January 2026

Powerlink 2027-32 Revenue Proposal

Project Pack

DC System Replacement Programme

Project Status: Unapproved

Network Requirement

Direct Current supply systems (DC systems) are deployed at all Powerlink substation and telecommunications sites. The primary role of the DC systems is to provide a source of energy that is independent of the primary Alternating Current (AC) supplies. This ensures that in the event of the loss of the primary supply the site control and communications systems that require energy to operate can continue to do so. A DC system comprises battery chargers, battery monitors and batteries. Each component has a different expected service life and different failure modes due to the stress and function they perform.

Battery chargers and rectifiers play a crucial role in powering a wide range of devices in Secondary Systems. Chargers are highly stressed as they supply power to most of the devices in a substation most of the time. Over time, chargers wear out, become faulty, or fail to meet evolving safety and efficiency standards. As they age, their reliability and safety become compromised, especially after long periods of continuous use. Replacing battery chargers at or before 20 years of service is recommended for several important reasons.

- Wear and Tear of Components – Over 20 years in service, internal parts such as capacitors, transformers, and circuit boards naturally degrade. This can result in reduced efficiency, overheating, or unexpected failures.
- Advancements in Technology – Chargers manufactured 20 years ago often lack the safety features, energy efficiency, and compatibility of modern models. Newer chargers offer better protection against short-circuiting, overcharging, and electrical faults.
- Safety Risks – Aged chargers are more prone to electrical hazards like sparks, shocks, and fires. Insulation and wiring may deteriorate over time, increasing the risk of accidents.
- Updated Compliance Standards – Electrical safety standards and regulations evolve. An older charger may no longer meet current requirements, making replacement necessary for legal and insurance reasons.
- Device Compatibility – As devices are updated, old chargers may not provide the correct voltage or connector type, causing charging issues or even damage to the equipment.

The battery monitors monitor the battery conditions and load and connect to the telecommunications network (OpsWAN) for remote monitoring. Replacing battery monitors after 20 years is a preventative step to ensure safety, efficiency, and compatibility with modern devices.

Recommended Option

Given the size of the installed population and expected life of DC systems it is recommended that Powerlink maintain an annual programme of battery charger and monitor replacements. To manage the forward programme battery chargers and monitors will be allocated a target replacement year based on the nominal replacement age for that type of DC system. Systems with earlier needs dates will be prioritised within the replacement programme [1].

Powerlink does not consider non-network options are likely to be able to meet the identified need to provide backup supplies to critical substation and telecommunications site equipment.

Cost and Timing

The estimated cost to replace DC systems each year in a programme of work is set out in Table 1 below:

Project	Number of systems	Estimated cost[1] (Real, 2025/26)	Target commissioning date
CP.03174 [1]	29	$5.4 million [2]	December 2029
CP.03175 [3]	23	$5.1 million	December 2031
CP.03178 [3]	21	$4.4 million	December 2032

Notes:

1. Adjusted to reflect the proportion of the project cost that relates to prescribed services assets.

Documents in Battery Cell Replacement Programme Project Pack

Public Documents

1. CP.03174 DC System Replacement – 2028 and 2029 – Project Scope Report
2. CP.03174 DC System Replacement – 2028 and 2029 – Concept Estimate
3. *Documents available to AER on request*

Project Scope Report

CP.03174

DC Systems Replacement – 2028 and 2029

Concept – Version 1

Document Control

Change Record

Issue Date	Revision	Prepared by	Reviewed by	Approved by	Background
7/10/2025	1	[redacted]	[redacted]		Initial Version for Revenue Reset

Related Documents

Issue Date	Responsible Person	Objective Document Name
20/05/2025	[redacted]	PIF - 2028 DC System Replacement - Project initiation Form (A5856713)
20/05/2025	[redacted]	PIF - 2029 DC System Replacement - Project initiation Form (A5856714)
	[redacted]	DC Systems Replacement – Master List (A5281528)

Document Purpose

The purpose of this Project Scope Report is to define the business (functional) requirements that the project is intended to deliver. These functional requirements are subject to Powerlink's design and construction standards and prevailing asset strategies, which will be detailed in documentation produced during the detailed scoping and estimating undertaken by DTS (or FAM), i.e. it is not intended for this document to provide a detailed scope of works that is directly suitable for estimating.

Project Contacts

Project Sponsor	[redacted]
Connection & Development Manager	N/A
Strategist – HV/Digital Asset Strategies	[redacted]
Project Manager	TBC
Design Manager	TBC

Project Details

1. Project Need & Objective

Reliable DC supply systems are critical to maintaining protection and control of HV substations and providing reliable electrical supply. In line with the DC Supplies – Standard *(ASM-SPE-A3369893)* and the Batteries Maintenance – Procedure *(ASM-PRO-A510492)*, it is vital to replace existing systems in the field which have reached the end of their serviceable life.

Given the installed population and expected life of DC systems across Powerlink's transmission network, it is proposed to replace batteries on a needs basis within a specific year. This is intended to result in more cost effective delivery and assist with capitalisation of assets within a given project.

The objective of this project is to replace DC systems consisting of chargers and/or batteries for both 48V and 125V DC Systems, due for replacement in 2028 and 2029 (per Appendix A), by December 2029.

2. Project Drawing

Not Applicable

3. Deliverables

The following deliverables must be provided in response to this Project Scope Report:

1. A report (e.g. Concept Estimate Report) detailing the works to be delivered, high level staging, resource requirements and availability, and outage requirements
2. A class 5 estimate (minimum)
3. A basis of estimate document and risk table, detailing the key estimating assumptions and delivery risks, and
4. Outline staging and outage plan.

4. Project Scope

4.1. Original Scope

The following scope presents a functional overview of the desired outcomes of the project. The proposed solution presented in the estimate must be developed with reference to the remaining sections of this Project Scope Report, in particular *Section 7 Special Considerations*.

Briefly, the project consists of replacement of battery cells associated with substation secondary and telecommunications systems on a needs basis identified in Appendix A.

4.1.1. Transmission Line Works

Not Applicable

4.1.2. Substation Works

Design, procure, construct and commission replacement of DC chargers and/or batteries as identified in Appendix A. Within the scope of work:

- replace DC systems on a like-for-like basis;
- systems with earlier need dates are to be prioritised in the replacement program;
- ensure that the replaced systems meet Powerlink's standards and requirements;
- update drawing records, SAP records, configuration files, etc. accordingly; and
- decommission, recover and dispose of all redundant equipment in compliance with Powerlink's requirements.

At completion of project, provide a report of the systems replaced, reconciled against the systems listed in Appendix A.

4.1.3. Telecoms Works

Not applicable

4.1.4. Easement/Land Acquisition & Permits Works

Not applicable

4.2. Key Scope Assumptions

Not applicable

4.3. Variations to Scope (post project approval)

Not applicable

5. Key Asset Risks

Asset risk management shall be in accordance with the Asset Risk Management Process Guideline (A4870713). Need date for each site is listed in the document "DC Systems Replacement – Master list" (A5281528).

6. Project Timing

6.1. Project Approval Date

The anticipated project approval is 30 September 2027.

6.2. Site Access Date

All affected locations are existing operational substation/telecommunication sites; as such, they are immediately accessible.

6.3. Commissioning Date

The latest date for the commissioning of the new assets included in this scope and the decommissioning and removal of redundant assets, where applicable, is 30 December 2029.

7. Special Considerations

The estimate shall be based on the DC systems to be replaced per Appendix A.

DC charger systems replacement program across multiple sites throughout Powerlink substations and communication sites will be delivered as annual packages of works through the following projects:

- CP.02977 – DC System Replacement – 2024 and 2025
- CP.02978 – DC System Replacement – 2026 and 2027
- CP.03174 – DC System Replacement – 2028 and 2029
- CP.03175 – DC System Replacement – 2030 and 2031
- CP.03178 – DC System Replacement – 2032

Consideration shall be given to coordinate contractors and resources, where applicable, for these projects to achieve efficient outcome. Systems with earlier need dates shall be prioritised within the replacement program.

8. Asset Management Requirements

Equipment shall be in accordance with Powerlink equipment strategies.

Unless otherwise advised [redacted] will be the Project Sponsor for this project. The Project Sponsor must be included in any discussions with any other areas of Network and Business Development including Asset Strategies & Planning.

Business Development representative will provide the primary customer interface with customer where relevant. The Project Sponsor should be kept informed of any discussions with the customer.

9. Asset Ownership

The works detailed in this project will be Powerlink Queensland assets.

10. System Operation Issues

Operational issues that should be considered as part of the scope and estimate include:

- interaction of project outage plan with other outage requirements;
- likely impact of project outages upon grid support arrangements; and
- likely impact of project outages upon the optical fibre network.

11. Options

Not Applicable

12. Division of Responsibilities

Not applicable

13. Related Projects

Project No.	Project Description	Planned Comm Date	Comment
Pre-requisite Projects			
Co-requisite Projects			
Other Related Projects			
CP.02977	DC Systems Replacement – 2024 & 2025	June 2025	DTS managed
CP.02978	DC Systems Replacement – 2026 & 2027	June 2027	DTS managed
CP.03175	DC Systems Replacement – 2030 & 2031	Dec 2031	DTS managed
CP.03178	DC Systems Replacement – 2032	Dec 2032	DTS managed
CP.02979	Battery Cell Replacement - 2024	Dec 2024	FAM managed
CP.02980	Battery Cell Replacement - 2025	Dec 2025	FAM managed
CP.03043	Battery Cell Replacement - 2026	Dec 2026	FAM managed
CP.03044	Battery Cell Replacement - 2027	Dec 2027	FAM managed
CP.03168	Battery Cell Replacement – 2028	Dec 2028	FAM managed
CP.03169	Battery Cell Replacement – 2029	Dec 2029	FAM managed
CP.03171	Battery Cell Replacement – 2031	Dec 2031	FAM managed

Appendix A –Sites for battery replacement

Replacement of the following identified DC battery system components:

Need Year	SITE	SITE NAME	FUNCTIONAL LOC.	DESCRIPTION	EQUIP MENT	SYSTEM
2029	H062	Abermain	H062-SIN-DCSU-125DCX2/20062707	SWITCHED MODE DC SUPPLY	20062707	Charger
2029	H062	Abermain	H062-SIN-DCSU-125DCY2/20062708	SWITCHED MODE DC SUPPLY	20062708	Charger
2029	T065	Alligator Creek	T065-SVI-DCSU-125DCX/20064464	SWITCHED MODE DC SUPPLY	20064464	Charger
2029	T065	Alligator Creek	T065-SVI-DCSU-125DCY/20064465	SWITCHED MODE DC SUPPLY	20064465	Charger
2029	H036	Blackwall	H036-SIN-DCSU-50DC1/20065747	SWITCHED MODE DC SUPPLY	20065747	Charger
2029	H036	Blackwall	H036-SIN-DCSU-50DC2/20065746	SWITCHED MODE DC SUPPLY	20065746	Charger
2029	T175	Bolingbroke	T175-SIN-DCSU-125DCX/20067753	SWITCHED MODE RECTIFIER BANK 125V 200AH	20067753	Charger
2029	T175	Bolingbroke	T175-SIN-DCSU-125DCY/20067754	SWITCHED MODE RECTIFIER BANK 125V 200AH	20067754	Charger
2029	H010	Bouldercombe	H010-SIN-DCSU-50DCA/20063389	SWITCHED MODE DC SUPPLY	20063389	Charger
2029	H010	Bouldercombe	H010-SIN-DCSU-50DCB/20063390	SWITCHED MODE DC SUPPLY	20063390	Charger
2029	CCBR	Brendale	CCBR-SIN-DCSU-50DCA/20065573	SWITCHED MODE DC SUPPLY	20065573	Charger
2029	CCBR	Brendale	CCBR-SIN-DCSU-50DCB/20065574	SWITCHED MODE DC SUPPLY	20065574	Charger
2029	R003	Bulli Creek	R003-SIN-DCSU-125DCXP/20065910	SWITCHED MODE DC SUPPLY	20065910	Charger
2029	R003	Bulli Creek	R003-SIN-DCSU-125DCYP/20065909	SWITCHED MODE DC SUPPLY	20065909	Charger
2029	R003	Bulli Creek	R003-SIN-DCSU-50DCAG/20065751	SWITCHED MODE DC SUPPLY	20065751	Charger
2029	T193	Clare South	T193-SIN-DCSU-125DCX4/20063174	SWITCHED MODE DC SUPPLY	20063174	Charger
2029	T193	Clare South	T193-SIN-DCSU-125DCY4/20063175	SWITCHED MODE DC SUPPLY	20063175	Charger
2029	T193	Clare South	T193-SIN-DCSU-50DCA/20063162	SWITCHED MODE DC SUPPLY	20063162	Charger

Need Year	SITE	SITE NAME	FUNCTIONAL LOC.	DESCRIPTION	EQUIP MENT	SYSTEM
2029	T193	Clare South	T193-SIN-DCSU-50DCB/20063163	SWITCHED MODE DC SUPPLY	20063163	Charger
2029	T171	El Arish	T171-SIN-DCSU-125DCX2/20062057	SWITCHED MODE DC SUPPLY	20062057	Charger
2029	T171	El Arish	T171-SIN-DCSU-125DCY2/20062058	SWITCHED MODE DC SUPPLY	20062058	Charger
2029	T171	El Arish	T171-SIN-DCSU-50DCA/20062059	SWITCHED MODE DC SUPPLY	20062059	Charger
2029	T171	El Arish	T171-SIN-DCSU-50DCB/20062060	SWITCHED MODE DC SUPPLY	20062060	Charger
2029	H007	Gladstone PS	H007-SIN-DCSU-50DCA/20063383	SWITCHED MODE DC SUPPLY	20063383	Charger
2029	H007	Gladstone PS	H007-SIN-DCSU-50DCB/20063384	SWITCHED MODE DC SUPPLY	20063384	Charger
2028	S003	Greenbank	S003-SVI-DCSU-125DCX/20060379	SWITCHED MODE DC SUPPLY	20060379	Charger
2028	S003	Greenbank	S003-SVI-DCSU-125DCY/20060380	SWITCHED MODE DC SUPPLY	20060380	Charger
2029	KMTR	Kelly Mount Repeater	KMTR-SIN-DCSU-50VDCA/20065546	SWITCHED MODE DC SUPPLY	20065546	Charger
2029	KMTR	Kelly Mount Repeater	KMTR-SIN-DCSU-50VDCB/20065547	SWITCHED MODE DC SUPPLY	20065547	Charger
2029	H022	Loganlea	H022-SIN-DCSU-50VDCA/20063286	SWITCHED MODE DC SUPPLY	20063286	Charger
2029	H022	Loganlea	H022-SIN-DCSU-50VDCB/20063285	SWITCHED MODE DC SUPPLY	20063285	Charger
2028	T038	Mackay	T038-SIN-DCSU-125DCX/20063131	SWITCHED MODE DC SUPPLY	20063131	Charger
2029	R004	Millmerran Switchyard	R004-SIN-DCSU-125DCX3/20063279	SWITCHED MODE DC SUPPLY	20063279	Charger
2029	R004	Millmerran Switchyard	R004-SIN-DCSU-125DCY3/20063281	SWITCHED MODE DC SUPPLY	20063281	Charger
2028	T189	Oakey	T189-SIN-DCSU-125DCX1/20058717	SWITCHED MODE RECTIFIER BANK 125V 400AH	20058717	Charger
2028	T189	Oakey	T189-SIN-DCSU-125DCY1/20058718	SWITCHED MODE RECTIFIER BANK 125V 400AH	20058718	Charger
2029	H009	Palmwoods	H009-SIN-DCSU-125DCX7/20068213	SWITCHED MODE RECTIFIER BANK 125V 300AH	20068213	Charger
2029	H009	Palmwoods	H009-SIN-DCSU-125DCY7/20068214	SWITCHED MODE RECTIFIER BANK 125V 300AH	20068214	Charger

Need Year	SITE	SITE NAME	FUNCTIONAL LOC.	DESCRIPTION	EQUIP MENT	SYSTEM
2029	T061	Pandoin	T061-SIN-DCSU-125DCX2/20081966	MODULAR SWITCHED MODE RECTIFIER	20081966	Charger
2029	T061	Pandoin	T061-SIN-DCSU-125DCY2/20081967	MODULAR SWITCHED MODE RECTIFIER	20081967	Charger
2029	PLVC	Powerlink Virginia	PLVC-SIN-DCSU-125DCXP1/20065921	SWITCHED MODE DC SUPPLY	20065921	Charger
2029	PLVC	Powerlink Virginia	PLVC-SIN-DCSU-125DCXP1/20065922	SWITCHED MODE DC SUPPLY	20065922	Charger
2029	PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCA2T/20065733	SWITCHED MODE DC SUPPLY	20065733	Charger
2029	PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCA3/20058882	MODULAR SWITCHED MODE RECTIFIER	20058882	Charger
2029	PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCB3/20058883	MODULAR SWITCHED MODE RECTIFIER	20058883	Charger
2029	PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCBD/20065732	SWITCHED MODE DC SUPPLY	20065732	Charger
2029	H033	Stanwell PS	H033-SIN-DCSU-50DCA/20063388	SWITCHED MODE DC SUPPLY	20063388	Charger
2029	H033	Stanwell PS	H033-SIN-DCSU-50DCB/20063387	SWITCHED MODE DC SUPPLY	20063387	Charger
2028	T147	Tangkam	T147-SIN-DCSU-125DCX/20059305	SWITCHED MODE DC SUPPLY	20059305	Charger
2028	T147	Tangkam	T147-SIN-DCSU-125DCY/20059306	SWITCHED MODE DC SUPPLY	20059306	Charger
2029	H018	Tarong Switchyard	H018-SIN-DCSU-125DCX2/20082064	MODULAR SWITCHED MODE RECTIFIER	20082064	Charger
2029	H018	Tarong Switchyard	H018-SIN-DCSU-125DCY2/20082065	MODULAR SWITCHED MODE RECTIFIER	20082065	Charger
2028	T094	Townsville East	T094-SIN-DCSU-125DCX2/20059659	SWITCHED MODE DC SUPPLY	20059659	Charger
2028	T094	Townsville East	T094-SIN-DCSU-125DCY2/20059660	SWITCHED MODE DC SUPPLY	20059660	Charger
2029	T199	Yarwun	T199-SIN-DCSU-125DCX3/20063170	SWITCHED MODE RECTIFIER BANK 125V 300AH	20063170	Charger
2029	T199	Yarwun	T199-SIN-DCSU-125DCY3/20063171	SWITCHED MODE RECTIFIER BANK 125V 300AH	20063171	Charger

CP.03174 DC Systems Replacement – 2028 and 2029

Concept Estimate

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1. Executive Summary

This concept estimate has been developed based on the CP.03174 DC Systems Replacement – 2028 and 2029 Project Scope Report (PSR).

Reliable Direct Current (DC) supply systems are critical to maintaining protection and control of High Voltage (HV) substations and providing reliable electrical supply. In line with the DC Supplies – Standard *(ASM-SPE-A3369893)* and the Batteries Maintenance – Procedure *(ASM-PRO-A510492)*, it is vital to replace existing systems in the field which have reached the end of their serviceable life.

Given the installed population and expected life of DC systems across Powerlink's transmission network, it is proposed to replace batteries on a needs basis within a specific financial year. This is intended to result in more cost-effective delivery and assist with capitalisation of assets within a given project.

There are a total of 29 Systems and 24 Sites under this project.

Following sites are included in the project:

Site	Systems
H062 Abermain	1
T065 Alligator Creek	1
H036 Blackwall	1
T175 Bolingbroke	1
H010 Bouldercombe	1
CCBR Brendale	1
R003 Bulli Creek	2
T193 Clare South	2
T171 El Arish	2
H007 Gladstone PS	1
S003 Greenbank	1
KMTR Kelly Mount Repeater	1
H022 Loganlea	1
T038 Mackay	1
R004 Millmerran Switchyard	1
T189 Oakey	1
H009 Palmwoods	1
T061 Pandoin	1
PLVC Powerlink Virginia	3
H033 Stanwell PS	1
T147 Tangkam	1
H018 Tarong Switchyard	1
T094 Townsville East	1
T199 Yarwun	1

An assessment of this proposal has established that the project can be delivered by December 2029.

1.1 Project Estimate

No escalation costs have been considered in this estimate.

		Total ($)
Estimate Class		
Base Estimate – Un-Escalated (2025/2026)		6,182,699
TOTAL		**6,182,699**

1.2 Project Financial Year Cash Flows

No escalation costs have been considered in this estimate.

DTS Cash Flow Table	Un-Escalated Cost ($)
To June 2027	71,241
To June 2028	1,283,697
To June 2029	3,240,871
To June 2030	1,586,890
TOTAL	**6,182,699**

2. Project and Site-Specific Information

2.1 Project Dependencies & Interactions

This project is related to the following projects:

Project No.	Project Description	Planned Commissioning Date	Comment
Dependencies			
Interactions			
CP.02153	Tangkam Oakey Sec-sys Replacement	December 2027	Execution Phase
CP.02813	Telecommunications Network Consolidation RAN4	TBA	Concept Phase SDH and PDH Multiplexer replacement program.
CP.02807	Greenbank 275kV SVC Secondary System Replacement	March 2029	Concept Phase
Other Related Projects			
CP.02977	DC Systems Replacement – 2024 & 2025	June 2025	DTS managed
CP.02978	DC Systems Replacement – 2026 & 2027	June 2027	DTS managed
CP.03175	DC Systems Replacement – 2030 & 2031	Dec 2031	DTS managed
CP.03178	DC Systems Replacement – 2032	Dec 2032	DTS managed
CP.02979	Battery Cell Replacement - 2024	Dec 2024	FAM managed
CP.02980	Battery Cell Replacement - 2025	Dec 2025	FAM managed
CP.03043	Battery Cell Replacement - 2026	Dec 2026	FAM managed
CP.03044	Battery Cell Replacement - 2027	Dec 2027	FAM managed
CP.03168	Battery Cell Replacement – 2028	Dec 2028	FAM managed
CP.03169	Battery Cell Replacement – 2029	Dec 2029	FAM managed
CP.03171	Battery Cell Replacement – 2031	Dec 2031	FAM managed

2.2 Site Specific Issues

- Replacing DC batteries may expose the network to elevated risk during critical events like bus zone tripping, where DC loads can exceed charger capacity. If replacement timing or readiness is misaligned, the system may lack sufficient discharge support, leading to potential instability.
- Asbestos-containing materials (ACM) has been identified at some of these sites. Appropriate precautions must be taken, including reviewing the site-specific Asbestos Register and Management Plan prior to commencing any work.
- Weather conditions in Queensland may impact site access; monitor forecasts and follow site-specific entry protocols and contingency plans.

3. Project Scope

3.1 Substation Works

Design, procure, construct and commission selective replacement of the DC Battery systems. Refer to table below:

- DC systems to be replaced on a like-for-like basis.
- Replaced systems as per Powerlink' standards and requirements.
- Decommission and recover all redundant equipment.
- Update drawing records, SAP records, config files, etc. accordingly.

SITE	SITE NAME	FUNCTIONAL LOCATION	DESCRIPTION	BATTERY/ CHARGER
H062	Abermain	H062-SIN-DCSU-125DCX2/20062707	SWITCHED MODE DC SUPPLY	CHARGER
H062	Abermain	H062-SIN-DCSU-125DCY2/20062708	SWITCHED MODE DC SUPPLY	CHARGER
T065	Alligator Creek	T065-SVI-DCSU-125DCX/20064464	SWITCHED MODE DC SUPPLY	CHARGER
T065	Alligator Creek	T065-SVI-DCSU-125DCY/20064465	SWITCHED MODE DC SUPPLY	CHARGER
H036	Blackwall	H036-SIN-DCSU-50DC1/20065747	SWITCHED MODE DC SUPPLY	CHARGER
H036	Blackwall	H036-SIN-DCSU-50DC2/20065746	SWITCHED MODE DC SUPPLY	CHARGER
T175	Bolingbroke	T175-SIN-DCSU-125DCX/20067753	SWITCHED MODE RECTIFIER BANK 125V 200AH	CHARGER
T175	Bolingbroke	T175-SIN-DCSU-125DCY/20067754	SWITCHED MODE RECTIFIER BANK 125V 200AH	CHARGER
H010	Bouldercombe	H010-SIN-DCSU-50DCA/20063389	SWITCHED MODE DC SUPPLY	CHARGER
H010	Bouldercombe	H010-SIN-DCSU-50DCB/20063390	SWITCHED MODE DC SUPPLY	CHARGER

SITE	SITE NAME	FUNCTIONAL LOCATION	DESCRIPTION	BATTERY/ CHARGER
CCBR	Brendale	CCBR-SIN-DCSU-50DCA/20065573	SWITCHED MODE DC SUPPLY	CHARGER
CCBR	Brendale	CCBR-SIN-DCSU-50DCB/20065574	SWITCHED MODE DC SUPPLY	CHARGER
R003	Bulli Creek	R003-SIN-DCSU-125DCXP/20065910	SWITCHED MODE DC SUPPLY	CHARGER
R003	Bulli Creek	R003-SIN-DCSU-125DCYP/20065909	SWITCHED MODE DC SUPPLY	CHARGER
R003	Bulli Creek	R003-SIN-DCSU-50DCAG/20065751	SWITCHED MODE DC SUPPLY	CHARGER
T193	Clare South	T193-SIN-DCSU-125DCX4/20063174	SWITCHED MODE DC SUPPLY	CHARGER
T193	Clare South	T193-SIN-DCSU-125DCY4/20063175	SWITCHED MODE DC SUPPLY	CHARGER
T193	Clare South	T193-SIN-DCSU-50DCA/20063162	SWITCHED MODE DC SUPPLY	CHARGER
T193	Clare South	T193-SIN-DCSU-50DCB/20063163	SWITCHED MODE DC SUPPLY	CHARGER
T171	El Arish	T171-SIN-DCSU-125DCX2/20062057	SWITCHED MODE DC SUPPLY	CHARGER
T171	El Arish	T171-SIN-DCSU-125DCY2/20062058	SWITCHED MODE DC SUPPLY	CHARGER
T171	El Arish	T171-SIN-DCSU-50DCA/20062059	SWITCHED MODE DC SUPPLY	CHARGER
T171	El Arish	T171-SIN-DCSU-50DCB/20062060	SWITCHED MODE DC SUPPLY	CHARGER
H007	Gladstone PS	H007-SIN-DCSU-50DCA/20063383	SWITCHED MODE DC SUPPLY	CHARGER
H007	Gladstone PS	H007-SIN-DCSU-50DCB/20063384	SWITCHED MODE DC SUPPLY	CHARGER
S003	Greenbank	S003-SVI-DCSU-125DCX/20060379	SWITCHED MODE DC SUPPLY	CHARGER
S003	Greenbank	S003-SVI-DCSU-125DCY/20060380	SWITCHED MODE DC SUPPLY	CHARGER
KMTR	Kelly Mount Repeater	KMTR-SIN-DCSU-50VDCA/20065546	SWITCHED MODE DC SUPPLY	CHARGER
KMTR	Kelly Mount Repeater	KMTR-SIN-DCSU-50VDCB/20065547	SWITCHED MODE DC SUPPLY	CHARGER
H022	Loganlea	H022-SIN-DCSU-50VDCA/20063286	SWITCHED MODE DC SUPPLY	CHARGER
H022	Loganlea	H022-SIN-DCSU-50VDCB/20063285	SWITCHED MODE DC SUPPLY	CHARGER

SITE	SITE NAME	FUNCTIONAL LOCATION	DESCRIPTION	BATTERY/ CHARGER
T038	Mackay	T038-SIN-DCSU-125DCX/20063131	SWITCHED MODE DC SUPPLY	CHARGER
R004	Millmerran Switchyard	R004-SIN-DCSU-125DCX3/20063279	SWITCHED MODE DC SUPPLY	CHARGER
R004	Millmerran Switchyard	R004-SIN-DCSU-125DCY3/20063281	SWITCHED MODE DC SUPPLY	CHARGER
T189	Oakey	T189-SIN-DCSU-125DCX1/20058717	SWITCHED MODE RECTIFIER BANK 125V 400AH	CHARGER
T189	Oakey	T189-SIN-DCSU-125DCY1/20058718	SWITCHED MODE RECTIFIER BANK 125V 400AH	CHARGER
H009	Palmwoods	H009-SIN-DCSU-125DCX7/20068213	SWITCHED MODE RECTIFIER BANK 125V 300AH	CHARGER
H009	Palmwoods	H009-SIN-DCSU-125DCY7/20068214	SWITCHED MODE RECTIFIER BANK 125V 300AH	CHARGER
T061	Pandoin	T061-SIN-DCSU-125DCX2/20081966	MODULAR SWITCHED MODE RECTIFIER	CHARGER
T061	Pandoin	T061-SIN-DCSU-125DCY2/20081967	MODULAR SWITCHED MODE RECTIFIER	CHARGER
PLVC	Powerlink Virginia	PLVC-SIN-DCSU-125DCXP1/20065921	SWITCHED MODE DC SUPPLY	CHARGER
PLVC	Powerlink Virginia	PLVC-SIN-DCSU-125DCXP1/20065922	SWITCHED MODE DC SUPPLY	CHARGER
PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCA2T/20065733	SWITCHED MODE DC SUPPLY	CHARGER
PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCA3/20058882	MODULAR SWITCHED MODE RECTIFIER	CHARGER
PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCB3/20058883	MODULAR SWITCHED MODE RECTIFIER	CHARGER
PLVC	Powerlink Virginia	PLVC-SIN-DCSU-50DCBD/20065732	SWITCHED MODE DC SUPPLY	CHARGER
H033	Stanwell PS	H033-SIN-DCSU-50DCA/20063388	SWITCHED MODE DC SUPPLY	CHARGER
H033	Stanwell PS	H033-SIN-DCSU-50DCB/20063387	SWITCHED MODE DC SUPPLY	CHARGER
T147	Tangkam	T147-SIN-DCSU-125DCX/20059305	SWITCHED MODE DC SUPPLY	CHARGER
T147	Tangkam	T147-SIN-DCSU-125DCY/20059306	SWITCHED MODE DC SUPPLY	CHARGER

SITE	SITE NAME	FUNCTIONAL LOCATION	DESCRIPTION	BATTERY/ CHARGER
H018	Tarong Switchyard	H018-SIN-DCSU-125DCX2/20082064	MODULAR SWITCHED MODE RECTIFIER	CHARGER
H018	Tarong Switchyard	H018-SIN-DCSU-125DCY2/20082065	MODULAR SWITCHED MODE RECTIFIER	CHARGER
T094	Townsville East	T094-SIN-DCSU-125DCX2/20059659	SWITCHED MODE DC SUPPLY	CHARGER
T094	Townsville East	T094-SIN-DCSU-125DCY2/20059660	SWITCHED MODE DC SUPPLY	CHARGER

3.2 Major Scope Assumptions

The following key assumptions were made for this Project Estimate.

- The existing temperature control in the building is sufficient.
- Powerlink Internal Design teams and Design Service Panel will be used for the Primary, Secondary Systems and Telecommunications design work.
- Secondary System Outages will be available on request. Please refer to Section 4.2 Network Impacts for further details.
- Maintenance Service Provider (MSP) resources will be available to complete the works.
- Procurement of DC Battery Systems align with project delivery requirements.

The following assumptions have been made with respect to Secondary Systems design:

- New battery systems will be to the current specifications and design templates.

The following assumptions have been made with respect to Civil design:

- The existing internal substation road is fit for purpose.

3.3 Scope Exclusions

- Removal of any unsuitable material, including asbestos and other contaminants.
- Changes to existing site control systems.
- Existing building structures are suitable for any new loads due to the battery system replacement, therefore structural modifications are excluded from this scope.
- Modification to ventilation of rooms where the batteries are to be installed.
- Any significant rewiring of the existing installation.
- No Restricted Access Zone will be deployed on this site during construction.

4. Project Execution

4.1 Project Schedule

A high-level Project Schedule has been developed for the project stages:

Milestones	High-Level Timing
Request for Class 5 Estimate	November 2026
Class 5 Project Proposal Submission	February 2027
Request for Class 3 Estimate	April 2027
Class 3 Project Proposal Submission	October 2027
Project *Approval (PAN)* includes funds for design & procurement	November 2027
Reconcile Estimate	January 2028 - February 2028
Execute Delivery	March 2028
MSP Site Works	March 2028 – December 2029
Project Commissioning	December 2029

4.2 Network Impacts

- No HV outages required.

4.3 Resourcing

Resources for the project will be completed by internal design resources with support from external design partners. The construction and commissioning works will be completed by a combination of DC Battery System vendor and Delivery and Technical Solutions (DTS).

5. Project Asset Classification

Asset Class	Base ($)	Base (%)
Substation Primary Plant	-	-
Substation Secondary Systems	6,182,699	100
Telecommunications	-	-
Overhead Transmission Line	-	-
TOTAL	**6,182,699**	**100**

6. References

Document name and hyperlink	Version	Date
Project Scope Report	1.0	13/10/2025