

TD-0008025 - SMTS 500kV GIS and F2 Transformer Replacement Project Business Case

Portfolio Business Line	Work Category	Work Code / Name
Transmission % Split: Trans: 100%	Replacement	2002 TCAPEX Station rebuilds
Project Start Date	Commissioning Readiness Date/AIS	Project Completion Date
6/12/2023	31/08/2032	30/11/2032
Business case purpose and overview		
This business case seeks approval to invest \$366.9M (Including Direct Capital, OHs, CFCs, MR & WDV) CAPEX at South Morang Terminal Station (SMTS) to replace: 1. The 500kV Gas Insulated Switchgear (GIS), 2. one (1) 1000 MVA 500/330 kV transformer (F2) and 3. one (1) 330kV circuit breaker with associated protection and control systems. The 500kV GIS, F2 transformer and the F2 transformer No.2 330kV bus circuit breaker have been assessed to be in poor condition and present a risk of asset failure that will impact electricity users due to involuntary load curtailment resulting in expected unserved energy growing from 0.2 MWh in 2025 to 117.3 MWh by 2030. The project CAPEX will be distributed over the current (2022 to 2027) and next (2027 to 2032) regulatory control periods, with \$13.4M expected to be spent from a total allowance of \$19.4M included in the current period. It is expected that the AER will approve the forecast expenditure during the next TRR control period (2027 to 2032) as AusNet will be able to demonstrate that this is a committed project. \$363.4k of the \$400k seed funding that has been granted for this project in December 2023 to investigate asset replacement options and estimate option costs to inform the Regulatory Investment Test (RIT-T), TRR submission and business case has been spend to date. The feasibility study confirmed that an integrated rather than staged replacement is the only feasible solution to replace the 500 kV GIS. The RIT-T for this project is progressing, with the Project Specification Consultation Report (PSCR) being published on 31 May 2024 and the Project Assessment Draft Report (PADR) is expected to be published in July 2025. No non-network options are expected to be identified as feasible alternatives. The RIT-T will be concluded during Q3 this year.		
Why is this project required? What's the value that this business case will deliver?		
SMTS is an important terminal station as it is part of the Victorian transmission network backbone connecting major loads, generation and major interconnectors to other states. The 500kV GIS has become technically obsolete and has significantly deteriorated, resulting in considerable sulphur hexafluoride (SF₆) gas leakage, and has been assessed to be no longer able to provide the required switching service for the following reasons: • The technology is obsolete and is no longer supported by the original equipment manufacturer (OEM) • AusNet has very limited spares to respond to asset failures • Multiple circuits are impacted when replacement or repairs are needed following an asset failure because the GIS compartments next to the failed component must be depressurised and deenergised for safety reasons which is an inherent issue with the design of this early version of GIS. 500/330 kV transformers would need to be removed from service should work be required on the centre circuit breaker for example. This scenario will impact many customers. Additionally, the F2 transformer and its No.2 330kV bus circuit breaker is nearing the end of its service life. A risk analysis shows that it is no longer economical to continue to provide transmission network services with these existing assets as the failure risk has increased to a level where investment to replace the selected assets presents a more economical option. Replacement of the GIS with modern outdoor Air-Insulated Switchgear (AIS) and the F2 transformer with a similarly rated unit reduces the risk of involuntary load curtailment, safety hazards, environmental impact, and collateral damage associated with asset failure. Furthermore, retiring the GIS and transitioning to AIS supports AusNet's efforts to meet its corporate emissions reduction targets¹.		

¹ [AusNet Climate Change Position Statement](#)

Is this project part of the 5-year Reg Reset submission?	☒ Yes / ☐ No If Yes please select: ☐ EDPR / ☒ TRR / ☐ GAAR Reg Reset Category: Tx - Replacement Major Station Reset Amount: \$19.4M (2022-2027 Regulatory control period, \$nominal)
Is this forecast in the current FY Plan?	☒ Yes / ☐ No
Incremental change in Opex	Opex change is negligible

Project Expenditure Forecast (CY)

Project Expenditure for approval (nominal)	Calendar year (first 5 years)					Lifecycle Total
	2025	2026	2027	2028	2029	
Direct Capital expenditure	0.6	9.1	13.8	72.2	72.1	301.1
Overheads	0.0	0.5	0.7	3.6	3.6	15.1
Capitalised Finance Charges	0.0	0.2	0.8	2.7	3.3	15.0
Project Delivery Budget (SAP Capex budget)	0.6	9.8	15.3	78.5	79.1	331.3
Management Reserve	-	-	-	-	-	32.1
Total CAPEX for Approval (incl risk, CFCs & OHs)	0.6	9.8	15.3	78.5	79.1	363.4
Operating Expenditure for approval (Project Opex)	-	-	-	-	-	-
Written down value of assets retired/sold	-	-	-	-	-	3.5
Total Estimated expenditure for approval (nominal)	0.6	9.8	15.3	78.5	79.1	366.9

Analysis of investment options

Analysis of investment options (\$m - Present Value)	Capex	Opex	Total Financial Costs	Potential Costs	Other Economic Costs & (Benefits)	Total PV Cost	PV Cost Ratio (compared to BAU)	Financial outcome (in present value terms) - compared to BAU - excl non cash costs and benefits
BAU	-	0.5	0.5	-	1,300.0	1,300.5	1.00	
Option 1	273.5	0.3	273.8	-	80.3	354.1	0.27	Excluding Economic costs and benefits, this Option saves \$240k Opex and spends \$274m more Capex compared to BAU ✓
Option 2	243.2	0.3	243.5	-	205.7	449.2	0.35	Excluding Economic costs and benefits, this Option saves \$186k Opex and spends \$243m more Capex compared to BAU ✗

Options considered	- BAU: Do nothing - Option 1 (Recommended): Integrated replacement of the 500kV GIS and F2 transformer - Option 2: Integrated replacement of the 500kV GIS and F2 transformer deferred by four years				
Preferred option	Both options involve replacing the GIS with outdoor AIS. Replacement with a new GIS system was considered but not progressed as it would not add additional benefits, costs much more, and due to complexities during its installation., See Section 1.3 for more information.				
Key benefit	Option 1 has the highest net benefits of all options for most scenarios and sensitivity studies. Although Option 1 has a higher present value of capital expenditure than Option 2, the present value of avoided market impact costs far outweigh those of Option 2. As such, Option 1 presents a robust investment decision to reduce the asset failure risk at SMTS. <table> <tr> <th>Total value</th><th>Overview</th></tr> <tr> <td>Avoided market impact cost of almost \$23M p.a. from the first year of the investment compared to the BAU option</td><td>The avoided market impact cost results from reduced risk of involuntary load curtailment, safety hazards, environmental impact and collateral damage associated with asset failure and reduced greenhouse gas emissions.</td></tr> </table>	Total value	Overview	Avoided market impact cost of almost \$23M p.a. from the first year of the investment compared to the BAU option	The avoided market impact cost results from reduced risk of involuntary load curtailment, safety hazards, environmental impact and collateral damage associated with asset failure and reduced greenhouse gas emissions.
Total value	Overview				
Avoided market impact cost of almost \$23M p.a. from the first year of the investment compared to the BAU option	The avoided market impact cost results from reduced risk of involuntary load curtailment, safety hazards, environmental impact and collateral damage associated with asset failure and reduced greenhouse gas emissions.				
Key implementation/delivery risks	- Availability of planned outages impacting project delivery - Human error incident that impacts the transmission system				

Project Sponsor	Project Initiator & Dept	Prepared by	Date BC submitted
[C.I.C] EGM (Transmission)	[C.I.C] Transmission Network Development & Planning	[C.I.C] Transmission Network Development & Planning	30/06/2025

Business Case e-sign-off

Project # / Title / Version		TD-0008025 – SMTS 500kV GIS and F2 Transformer Replacement		
Name	Title	Signature	Date Approved	Comments
Delivery Review				
[C.I.C]	Group Leader, Company Works	Via email	23/06/2025	
Endorsements				
[C.I.C]	GM, Regulated Finance (Acting)	Via RPF	07/07/2025	Endorsed for RIC
[C.I.C]	GM Network Management (Transmission)	Via RPF	07/07/2025	Endorsed for RIC
[C.I.C]	GM Engineering & Asset Management	Via RPF	07/07/2025	Endorsed for RIC
[C.I.C]	Head of Delivery Construction & Commissioning	Via RPF	07/07/2025	Endorsed for RIC
DOA Approvals				
[C.I.C]	EGM Group Operations (Acting)	Via email	09/07/2025	
[C.I.C]	EGM Transmission	Via email	09/07/2025	
[C.I.C]	Chief Financial Officer (Acting)	Via email	08/07/2025	
[C.I.C]	Chief Executive Officer	Via Circular		
Board	Board	Via Circular		

1. Project Background

Located north of greater Melbourne, approximately 21km above the CBD, SMTS serves as critical component of the Victorian transmission network. The station is owned and operated by AusNet and forms part of the main 500kV transmission backbone with ties to Tasmania (via Basslink), major generation in the Latrobe Valley, the Victoria - South Australia interconnector, the Victoria - New South Wales interconnector, and the 220kV metropolitan transmission network. SMTS is connected to six other terminal stations and has switchyards operating at four voltage levels (500 kV, 330 kV, 220 kV and 66 kV).

The SMTS 500 kV switchyard utilises outdoor Gas Insulated Switchgear (GIS) to connect three 500 kV lines from the east (from Hazelwood and Rowville terminal stations), three 500 kV lines from the west (from Sydenham and Keilor terminal stations) and two 1,000 MVA transformers (F1 and F2) which step the voltage down from 500 kV to 330 kV. GIS is an alternative construction technique to Air Insulated Switchgear (AIS), enclosing all circuit breakers and associated instrument transformers, disconnectors, and earth switches and occasionally surge arresters within a sulphur hexafluoride (SF₆) filled metal enclosure.



Figure 1: SMTS and the Victorian Transmission network

1.1. Asset Condition

The SMTS 500kV GIS was installed in 1981 and is now technically obsolete and in very poor condition. The deterioration of the GIS due to age related corrosion has resulted in numerous hydraulic system and SF₆ gas leaks, leading to significant system events on several occasions. The manufacturer [C.I.C] no longer provides maintenance support and spares have been depleted to the point where salvaging components and reverse engineering have become the only means of supporting the fleet. [C.I.C]

Repairs or replacement of GIS components require adjacent compartments to be depressurised and deenergised for safety reasons which is an inherent issue with the design of this early version of GIS. Both 500/330 kV transformers would need to be removed from service should work be required on the centre circuit breaker for example. This scenario will impact many customers.

The F1 transformer was installed in 2023 as part of AEMO and TransGrid's RIT-T² to increase transfer capability from Victoria to New South Wales. The F2 transformer was installed in 1982 and is deteriorating, as expected of an asset approaching the end of its service life. The F2 transformer No.2 330kV Bus circuit breaker also requires replacing as part of these works

² [TransGrid, Victoria To New South Wales Interconnector Upgrade RIT-T](#)

due to its age and condition. Replacing all the deteriorated assets as part of an integrated project enhances delivery efficiency.

1.2. Identified need

The likelihood of a 500kV GIS circuit breaker or F2 transformer failure is expected to increase over time due to the poor condition of the assets. Without remedial action, other than ongoing maintenance practice (business-as-usual), the assets are expected to deteriorate further and more rapidly. This will increase the market impact risk due to prolonged outages of the transmissions lines and transformers switched at SMTS following the asset failure and during the consequent works to repair or replace the failed component with multiple circuits impacted when repairs or replacement works are required. In addition, there is also increased safety, environmental, collateral damage, and emergency replacement risks due to the poor condition of the 500 kV GIS.

Therefore, the 'identified need' this business case intends to address is to maintain reliable transmission network services at SMTS and mitigate risks from 500kV switchgear asset failures. The need for investment to address asset failure risks from the deteriorating assets at SMTS is included in AusNet Services' 2022 to 2027 revenue proposal. This investment need is also presented in AusNet Services Asset Renewal Plan that is published as part of AEMO's 2024 Victorian Annual Planning Report (VAPR).

The present value of the baseline risk costs has been calculated to be approximately \$1.1 billion over the forty-five-year period from 2025. The key elements of these risk costs are shown in **Error! Reference source not found..** The largest component of the baseline risk costs is the supply interruption risk, which is borne by electricity consumers and reflects that the 500 kV GIS is no longer suitable for the transmission network switching service required at SMTS, which is part of Victoria's main transmission network.

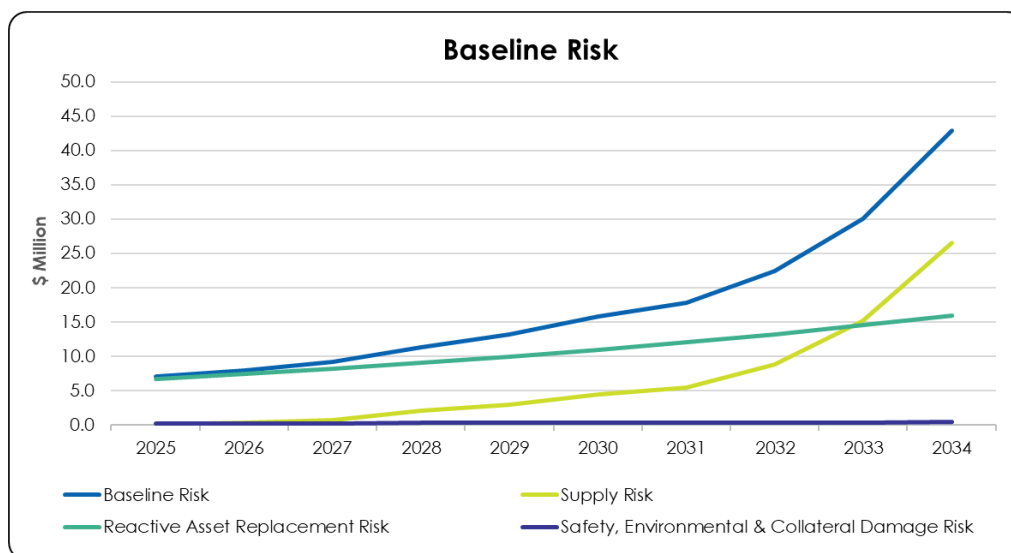


Figure 2: Baseline risk and key elements

1.3. Rationale for choosing Option 1

A risk analysis shows that it is no longer economical to continue to provide transmission network services with the existing 500kV GIS and F2 transformer as the asset failure risk and inability to respond to asset failure due to lack of spares has increased to a level where investment to replace the selected assets presents a more economical option. A failure of the F2 transformer or one or more of the 500kV GIS circuit breakers will constrain generation and result in involuntary load curtailment impacting network users.

Replacement of the GIS with a new GIS system (either indoor or outdoor) was considered, however, several factors deterred this investigation:

- The significantly higher cost and the determination that such a solution was not necessary for this project
- The complexity involved in building a new indoor switch room over the existing in-service switchyard
- The complexity of switching arrangements and space requirements to facilitate two in-service GIS systems at once during the replacement
- The phasing out of SF₆ bulk systems in the European Union in accordance with EU Regulation (EU) 2024/573 and AusNet's reliance on European manufacturers for sourcing of SF₆ equipment

- The environmental damage potential from leakage of SF₆ gas conflicting with AusNet's corporate goal of net zero greenhouse gas emissions by 2045 for Scope 1 and 2 emissions and an interim target of 50 per cent reduction by 2030 (relative to a 2022 baseline).
- AusNet's proven experience with constructing reliable air-insulated switchyards to a high standard

Accordingly, both options involve replacing the GIS with outdoor AIS and the F2 transformer with a similarly rated bank of autotransformer units, with the primary distinction between them being the timing of the investment.

Option 1 is chosen as it has the highest net benefits for a range of sensitivity studies where input variables are varied one at a time. Figure 3 shows that the project benefits outweigh the investment cost for both options for all the sensitivities and that Option 1 presents a better economic solution for most of the sensitivity studies.

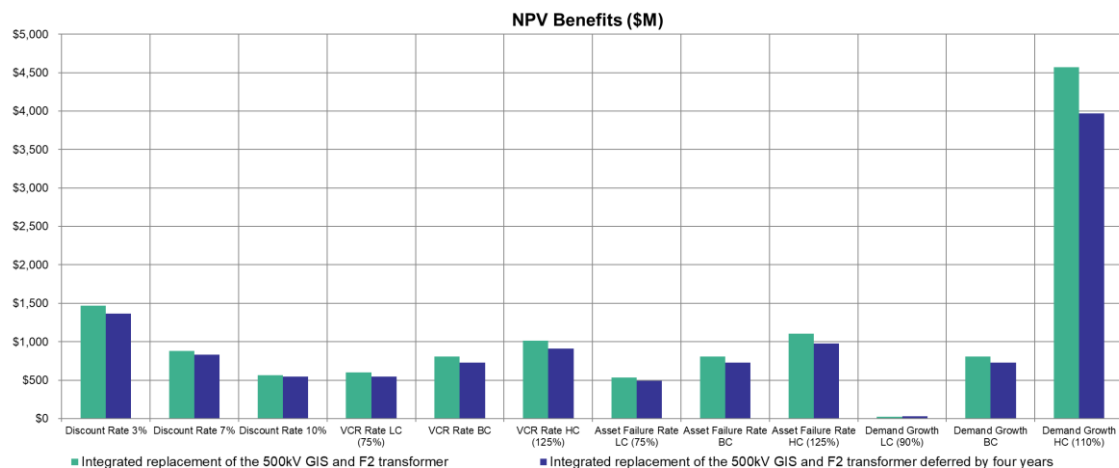


Figure 3: Option selection - NPV benefits

1.4. Rationale for why Option 2 was not chosen

The assessment shows that the economic timing of the investment to replace the 500kV GIS and F2 transformer is in 2031 and deferring the investment beyond this timing results in increased exposure to the baseline risk elements shown above. Hence, deferral of the integrated replacement of the 500kV GIS and F2 transformer by four years is not a prudent investment.

2. Project Scope

2.1. In Scope

Item No	In Scope
IS-1	Replace all 500kV GIS equipment in the SMTS 500kV switchyard with outdoor AIS
IS-2	Replace the F2 Transformer with similarly rated bank of auto transformer units
IS-3	Replace the F2 Transformer No.2 330kV Bus circuit breaker
IS-4	Replace the existing 500kV control room with a new room including all protection and communications, 250 and 48VDC and 400V AC systems along with SCADA and PMU equipment.

2.2. Dependencies

Item No	Project Dependency Details and Description
D-1	TD-0014633 is a project to replace the SMTS 330/220kV H1 and H2 transformers. This project is not expected to have an impact, and savings may be able to be achieved by bulk ordering transformers.
D-2	TD-0008033 is a project to replace the 500kV GIS at Sydenham Terminal Station (SYTS). The protection on lines between SYTS and SMTS will be upgraded by this project (TD-0008025) and there is a significant opportunity to piggyback on SMTS-SYTS1 and SMTS-SYTS2 line outages for works at SMTS during SYTS works.

3. Key Benefit and Assumptions

Option	Benefit Detail	Key Benefit Category	Key Benefit Value (\$)	Key Benefit Assumptions (Baseline and Measurement)	Benefit Start to Full Realisation Date
Option 1	Is there a direct bottom line budget impact? ☐ Yes / ☒ No Cost Centre: N/A CPX: N/A OPX (per annum): N/A	Incentives & Customer	\$22.7M in the first year	Reduction in involuntary load curtailment, safety, environmental damage, plant collateral damage and reactive asset replacement risks and greenhouse gas emissions. The baseline risk in the first year after implementing the option (2032) is valued at \$22.9M with \$8.7M of this coming from the cost of involuntary load curtailment (244 MWh of expected unserved energy quantified using a Value of Customer Reliability (VCR) of \$35.78k/MWh). Calculation of the involuntary load curtailment has been done according to industry standard practice ³ and according to AusNet's approved asset management strategy framework ⁴ . Post implementation of the option, the value of the total risk is reduced to \$0.2M in the first year.	Benefit start 31/12/2031 Full Realisation 30/11/2032
Option 2	Is there a direct bottom line budget impact? ☐ Yes / ☒ No Cost Centre: N/A CPX: N/A OPX (per annum): N/A	Incentives & Customer	\$100.4M in the first year	Reduction in involuntary load curtailment, safety, environmental damage, plant collateral damage and reactive asset replacement risks and greenhouse gas emissions. The baseline risk in the first year after implementing Option 2 (2036) is valued at \$100.8M with \$80.2M of this coming from the cost of involuntary load curtailment (2241 MWh of expected unserved energy quantified using a Value of Customer Reliability (VCR) of \$35.78k/MWh). Calculation of the involuntary load curtailment has been done according to industry standard practice ³ and according to AusNet's approved asset management strategy framework ⁴ . Post implementation of the option, the value of the total risk is reduced to \$0.4M in the first year.	Benefit start 31/12/2035 Full Realisation 30/11/2036

³ [Australian Energy Regulator, "Industry practice application note - Asset replacement planning"](#)

⁴ [AusNet, "AMS 10-24 - Asset Renewal Planning Guide"](#)

4. Financials

4.1. Opex Breakdown

Opex excl Project implementation (nominal)	Calendar year (first 5 years)					Lifecycle Total
	2025	2026	2027	2028	2029	
BAU Total Opex	0.0	0.0	0.0	0.0	0.0	0.8
Incremental Opex Costs - Option 1	-	-	-	-	-	-
Opex Savings - Option 1	-	-	-	-	-	(0.4)
Net Budget impact (split by division below)	-	-	-	-	-	(0.4)
New Cost profile	0.0	0.0	0.0	0.0	0.0	0.4

Note: The divisional impact is 100% allocated to the Transmission Line of Business.

4.2. Capex Breakdown

Capex Breakdown (incl mngt reserve - nominal)	Calendar year (first 5 years)					Lifecycle Total
	2025	2026	2027	2028	2029	
Design	-	3.9	2.7	3.8	-	10.4
Internal Labour	0.6	0.6	1.6	3.5	3.6	20.5
Materials	-	4.6	9.5	18.3	20.9	68.8
Plant & Equipment	-	-	-	1.3	1.3	5.2
Contracts	-	-	-	45.2	46.4	196.2
Meter Costs	-	-	-	-	-	-
Other	-	-	-	-	-	-
Management Reserve (incl Risk)	-	-	-	-	-	32.1
Total Capex	0.6	9.1	13.8	72.2	72.1	333.2

5. Schedule

Key Milestone and Deliverables (Waterfall)	Planned Completion Date
Approval of Stage Gate 2	6/12/2023
Approval of Business Case	31/07/2025
Approval of RIT ☐ N/A	31/07/2025
Construction Commencement	31/01/2028
Commissioning Readiness Complete	31/08/2032
Project Completion - Stage Gate 6 Approval	30/11/2032

6. Risk Identification

A preliminary risk assessment has been completed, with more detailed review and planning to follow as the delivery plan is developed. This will include application of Utility Risk Management principles to identify all critical safety hazards and validate that effective barriers are in place.

A preliminary risk assessment identified that planned outage cancellation and supply chain constraints have the highest residual risk ratings and are common causes of project delays and cost over-runs. Environmental risks (oil leaks) and safety risks (lifting, electrical hazards) remain significant but manageable. Design related risks are moderate to high and stakeholder and regulatory risks are lower but still important.

AusNet has deep experience undertaking similar projects and the delivery team is confident that with proper planning, project management and safety controls the risks can be managed within AusNet's risk appetite and the budget requested, noting management reserve of \$32.1M.

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Project Risk	What could occur?	Consequence Rating 1-5	Likelihood Rating (Almost Certain - Rare)	Current Risk Rating A-E	Actions and controls in place to manage/ reduce risk	Target Risk Level A-E
Availability of planned outages impacting project delivery	Project delays	2	Possible	D	Planned outages have been minimised as far as possible for the planned scope.	E
Human error incident that impacts the transmission system	Customers impacted because of involuntary load-shedding	2	Unlikely	D	Project reviews and detailed scope preparation to minimise risks for all project stages. Training, etc.	E
Plant failure during project	Circuit or circuit outages impacting electricity market	2	Unlikely	D	Proceed with project and continue maintenance program until replaced	E
Significant SF6 leakages during removal and disposal of SF6 gas	Environmental damages caused by potent SF6 gases	3	Unlikely	D	Use of authorised contractors with experience in extracting and disposing of SF6.	E
Site conditions not anticipated in design phase	Additional costs and project delays	2	Unlikely	D	Major rock on site has been recognised, and sufficient allowance has been allocated for removal. A detailed geotechnical survey will be conducted to confirm conditions.	E
Supply chain constraints	Project delays	2	Possible	D	Transformer procurement for the project is being actively managed through a strategic planning process to ensure timely delivery and alignment with overall TRR needs.	E
The project is not partially or wholly rejected by the AER	Deferral of other impacted projects, project cancellation, cost write-offs,	2	Unlikely	D	Finalisation of the RIT-T for this project, along with an approved business case, will demonstrate to the AER that it is a committed project. The project will also seek endorsement from the Transmission Stakeholder Advisory Panel (TSAP), through AusNet's TRR 2027-2032 customer and stakeholder engagement activities.	E
Cultural heritage implications not identified	Additional costs and project delays	2	Possible	D	There is an existing cultural heritage overlay in this area with items having been uncovered in the past. An initial investigation	E

Project Risk	What could occur?	Consequence Rating 1-5	Likelihood Rating (Almost Certain - Rare)	Current Risk Rating A-E	Actions and controls in place to manage/ reduce risk	Target Risk Level A-E
					has shown that the depth from soil to rock on the eastern side of the yard is shallow and as such may have minimal impact, however the northern and southern sides of the yard may be of concern. As such, major allowance for a cultural heritage assessment and management plan for the extended 500kV yard, new control and amenities building areas has been included to enable timely identification.	

Refer to [Risk Assessment Criteria Summary](#)

7. Sustainability

List the changes to sustainability this project will deliver in the table below.

Sustainability Consideration	Impact from this project	Comments
Greenhouse gas emissions ☐ N/A	☐ Increase ☐ Neutral ☒ Decrease	The replacement of the 500kV GIS at SMTS is expected to decrease AusNet scope 1 emissions associated with sulphur hexafluoride (SF6).
Waste ☐ N/A	☒ Waste reduction strategies to be implemented	Consideration has been given to the disposal of SF6 gas, Inergen Gas, transformer oil and scrap metals in this business case. Where possible materials will be recycled (most metal major plant) or disposed of using authorised contractors who have proven track records in the industry.
Social procurement ☒ N/A	☐ Purchases from social enterprises ⁵ ☐ Purchases from Aboriginal and Torres Strait Islander-owned businesses ⁶ ☐ Purchases from Australian Disability Enterprises ⁷ ☐ Purchases from local suppliers ⁸	

⁵ See The Loop for access to potential supplier lists from [social enterprises](#) on the "Suppliers" tab [How to purchase \(sharepoint.com\)](#).

⁶ See The Loop for access to potential supplier lists from [Aboriginal and Torres Strait Islander businesses](#) on the "Suppliers" tab [How to purchase \(sharepoint.com\)](#).

⁷ Australian Disability Enterprises [ADE](#)

⁸ Local suppliers, as defined by the State government for the purchase. See [Local Jobs First - Glossary](#) for Victorian Government definition of "local"

Community ☐ N/A	☒ Community consultation required ☐ Community benefits actions	Several projects will be undertaken at SMTS concurrently and it thus warrants community consultation on traffic, noise and dust controls
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8. Corporate Accounting Considerations

Capex profit centre	13260
Propex profit centre	N/A
Opex (BAU) owner & cost centre	[C.I.C], 13945
Transmission Regulatory Key	Prescribed Shared (PS)

Note: OPEX owner assumes responsibility for any write off costs should the project be cancelled.

8.1. Asset Retirements

The total asset write-down amount is \$3.5M as per the fixed assets report attached. Of this amount, approximately \$1.2M can be attributed to the intermittent replacement of 500kV GIS components, undertaken to prolong the system's service life, as well as the replacement of the connected 500kV conductors and towers. The existing towers located west of 500kV yard are below standard height and insufficient to provide safe clearance for the new AIS buses. These assets cannot be re-used for spares.

The remaining write-down value can be primarily attributed to protection and control equipment (\$1.4M) and 500kV line bypass equipment (\$750k). To ensure continuity of 500kV supply during the switchyard redevelopment, the existing switch room and its protection and control systems must operate concurrently with the new proposed switch room for a minimum of one year. As such, the existing protection and control equipment cannot be re-used. The existing 500kV line bypass equipment will not be compatible with the new gantries being installed and cannot be re-used.

Finance introduced a Service Life Review process to allow for changes to be made to an asset's financial life and to apply accelerated depreciation over a shorter timeframe once it has been confirmed that an asset is not going to reach its expected life. This may be due to planned replacements, technology improvements, or site / industry decisions such as site closures. Assets adjusted this way will depreciate to zero by the project end date, resulting in a favourable financial outcome compared with not making the adjustment. The depreciation of the assets mentioned above will be accelerated as part of the Service Life Review conducted in December 2025.

8.2. Contributed (Gifted) Assets

N/A

8.3. Assets to be created

Description of Asset	Quantity	Estimated Cost (total)	Expected Asset Life
Single-phase 500/330/22kV 333.3 MVA auto-transformer units	3	\$81.3M	45 years
Single-phase 500kV circuit breaker	45	\$35.7M	45 years
Single-phase 500kV current transformers	45	\$20.3M	45 years
Single-phase 500kV capacitive voltage transformers	33	\$9.3M	45 years
500kV surge arrestors	11	\$5.1M	45 years

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550kV post insulators	100	\$20.4M	45 years
Three-phase 500kV isolators	30	\$31.5M	45 years
Three-phase earthing switch to suit 500kV isolators	41	\$16.3M	45 years
500kV Busbar (200mm OD Aluminium Tubular Busbar)	1500m	\$9.2M	45 years
500kV monopoles	15	\$31.6M	45 years
Single phase 362kV circuit breakers	3	\$1.9M	45 years
Three phase 330kV disconnecter	1	\$0.8M	45 years
Three-phase earthing switch to suit 330kV disconnecter	1	\$0.3M	45 years
750kVA station service transformer	1	\$1.2M	45 years
Protection & Control Equipment	1	\$36.5M	15 years
Communications Equipment	1	\$3.2M	15 years
Control Building & Site Services (Lighting, Security, Fire Services & Amenities)	1	\$26.8M	45 years
Totals		\$331.3M	

9. Checklist

For transmission network projects, is there a market impact in the delivery of the project?	☒ N/A / ☐ Yes / ☐ No In April 2025, the AER published Version 6 of the Service Target Performance Incentive Scheme (STPIS) in which it suspended the Market Impact Component (MIC) and removing penalties until a new scheme is developed.
Has a Value Engineering Workshop been conducted?	☐ N/A / ☒ Yes / ☐ No No significant savings identified
For the purposes of RIT, have you considered all credible options including non-network options?	☐ N/A / ☒ Yes / ☐ No

10. Appendix A - Attachments

Attach files as objects. Asterisks (*) are mandatory documents.

Document Title	Attachment (Embedded document)
Scope of Works / Initiative Brief *	 TD-0008025 - Scope of Works Summary
Financial Model with NPV*	 NPV Model - South Morang Terminal Stat

TD-0008025 – SMTS 500kV GIS and F2 Transformer Replacement Project

Detailed Cost Estimate and Benefit Assumptions*	   ES_TD-0008025 DCS - SMTS F2 and IDC_SMTS F2 and SMTS F2 and 500 GIS500 GIS Replacement500 GIS Replacement   RR_TD-0008025 SMTS 500kV GIS SMTS F2 and 500 GISEconomic Model 2025
Write Down Value (WDV) details	 WDV TD-8025 Submission RP edit
Approved Seed Funding Request	 TD-0008025 - Seed Funding - Approved