corporate overhead	$388,125	Retained pricing from last year, adjusted with WPI[25], scaled to energy capacity
Legal and regulatory costs	$155,250	
Subcontractors	$252,000	Retained pricing from last year, adjusted with WPI[25] (Assuming one subcontractor engagement every other month (at $42,000 per month).)
Engineering Support	$517,500	Retained pricing from last year, adjusted with WPI[25] (The basis for the fixed operating and maintenance estimate for engineering support is two engineers ($208,000 annually per engineer) with at least one other engineer on call (50% availability) per year.)
Total	**$1,312,875**	

4.5 Site security

Security primarily pertains to monitoring and oversight of the BESS remotely, with regular local inspections and checks of security performed in the interest of the safety of the BESS. Response requirements for emergency measures fall within 2-5 hours. This can be seen in Table 21.

Table 21 Fixed operating and maintenance costs – Site security

Item	Estimated cost per annum	Source
Security	$168,480	Assuming a single service provider overseeing security checks and reporting ($2,710 for 8 hours per week) with a 20% uplift to account for ad-hoc local response and support. The annual expectation for security is $168,480.

4.6 Local Government rates

The Local Government rates calculated last year have been scaled by land area and relevant local government rate multipliers. Last year's rates were calculated as $180,459 for 6.5 Ha based on an average fee multiplier for the City of Kwinana and the City of Wanneroo of $0.09340.
Local Government rates were scaled for a site that is 7.3 hectares and with an average fee multiplier for the Shires of Three Springs, Carnamah, Dandaragan, Chittering and Wanneroo being $0.1023

This cost can be seen in Table 22.

Table 22 Fixed operating and maintenance costs – local government rates

Item	Estimated cost per annum	Source
Local government rates	$221,986	Scaled based on land area and average rates for Shires of Three Springs, Carnamah, Dandaragan, Chittering and Wanneroo, scaled from previous BRCP's estimated rates.

[25] Obtained from **2025–26 Government Mid-year Financial Projections Statement** Table 1, 2025 - 26 Mid-year Revision

4.7 Summary of fixed operating and maintenance costs

Table 23 summarises the fixed operating and maintenance costs and the relative proportions of the total fixed operating and maintenance costs.

Table 23 Summary of fixed operating and maintenance costs

Item	Estimated annual cost	Proportion of total annual cost
BESS, BESS substation and BoP maintenance	$9,508,234	73%
Transmission connection asset maintenance	$116,438	1%
Transmission network service charges	$1,613,811	12%
Corporate overheads and various consulting services	$1,312,875	10%
Site security	$168,480	1%
Local government rates	$221,986	2%
Total	**$12,941,824**	**100%**

5. Cost escalation approach for future costs

The BRCP being estimated will apply from 1 October in Year 3 of the Reserve Capacity Cycle. The ESM Rules require that a review be conducted of the BRCP each year. The current Procedure requires estimations to be made as of 1 April (capital costs) or 1 October (O&M costs) in Year 3 of the Reserve Capacity Cycle, depending on the cost category. The cost estimates developed by GHD are based on current pricing. Subsequently, GHD has applied relevant escalation factors to adjust the estimate to reflect costs as of the 2027 Capacity Year (Year 3 of the Reserve Capacity Cycle) in accordance with the WEM Procedure. These escalation factors were determined in consultation with the ERA, and their application can be observed in the provided BRCP calculation model spreadsheet.

Table 24 showcases the implemented adjustments/escalation factors applied to capital, fixed operating and maintenance estimates to account for cost differences between now and the Year 3 Reserve Capacity Cycle. As recent data for WA WPI EGWWS couldn't be obtained, agnostic WPI has been used instead.

Table 24 Adjustments to reflect future prices

Item	Adjustment
Capital costs	
– Lithium-ion battery modules/enclosures	None[26]
– Power Conversion System	None[27]
– BoP	CPI
– Construction Cost	60%: WPI 40%: CPI
– Transmission connection capital costs	2.37 %, provided by Western Power[28]
– Land cost	CPI
– Other Indirect Costs	WPI
Fixed operating and maintenance items	
– BESS operating and maintenance	60% WPI, 40% CPI

[26] Spot prices of key materials such as lithium carbonate have some impact on costs and trends in the price of lithium ion appears to continue to trend down over time, reducing the potential for cost escalation. Further details are available at **https://www.iea.org/reports/global-ev-outlook-2025/electric-vehicle-batteries**

[27] BESS PCS in particular are a complex technology and expected to have continued development to improve system performance reducing the potential for cost escalation.

[28] Provided by Western Power via ERA

Item	Adjustment
– Connection switchyard and transmission line operating and maintenance	80% WPI, and 20% CPI
– Transmission network service charges & Government Rates	CPI
– Site security & Corporate overhead	WPI

From Table 24 it can be observed that most costs will be adjusted through taking into account a combination of CPI or WA – WPI. However, for battery modules and the PCS no adjustments are recommended due to the volatile nature of their prices. Table 25 provides the applied escalation factor values to the BRCP model.

Table 25 Applied escalation factor values

Index	FY2026	FY2027	FY2028	FY2029
WPI[29]	3.5%	3%	3%	3%
CPI[30]	3.7%	2.7%	2.6%	2.5%

[29] As directed by the ERA, from Table 1 **2025–26 Government Mid-year Financial Projections Statement**
[30] FY26 and FY27 sourced from Table 3.1 of the RBA's November 2025 *Statement on Monetary Policy* (***https://www.rba.gov.au/publications/smp/2025/nov/pdf/statement-on-monetary-policy-2025-11.pdf***). *FY28 derived by taking the midpoint between* FY27 *(2.7%) and the RBA's medium-term inflation target of 2.5%, resulting in an assumed value of 2.6%. FY29 taken as 2.5%* from Table 1 **2025–26 Government Mid-year Financial Projections Statement**

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