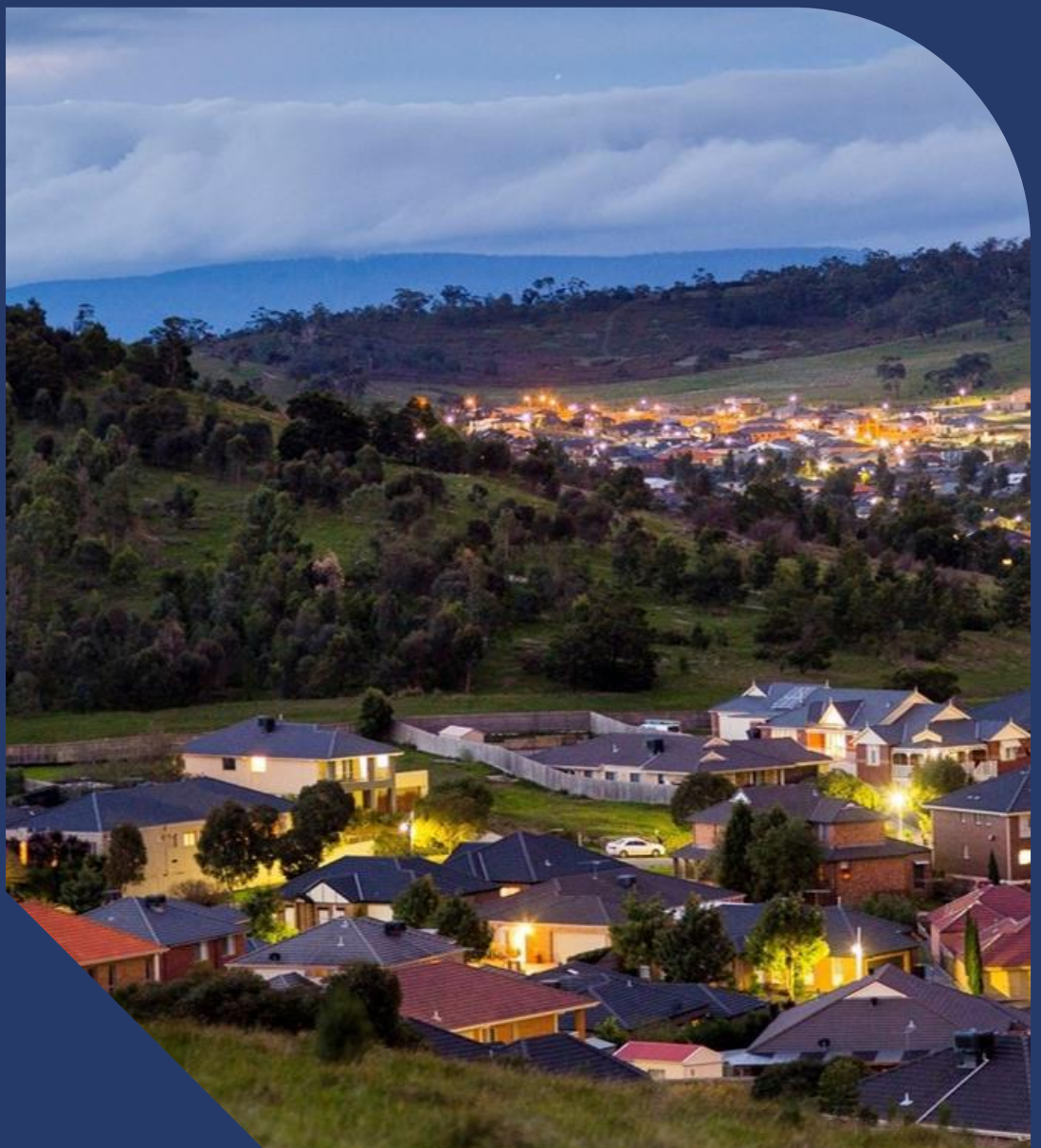


AusNet

Infrastructure at Terminal Stations

Asset Management Strategy



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Abbreviations and Definitions

TERM	DEFINITION
ACM	Asbestos containing material
CoF	Consequence of Failure
FDS	Fire Detection Systems
FHS	Fire Hydrant System
FIB	Fire Indicator Board
FSS	Fire Suppression System
PFE	Portable Fire Extinguishers
PoF	Probability of Failure
SAP	Systems Applications and Products – AusNet Business management system
SEPP	State Environment Planning Policies
SME	Subject matter expert
TRR	Transmission Revenue Reset
TS	Terminal Station
VESDA	Very Early Smoke Detection and Alarm
WDS	Water Deluge System
ZK	Work order Notifications associated with failures (unplanned power interruptions)
ZA	Work order Notifications associated with corrective actions from planned inspections

1. Executive Summary

This document sets out the asset management strategy for Infrastructure assets located within the boundaries of terminal stations and communication sites across the AusNet Services Transmission network. Infrastructure assets covered include buildings, roads, switchyards, cable ducting & trenching, fire protection and suppression assets, air conditioners and amenities situated within buildings.

The strategy responds to the challenges posed by deteriorating asset health and compliance issues, particularly in older buildings where facilities and fire systems often no longer meet required standards. Through comprehensive Likelihood of Failure assessments conducted across 42 terminal stations and 12 switchyards, it was found that approximately 10% of assets require refurbishment or replacement within the upcoming regulatory period. These targeted works aim to address both asset condition and regulatory non-compliance, prioritising safety, reliability, and economic efficiency.

To address this, the proposed program of work includes specific replacement and refurbishment initiatives, complemented by major station rebuild projects. These initiatives are designed to comply with regulatory compliance, maintain safety standards, and deliver cost effective outcomes.

Asset management at communication sites remains in good condition, with no replacements scheduled for the next period. Overall, the strategy promotes a consistent, cost effective approach to maintaining infrastructure assets, supporting continued network reliability and compliance with current standards.

1.1. Asset Strategy Summary

The strategy outlines a structured approach to managing Infrastructure assets across the transmission network, including buildings, roads, switchyards, fire protection and suppression systems.

Compliance with Standards

All new buildings constructed under this strategy are required to adhere to the Building Code of Australia and AS2067 standards to support safety and regulatory compliance.

Fire protection assets are managed in accordance with the following standards:

- AS2419 for fire hydrant systems
- AS1670 for fire detection and suppression systems
- AS1851 for the servicing and maintenance of fire protection equipment

Building Upgrades and Replacement

Where possible, the strategy recommends the use of relocatable buildings for new or refurbished sites, providing flexibility and efficiency in asset deployment. Existing buildings are upgraded as part of major station rebuilds to meet modern standards.

Major Projects and Asbestos Management

Major infrastructure projects and rebuilds are utilised to upgrade facilities and systematically eliminate asbestos containing materials, improving the overall safety and compliance of assets.

Targeted Upgrades for Poor Condition Assets

Assets identified as being in poor condition are either incorporated into the scope of major projects or addressed through specific upgrade programs, particularly at sites where no major rebuilds are planned within the next ten years.

2. Introduction

2.1. Purpose

This document outlines the inspection, maintenance and replacement activities required for the economic life cycle management of Infrastructure associated with the regulated AusNet Services electricity transmission network.

This document is to be used as reference for asset management decisions and communicate the basis of such activities. It forms part of AusNet Services' Asset Management System for compliance with relevant standards and regulatory requirements. Its intention is to demonstrate responsible asset management practices by outlining economically justified outcomes.

2.2. Scope

This strategy applies to Infrastructure assets within the regulated asset base of the Victorian electricity transmission network. It specifically covers assets located at terminal stations, power station switchyards, and communication sites.

2.3. Asset Management Objectives

As stated in REF: AMS 01-05 Strategic Asset Management Plan, asset management objectives are:

Trusted to bring the energy today and build a cleaner tomorrow							
Strategic Pillars					Ambition		
Safely deliver our customer's energy needs today			Create the energy network of tomorrow	Enable the transition to a net zero future	Be a leader in asset management practice		
Asset Management Objectives					Enabling AMOs		
Safety: Minimise risk to our people, contractors, customers and communities AFAP across our networks	Reliability: Meet the reliability expectations of our customers and communities, and meet our reliability targets	Resilience: Improve the resilience of our network to adapt to a changing climate and energy system environment	Compliance: Comply with all legislation, regulations, relevant standards and industry codes	Planning and decision-making: Deliver valued planning and network outcomes through optimising asset lifecycle management	Sustainability: Build stakeholder trust and deliver social value. Reduce our environmental impact. Operate efficiently to sustain financial value creation.	Competency and capability: Develop asset management capability and competency in the organisation	Continuous improvement: Continually improve asset management maturity for effective delivery of services

3. Asset Description

3.1. Asset Function and Population

The population of Infrastructure assets within terminal stations and communication sites varies significantly across the transmission network. These assets are located within the boundaries of terminal stations and power station switchyards throughout Victoria and form part of the regulated asset base.

These assets are distributed across 92 installations including 42 terminal stations, 12 power station switch yards and 38 radio sites. These sites and play a critical role in supporting the safe and reliable operation of the transmission network.

3.1.1. Buildings, Structure and Facilities

AusNet Services manages approximately 438 buildings across its regulated Victorian electricity transmission network. These buildings serve critical operational and support functions, including:

Functions of Buildings

The primary functions of buildings are to minimise safety risks, facilitate adequate environmental protection and control and support the reliable operation of digital protection, control, and communications equipment.

AusNet has used various types of buildings over time, including timber single storey, asbestos cement sheet, metal sheet, and single or multi storey brick and masonry constructions.

Equipment types housed are listed here:

- Control equipment
- Protection relays
- Communication equipment
- Batteries
- Rotating machinery
- Diesel generators
- Compressors
- Switchgear

These buildings provide facilities for:

- Stores and workshops
- Workshops
- Equipment spares
- Worker amenities
- Office equipment
- Air conditioning systems

Functions of Air Conditioners in Buildings:

Control Rooms and Relay Rooms:

- Equipment like protection relays and communication devices require stable temperatures to function reliably

Battery Rooms:

- Batteries used for backup power can degrade faster under high temperatures

Operational Areas:

AC systems provide comfortable working environment for staff to support well being in control room offices and other rest areas.



Figure 1: Typical sheet metal building and facility



Figure 2: Typical brick building and facility

3.1.2. Roads and Drains

AusNet Services maintains approximately 45 km of roads within terminal stations and switchyards across Victoria, serving critical access and operational functions.

Road Types:

- 16 km of reinforced roads:
 - Designed for heavy equipment transport, such as large power transformers
 - The roads are bitumen sealed or in some cases concrete with kerbing and/or concrete spoon drain.
- 29 km of switchyard access roads:
 - Provide all weather access to electrical equipment
 - Commonly bitumen sealed with concrete spoon drains
 - Some perimeter roads are gravel surfaced without edging and rely on natural drainage



Figure 3: Typical sealed road

3.1.3. Switchyard Surfacing

Surfaced Areas:

- 168 hectares of switchyard surfaces have been Graded, drained, and surfaced with selected crushed rock
- Allowing installation, operation, and maintenance of electrical equipment in all weather conditions

Cable Trenches and Secondary Cabling:

- 17+ km of cable trenches exist in switchyards protecting over 43,000 secondary cables, totalling over 6,000km in length.
- Primarily preformed concrete trenching with Galvanised steel covers
- Additional cabling includes Direct buried secondary cables and protected by concrete or plastic cover slabs
- Cable ducts and trenches are typically replaced during major station upgrade works

Images below illustrate typical switching yard surfaces.



Figure 4: Typical switching yard image 1



Figure 5: Typical switching yard image 2

3.1.4. Fire Detection and Suppression Systems

Building Allocations

- Very Early Smoke Detection and Alarm (VESDA)
 - Provides early warning by detecting smoke at very low concentrations.
- Multi-Zoned Smoke Detectors & Fire Indicator Board (FIB)
 - Allows for localised detection and monitoring of fire events.
- Portable Fire Extinguishers (PFE)
 - Manual suppression tools for initial fire response.
- Fire-Rated Doors and Walls
 - Compartmentalise areas to prevent fire spread.
- Fire Pillows / Fire Walls for Cable Entry Points
 - Seal secondary cable entries to maintain fire integrity of buildings.

All terminal stations have VESDA systems which are very sensitive systems used to detect smoke as early as possible. Usually, large number of detectors are used in different fire zones which are connected to a multi zone Fire Indicator Panel / Board (FIP/B) providing alarm to the Transmission Operations Centre and respective fire agencies.

Transformer Switchyard Allocations

- Water Deluge System (WDS)
 - Rapid cooling and suppression for high risk equipment transformers.

- Fire Hydrant System (FHS)
 - Provides water supply for manual firefighting in buildings and around transformers
 - Mains water supplied or water tanks with diesel/electric pressure pump sets
- Fire Walls
 - Physical barriers to contain or prevent fire spread between power transformers.

All power transformers installed in terminal stations have oil containment bund walls. A total of 42% have fire walls and 31% possess the required physical separation. Fire walls have been installed in terminal stations located in the Melbourne metropolitan area.



Figure 6: Typical WDS



Figure 7: Typical Fire wall system



Figure 8: Typical Fire hydrant Booster

3.1.5. Population summary

Figure 9 illustrates the distribution of key asset classes at terminal stations and power station switchyards across the network. Air Conditioner equipment represents the largest asset population as every building in a terminal station is equipped with multiple Air conditioner units. Buildings represent the second largest asset population, with nearly 400 individual equipment records. This high count reflects the diverse range of structures included under this category, such as control buildings, battery rooms, communication equipment rooms, maintenance buildings with amenities, and workshop sheds. The high building count is due to one building being counted multiple times for its different functions. Fire Equipment is the next category, with slightly over 300 entries. This includes critical safety infrastructure like fire hydrants, detection and suppression systems, fire indicator panels, portable extinguishers, and hose reels. Unlike buildings Switchyards and Roads are recorded as a single equipment count per terminal station, to align with SAP reporting.

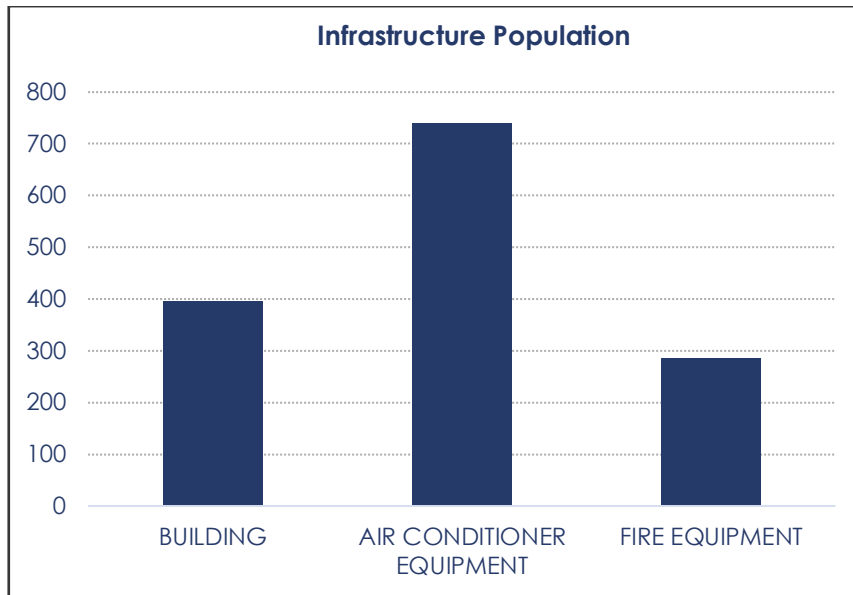


Figure 9: Infrastructure population

3.2. Age

3.2.1. Buildings

Often, infrastructure designs originate from the station's original construction, but replacement during rebuilds or related projects has improved their condition. The age profile of stations with buildings across the terminal stations is illustrated in Figure 0.

This age distribution highlights the presence of both recently constructed and legacy buildings within terminal stations, reflecting a continual cycle of renewal as older structures are upgraded or replaced to support compliance with evolving standards and operational requirements.

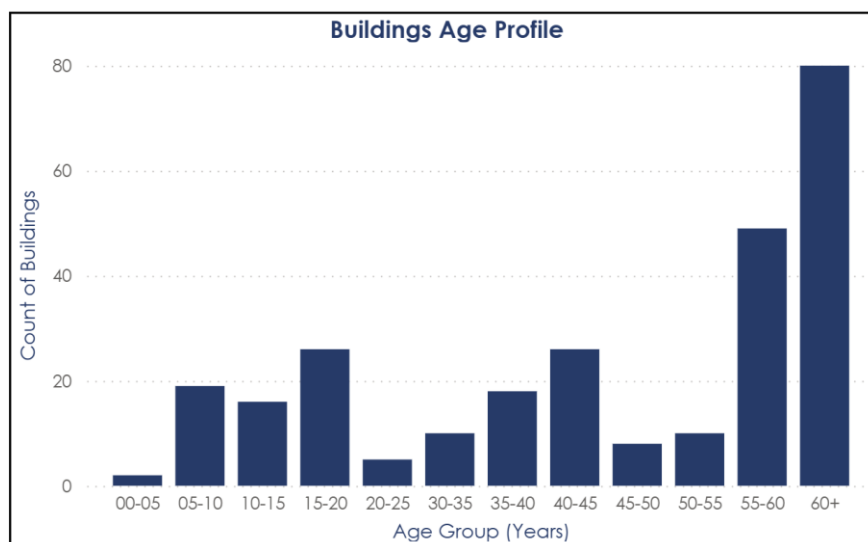


Figure 10: Infrastructure - Buildings age profile

3.2.2. Fire and Suppression Age

VESDA and FDS were installed in all terminal stations between 2001 and 2005. Thermal and smoke detectors were installed concurrently with VESDA FDTs as independent systems at multiple locations. The useful life of detectors and

FIB panels is expected to be around 15 years. During the current TRR period (2022-2027), systems identified as failed, malfunctioning, or non-compliant during fire safety inspection to AS1851 are being replaced.

The gaseous Inergen FSS are approximately 15 years old. The Inergen systems are currently being decommissioned in the current TRR period (2022-2027) due to the limited effectiveness and ongoing maintenance costs of the systems.

FHS and associated pipe work were installed when the stations were first established, with most FHS's replaced as shown below with modernised systems that are fully compliant with standards. There remain only a few sites that are not compliant to AS: 2419 and which form the program of works for the TRR period (2028-2032).

WDS have been installed at five terminal stations, all replaced or upgraded within the last 10 years, to protect transformers lacking adequate firewalls or physical separation.

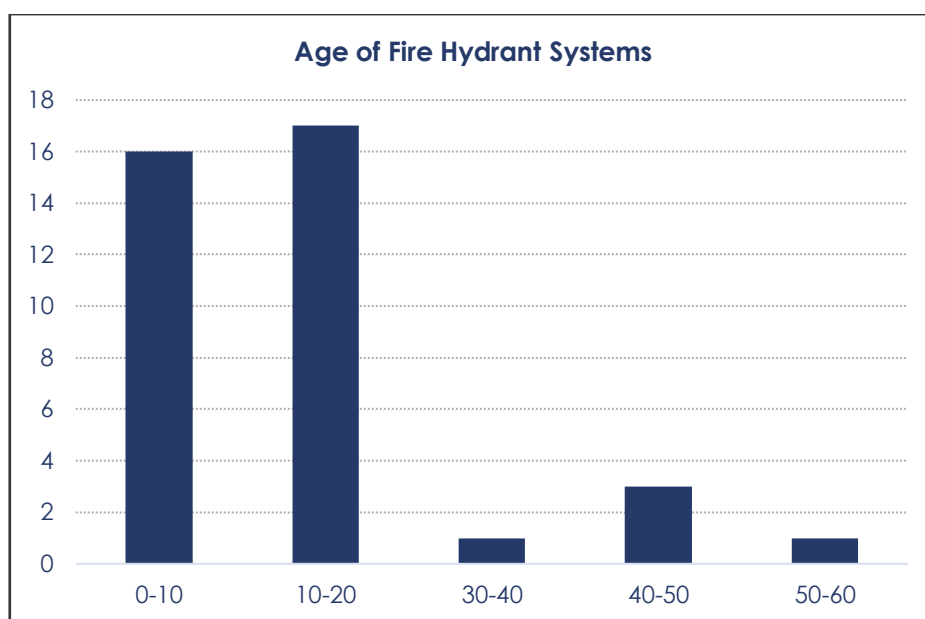


Figure 11: Fire hydrant systems age profile

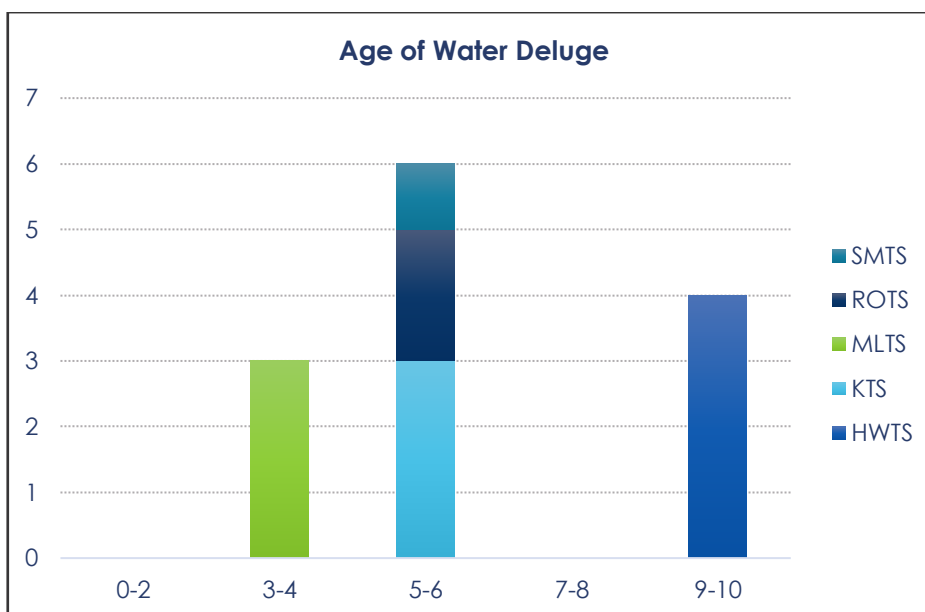


Figure 12: Water deluge systems age profile

3.2.3. Roads and Switch Yard Surfaces

The age profiles of Switchyards and Roads is not kept in our asset management system SAP. Age is not a direct impact for the need to conduct refurbishment or replacement programs on roads and switchyard surfaces. Instead, condition and usage are monitored and any need for intervention is justified from the inspection finding or reports.

4. Asset Performance

4.1. Suspended Failures

Defects in the various categories which comprise Infrastructure which are identified prior to a full failure or fault are defined as suspended failures. Suspended failures are also referred to as “preventative actions” which are identified during routine maintenance and inspections.

The inspector raises a corrective maintenance (ZA) notification in SAP and assigns appropriate priority rating to the issue commensurate to the risk of the asset failing. Figures 13 and 14 show the top 15 and 12 respectively items identified ZA notifications for various station infrastructure components over recent years.

4.1.1. Buildings

The most prevalent issue for buildings, concerns failed lighting at 26% of all ZA notifications raised for this category. The following highest category is the replacement of defective air conditioner at approximately 21% and then damage to the doors and windows at 13%. The remaining issues pertain to reported damage affecting the roof, toilet, building foundation, floors, external walls, ceiling, power supply, and gutters. Figure 13 illustrates the infrastructure related failures that occurred between 2020 and mid-2025.

The proposed program of works for the TRR period addresses some of the issues around lighting, damages to doors and windows, floors, ceilings and amenities. The TRR program also covers the allowance for the reactive program of air conditioner replacements based on the historical trends of failure as shown below.

The assets have experienced a sustained decline in serviceability, and as such, their replacement has been identified as necessary. Continued deferral of action is no longer considered appropriate.

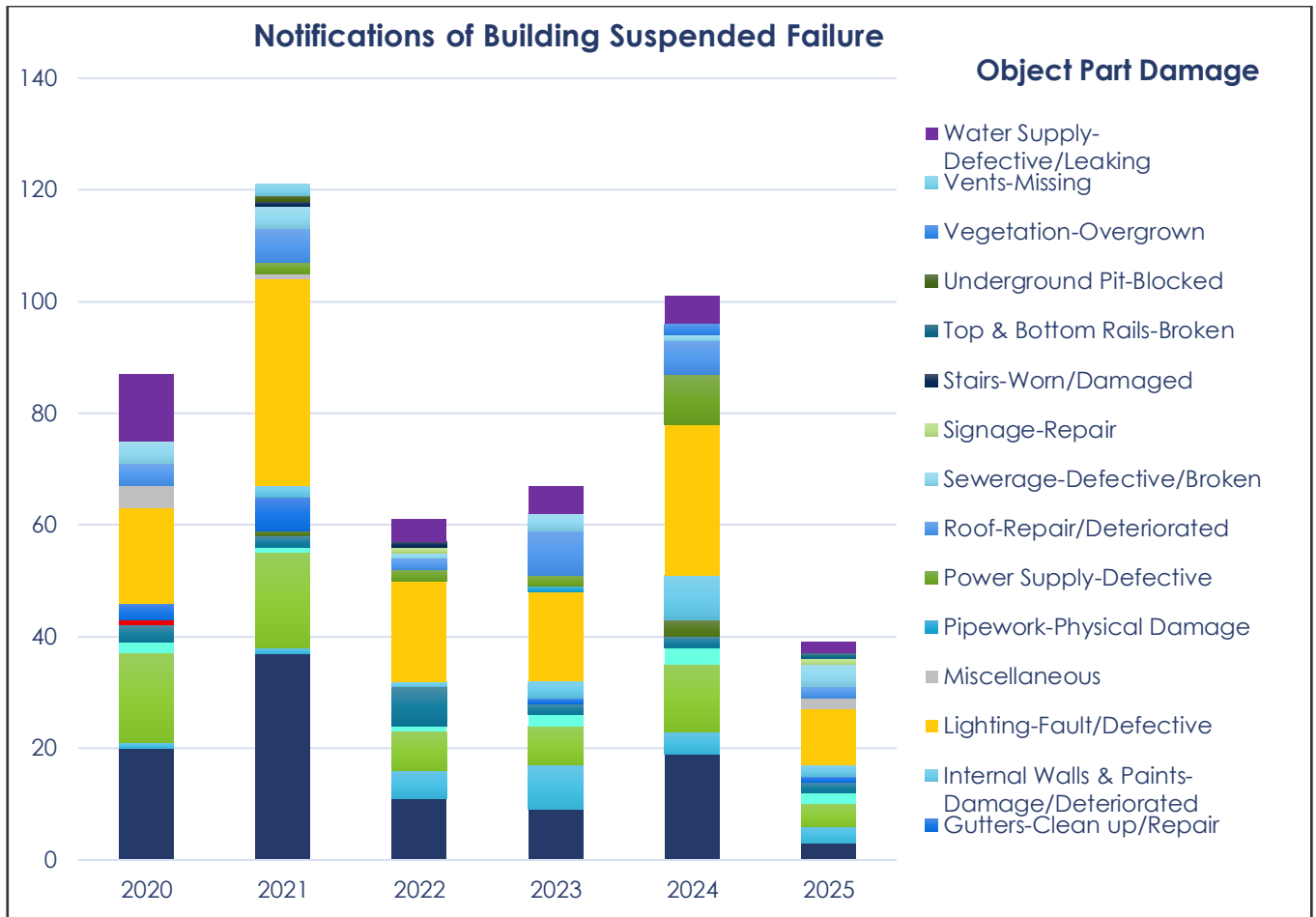


Figure 13: Building suspended failures

Notifications peaked in 2021 due to a new contractor clearing a backlog. The number fell in 2022-2023 because of poor SAP recording, with improvements from 2024. In 2025, figures only cover the first half of the year.

4.1.2. Fire Protection and Suppression Systems

The VESDA and Fire Indication Panels, installed in the 2000s, account for 43% of all issues reported in fire protection systems due to their aging and approaching end of life. This is followed by the fire hydrant and booster system at 16%, followed by issues associated with Pipework and pumps at 13% and 12% respectively. The balance is made up of the fire equipment, Inergen/Gaseous systems and valves.

Since the only option is to replace the fire detection systems, the proposed program of works includes the ongoing reactive replacement of VESDA, Fire Indication Panels and Fire Hydrant systems. The Inergen/Gaseous systems are currently being decommissioned in this regulatory period.

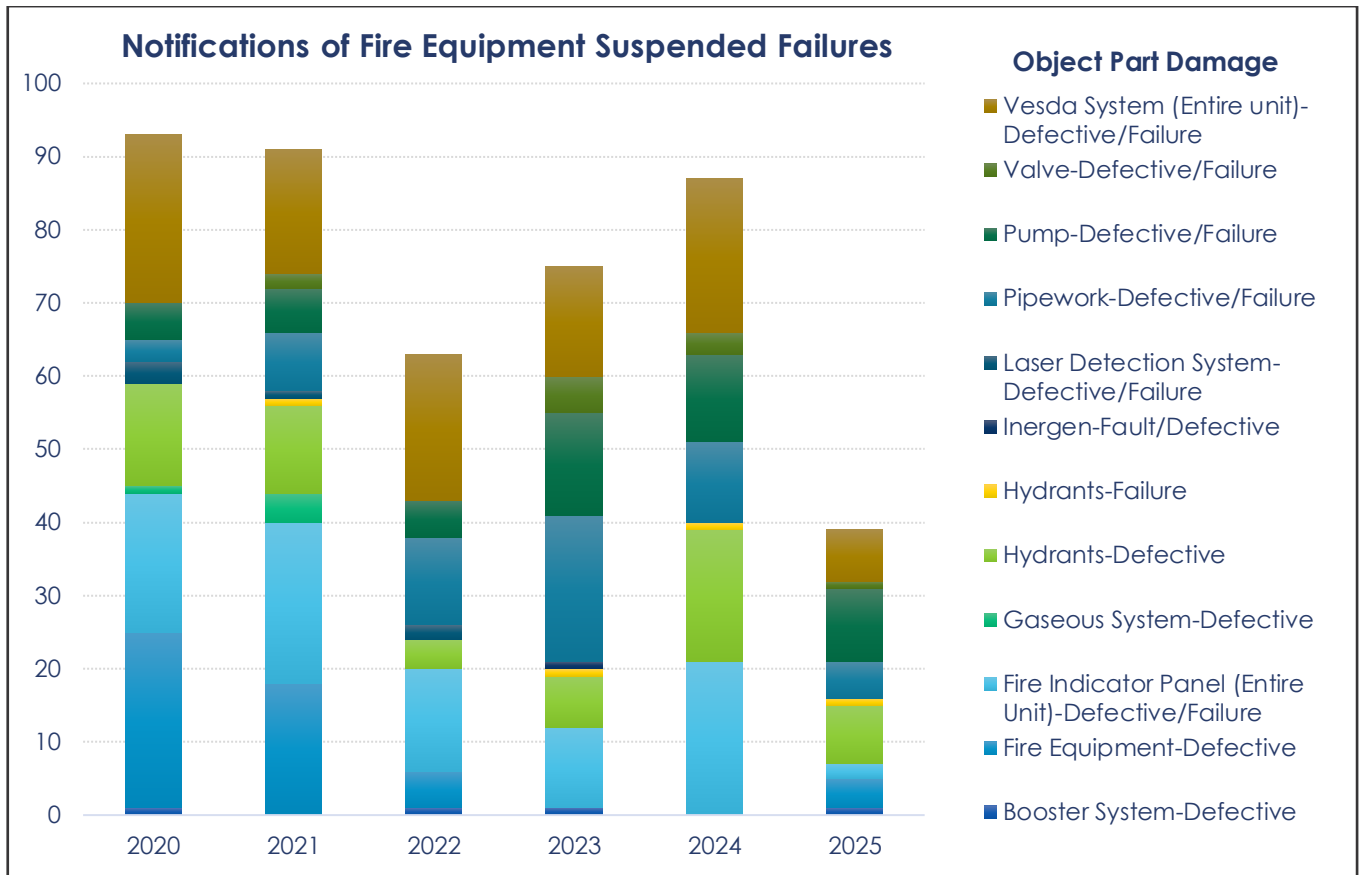


Figure 14: Fire protection system, suspended failures

The trends show 2021 with the maximum number of issues reported as it was the first year of a new contractor addressing a backlog of items. 2022-2023 has a decline in trend largely due to ineffective recording in SAP with improvements seen from 2024 onwards. Issues reported in 2025 only includes issues reported in the first half of the year.

4.1.3. Road & Switchyard surfaces

Performance profiles for roads and switchyard surfaces are not required. AusNet implements a reactive approach to maintenance of these assets due to their incomplexity and resilience. An annual site inspection is completed by the contractor as per the condition of these assets.

4.2. Functional Failures

Functional failures result in the system not being able to perform its intended purpose and therefore, appropriate urgent action is necessary to maintain the performance and security of the system.

Like Suspended failures, assets that have experienced functional failure are flagged in the system and a ZK notification (action required after a fault) is raised. The following sections identify the functional failures that have occurred over the past five years.

4.2.1. Buildings

Doors and windows are the most prevailing notifications accounting for 42% of building faults, air conditioners for 16%, with the remainder involving power supply, sewerage, lighting, flooring, and roofs (see Figure 15).

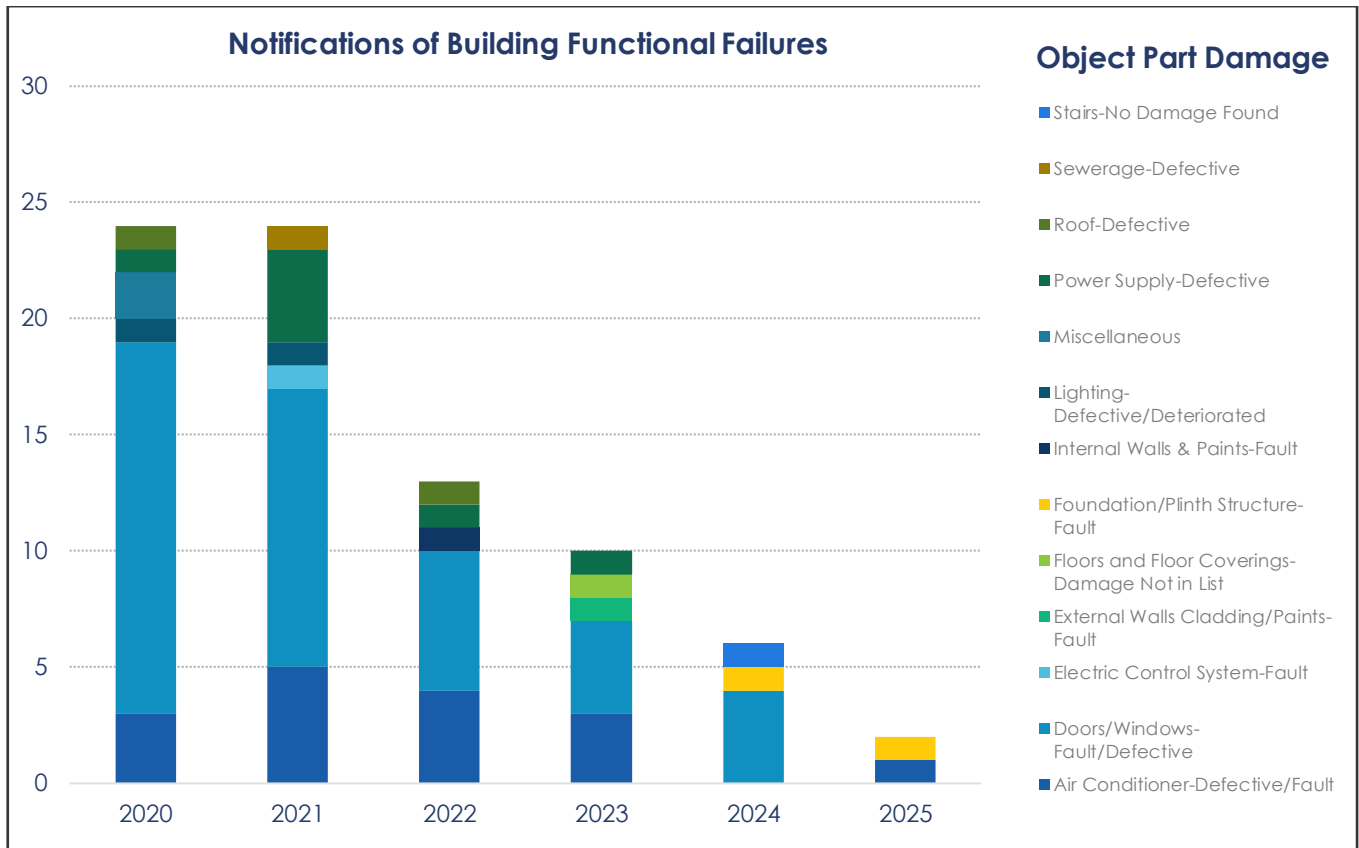


Figure 15: Building, functional failure

Most issues with doors, windows, electrical systems, and power supply have declined each year, likely due to security upgrades and compliance with SOCI Act requirements.

4.2.2. Fire Protection and Suppression Systems

As shown in the Suspended Failures section, VESDA and Fire Indication panel systems dominate the issues at 66% which highlight the need for replacements, thus forming the program of works for TRR 2028-2032 where we are replacing 50% of our Fire detection systems. Laser detection issues form 12% of the total issues reported and the balance is then made up of the fire equipment, Fire Hydrant systems, Pipe works, Laser detection systems and Valves.

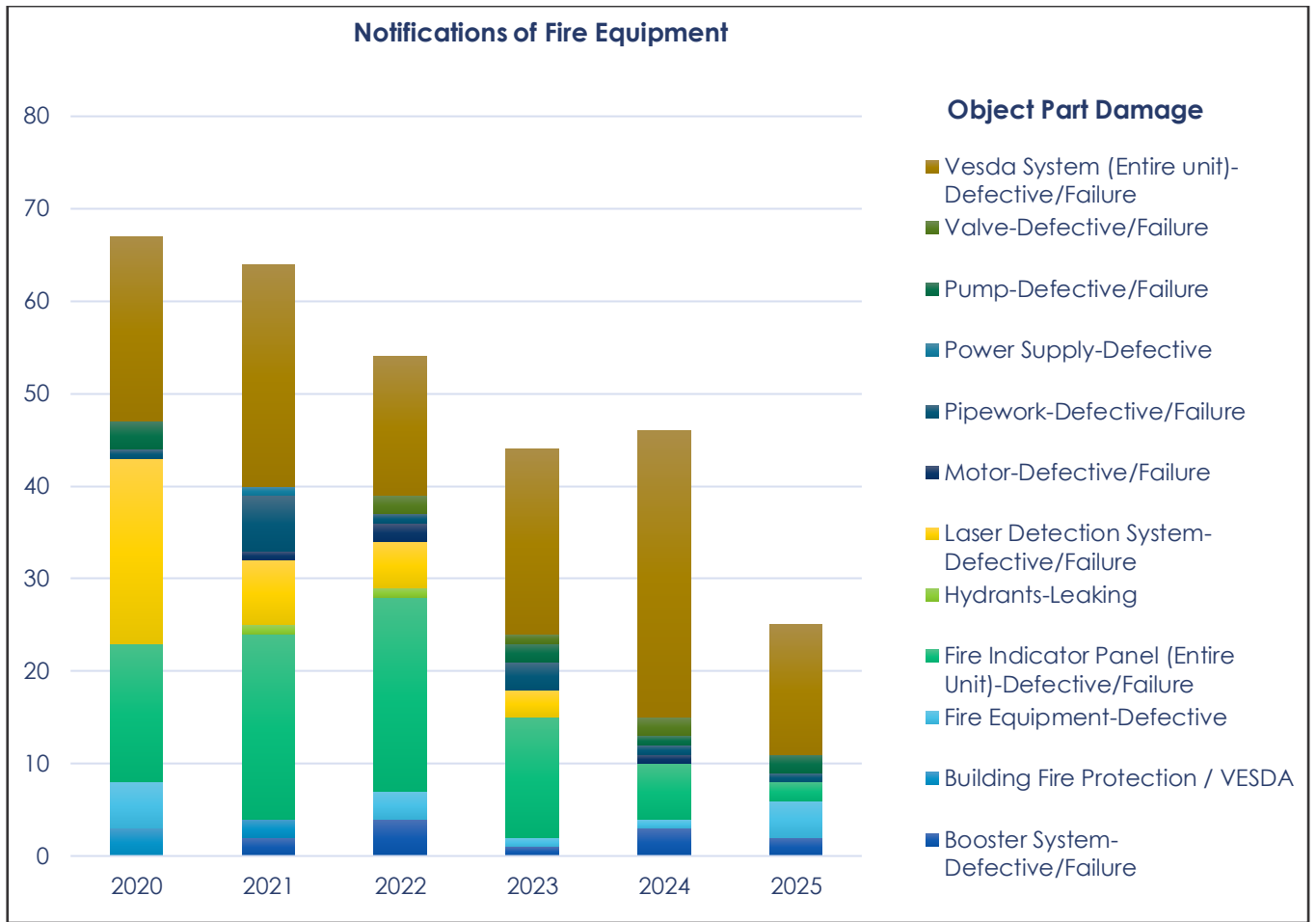


Figure 16: Fire protection system, functional failure

5. Asset Health

The health of Transmission infrastructure assets is influenced by several factors such as:

- Operating conditions
- Climatic and environmental conditions
- Differing designs and construction material
- Compliance to Building Code and civil standards
- Past opportunities to integrate civil infrastructure replacement works into rebuild projects/programs

Infrastructure assets are assigned condition scores based on routine station inspections which correspond to the remaining service potential (remaining life). Table 1 and 3 below detail condition scores, including descriptions and expected remaining service potential, for infrastructure and fire protection systems.

CONDITION	REMAINING SERVICE POTENTIAL	DESCRIPTION
C1-Very Good	90%	Asset is in new condition. No visible defects. Fully functional and compliant with Building code standards
C2-Good	75%	Minor wear and tear only. Asset is fully operational and meets all the requirements of Building code standards. No immediate maintenance needed.
C3-Average	50%	Moderate wear. Asset is functional but may require routine maintenance. No major defects, but signs of aging are visible.
C4-Poor	25%	Noticeable deterioration. Asset is still operational but may not meet all requirements of Building code standards. Minor upgrades required to keep the asset operational.
C5-Very Poor	10%	Asset is in degraded condition. May pose safety or compliance risks. Major upgrades or replacement required soon.

Table 1: Infrastructure Condition scale

CONDITION SCORE	CONDITION DESCRIPTION	RECOMMENDED ACTION
C1	Fire protection system in brand new condition, fully tested as per current Australian standard AS1851.	No additional specific actions required, continue routine maintenance and condition monitoring.
C2	Fire protection system in very good working condition, fully tested as per current Australian standard for maintenance of fire system.	Same as above
C3	Fire protection system in good working condition fully tested as per current Australian standard AS1851.	Same as above
C4	Fire protection system in good working condition (steel pipes) but can't be tested as per current Australian standard AS1851 for maintenance of fire system due to fear of failures and therefore requiring upgrade but not on high priority.	Remedial action/replacement within 2 – 10 years.
C5	Fire protection system in poor working condition (asbestos pipes) and can't be tested as per current Australian standard AS1851 for maintenance of fire system due to fear of failures and therefore requiring upgrade on high priority due to high risk.	Remedial action/replacement within 1 – 5 years.

Table 2: Fire Protection system Condition scale

Although many station infrastructure assets have exceeded 50 years of service life, their overall condition is assessed as average. This assessment reflects recent upgrades and refurbishments performed during station rebuilds and through ongoing equipment replacement programs.

5.1. Buildings Profile

Buildings at terminal stations vary widely in terms of construction material used, age and condition. Almost 64% of buildings are in C1 (Very Good) to C3 (Average) condition while approximately 36% of buildings are in C4 (Poor) to C5 (Very Poor) condition, these sites will need to be refurbished in the next five to ten years. Most C4 condition buildings need structural improvement including walls, panels, ceiling, windows, roofs, floor tiles as well as toilets and amenities to provide hygienic conditions for worker.

In the program of works for 2028-2032, buildings classified as C5 condition will be demolished and then reconstructed as part of the Major Projects replacement, except for YPS, where although the buildings are in C5 condition, no investment is proposed due to generator retirement plans. Buildings that are classified as C4 condition and are deemed economically viable are included in the program of works for 2028-2032, apart from HYTS, BLTS, ROTS, RWTS, and TBTS which are set to take place between 2025 and 2027.

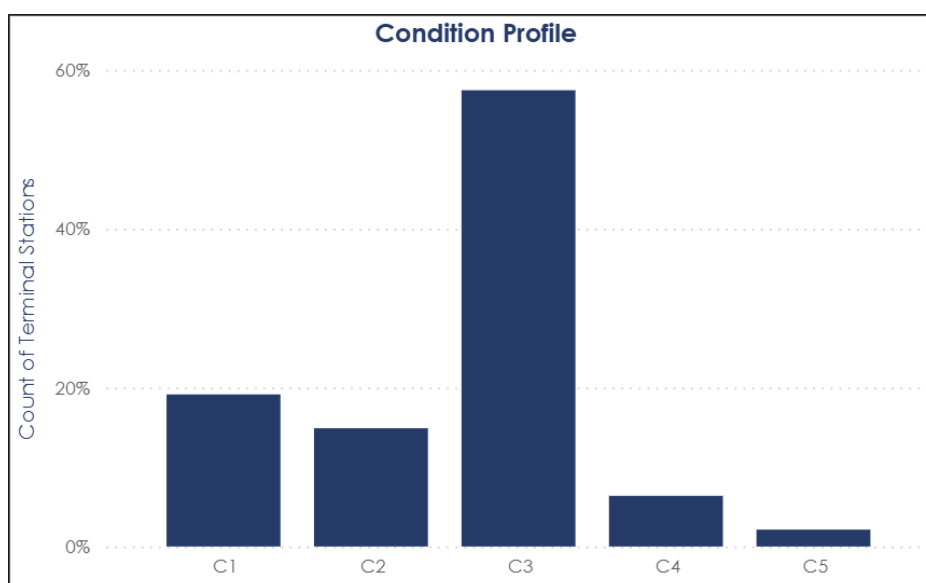


Figure 17: Condition profile of control buildings in terminal stations

5.2. Roads

Most switchyard access roads (76%) are rated from C1 to C3, reflecting conditions classified as very good to average. This assessment corresponds with the investments made in transmission infrastructure in recent years. However, some switchyard roads are currently only suitable for light operational traffic and will require improvement to facilitate access for construction traffic associated with equipment refurbishment or replacement. The C4 to C5 ratings (approximately 10%) are driven by the poor and very poor condition of some minor roads in terminal stations, rather than major road conditions.

Drains in all terminal stations are in C3 to C2 condition and requires maintenance activities. Stricter EPA rules for managing rainwater with low oil contamination in switchyards are leading to more investment in dedicated collection drains, enclosed piping, oil interceptor traps, and water treatment facilities.

C5 condition assets form the basis for the 2028-2032 TRR program of works. Minor works at ROTS will be completed in 2025, with additional works planned for DDTS and HYTS in 2026.

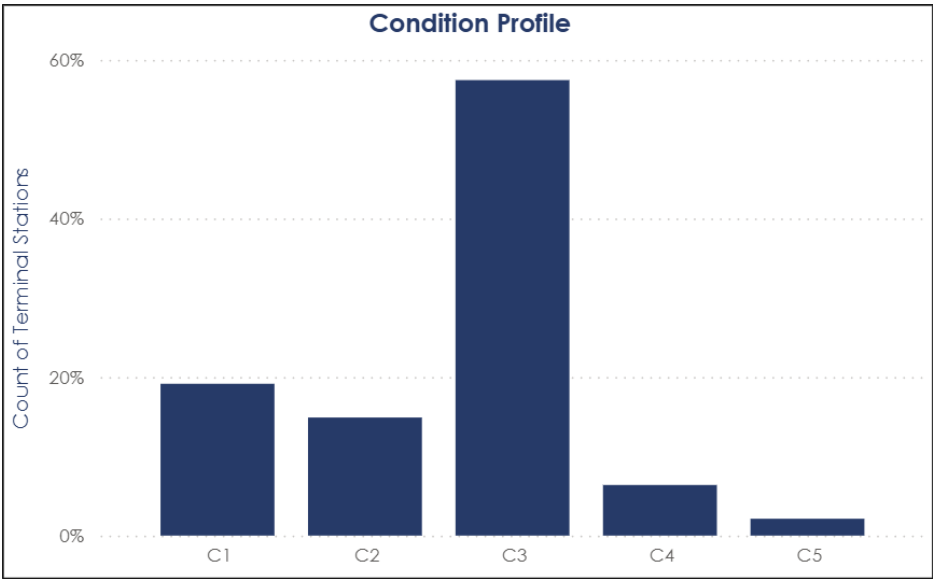


Figure 18: Condition profile of roads

5.3. Switchyards

The increased traffic in switchyards due to higher volumes of replacement and augmentation works are having a negative impact on the switchyard surface conditions. The condition profile of switchyard surface and cable trench covers is shown below.

Investments over the past five years have kept the switchyards in fair condition, with ongoing asset replacement planned for the next five years. Continued investment is needed for switchyard resurfacing, and several stations require replacement of deteriorated cable trench covers.

Switchyard resurfacing, along with upgrades to cable trenches and covers for C5 condition assets, constitute the planned program of works for the 2028–2032 TRR period. Major project replacements involving C5 assets are documented in Section 5.4.

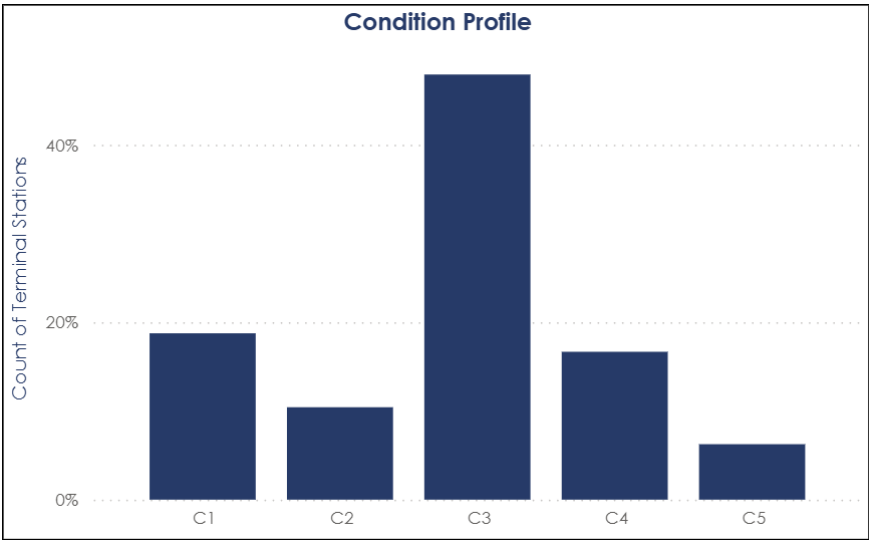


Figure 19: Condition profile of switchyards

5.4. Fire Detection and Suppression Profile

5.4.1. Fire Hydrant Systems (FHS)

About 81% of FHSs in terminal stations are in C1 to C3 condition, following recent investments in fire hydrant replacement over the last decade. The remaining 19% are rated C4 or C5, largely because some older sites use asbestos cement pipes and have insufficient water pressure, failing to meet AS 2419 standards.

Fire Hydrant systems with C4 and C5 and obsolete Fire Detection systems form program of works for 2028-2032 TRR period.

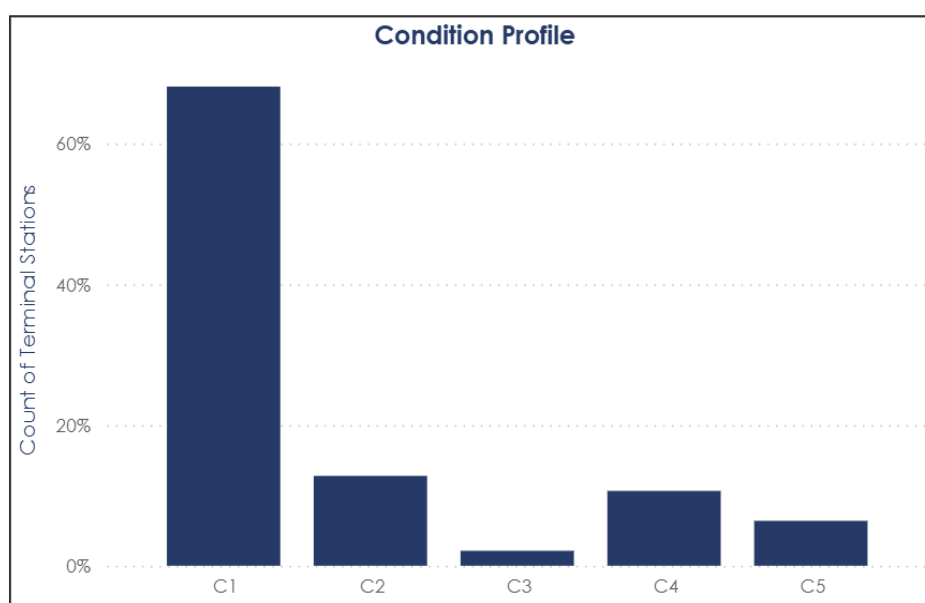


Figure 20: Condition profile of fire hydrant systems.

5.4.2. WDS (Water Deluge Systems):

The WDS in five terminal stations are between C1, C2 and C4 condition. Keilor Terminal Station (KTS), Rowville Terminal Station (ROTS) and Moorabool (MLTS) are in C1 very good condition. The WDS in Hazelwood Terminal Station (HWTS) was upgraded in 2016 and is rated C2, while the WDS at SMTS which is the only C4 site, is scheduled for partial upgrade to restore condition in 2026.

Below is the overall condition profile of WDS assets.

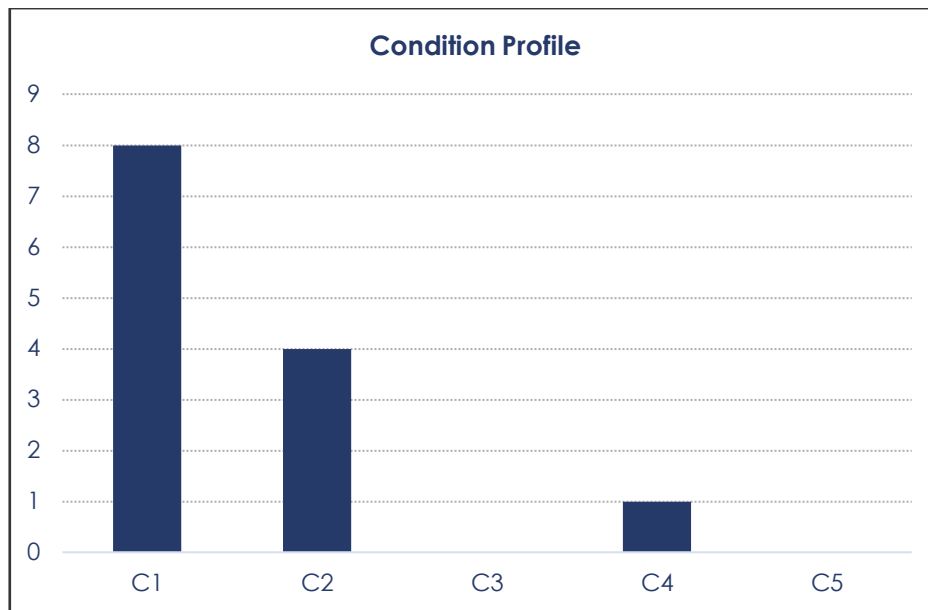


Figure 21: Condition rating of Water Deluge systems

5.4.3. FDTs, PFE, FSS, FIB and INERGEN

Periodic maintenance and testing of fire protection systems are conducted monthly in accordance with the requirements of Australian Standard AS 2419, ensuring continued reliable operation. Fire Indicator Panels (FIPs), which incorporate software and electronic components with limited operational lifespans, have a manufacturer-recommended service life of 15 years.

Currently, there is no established condition assessment methodology capable of detecting imminent FIP failures, which limits the ability to proactively replace units before failure. As a result, FIPs are typically replaced only upon failure identified during routine maintenance testing.

Recent testing has revealed that over 50% of Fire Detection Systems (FDS) and Fire Indicator Boards (FIBs) have reached end-of-life and are non-compliant with current testing standards. To address this, AusNet Services has developed and commenced a targeted Fire Protection Replacement Program, which aims to replace all non-compliant and end-of-life assets by 2032.

Additionally, the INERGEN Fire Suppression Systems (FSS) are scheduled for decommissioning by 2026, following a fire risk assessment that identified limitations in their effectiveness and challenges in meeting room sealing requirements.

6. Related Matters

6.1. Challenges and Risks

Several key challenges and risks have been identified within the transmission infrastructure:

- **Asbestos Hazards:** Solid asbestos has been found in various locations, including walls, floor tiles, ceilings, roofs, and equipment mounting panels. There is also a risk of asbestos dust in cable trenches and ducts, which presents significant safety concerns for maintenance and operational staff.
- **Asset Record Inadequacies:** Existing records for transmission infrastructure assets are insufficient, often missing critical details such as installation dates, material types, quantities, and asset-specific condition data. This lack of information hampers effective asset management and risk assessment.
- **Mobile Work Platform Stability:** The stability of mobile work platforms and vehicles used for maintenance and construction activities is compromised by uneven switchyard surfaces made of crushed rock, increasing the risk of incidents.
- **Site Drainage Issues:** Site drainage capabilities are increasingly inadequate in the face of more frequent and severe extreme weather events (e.g., floods, storms, high temperature days). These conditions are causing damage to infrastructure and accelerating asset deterioration.
- **Testing Limitations Due to Asbestos:** Asbestos hazards within supply pipelines prevent testing to modern standards. There is also a risk of pipeline failure (e.g., bursting) during testing of fire protection and suppression systems (FPS and FSS), as well as difficulties associated with safe handling and replacement of these assets.
- **Incomplete Fire Asset Records:** Records for fire hydrant, fire detection, and suppression assets are incomplete within our asset management system (SAP), particularly lacking installation dates and asset-specific condition information.

Addressing these challenges is essential for ensuring the safety, reliability, and regulatory compliance of our transmission infrastructure assets. Improved asset records, targeted remediation of asbestos risks, and upgrades to site drainage and work platform stability will be critical focus areas moving forward.

7. Proposed Program of Works

7.1. Approach

7.1.1. Risk

AusNet's asset management decisions within the transmission network are guided by a risk-based approach, ensuring alignment with our organisational risk appetite. For Transmission Infrastructure and Fire Suppression assets, managing risk over time involves scheduled replacement and maintenance activities. Project justifications are based on assessments of current and projected future risk.

The risk of each asset is calculated as the product of Probably of Failure (PoF) of the asset and the Consequence of Failure (CoF). This risk is then extrapolated into the future accounting for forecast changes in PoF and CoF.

AusNet's approach to asset risk management is detailed in REF: AMS 01-09 Asset Risk Assessment Overview.

7.1.1.1. Asset Quantification Methods

Probability of Failure

The PoF for Transmission Infrastructure is determined using health score model calculations, using Asset Condition. For Infrastructure assets, we use the health score models to calculate the conditional PoF for the next year. Asset managers conduct forecasting activities using qualitative analysis. This results in PoF values for these next pre-determined years. AMS 01-09, provides details to logic and parameters of the qualitative analysis.

Consequence of Failure

A monetised value is assigned to CoF which provides an economic basis for calculating potential consequence.

The cost of failure is evaluated using three main perspectives: Safety, Environment and customer impact. These perspectives offer an organised way to understand the possible consequences of Infrastructure assets failure, including outages . Table 9 outlines the focus of each perspective. :

CONSEQUENCE LENSES	DESCRIPTION
Safety	Threat to health and safety of the public and employees
Environment	Bushfire damage
Customer / Market	Loss of supply to customers Impact on market constraints
Financial	Emergency response Asset replacement costs

Table 3: Consequence lens description

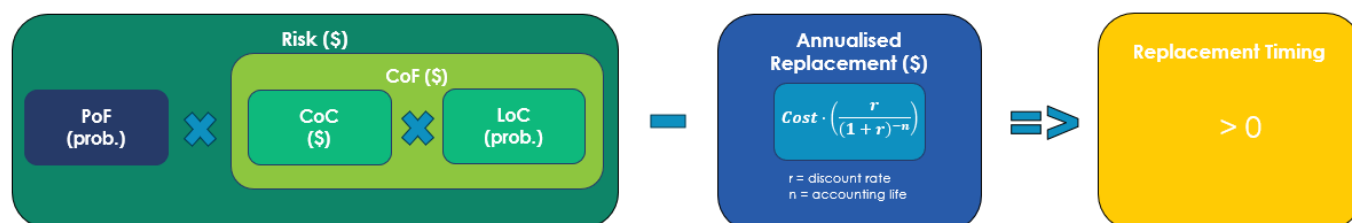
7.2. Economic Viability

7.2.1. Infrastructure Economic Model

Asset Managers use the calculated risk based on PoF and CoF outputs to identify optimal intervention years, balancing technical feasibility with economic efficiency. These outputs are incorporated into an economic model. The economic model demonstrates the year when the calculated annualised risk is higher than the annualised

replacement cost, and as such when the asset becomes economically viable to replace. The concept is illustrated below.

The economic model is producing a structured approach for each asset in the fleet. The economic model for the justified replacement program is available in asset class economic model: *ANT – TRR 2028-32 Asset Replacement Economic Model – Transmission Infrastructure – Final*



7.3. Output Validation

Following the generation of asset health models and forecasts, a structured validation process is undertaken by SME. This step supports that model outputs are interpreted within the broader context of engineering judgement, operational experience, and current asset condition data.

SMEs assess whether the model's recommendations such as, asset replacement, refurbishment or no action are economically viable. This involves verifying condition data, evaluating operational priorities, and considering strategic timing of interventions. Where appropriate, SMEs may recommend alternative actions based on their professional assessment.

This validation process complements the use of economic model forecasts by integrating predictive outputs with expert knowledge. It supports a balanced and accountable approach to asset management, one that upholds technical integrity while remaining responsive to operational realities.

7.4. Proposed Program

The proposed replacement program of works for the 2027–2032 Transmission Regulatory Reset (TRR) period has been developed based on detailed assessments of asset health and compliance. Assets identified for replacement are either at the end of their serviceable life or have already exceeded their expected lifespan.

Failures within the infrastructure asset class at terminal stations can have varying consequences depending on the component involved. For example, failures in buildings or fire protection systems may result in collateral damage, while deteriorated roads or switchyard conditions can pose significant safety risks to personnel.

To mitigate these risks, AusNet Services prioritises the proactive replacement of infrastructure assets at terminal stations. This approach forms the basis of the proposed program of works.

Note: Stations marked with an asterisk (*) in the program are being addressed through major station replacement projects.

7.4.1. Building Refurbishment

Stations: LY, RCTS, TSTS, JLTS, *MLTS, *LYPS, *MWTS, *HWTS.

Scope: Refurbishment of structural elements like walls, ceilings, windows, doors, roofs, floor tiles, toilets, and ancillary rooms (mess, storage, battery).



Figure 22: Poor condition of Walls and Ceilings at LY

7.4.2. Building Replacement

Stations: *TTS, *BATS

Scope: Demolition of old control buildings and extension of new control buildings



Figure 23: Poor condition of Buildings at TTS

7.4.3. Switchyard Refurbishment

Stations: HTS, *TTS, *BATS, *MWTS, *TBTS

Scope: Surface rework, cable tray lid replacement, tray and drainage repairs.



Figure 24: Poor condition of Switchyard at HTS

7.4.4. Trench Cover Replacement

Stations: KTS, SMTS, HWPS, HWTS, YPS, BETS, SHTS, RWTS, RCTS

Scope: Replacement of cable trench covers.



Figure 25: Poor condition of cable trench covers at BETS

7.4.5. Access Roads

Stations: SMTS

Scope: Road resurfacing and repair, including drainage and gutters.



Figure 26: Poor condition of Roads at SMTS

7.4.6. Fire Hydrant Systems

Stations: TBTS, YPS, LY, JLTS

Scope: Replacement of fire hydrant systems.

7.4.7. VESDA & Fire Indication Panels

Stations: Multiple stations

Scope: Reactive Replacement of obsolete VESDA and fire indication panels.

7.4.8. Air Conditioner Replacements

Stations: Multiple stations

Scope: Reactive Replacement of obsolete air conditioning units.

8. Asset Strategies

8.1. New Assets

- New buildings comply with the requirements of Building Code of Australia and Australian Standard AS2067 for substations and high voltage installations exceeding 1000 volts, AC.
- Use relocatable buildings for new or major building refurbishments.
- New fire asset installations should be in accordance with AS 2419 for Fire Hydrant Installations; AS 1670 For Fire Detection and suppression systems and AS1851 for the service and maintenance of Fire protection equipment.
- Initiate targeted replacements for Infrastructure assets rated C5 for sites with no major projects/rebuild planned in next 10 years

8.2. Replacements and Refurbishments

- Progressively replace Fire Hydrant Systems in Conditions 4 and 5 with compliant systems.
- Refurbish or replace Water Deluge Systems in poor condition.
- Replace failing smoke detectors and Fire Indicator Panels in Control Buildings.
- Supplement renewal/replacement of C4 and C5 assets in scopes of major projects, where economically viable.
- Use relocatable buildings for refurbishments where economically justified.
- Where feasible, implement asbestos removal (ACM) during major rebuilds or augmentation projects

8.3. Inspections

- Include recurring assessments for all Infrastructure assets in the scheduled maintenance program for Terminal stations and Communication sites
- Record all inspection results in SAP.
- Continue regular inspections and testing per AS1851: Maintenance of Fire Protection Systems and Equipment.

9. Resource References

No.	TITLE
1	AS1851 Standards: Service and maintenance of fire and suppression
2	AS2067 Standards: Building codes
3	AS1670 Standards: Fire Detection and Suppression
4	AS2419 Standards: Fire Hydrant Installations
3	AMS 01-05 Strategic Asset Management Plan
4	AMS 10-01 Asset management Strategy Transmission
5	Station Design Manual Vol.5
6	AMS 01-09 Asset Risk Assessment Overview
7	ANT – TRR 2028-32 Asset Replacement Economic Model – Transmission Infrastructure

10. Schedule of Revisions

ISSUE NUMBER	DATE	DESCRIPTION	AUTHOR	APPROVED BY
6	21/11/06	Review and update	[C.I.C.]	[C.I.C.]
7	17/03/07	Review and update	[C.I.C.]	[C.I.C.]
8	17/12/12	Review and update	[C.I.C.]	[C.I.C.]
9	29/07/15	Review and update	[C.I.C.]	[C.I.C.]
10	14/07/20	Review and update	[C.I.C.]	[C.I.C.]
11	30/09/2025	Review and update	[C.I.C.]	[C.I.C.]

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Contact

This document is the responsibility of Transmission Network Management Division of AusNet. Please contact the indicated owner of the document with any inquiries.

AusNet
Level 31, 2 Southbank Boulevard
Melbourne Victoria 3006
Ph: (03) 9695 6000

AusNet

Level 31
2 Southbank Boulevard
Southbank VIC 3006
T +613 9695 6000
F +613 9695 6666
Locked Bag 14051 Melbourne City Mail Centre Melbourne VIC 8001
www.AusNet.com.au

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