

CPG Form – Project Change Request

1. Project Details

PCR Type	☒ Time ☒ Scope ☐ Budget (MR drawdown) ☐ Benefits ☒ Budget (Additional)		
Value Engineering Completed <i>(Network Capex Only – otherwise check N/A)</i>	☐ Yes ☐ No ☐ N/A		
Project Number <i>Please include the HD numbers for HX projects.</i>	TD-0006168	PCR#	PCR 001
Project / Program Name	Moorabool Terminal Station (MLTS) Circuit Breaker Replacement		
Portfolio	Transmission		
Project Manager	[C.I. C]		
Project Initiator	[C.I. C]		
Program Manager	[C.I. C]		
Project Sponsor	[C.I. C]		
Change Description	Project Background: Replacement of 500 kV and 220 kV assets, including 18 circuit breakers, 20 sets of three phase isolators and 56 instrument transformers by December 2027. The assets identified for replacement have been assessed to be in poor condition and present a material risk of asset failure. This PCR seeks approval to: • Increase project budget by \$ 35.7M(\$36.5M to \$72.2M) (Direct + CFC + OH +MR +WDV) • Minor scope changes in primary and secondary material and construction. • Additional time to accommodate the PCR approval process taking the AIS date from 31/12/2027 to 31/03/2028. Change project completion date from 31/03/2028 to 30/06/2029 This cost increases to the project include: • Project delivery budget from \$ 32.6M to \$ 67.1M • Management reserve from \$ 2.6M to \$ 3.4M • Write Down Value from \$1.3 to \$1.8M Actual Spend to date on the project is \$7.4M. • Design: \$ 1.03M • Material procurement: \$ 5.3M • Internal labour, OH & CFC: \$ 1.1M Total revised project budget of \$ 72.2M (including CFC, OH, Management Reserve and write down value).		

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The project economic benefits have been re-assessed based on the latest cost estimate and delivery strategy. The delivery strategy avoids paying generators network support when circuit outages are needed for asset replacements. This analysis concludes that a revision of the RIT-T is not needed and that the project complies with the criteria that the Strategy and Regulation team use to determine that a revision of the RIT-T is not needed:

- There has been no change to the identified need.
- A non-network option would not meet the identified need, and no proposal has been received when we undertook the RIT-T
- The preferred option remains the most economic option when considering that all network options will be subjected to the same cost increases
- The functional scope for the project has remained the same with only minor scope changes
- The annual benefits exceed the annual cost by the forecast project completion date and the economic timing criteria has been met. As such, a decision to proceed (despite the increased costs) remains prudent, efficient and in accordance with the capital expenditure criteria.

The Strategy and Regulation team thus supports the decision that a revision of the RIT-T for this project is not required.

Revised Project Spend Vs Capex Plan for CY25 – CY29

- The below table depicts the impact on the capex plan based on the revised future spend.
- Based on this profile the increase in spend has been factored within the current TRR period ending March 2027.

	2025	2026	2027	2028	TOTAL
Capex Plan	19.4	17.1	13.6	0.1	50.1
This PCR	16.6	17.6	12.9	5.6	52.7
Variance	2.7	(0.5)	0.7	(5.5)	(2.6)

Total Cost of Change (+/- to baseline)

Total \$ 35.7M	CAPEX \$ 35.2M	OPEX \$0.50M
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Root Cause(s)/Reason for Change

Cost change:

Following a qualitative assessment of Construction Delivery Partner tender responses received in June 2024, it was identified that the market pricing had exceeded the budget estimate by approximately \$28M.

Post this assessment an internal control estimate was done that aligned closely with the lowest technically compliant market response.

A cost comparison analysis between the business case estimate and the control estimate identified higher than anticipated inflation increases, estimate shortfalls and altered construction methodology were key contributing factors.

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Inflation:

- The business case estimate was completed in November 2022 and since then we've experienced a nominal cost increase of approximately 35% across the market.

Altered construction methodology:

- During the detailed design phase, we identified the conventional construction sequence would significantly place the security of the 500kV network at risk, therefore careful consideration and a revised construction sequence would be required as to minimise outage durations and reduce apparatus recall times.
- Transmission line outages for planned work impact network security and the project delivery strategy has been developed to minimise the duration and number of times that a transmission line must be removed from service to minimise the impact on network system security. It also improves the likelihood that work can proceed as planned without outage cancellations that is inevitable when outages are required on the main transmission backbone and 500 kV transmission system. The project delivery strategy has been put in place with input from the Planning and Operations teams to ensure that system risks are considered.

In brief, the revised sequence required construction of temporary infrastructure to make provision for a staged cutover sequence thus reducing the need for lengthy outages. In addition, the majority of outages would need to be carried out overnight.

Scope change: - Cost neutral

At the completion of the design phase, we identified several amendments to the scope of works were required:

1. Supply and install 3 x 220kV Surge Arrestors in 220kV
2. Descope the replacement of 9 x 1ph 500kV CVT's.
3. Supply and install 30 off single phase 220kV post insulator supports including mounting structure and footings
4. Supply and install 24 of 500kV Circuit Breaker platforms
5. Supply and install new CB Management relays and panels for four 500KV Circuit Breakers
6. Descope the supply and installation of 4 new protection and control cubicles for MLTS 1 and MLTS 2 500kv lines Y protection schemes
7. Supply and installation of Six 500kV bi-pods to limit outage durations on the 500kV Bus
8. Construction of temporary foundations and supply and install 500kV post insulators to be installed and removed where bus bipods are temporarily removed.
9. Allowance for half the outages in the 500kV installation sequence to be carried out over night to accommodate continuous work where outages would not be available.

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	Description	Budget	Revised	Difference
1.	Design	\$1.6M	\$1.3M	-\$0.3M
2.	Internal Labour	\$1.9M	\$3.4M	\$1.5M
3.	Materials	\$12.5M	\$12.5M	0
4.	Contracts (incl. Plant & Equipment)	13.6M	\$42.2M	\$28.60M
5.	Management Reserve	\$2.6M	\$3.4M	\$0.8M
6.	Overhead	\$2.0M	\$4.4	\$2.4M
7.	CFC	\$1.0M	\$3.2M	\$2.2M
8.	Write Down Value of assets retired	\$1.3M	\$1.8M	\$0.5M
	Total	\$36.5M	\$72.2M	\$35.7M
1. Design: Design cost reduced as some savings were recognised. Detailed design is now complete with only construction support remaining. 2. Internal Labour increase was driven by Engineering & Projects Overhead not previously included, and insufficient allowance for in Remote Systems Group (RSG) activities. 3. Materials: No Change 4. Contracts (incl Plant & Equipment) Below is a high-level cost variance of \$28.6M breakdown for Contracts (incl. Plant & Equipment) compared to BC estimate				
Description	Budget	Revised	Difference	Reason
Primary Works	\$ 6.90M	\$ 16M	\$ 9.1M	Increases scope for temporary bus supports in 500kV (\$ 1M). Allowed for 50% of outages to be done at night (\$0.8M). Balance insufficient estimate (\$6.9M)
Footings and Structures	\$ 2.4M	\$ 6M	\$ 3.6M	Insufficient estimate, despite reducing the scope during design to re-use most of the old foundations.
Secondary works	\$ 0.7M	\$ 5.5M	\$ 4.8M	Insufficient estimate. No labour originally allowed for cable pulling (now \$3M).
Outage Cost	\$ 0.4M	\$ 0.8M	\$ 0.4M	Insufficient estimate. Same number of outages, however incorrect rate applied.
CDP Indirect cost	\$ 3.2M	\$ 13.9M	\$ 10.7M	Insufficient estimate. CDP offer Indirect costs includes Project Management (\$1.7M), Project

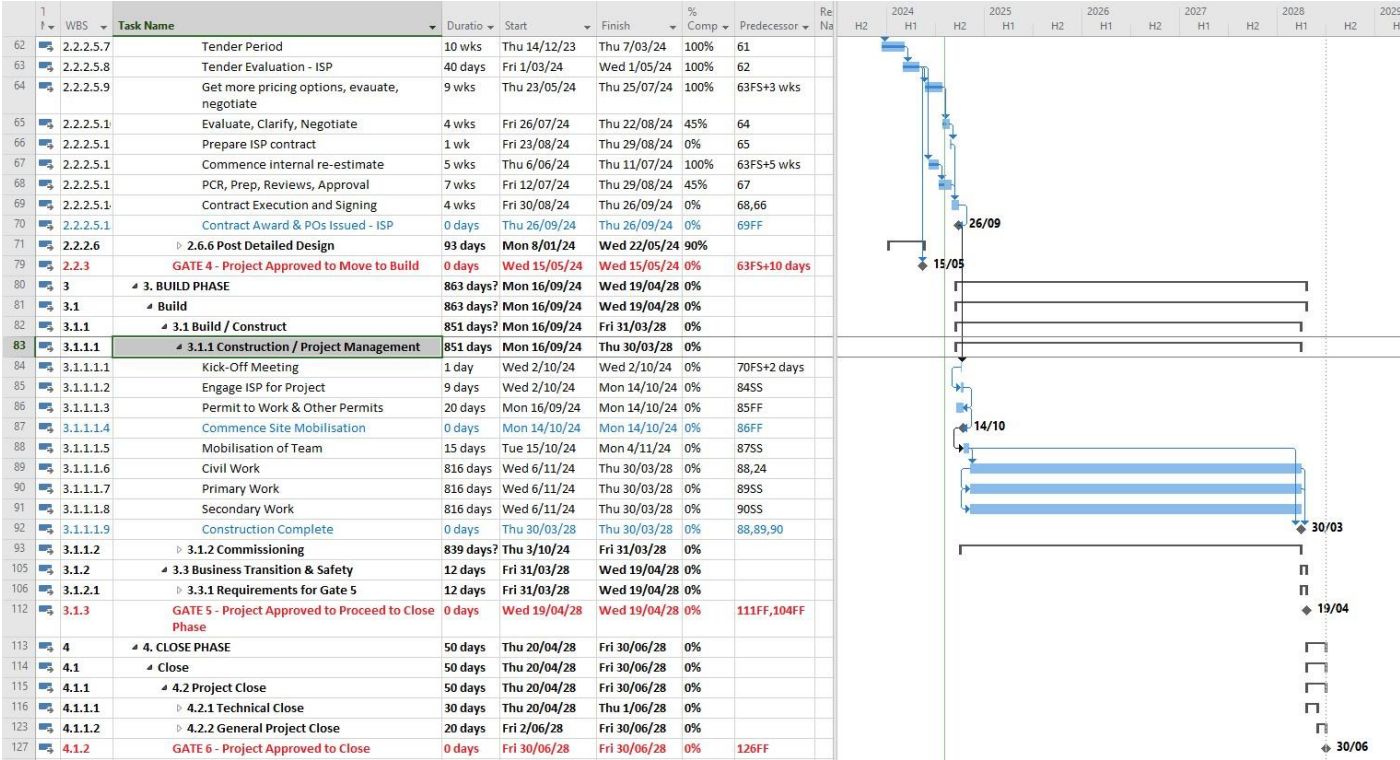
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					Supervision (\$1.75M), Project Administration (\$ 0.63M), Project OHSE Management (\$1.2M), Site facilities (\$2.6M), Mobilisation / Demobilisation (\$0.3M), LAHA(\$4.2M), Travel Allowance(\$0.7M).
	5. Management reserve was reduced by \$1.3M based on a lower risk profile post detail design, however, was increased by \$2.1M to account for CDP incentive scheme (5% of CDP construction contract value as outlined in the CDP agreement). 6. Overheads a function of the revised budget and years of spend. 7. CFC a function of the revised budget and years of spend. 8. Write down value changed with scope of work due to value of relays in protection panels to be replaced. Time change: This PCR is seeking an extension of 3 months to the AIS date from 31/12/2027 to 31/03/2028 to accommodate PCR approval timelines.				
Benefit of the Change	Approval of the PCR will allow the project to achieve: - Original Business Case requirements. - Limit continuous outages on MLTS 500kV busses - Increase the reliability and bring the 500kV CB management scheme in line with current Ausnet standards				
Impact of Change	Commercial: ☐ Budget impact additional funds required for CY25 to CY28. Business ☐ Safety Risk Mitigation by creating a sufficient distance between the 500kV Bus and the Bus isolators to be replaced. This provides the required Safe Approach Distance (SAD) to the live 500kV Bus.				
Author	[C.I. C]			Submission Date	30/08/2024

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2. Time Change Requested

Original BC Approved AIS	31/12/2027
Original BC Project Completion Date	31/03/2028
Current Approved AIS date	31/12/2027
New AIS date	31/03/2028
New Project Completion Date	30/06/2028



3. Scope Change Requested

Key Changes to Scope	Material	6 new 500kV bus bi-pods 1 new temporary 500kV Post insulator and foundation 4 new CB Management panels 4 line Y protection schemes removed from scope
	Design	- Additional design of 4 new CB Management panels - Remove the need to design 4 line Y protection schemes
	Build	- Demolition and reinstatement of 6 bi-pods in 500kV yard - Installation and removal of 6 temporary bus support structure with foundations

3.1. Previously Approved Scope

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Item No.	Previous Scope
PS-1	The scope of this Primary work is to: Replace the following • SYTS No1 line No1 bus 500kV CB • SYTS No1/ HGTS No1 line 500kV CB • HGTS No1 line No2 bus 500kV CB • SYTS No2 line No1 bus 500kV CB • SYTS No2 MOPS No2 line 500kV CB • MOPS No2 line No2 bus 500kV CB • A1 500/220kV Transformer No1 500kV CB • A1 500/220kV Transformer No2 500kV CB • All associated 500kV bus and 500kV line side ROI's and Earth Switches • The SYTS No1 line, SYTS No2 line, A1 transformer CVT's • BATS No2 line No2 bus 220kV CB • BATS No1 220kV line CVT's • BATS No1 line No1 bus 220kV CB and bus side ROI and earth switch • BATS No1 line TGTS line 220kv CB • TGTS 220kV line CVT's • TGTS line No2 bus 220kV CB • A1 transformer 220kv CVTs • A1 transformer No1 bus 220kV CB • A1 transformer GTS No2 line 220kV CB • GTS No2 220kV line CVT's • GTS No2 line No2 bus 220kV CB and bus side ROI as well as bus and cb side earth switches • A2 transformer No1 bus 220kV CB • GTS No1 220kV line CVT's • GTS No1 line No2 bus 220kV CB • 220kv Shunt Reactor 220kV CB and Bus side ROI and earth switch • BATS No2 220kV line CVT's • All required primary connections and associated earthing grid connections
PS-2	The scope of this Secondary work is to: Replace the following • Install 2 new protection and control cubicles for MLTS 1 and MLTS 2 500kv lines Y protection schemes at MLTS. Remove 2 existing protection panels • Install 2 new protection and control cubicles for MLTS 1 and MLTS 2 500kv lines Y protection schemes at SYTS. Remove 2 existing protection panels • Modify existing CBM panels (8 off for 500kV kV.) • Replace cabling between new primary equipment and control building • RTU and Master Station configuration updates and changes

3.2. New/Updated Scope

Item No.	New/Updated Scope
NS-1	Installation of 3 x 220kV Surge Arrestors in 220kV
NS-2	Installation of 30 single phase 220kV PI supports including structure/footing
NS-3	Installation of 24 x 500kV CB platforms due to CB selection during detailed design.
NS-4	Remove the replacement of 9 x 1ph 500kV CVT's for project scope
NS-5	Replace 4 off 500kV Circuit Breaker Management panels

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NS-6	Remove the installation of 2 new protection and control cubicles for MLTS 1 and MLTS 2 500kv lines Y protection schemes at MLTS
NS-7	Remove the installation of 2 new protection and control cubicles for MLTS 1 and MLTS 2 500kv lines Y protection schemes at SYTS

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4. Changes to approved Funding

4.1. Additional Budget

Project Expenditure for approval (nominal)	Calendar year (first 5 years)						PCR Total
	Prior Years	2024	2025	2026	2027	2028	
Baseline - Capex spend to date	1.6	5.9	-	-	-	-	7.4
Baseline - Capex delivery budget remaining	-	2.7	7.2	7.6	6.3	1.5	25.3
Additional Direct Capital	-	3.6	8.1	8.2	6.0	3.9	29.7
Additional Overheads	-	0.3	0.6	0.7	0.5	0.3	2.4
Additional Capitalised Finance Charges	-	0.2	0.7	1.1	0.1	0.1	2.2
Project Delivery Budget (SAP Capex budget)	1.6	12.6	16.6	17.6	12.9	5.8	67.1
Baseline - Management Reserve	-	-	0.6	0.6	0.6	0.6	2.5
Additional Management Reserve	-	-	0.2	0.2	0.2	0.2	0.9
Utilized Management Reserve	-	-	-	-	-	-	-
Management Reserve	-	-	0.9	0.8	0.8	0.8	3.4
Total Capex for Approval (incl risk, CFCs & OHs)	1.6	12.6	17.5	18.4	13.7	6.6	70.4
Baseline - Project Opex spend to date	-	-	-	-	-	-	-
Baseline - Project Opex delivery budget remaining	-	-	-	-	-	-	-
Additional Project Opex	-	-	-	-	-	-	-
Total Project Opex for Approval	-	-	-	-	-	-	-
Written down value of assets retired/sold	-	-	-	-	1.8	-	1.8
Total New Estimated Expenditure for Approval (nominal)	1.6	12.6	17.5	18.4	15.5	6.6	72.2

Changes to Approved Delivery Budget	CAPEX	PROPEX	TOTEX
Business Case Baseline (BC delivery budget, Incl CFCs & OHs)	32.6	-	32.6
Current Approved Baseline (Including all PCRs to date)	32.6	-	32.6
Requested Change (Additional budget requested in this PCR Incl. CFCs & OHs)	34.3	-	34.3
New Baseline (Delivery Budget post-change incl. CFCs & OHs)	67.1	-	67.1

Changes to Approved Management Reserve	
Original Approved Management Reserve (BC)	2.6
Current Approved Management Reserve	2.6
Additional Management Reserve Requested	0.9
<u>Less</u> Management Reserve to be utilised	-
New Total Management Reserve	3.4

Estimate at Completion (EAC)	\$67.1M
New CY Profile Forecast (\$)	CY24 \$12.6M CY25 \$16.6M CY26 \$17.6M CY27 \$12.9M CY28 \$5.8M
Impact on Ongoing Opex (\$)	Nil

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5. Benefits Impact / Re-validation

☐ No impact to benefits identified

☒ Impact to benefits value or benefit realisation dates as below

Option	Benefit Detail	Key Benefit Category	Key Benefit Value (\$)	Key Benefit Assumptions (Baseline and Measurement)	Benefit Start to Full Realisation Date
Preferred Option	Is there a direct bottom line budget impact? ☐ Yes ☒ Cost Centre: CPX: \$ OPX: \$0	Safety, Risk & Compliance	No change. Not material and has not been monetised	The project will reduce the likelihood of asset failure risks, including for assets that could fail explosively and thus present a safety risk. The avoided safety risk has not been quantified in direct financial savings for the business and is not considered to be material based on the low probability of occurrence.	Benefit start 30/06/2025 Full realisation 30/06/2028
Preferred Option	Is there a direct bottom line budget impact? ☐ Yes ☒ Cost Centre: CPX: \$ OPX: \$0	Incentives & Customer	No change	Asset failures at MLTS could impact the availability of 500 kV and 220 kV circuits connected at MLTS and result in non-optimal dispatch of generation. This will result in increased generation cost, which can be avoided by implementing this project. The project functional scope remains the same and the same outcome as per the original business case will thus be achieved i.e., the key benefits remain the same. Network support will no longer be required with the adopted project delivery strategy.	Benefit start 30/06/2025 Full realisation 30/06/2028

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6. Impacts to previously approved baseline

Complete this section where there are impacts to the Approved Project Financial Baseline.
e.g., Changes requiring additional budget and/or impacts to financial benefits.

☐ Not applicable

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Options considered *	The following network options were assessed to ensure that the business case option remains the most economical solution despite the increased project cost: 1. This PCR: Proceed with the original scope based on the latest cost estimate 2. Defer the replacement of 220 kV switch gear. The deferral cost is estimated at \$30.5 M Option 1 delivers the best outcome with a total present value (PV) cost of \$69.5 M compared with a PV cost of \$104.3 for Option 2.																																
Assumptions / Issues / Risks *	• The risk of an asset failure that impact transmission network users is forecast to increase for options that defer the replacement of selected assets or delay the project • A 500 kV circuit breaker has failed recently. This support the view that the assets are nearing their expected service life • The project cannot be completed within the current budget and the residual asset failure risk is forecast to be outside the business risk profile should the additional funds not be approved																																
Impacted Stakeholders *	If Option 1, as per Business Case, is not endorsed, the stakeholders at risk are: • Transmission network users including end consumers and generators • Safety of operational staff • The security of the Victorian Transmission System • AusNet's reputation																																
Cost Impact Assessment *	☒ Yes – NPV attached in Appendix <table border="1"> <thead> <tr> <th>Analysis of investment options (\$m - Present Value)</th><th>Capex (PCR)</th><th>Capex (BC)</th><th>Total Financial Costs</th><th>Potential Costs</th><th>Other Economic Costs & (Benefits)</th><th>Total PV Cost</th><th>PV Cost Ratio (compared to Baseline)</th></tr> </thead> <tbody> <tr> <td>PCR1 - Baseline</td><td>-</td><td>-</td><td>-</td><td>-</td><td>160.9</td><td>160.9</td><td>1.00</td></tr> <tr> <td>PCR1 Option 1</td><td>28.1</td><td>29.0</td><td>57.1</td><td>-</td><td>12.4</td><td>69.5</td><td>0.43</td></tr> <tr> <td>PCR1 Option 2</td><td>55.4</td><td>29.0</td><td>84.4</td><td>-</td><td>19.8</td><td>104.3</td><td>0.65</td></tr> </tbody> </table>	Analysis of investment options (\$m - Present Value)	Capex (PCR)	Capex (BC)	Total Financial Costs	Potential Costs	Other Economic Costs & (Benefits)	Total PV Cost	PV Cost Ratio (compared to Baseline)	PCR1 - Baseline	-	-	-	-	160.9	160.9	1.00	PCR1 Option 1	28.1	29.0	57.1	-	12.4	69.5	0.43	PCR1 Option 2	55.4	29.0	84.4	-	19.8	104.3	0.65
Analysis of investment options (\$m - Present Value)	Capex (PCR)	Capex (BC)	Total Financial Costs	Potential Costs	Other Economic Costs & (Benefits)	Total PV Cost	PV Cost Ratio (compared to Baseline)																										
PCR1 - Baseline	-	-	-	-	160.9	160.9	1.00																										
PCR1 Option 1	28.1	29.0	57.1	-	12.4	69.5	0.43																										
PCR1 Option 2	55.4	29.0	84.4	-	19.8	104.3	0.65																										
Corporate Accounting Assessment *	<u>Changes to Assets to be created</u> This project will replace the existing assets in a like-for-like manner with details provided in the scope of work document. The table below provides a high-level breakdown of the cost of the replacement assets <table border="1"> <thead> <tr> <th>Description of Asset</th><th>Quantity</th><th>Estimated Cost (total)</th><th>Expected Asset Life</th></tr> </thead> <tbody> <tr> <td>500 kV circuit breakers</td><td>8</td><td>41.7M</td><td>45 years</td></tr> <tr> <td>220 kV circuit breakers</td><td>10</td><td>30.5M</td><td>45 years</td></tr> <tr> <td>Totals</td><td></td><td>72.2M</td><td></td></tr> </tbody> </table> <u>Changes to Asset Retirements</u> The WDV (Write Down Value) for the project TD-0006168 is \$1.8M	Description of Asset	Quantity	Estimated Cost (total)	Expected Asset Life	500 kV circuit breakers	8	41.7M	45 years	220 kV circuit breakers	10	30.5M	45 years	Totals		72.2M																	
Description of Asset	Quantity	Estimated Cost (total)	Expected Asset Life																														
500 kV circuit breakers	8	41.7M	45 years																														
220 kV circuit breakers	10	30.5M	45 years																														
Totals		72.2M																															
Impact on Resources *	• Project Management • AusNet Reporting and Administration																																
Comments	No additional comments																																

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7. Change Request Approval

Type	Name	Title	Approval/Signatures	Date approved	Comments
Endorsement	[C.I. C]	Project Initiator	By Email	27/08/2024	 RE_ Endorsement of PCR 1 of TD-6168
	[C.I. C]	Business/Product Owner	By Email	27/08/2024	 RE_ Endorsement of PCR 1 of TD-6168
	[C.I. C]	GM Regulated Finance	Circular	08/10/2024	Endorsed
	[C.I. C]	GM Group Engineering & Asset Management	Circular	22/10/24	Endorsed
	[C.I. C]	GM Transmission Network Management	Circular	17/10/2024	Endorsed
	[C.I. C]	GM Project Delivery (Transmission)	Circular	17/10/2024	Endorsed

Additional Approvals below for impacts to the Approved Project Financial Baseline

Impacts to previously approved baseline	Endorsement / DoA Approvals				
	[C.I. C]	EGM Transmission	Via RPF	25/10/24	Approved
	[C.I. C]	CFO / IC Chair	Via RPF	25/10/24	Approved
	[C.I. C]	CEO	Via Docusign	31/10/24	

8. Appendices

8.1. Attachments

Attach documents below where there are impacts to the Approved Project Financial Baseline

Original BC and NPV Model	  ALTMP_AEP_3.docx TD-0006168 - MLTS Circuit Breaker Repl
Previously approved change requests	N/A
Updated NPV Model	 MLTS_PCR_NPV_Mo delV4.xlsm

Approved documents only.

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8.2. Project Change History

<Complete table below for Additional Budget and PCR>01 – Delete this section if not applicable>

Approval Step	Approval Date	Scope Change	Budget Change	Time Change	Benefit Change	AIS date	Summary Comment on PCR Cause
Original BC	02/09/2022	N/A	N/A	N/A	N/A	31/12/2027	
PCR01		Yes	Yes	Yes	No	31/03/2028	