

Ausnet Services' Asset Renewal Plan - 2021

This section outlines AusNet Services' asset management strategy and approach and lists the 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.

1 ASSET MANAGEMENT APPROACH

1.1 Asset Management Framework

AusNet Services' asset management system has been developed in accordance with ISO 55001, the international standard for asset management.

Consistent with the requirements of ISO 55001, AusNet Services' asset management system contains an asset management policy statement, strategic asset management plan, asset management objectives and a detailed suite of asset management strategies and an asset management plan.

The asset management policy acknowledges the company's purpose and directs the content and implementation of asset management strategies, objectives, and plans.

In the development of asset management strategies, asset management decisions are informed by an assessment of the external business environment, the corporate business and financial plans and responds to stakeholder engagement, which incorporates customer, generator, regulator, shareholder, and government views.

AusNet Services' asset management framework is illustrated in Figure 1.

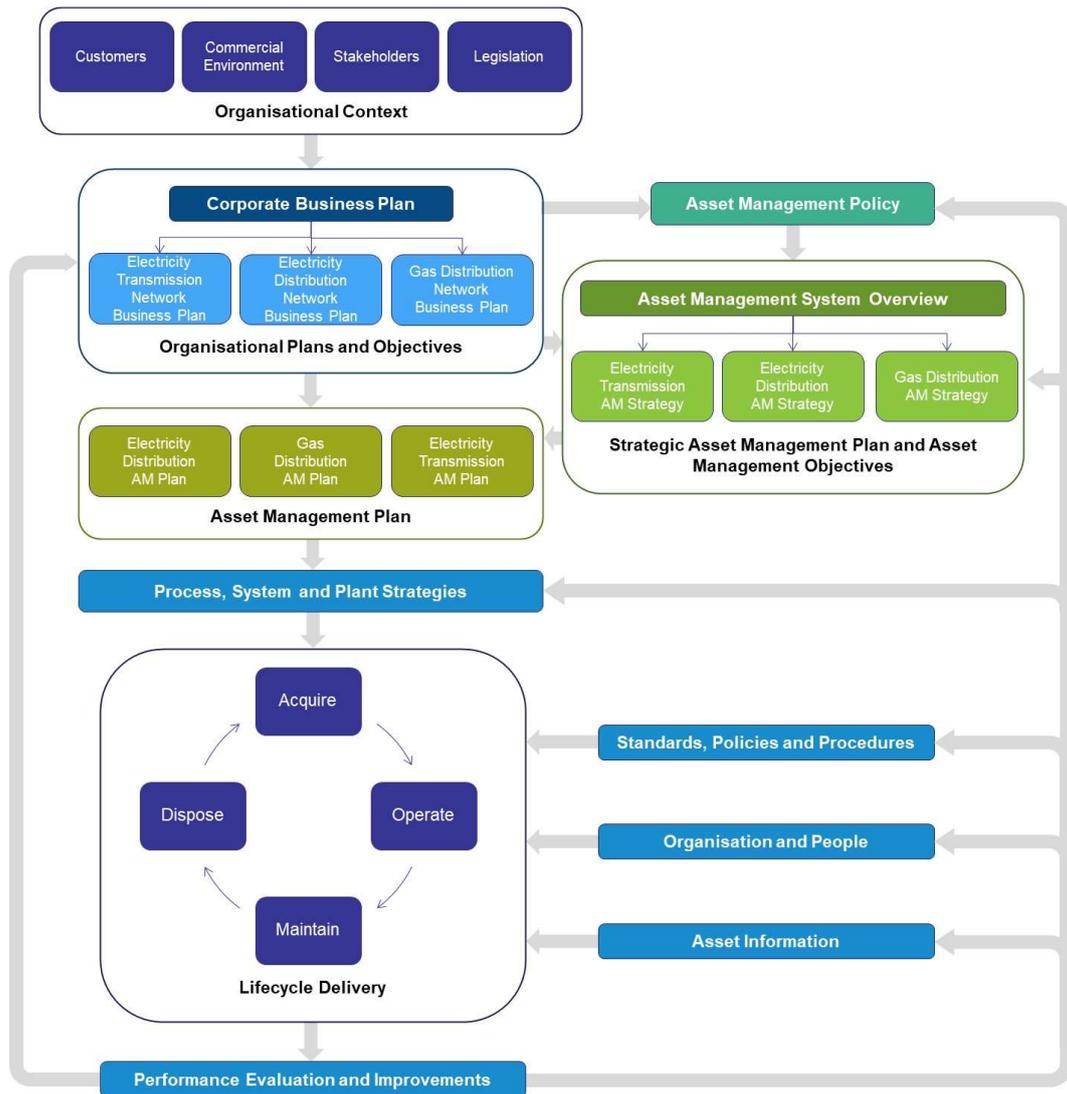


Figure 1: Asset Management Framework

AusNet Services uses a risk-based cost benefit analysis methodology to guide asset replacement decisions. The decision-making process considers the likelihood of failure (based on historic failure data and asset age and condition information) and the consequences of failure to value the risk of asset failure in monetary terms. Figure 2 shows the factors considered in the cost benefit analysis.

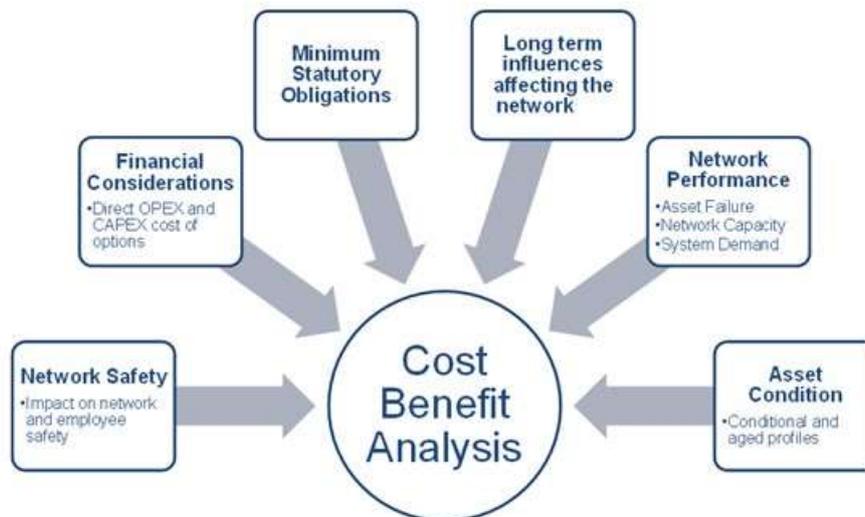


Figure 2: Cost Benefit Analysis Inputs

A range of options are considered as part of the cost benefit analysis including network reconfiguration, asset retirement, asset refurbishment, asset replacement and non-network alternatives.

The methodology assesses whether the overall economic value of expenditure is positive and ensures that risks are reduced as far as practicable, as required by the Electricity Safety Act 1998.

1.2 Further Information

Further information on AusNet Services' asset management strategy and methodology may be obtained by contacting rittconsultations@ausnetservices.com.au. In the subject field, please reference 'Asset Management Strategy'.

2 TEN-YEAR ASSET REPLACEMENT PLAN

The ten-year asset replacement plan (in calendar years) focuses on major transmission asset replacement projects. 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 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.

2.1 Asset Renewal Options

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 widespread 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.

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. Non-network solutions are considered in the RIT-T process to find the most economical technically feasible solution.

2.2 2021 Asset Renewal Plan

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 five committed projects (HWPS 220kV Circuit Breaker Replacement - Stage 4, LYPS and HWTS 500kV Circuit Breaker Replacement Stage 1, ERTS Redevelopment - Stage 1 and HYTS 500kV switchgear replacement and North West Communication Network Replacement) changed as the projects could not be completed as originally planned due to outage restrictions and project delays.

The completion dates of six 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.

AusNet Services commenced the HOTS SVC Replacement RIT-T and published the PADR in April 2021. Stage 1 of the Renewable Energy Zone (REZ) Development Plan may meet the identified need of this RIT-T and provide all the services that are presently provided by the HOTS SVC should it proceed, and would hence allow for the HOTS SVC to be retired.

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.

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

The 2021 Asset Renewal Plan contains a number of minor changes to scope, project completion dates and cost changes for some projects reported in the 2020 plan.

A description of the proposed asset replacements is given in Table 1.

Table 1: Ten-year asset replacement plan (cost estimate in 2021 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
North West Communication Network Replacement	Between Bendigo and north of Horsham	40	2021	Power Line Carrier (PLC) assets	Obsolete technology	2018 to 2021	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	Change to completion date
FBTS Transformer and circuit breaker replacement	Fishermens Bend Terminal Station	18	2021	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 2021	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	2022	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 2022	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	Change to completion date
HYTS 500kV switchgear replacement	Heywood Terminal Station	18	2022	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 2022	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 cost & completion date
HWPS 220kV Circuit Breaker Replacement - Stage 4	Hazelwood Power Station Switchyard	24	2022	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 2022	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	Change to completion date
LYPS and HWTS 500kV Circuit Breaker Replacement Stage 1	Loy Yang Power Station Switchyard and Hazelwood Terminal Station	29	2022	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 2022	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	Change to completion date
WMTS Redevelopment	West Melbourne Terminal Station	128	2022	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 to 2022	Load at risk	Three 225MVA 220/66kV transformers, 220kV switchyard, 66kV switchyard 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

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
SVTS Redevelopment	Springvale Terminal Station	53	2022	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 to 2022	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
RS Battery and Charger Replacements 1	Several locations	10	2022	Selected obsolete communication and control batteries	End of Life replacement	2019 to 2022	Load at risk	Replace to same standard	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
HOTS SVC Replacement	Horsham Terminal Station	2	2024	SVC at HOTS	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2022 to 2024	Market Impact	REZ Development Plan stage 1 project & retirement of HOTS SVC	REZ Development Plan stage 1 project, replace with a modern equivalent SVC, replace with a SynCon, Non-network options and retirement	PADR was published in April 2021	Change to cost estimate
ERTS Redevelopment - Stage 2	East Rowville Terminal Station	24	2024	Two 150MVA 220/66kV transformers and eight 66kV 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	Load at risk	Two 150MVA 220/66kV transformers and eight 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management and embedded generation	RIT-T completed	No change
BLTS 66kV Circuit Breaker Replacement	Brooklyn Terminal Station	16	2024	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.	2023 to 2024	Load at risk	Fifteen 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management and embedded generation	RIT-T completed	Change to cost estimate
HYTS-APD T627 to T628B tower replacement	HYTS-APD line	7	2024	Selected towers/ tower parts	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	New towers/ tower parts	Business as usual, Defer the work and asset replacement	2022	New Project
TSTS Transformer and 66kV Circuit Breaker Replacement	Templestowe Terminal Station	43	2024	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.	2023 to 2024	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	RIT-T completed	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
Communication and battery replacement in the South West Region Loop	South West Region	26	2024	Selected replacement of obsolete communication and control batteries	End of Life replacement	2023 to 2024	Load at risk	Replace to current standard	Replace assets with new technology MPLS TP (Multiprotocol Label Switching - Transport Profile) and install 5 more hops microwave to increase capacity required for new technology OR install underground fibre instead of microwave.	2021	Change to cost estimate
Transmission Line Insulator Replacement	Several locations	7	2025	Selected insulators	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2025	Load at risk	New insulators	Business as usual, Defer the work and asset replacement	2021	New Project
MSS-DDTS Nos 1 and 2 tower upgrades	MSS-DDTS line	7	2025	Selected towers/ tower parts	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2025	Load at risk	New towers/ tower parts	Business as usual, Defer the work and asset replacement	2021	New Project
RCTS Transformer and Switchgear Replacement	Red Cliffs Terminal Station	23	2025	Two 21.5MVA 220/22kV transformers 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.	2023 to 2025	Load at risk	One 150MVA 220/66kV transformer and three 22kV circuit breakers	Integrated replacement, staged replacement, demand side management, embedded generation and retirement	2022	Change to completion date
SYTS 500kV GIS Replacement	Sydenham Terminal Station	81	2025	500kV GIS at SYTS	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2023 to 2025	Switching constraints	Replace 500kV GIS with AIS	Business as usual, Integrated replacement, staged replacement and replace with GIS	PADR was published in Aug 2021	Change to cost & completion date
Communication and control battery replacement - Latrobe Valley Loop	Latrobe Valley	21	2025	Selected obsolete communication and control batteries	End of Life replacement	2024 to 2025	Load at risk	Replace to current standard	Business as usual or asset replacement	2022	No change
Transmission ground wire & conductor replacement program - TRR	Various	33	2025	Selected ground wire & conductor sections	Condition and risk based replacement	2022 to 2025	Load at risk	Replace with new ground wire & conductor	Defer the work, selected asset replacement	2022	No change
SHTS Transformer and Circuit Breaker Replacement	Shepparton Terminal Station	39	2026	Two 150MVA 220/66kV transformers and twelve 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 2026	Load at risk	Two 150MVA 220/66kV transformers and twelve 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management and embedded generation	PACR was published in October 2021	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
Moorabool Terminal Station Circuit Breaker Replacement	Moorabool Terminal Station	28	2026	Eight 500kV circuit breakers and Ten 220kV 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 2026	Switching constraints	Eight 500kV circuit breakers and Ten 220kV circuit breakers	Integrated replacement, staged replacement and retirement	2022	Change to cost & completion date
KTS A4 500/220kV Transformer Replacement	Keilor Terminal Station	71	2026	One 750MVA 500/220kV transformer and one 500kV, one 220kV 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 2026	Load at risk	One 1000MVA 500/220kV transformer and one 500kV, one 220kV and two 66kV circuit breakers	Integrated replacement and staged replacement, replace with larger or smaller transformers, asset retirement, demand side management and embedded generation.	2023	Change to completion date
SMTS 330/220kV Transformer Replacement - Stage 2	South Morang Terminal Station	44	2026	One 700 MVA 330/220 kV transformer and a spare phase	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2024 to 2026	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	2023	Change to completion date
SMTS 500kV GIS Replacement - Stage 1	South Morang Terminal Station	18	2026	Three 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.	2023 to 2026	Load at risk	Three 500kV AIS circuit breakers and associated equipment	Business as usual, Integrated replacement, staged replacement and retirement	2022	Change to completion date
Communication and control batteries replacement - North East Region	North East Region	10	2026	Selected obsolete communication and control batteries	End of Life replacement	2025 to 2026	Load at risk	Replace to current standard	Business as usual or asset replacement	2023	No change
Transmission 330kV and 500kV line conductor and ground-wire replacement program	LYPS-HWTS, HWTS-CBTS, SMTS-SYTS and HWTS-ROTS, SMTS-SYTS, SYTS-KTS, SYTS-MLTS, MSS-DDTS 330KV and 500kV line	8	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.	2025 to 2027	Load at risk	Replace with new ground wire & conductor sections	Business as usual, Defer the work and asset replacement	2024	No change
DC Supply Upgrade Stage 4	ATS, BETS, DDTS, EPS, FVTS, GNTS, HOTS	8	2027	Selected DC supply assets	Replacement of obsolete systems. Compliance	2024 to 2027	Load at risk	Replace obsolete secondary assets with current standard equipment	Integrated replacement and staged replacement	2024	No change
Instrument Transformer replacements	Various	9	2027	Selected CVTs and VTs	Condition and risk based replacement	2026 to 2027	Load at risk	New CVTs and VTs	Integrated replacement and staged replacement	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
Transmission line insulator replacement program	MLTS-TRTS1, MLTS-MOPS2, MOPS-HYTS2, TRTS-HYTS1, HYTS-APD 1 & 2 500kV lines; HYTS-SESS 275kV line	23	2027	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 2027	Load at risk	New insulators	Business as usual, Defer the work and asset replacement	2024	No change
ADSS replacement program	Various	8	2027	Selected obsolete communication and control batteries	End of Life replacement	2026 to 2027	Load at risk	Replace to current standard	Business as usual or asset replacement	2024	No change
Comms Batteries replacement program	Various	7	2027	Selected obsolete communication and control batteries	End of Life replacement	2026 to 2027	Load at risk	Replace to current standard	Business as usual or asset replacement	2024	No change
TTS Circuit Breaker Replacement	Thomastown Terminal Station	19	2028	One 220kV circuit breaker and fourteen 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 2028	Load at risk	One 220kV circuit breaker and fourteen 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management and embedded generation	2024	Change to Scope, cost & completion date
Radio Links replacement program	Various	16	2028	Selected radio links	End of Life replacement	2027 to 2028	Switching constraints	Replace to current standard	Business as usual, Defer the work and asset replacement	2025	No change
LYPS and HWTS 500kV Circuit Breaker Replacement Stage 2	Loy Yang Power Station Switchyard and Hazelwood Terminal Station	60	2028	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.	2027 to 2028	Switching/ generation constraints	Fourteen 500kV circuit breakers	Integrated replacement, staged replacement and retirement	2025	Change to cost & completion date
Communication and control batteries replacement - Metro Region phase 1 and 2	Metro Region	27	2029	Selected obsolete communication and control batteries	End of Life replacement	2028 to 2029	Load at risk	Replace to current standard	Business as usual or asset replacement	2026	No change
LY 66kV Circuit Breaker Replacement	Loy Yang 66kV Switch Yard	14	2030	Sixteen 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2028 to 2030	load at risk	Sixteen 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2026	New Project

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
MWTS 66kV Circuit Breaker Replacement	Morwell Terminal Station	6	2030	Thirteen 66kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2028 to 2030	load at risk	Thirteen 66kV circuit breakers	Integrated replacement, staged replacement, demand side management, embedded generation and retirement	2027	New Project
HWTS A2, A3 and A4 Transformer Replacement	Hazelwood Terminal Station	45	2030	A2, A3 and A4 Transformers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2027 to 2030	Switching/ generation constraints	Three 500/220 kV transformers	Integrated replacement, staged replacement and retirement	2026	New Project
TBTS 220kV and 66kV Circuit Breaker Replacement	Tyabb Terminal Station	9	2030	Four 220kV circuit breakers and five 66kV circuit breakers	Selective replacement of assets based on condition. Project addresses supply, safety, environmental and collateral plant damage risk	2028 to 2030	Load at risk	Four 220kV circuit breakers and five 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2026	New Project
GNTS B2 220/66kV Transformer Replacement	Glenrowan Terminal Station	10	2030	B2 220/66kV Transformer	Selective replacement of assets based on condition. Project addresses supply, safety, environmental and collateral plant damage risk	2028 to 2030	Load at risk	One 220/66kV transformer	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2026	New Project
MWTS B3 Transformer Replacement	Morwell Terminal Station	9	2030	B3 220/66kV transformer	Selective replacement of assets based on condition. Project addresses supply, safety, environmental and collateral plant damage risk	2028 to 2030	Load at risk	One 220/66kV transformer	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2026	New Project
YPS 220kV Circuit Breaker Replacement Stage 2	Yallourn Power Station Switchyard	10	2030	Four 220kV circuit breakers	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2028 to 2030	Switching/ generation constraints	Four 220kV circuit breakers	Integrated replacement, staged replacement and retirement	2026	New Project
WOTS 330kV and 66kV Circuit Breaker Replacement	Wodonga Terminal Station	13	2030	Four 330kV circuit breakers 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.	2028 to 2030	Load at risk	Four 330kV circuit breakers and six 66kV circuit breakers	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2026	New Project
Transmission line conductor and ground-wire replacement program	Various	23	2030	Selected ground wire & conductor sections	Condition and risk based replacement	2027 to 2030	Load at risk	Replace with new ground wire & conductor	Defer the work, selected asset replacement	2026	New Project

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
Transmission line insulator replacement	Various	15	2030	Selected insulators	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2027 to 2030	Load at risk	New insulators	Business as usual, Defer the work and asset replacement	2026	New Project
NPSD 220kV GIS	Newport Power Station Switchyard	43	2030	Six 220kV GIS switch bays	Condition and age of assets presenting a safety, supply, environmental and collateral damage risk in the event of an asset failure.	2028 to 2030	Switching/ generation constraints	Six 220kV GIS switch bays	Integrated replacement, staged replacement, asset retirement, demand side management, embedded generation and retirement	2026	New Project

2.3 Regulatory Investment Test for Transmission (RIT-T) Schedule

AusNet Services completed three RIT-T assessments since October 2020. Table 4 shows the completed RIT-Ts.

Table 2: Completed RIT-T Projects

Project Name	RIT-T Completed In (PACR published)	Type of Project
ERTS Redevelopment - Stage 2	November 2020	Transformer and Circuit Breaker Replacement
TSTS Transformer and 66kV Circuit Breaker Replacement	November 2020	Transformer and Circuit Breaker Replacement
BLTS 66kV Circuit Breaker Replacement	February 2021	Circuit Breaker Replacement

Table 3 shows in progress RIT-Ts.

Table 3: In Progress RIT-T Projects

Project Name	RIT-T Status	Type of Project
HOTS SVC Replacement	PADR published in April 2021	SVC Replacement
SHTS Transformer and Circuit Breaker Replacement	PACR published in October 2021	Transformer and Circuit Breaker Replacement
SYTS 500kV GIS Replacement	PADR published in August 2021	Circuit Breaker Replacement

AusNet Services will commence several RIT-T assessments for the projects outlined within this document. Table 4 outlines the anticipated start date for these RIT-Ts.

Table 4: Planned RIT-T Projects

Project Name	RIT-T Start Quarter	Type of Project
Moorabool Terminal Station Circuit Breaker Replacement	Q2/Q3 2022	Circuit Breaker Replacement
RCTS Transformer and Switchgear Replacement	Q2/Q3 2022	Transformer and Circuit Breaker Replacement
KTS A4 500/220kV Transformer Replacement	Q2/Q3 2022	Transformer Replacement
SMTS 330/220kV Transformer Replacement - Stage 2	Q2/Q3 2022	Transformer Replacement
SMTS 500kV GIS Replacement - Stage 1	Q2/Q3 2022	Circuit Breaker Replacement
Communication and battery replacement in the South West Region Loop	Q1 2022	Secondary Asset Replacement
Transmission Line Insulator Replacement	Q4 2021	Insulator Replacement
HYTS-APD T627 to T628B tower replacement	Q1 2022	Tower Replacement
MSS-DDTS Nos 1 and 2 tower upgrades	Q4 2021	Tower Upgrade

AusNet Services' RIT-T consultations can be found at:

<https://www.ausnetservices.com.au/About/Projects-and-Innovation/Regulatory-Investment-Test>