1. AusNet Services' Asset Renewal Plan

This section outlines AusNet Services' asset management strategy and approach, and lists the planned asset retirements and asset renewal projects planned for the next 10-year period. The asset renewal plan addresses asset failure risk based on asset condition and network performance. It also considers other operational factors that affect the economic service life of the electricity transmission assets.

AusNet Services' asset renewal plan does not propose any network changes that will have a material inter-network impact and AusNet Services has liaised with AEMO to integrate the asset renewal plan with AEMO's transmission augmentation plan for Victoria as well as AEMO's National Transmission Network Development Plan (NTNDP) and Integrated System Plan (ISP).

AEMO has also been consulted to review and assess the asset renewal plan in relation to the most recent power system frequency risk review.

Non-network options are considered in AusNet Services' asset renewal approach once an identified need has been determined and include options such as demand side response and embedded generation.

Asset management strategy, asset renewal approach and asset renewal objectives

AusNet Services' electricity transmission Asset Management Strategy (AMS) provides robust technical direction for the responsible stewardship of electricity transmission assets that AusNet Services manages as a service to Victoria's energy users and the National Electricity Market (NEM).

The AMS is central to AusNet Services' Electricity Safety Management Scheme (ESMS) for managing Victoria's electricity transmission assets and the delivery of quality services to customers and value to shareholders. It summarises the medium term strategic actions for achieving regulatory and business performance targets, which are implemented via the programs of work.

The AMS is underpinned by the regulatory and commercial imperatives of delivering efficient cost and service performance. It recognises that cost and service efficiency does not mean lowest possible cost, nor does it mean guaranteed reliability. Instead, efficiency requires the costs and benefits of all expenditure decisions to be weighed against one another. A key element in this cost benefit analysis is the consideration of risk in relation to asset performance and network reliability.

AusNet Services' ongoing commitment to maintain compliance with the ISO 55001 standard ensures an auditable asset management system facilitating customer's expectations to safely maintain the quality, reliability and security of supply in an economic manner.

The objective of asset renewal is to achieve sustainable outcomes in the following areas:

- Safety of customers, the community and workers
- Quality, reliability and security of electricity transmission services
- Compliance with regulation, codes, licences, contracts and industry standards
- Minimising total life cycle costs through the consideration of capital costs, operation and maintenance costs and operational risk costs
- Minimising the volatility of renewal works and associated material, skill and revenue requirements
- Minimising project delivery risks and the potential impact of renewal works on network availability, market participants and connected parties
- Minimising immediate and future environmental impacts
- Minimising network security risks by replacing obsolete protection and control equipment that is no longer supported by manufacturers
- Modernisation of protection and control systems to provide remote interrogation and diagnostics

Asset renewal options

Renewal on Performance Risk is employed to optimise the lifecycle cost of assets through consideration of health, safety and environmental factors as well as the community cost based on the performance of the assets. This strategy requires sufficient asset condition and performance monitoring to predict deterioration of the respective plant with sufficient lead-time to enable renewal prior to failure.

The following asset renewal options are considered in the asset renewal evaluation and project specification:

- Renewal by Asset Class is employed when a class of assets has either a higher than acceptable failure rate or exhibits a higher deterioration rate than its peers. This approach avoids wide spread deterioration in network performance due to multiple, asset class-related failures.
- Selective or Staged Replacement
- Renewal on a Bay-by-Bay (or Scheme/Network) basis is employed when it is economic to replace all primary plant and equipment within a specific bay or scheme. This strategy is often adopted for terminal station renewals.
- Replacement of Whole Station in Existing Location (Brownfield) is employed when it is economic to replace most assets as part of a single, coordinated project within the existing station (normally when station assets are approaching the end of their life and there are advantages in reconfiguring primary electrical circuits).
- Replacement of Whole Station in New Location (Greenfield) is employed for the construction of a replacement station on a new site. It is a more expensive strategy than works within an existing station due to the need to procure new land, establish key infrastructure, and to relocate lines. It is usually only economic when the existing infrastructure is inadequate and replacement works cannot occur without a sustained supply disruption due to limitations at the existing site.

10-year asset renewal plan

The 10-year plan (in calendar years) focuses on major asset renewal projects and has been finalised with input from AEMO in accordance with the integrated planning approach agreed with AEMO.

The description of the proposed asset replacements in Table 1 includes the main plant items that are planned to be replaced over the ten-year planning period. AusNet Services is undertaking asset condition surveys to quantify specific line works and the asset renewal plan allows for expected needs, such as the replacement of insulators and corroded conductors.

The project completion dates provide an indication of the likely timing of these projects and are subject to further analysis prior to committing to deliver these projects. The completion dates of three committed projects (FBTS 220kV and 66kV Circuit Breaker Replacement Stage 1, YPS 220kV Circuit Breaker Replacement Stage 1 and HYTS 500kV switchgear replacement) changed as the projects could not be completed as originally planned due to outage restrictions and project delays. The completion dates of ten projects that are not committed yet have been updated in this plan based on the latest asset failure risk analysis. A higher degree of uncertainty is placed on projects scheduled for the later part of the ten-year planning period. The cost estimates provided are indicative and could vary significantly due to factors such as the circuit outages required to safely implement the asset renewal. The cost estimates allow for the entire project cost including project management cost, overheads and finance cost.

Wherever possible, asset renewal works are planned at times that minimise the impact of circuit outages. The plan is subject to change based on the results of further asset condition analysis, asset failures necessitating a reprioritisation of projects and regulatory revenue decisions.

Different replacement options for the Keilor 500/220 kV transformers are being considered in a joint study with AEMO to identify the most economic replacement option.

No urgent or unforseen network issues have been identified to date.

The 2019 Asset Renewal Plan contains a number of minor changes to scope, project completion dates and cost changes for some projects reported in the 2018 plan. The only major change is the inclusion of the BETS-KGTS 220kV line replacement project in 2028. This line renewal project is being investigated due to the age and condition of the existing lines as well as recognition of the increasing criticality of these lines resulting from generator connections in this region.

Further information on the asset management strategy and methodology

Further information on the asset management strategy and methodology can be obtained by contacting the following person at AusNet Services:

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Table 1: Ten-year asset renewal plan (cost estimates are in 2019 dollars)

Project Name	Location	Total Cost (Real $M)	Target Completion (December)	Network Assets to be Retired	Reasons for Retirement	Date of Retirement	Constraints	Proposed Replacement	Options Considered	Request for Proposal Date	Changes Compared with Last Plan
FBTS 220kV and 66kV Circuit Breaker Replacement Stage 1	Fishermens Bend Terminal Station	17	2019	One 220kV Circuit Breaker and nine 66kV Circuit Breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2018 to 2020	Load at risk	One 220kV Circuit Breaker and nine 66kV Circuit Breakers	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	Change to completion date
YPS 220kV Circuit Breaker Replacement Stage 1	Yallourn Power Station Switchyard	21	2019	Seven 220kV Circuit Breakers and the associated Current Transformers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	Asset retirements are in progress and will continue in 2019	Switching/ generation constraints	Seven 220kV Circuit Breakers	Refurbishment, integrated replacement and staged replacement.	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	Change to completion date
HWPS 220kV Circuit Breaker Replacement - Stage 4	Hazelwood Power Station Switchyard	24	2019	Seven 220kV circuit breakers, nine current transformers, nine voltage transformers and thirty-nine disconnectors	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2018 to 2019	Load at risk	Seven 220kV circuit breakers, nine current transformers, nine voltage transformers and thirty-nine disconnectors	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
LYPS and HWTS 500kV Circuit Breaker Replacement Stage 1	Loy Yang Power Station Switchyard and Hazelwood Terminal Station	29	2019	Four 500kV circuit breakers, six 500kV current transformers and two 500kV voltage transformers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2018 to 2019	Switching/ generation constraints	Eight 500kV circuit breakers, six 500kV current transformers and two 500kV voltage transformers	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
Transmission fall arrest installation program	Different locations of the transmission network	20	2019	None	Safety risk mitigation	N/A	Safety risk	Install fall arrests	Do Nothing (i.e. continue with the use of dual lanyard); Defer project to next Reset and Do installation work	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
Upgrade SCADA at Non-SCIMS and Old SCIMS Sites	Newport, Sydenham, Moorabool, Jeeralang, Rowville, Loy Yang, East Rowville, Springvale, Tyabb and Templestowe Terminal Stations	7	2019	Selected obsolete SCADA systems at Non-SCIMS and old SCIMS sites at 10 Stations	Obsolete technology. Compliance obligation.	2018 - 2019	Load at risk	Replace obsolete secondary assets with current standard equipment	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project	No change
HYTS 500kV switchgear replacement	Heywood Terminal Station	10	2020	500 kV instrument transformers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2019 to 2020	Switching constraints	Two 500kV circuit breakers and associated equipment	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	Change to completion date
ROTS No.2 SVC Controls and Protection Replacement.	Rowville Terminal Station	10	2020	ROTS No.2 SVC Controls and Protection Replacement.	Obsolete technology. Compliance obligation.	2019 - 2020	Load at risk	Replace with current standard assets	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change

Project Name	Location	Total Cost (Real $M)	Target Completion (December)	Network Assets to be Retired	Reasons for Retirement	Date of Retirement	Constraints	Proposed Replacement	Options Considered	Request for Proposal Date	Changes Compared with Last Plan
North West Communication Network Replacement	Between Bendigo and north of Horsham	40	2020	Power Line Carrier (PLC) assets	Obsolete technology	2018 to 2020	Switching/ generation constraints	Combination of fibre optic and microwave technology	Business as usual, replace with fibre optic & microwave and replace with fibre optic	A request for proposal will not be issued for this project as it is a committed project	No change
OTN Replacement program	Several terminal stations	7	2020	Telephony Network at 48 terminal stations	Obsolete technology. Compliance obligation.	2019 - 2020	Load at risk	Telephony Network at 48 terminal stations	Do nothing or End of Life replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No change
RS Battery and Charger Replacements 1	Several locations	10	2020	Selected obsolete communication and control batteries	End of Life replacement	2017 - 2020	Load at risk	Replace with current standard assets	Business as usual or asset replacement	A request for proposal will not be issued for this project as it is a committed project	No change
FBTS Transformer and circuit breaker replacement	Fishermens Bend Terminal Station	18	2020	One 150 MVA 220/66kV transformer, one 220kV circuit breakers and four 66kV Circuit Breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2019 to 2020	load at risk	One 150 MVA 220/66kV transformer, one 220kV circuit breakers and four 66kV Circuit Breakers	Integrated replacement, staged replacement and replacement with larger transformers	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
ERTS Redevelopment - Stage 1	East Rowville Terminal Station	14	2020	One 150 MVA 220/66kV transformer, two 220kV circuit breakers and three 66kV Circuit Breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2019 to 2020	Load at risk	One 150 MVA 220/66kV transformer, two 220kV circuit breakers and three 66kV Circuit Breakers	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
WMTS Redevelopment	West Melbourne Terminal Station	128	2021	Four 150MVA 220/66kV transformers, 220kV switchyard, 66kV switchyard and 22kV switchyard	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2018 - 2021	Load at risk	Three 225MVA 220/66kV transformers, four breaker-and-half 220kV GIS switch bays, two 66kV GIS busses, 22kV GIS switchboard and associated protection and control systems	Integrated replacement, staged replacement, replacement on a new site and replacement with larger transformers in consultation with Distribution Businesses	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
SVTS Redevelopment	Springvale Terminal Station	53	2021	Three 150 MVA 220/66kV transformers, four 220kV circuit breakers and nineteen 66kV Circuit Breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2019 - 2021	Load at risk	Three 150 MVA 220/66kV transformers, twelve 220kV circuit breakers and nineteen 66kV Circuit Breakers	Integrated replacement, staged replacement, replacement on a new site and replacement with larger transformers in consultation with Distribution Businesses	A request for proposal will not be issued for this project as it is a committed project and is already in its build phase	No change
Critical relay replacement at various terminal stations Stage 1 & 2	Several terminal stations	8	2021	Obsolete protection relays	Obsolete technology. Compliance obligation.	2020 to 2021	Load at risk	Replace with current standard assets	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No change
Transmission fall arrest installation program	SYTS-MLTS, MLTS-TRTS, MLTS-MOPS, MLTS-HYTS and HYTS-APD 500kV lines	16	2022	None	Safety risk mitigation	2021 to 2022	Safety risk	Install fall arrests	Do Nothing (i.e. continue with the use of dual lanyard); Defer project to next Reset and Do installation work	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No change
HOTS SVC Replacement	Horsham Terminal Station	18	2023	Selected SVC, Controls and Protection assets	Obsolete technology. Compliance obligation.	2022 to 2023	Load at risk	Replace with current standard assets	Integrated replacement, staged replacement and retirement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to Scope, cost & completion date

Project Name	Location	Total Cost (Real $M)	Target Completion (December)	Network Assets to be Retired	Reasons for Retirement	Date of Retirement	Constraints	Proposed Replacement	Options Considered	Request for Proposal Date	Changes Compared with Last Plan
DC Supply Upgrade Stage 3	Ballarat, East Rowville, Frankston, Kerang, Shepparton, South Morang and Sydenham terminal stations	14	2023	Selected DC supply assets	Replacement of obsolete systems. Compliance	2022 to 2023	Load at risk	Replace obsolete secondary assets with current standard equipment	Integrated replacement and staged replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No change
Moorabool Terminal Station Circuit Breaker Replacement	Moorabool Terminal Station	30	2024	Eight 500kV circuit breakers and Nine 220kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2022 to 2024	Switching constraints	Eight 500kV circuit breakers and Nine 220kV circuit breakers	Integrated replacement, staged replacement and retirement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to Scope, cost & completion date
SMTS 330/220kV Transformer Replacement - Stage 2	South Morang Terminal Station	35	2024	One 700 MVA 330/220 kV transformer	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2022 to 2024	Load at risk	One 700 MVA 330/220 kV transformer and a spare phase	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2021	Change to completion date
RCTS Transformer and Circuit Breaker Replacement	Red Cliffs Terminal Station	18	2024	Two 70MVA 220/66kV transformers, two 21.5MVA 220/22kV transformers and two 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2024	Load at risk	One 150MVA 220/66kV transformer, two 20/33 MVA 66/22kV transformers and two 66kV circuit breakers	Integrated replacement, staged replacement, demand side management, embedded generation and retirement	2021	No change
KGTS B2 and B3 Transformer and Circuit Breaker Replacement	Kerang Terminal Station	18	2024	Two 37MVA 220/66kV transformers and two 22kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2024	Load at risk	Two 37MVA 220/66kV transformers and two 22kV circuit breakers	Integrated replacement, staged replacement, replacement with larger transformers, demand side management, embedded generation and retirement	2021	No change
RWTS B3 Transformer Replacement	Ringwood Terminal Station	10	2024	One 150MVA 220/66kV transformer	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2024	Load at risk	One 150MVA 220/66kV transformer	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2021	No change
LYPS and HWTS 500kV Circuit Breaker Replacement Stage 2	Loy Yang Power Station Switchyard and Hazelwood Terminal Station	35	2024	Fourteen 500kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2024	Switching/ generation constraints	Fourteen 500kV circuit breakers	Integrated replacement, staged replacement and retirement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to cost estimate
TSTS Transformer and 66kV Circuit Breaker Replacement	Templestowe Terminal Station	46	2025	Two 220/66kV transformers, two 66kV minimum oil Circuit Breakers and eleven 66kV bulk oil Circuit Breakers, and install new protection and control systems	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 to 2025	Load at risk	Two 150 MVA 220/66kV transformer and thirteen 66kV Circuit Breakers	Integrated replacement, staged replacement, demand side management, embedded generation and retirement	2022	Change to Scope, cost & completion date

Project Name	Location	Total Cost (Real $M)	Target Completion (December)	Network Assets to be Retired	Reasons for Retirement	Date of Retirement	Constraints	Proposed Replacement	Options Considered	Request for Proposal Date	Changes Compared with Last Plan
SYTS 500kV GIS Replacement	Sydenham Terminal Station	25	2025	Three 500kV GIS CBs and associated equipment	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 - 2025	Switching constraints	Three 500kV GIS CBs and associated equipment	Business as usual, Integrated replacement, staged replacement and retirement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to Scope, cost & completion date
Transmission ground wire & conductor replacement program	KTS-BLTS, TTS-KTS, ROTS-RTS, DDTS-SMTS, HWPS-ROTS and YPS-ROTS transmission lines	18	2025	Selected ground wire & conductor sections	Condition and risk based replacement	2024 to 2025	Load at risk	Replace with new ground wire & conductor	Defer the work, selected asset replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to completion date
Transmission line insulator replacement program	MLTS-TRTS, MLTS-MOPS, KTS-GTS, KTS-WMTS and TTS-KTS lines	35	2025	Selected insulators	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 to 2025	Load at risk	New insulators	Business as usual, Defer the work and asset replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No Change
GTS B4 Transformer and 66kV Circuit Breaker Replacement	Geelong Terminal Station	16	2025	One 150MVA 220/66kV transformer and six 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 to 2025	Load at risk	One 150MVA 220/66kV transformer and six 66kV circuit breakers	Integrated replacement, staged replacement, replacement with larger transformers, demand side management, embedded generation and retirement	2022	Change to completion date
BLTS 66kV and 22kV Circuit Breaker Replacement	Brooklyn Terminal Station	14	2025	Thirteen 66kV circuit breakers and three 22kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 to 2025	Load at risk	Thirteen 66kV circuit breakers and three 22kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2022	Change in scope and cost
ROTS 220kV Circuit Breaker Replacement	Rowville Terminal Station	6	2025	Five 220kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 to 2025	Load at risk	Five 220kV circuit breakers	Integrated replacement, staged replacement and retirement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No change
SMTS 500kV GIS Replacement	South Morang Terminal Station	25	2026	Five 500kV GIS circuit breakers and associated equipment	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 to 2026	Load at risk	Five 500kV GIS circuit breakers and associated equipment	Business as usual, Integrated replacement, staged replacement and retirement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change in scope and cost
ERTS Redevelopment - Stage 2	East Rowville Terminal Station	24	2026	Two 150MVA 220/66kV transformers and fifteen 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 to 2026	Load at risk	Two 150MVA 220/66kV transformers and fifteen 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2023	No change

Project Name	Location	Total Cost (Real $M)	Target Completion (December)	Network Assets to be Retired	Reasons for Retirement	Date of Retirement	Constraints	Proposed Replacement	Options Considered	Request for Proposal Date	Changes Compared with Last Plan
TBTS B1 and B2 Transformer Replacement	Tyabb Terminal Station	17	2026	Two 150MVA 220/66kV transformers, one 220kV circuit breakers and four 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 to 2026	Load at risk	Two 150MVA 220/66kV transformers, one 220kV circuit breakers and four 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2023	No change
Transmission 500kV line conductor and ground-wire replacement program for south-western area	SYTS-MLTS, MLTS-HYTS and HYTS-APD 500kV lines	20	2026	Selected ground wire & conductor sections	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 to 2026	Load at risk	Replace with new ground wire & conductor sections	Business as usual, Defer the work and asset replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to cost estimate
OPGW on ROTS-YPS No.5 & 6 Lines	ROTS-YPS No.5 & 6 Lines	7	2026	Selected ground wire sections	Obsolete technology. Compliance obligation.	2025 to 2026	Switching/ generation constraints	Optical Ground Wire (OPGW)	Business as usual, Defer the work and asset replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	No change
FBTS B3 Transformer and Circuit Breaker Replacement	Fishermens Bend Terminal Station	10	2026	One 150MVA 220/66kV transformer and four 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 to 2026	Load at risk	One 150MVA 220/66kV transformer and four 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2023	Change to completion date
Transmission 500kV line conductor and ground-wire replacement program for Latrobe Valley to Melbourne corridor	LYPS-HWTS, HWTS-CBTS, SMTS-SYTS and HWTS-ROTS 500kV lines	20	2027	Selected ground wire & conductor sections	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2026 to 2027	Load at risk	Replace with new ground wire & conductor sections	Business as usual, Defer the work and asset replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to cost estimate
TTS B4 Transformer and 66kV Circuit Breaker Replacement	Thomastown Terminal Station	25	2027	One 150MVA 220/66kV transformer and eleven 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2026 to 2027	Load at risk	One 150MVA 220/66kV transformer and eleven 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2024	Change to completion date
SHTS B2 and B3 Transformer Replacement	Shepparton Terminal Station	17	2027	Two 150MVA 220/66kV transformers and five 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2026 - 2027	Load at risk	Two 150MVA 220/66kV transformers and five 66kV circuit breakers	Business as usual, asset replacement, demand side management, embedded generation and retirement	2024	No change
KTS A2, A3 and A4 500/220kV and B4 220/66kV Transformer Replacement	Keilor Terminal Station	55	2028	Three 750MVA 500/220kV transformers and one spare phase. One 150MVA 220/66kV transformer	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 to 2028	Load at risk	Two 1000MVA 500/220kV transformers and a spare phase, one 150MVA 220/66kV transformer	Integrated replacement and staged replacement, replace with larger or smaller transformers, asset retirement, demand side management and embedded generation.	2024	Change to completion date
SMTS F2 Transformer and associated switchgear Replacement	South Morang Terminal Station	30	2028	1000MVA 500/330kV transformer with associated switchgear	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2026 - 2028	Load at risk	1000MVA 500/330kV transformer with associated switchgear	Business as usual, asset replacement, demand side management, embedded generation and retirement	2024	No change

Project Name	Location	Total Cost (Real $M)	Target Completion (December)	Network Assets to be Retired	Reasons for Retirement	Date of Retirement	Constraints	Proposed Replacement	Options Considered	Request for Proposal Date	Changes Compared with Last Plan
DDTS H3 330/220kV Transformer and 330kV Circuit Breaker Replacement	Dederang Terminal Station	20	2028	One 340MVA 330/220kV transformer and two 330kV Circuit Breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2027 - 2028	Load at risk	One 340MVA 330/220kV transformer and two 330kV Circuit Breakers	Integrated replacement and staged replacement, replace with larger or smaller transformers, asset retirement, demand side management and embedded generation.	2025	No change
Transmission line insulator replacement program	ROTS-MTS, ROTS-RTS, NPSD-FBTS, FBTS-BLTS, CBTS-TBTS and CBTS-FTS lines	25	2028	Selected insulators	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2027 - 2028	Load at risk	New insulators	Business as usual, Defer the work and asset replacement	A request for proposal will not be issued for this project as no alternative non-network solution is envisaged.	Change to cost estimate
GTS 220 kV Circuit Breaker Replacement	Geelong Terminal Station	9	2028	Five 220kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2027 - 2028	Load at risk	Five 220kV circuit breakers	Business as usual, asset replacement and retirement	A request for proposal will not be issued for this project as it is a committed project	No change
Replace BETS-KGTS 220 kV transmission line	BETS-KGTS	204	2028	Replace BETS-KGTS 220 kV transmission line	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2025 - 2028	Load at risk	New transmission line	Business as usual, Defer the work and asset replacement	2024	New Project