

AusNet

Surge Arresters

Asset Management Strategy



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Abbreviations and Definitions

TERM	DEFINITION
AMS	Asset Management Strategy
COF	Consequence of Failure
EHV	Extra High Voltage
GIS	Gas Insulated Surge arrester
HV	High Voltage
IEC	International Electromechanical Commission
MO	Metal oxide
POF	Probability of Failure
SC	Silicon Carbide
SVC	Static VAR Compensator
ZA	Work order Notifications associated with corrective actions from planned inspections
Zk	Work order Notifications associated with failures (unplanned power interruptions)

1. Executive Summary

This document outlines AusNet's Asset Management Strategy for Terminal Station Surge Arresters within the regulated electricity transmission network. It outlines the approach to inspection, maintenance, replacement and monitoring activities to enable effective and economic life cycle management.

There are 2,304 surge arresters installed across AusNet transmission network, with over 99.5% being gapless metal oxide types. The remaining surge arresters are older porcelain-housed silicon carbide units, all scheduled for replacement between 2027 and 2032. Approximately 85% of the fleet features polymer housings, while the rest are porcelain. A risk based, monetised consequence assessment supports a targeted replacement program for high risk surge arresters during 2027-2032. Proactive inspection, condition monitoring, and replacement are essential to meet stakeholder expectations for cost effectiveness, safety, reliability, and environmental responsibility. Key issues identified include:

- A small number of porcelain-housed silicon carbide surge arresters remain in use. Due to their inherent air gaps, these units are not continuously energised, allowing latent defects to remain undetected until an overvoltage event occurs. These older arresters have higher leakage currents, lower energy absorption, and a history of catastrophic failure compared to modern metal oxide types.
- Significant deterioration has been observed in mid-1980s porcelain-housed metal oxide surge arresters, notably the ASEA XAP and XAQ types (220 kV and above). While most have been retired, some [C.I.C] units are still operational. At the 66 kV level, many mid-1980s [C.I.C] type arresters remain in service and are nearing or exceeding their expected lifespan.
- Currently, there are no cost effective or reliable methods to accurately assess the internal condition of surge arresters. Maintenance relies primarily on visual inspections for corrosion, physical damage, or external defects. For arresters on power transformers, offline tests such as insulation resistance, 10 kV watts loss, and leakage current are performed, but these provide limited insight and may not detect underlying deterioration until a failure occurs during an overvoltage event.

1.1. Asset Strategy Summary

AusNet's asset strategy for surge arresters focuses on proactively managing risk, ensuring safety, and maintaining reliability through a targeted program of replacement, inspection, testing, monitoring and spares management activities. The approach implements a targeted replacement schedule for high risk Surge Arresters, including:

- Remaining 22 kV porcelain housed Silicon Carbide type surge arresters
- 66kV [C.I.C] porcelain housed Metal Oxide surge arresters
- Remaining 220kV [C.I.C] porcelain housed Metal Oxide surge arresters on power transformers

This program is driven by a risk based, monetised consequence assessment so that the most vulnerable units are addressed first. Key asset management strategies are summarised as below:

Comprehensive Inspection and Testing:

Continue routine visual inspections and annual thermo-vision scans across the fleet. For surge arresters on power transformers, maintain off-line electrical testing including insulation resistance, 10 kV watts loss, and leakage current measurements to support early identification of deteriorating units.

Proactive Monitoring Initiatives:

Explore and implement cost effective monitoring solutions for metal oxide surge arresters, both porcelain-housed and polymer-housed, that have reached or exceeded mid-life. Enhanced monitoring will help detect performance degradation early, reducing the risk of unplanned outages and catastrophic failures.

Lifecycle Coordination:

Where feasible, coordinate the replacement of older surge arresters with scheduled upgrades or replacements of associated circuit breakers, disconnectors, or power transformers to optimise resources and minimise operational disruption.

Strategic Spares Management:

Maintain an appropriate inventory of surge arresters across all voltage classes in service to facilitate rapid response capability in the event of failure or urgent replacement needs.

This enhanced strategy is designed to balance safety, reliability, cost effectiveness, and environmental responsibility, while supporting AusNet's commitment to responsible asset management and stakeholder expectations.

2. Introduction

2.1. Purpose

The purpose of this document is to outline the inspection, maintenance, replacement and monitoring activities identified for economic life cycle management of surge arresters installed in AusNet's Victorian regulated electricity transmission network. This document is intended to be used to inform asset management decisions and communicate the basis for activities.

In addition, this document forms part of our Asset Management System for compliance with relevant standards and regulatory requirements. It is intended to demonstrate responsible asset management practices by outlining economically justified outcomes.

2.2. Scope

The strategy includes:

- Regulated Transmission Surge Arresters with nominal voltage ranging from 11kV to 500kV

The strategy excludes:

- GIS Surge Arresters (refer to AMS 10-62)
- SVC Surge arresters (refer to AMS 10-71)

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. Function

Surge arresters are devices used on electrical power systems to protect critical, or high value items of plant that are susceptible to internal failure due to transient lightning or voltage surges during switching. They are typically installed adjacent to gas insulated switchgear, on the high voltage and low voltage sides of power transformers, and at the terminations of High Voltage (HV) and Extra High Voltage (EHV) cables/overhead lines.

3.2. Population

There is a total of 2304 surge arrester installed in AusNet terminal stations as of 22 Sep 2025. There are two types of surge arresters installed in terminal stations namely gapped silicon carbide (SC) and gapless metal oxide type (MO) which is the newer technology. Silicon Carbide type surge arresters are all porcelain housed whereas gapless metal oxide surge arresters have both types of housing but predominantly are polymeric housed. A smaller population of gap less metal oxide surge arresters manufactured in the 1980s and 1990's have porcelain housings.

Figure 1 shows an early generation porcelain-housed silicon carbide surge arrester and a contemporary polymer-housed metal oxide surge arrester.



66 kV Porcelain housed Silicon Carbide surge arrester



220 kV Polymer housed Metal Oxide surge arrester

Figure 1: Silicon carbide and metal oxide surge arresters

The majority of EHV (220kV and above) surge arresters are installed to protect 220 kV power transformers, which have a lower insulation impulse withstand capability compared with other EHV equipment. Increasingly surge arresters are also being installed at EHV line ends to replace the existing simple but less effective line entry protective air gaps. The majority of the 66 kV and 22 kV surge arresters are installed on feeder bays as overhead lines at those voltages have no earth wire for lightning protection.

Figure 2 illustrates the distribution of population percentages across two block types, MO and SC, based on their associated overall voltage levels. The MO block type exhibits a diverse voltage profile, with significant portions of the population linked to 220kV and 66kV, along with smaller shares across other voltage levels ranging from 11kV to 500kV. In contrast, the SC block type shows a much narrower distribution, with a minimal population associated with 22kV.

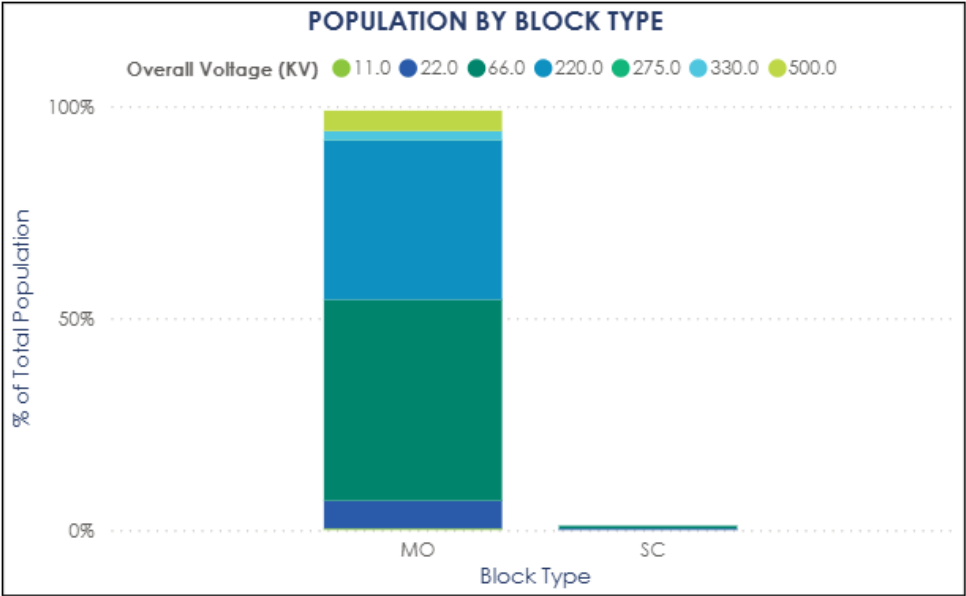


Figure 2: Population of surge arresters by service voltage and block type

Figure 3 below presents the percentage of the total population living in POLYMER and PORCELAIN housing across two block types: MO and SC. In the MO block type, nearly the entire population resides in POLYMER housing, with only a small fraction in PORCELAIN. In contrast, the SC block type shows an almost negligible population in porcelain housing only.

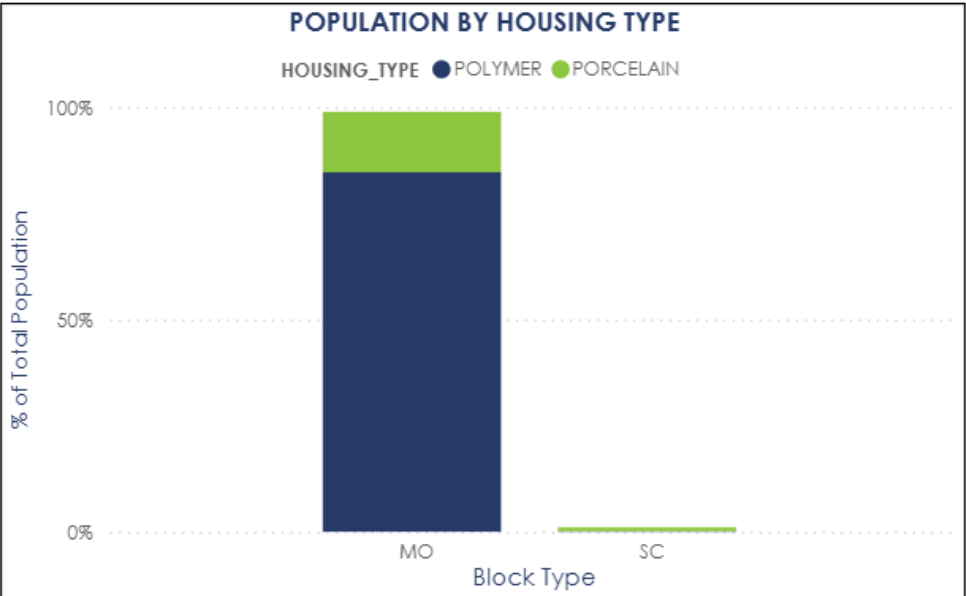


Figure 3: Population of surge arresters by technology and housing type

Figure 4 below provides the surge arresters by manufacturer. [C.I.C] (59.2%) and [C.I.C] (18.7%) contribute to approximately 77.9% of the total population of surge arresters in terminal stations, followed by {C.I.C} (9.59%) and [C.I.C] (9.46%) which is the current period order supplier of new surge arresters for AusNet.

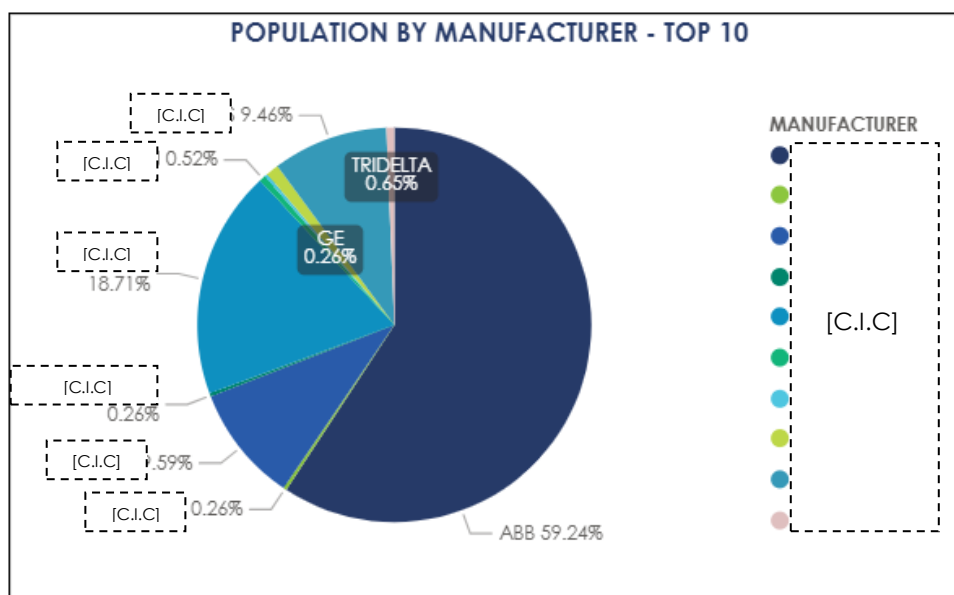


Figure 4: Surge Arresters by Manufacturer

3.3. Age Profile

Figure 5 illustrates the service age distribution of terminal station surge arresters. The average age across the entire population is approximately 16 years, reflecting the impact of targeted replacement and station rebuild programs implemented over the past two decades. These initiatives were driven by catastrophic failures observed in certain arrester types. Notably, only around 0.3% of the surge arresters in service are older than 45 years.

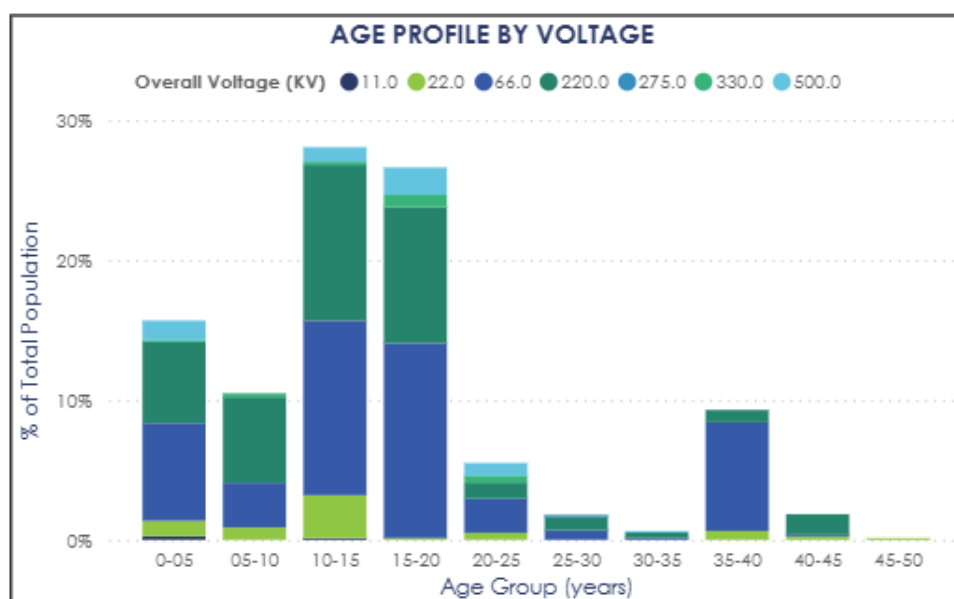


Figure 5: Age Profile of surge arresters by Voltage

Surge Arrester population by technology type is shown in figure 6. It can be observed that the metal oxide type surge arresters are newer compared to a smaller population of silicon carbide type arresters. Older metal oxide types such as [C.I.C] and [C.I.C] ZLA types have porcelain housing compared to the newer versions which all have polymeric housings.

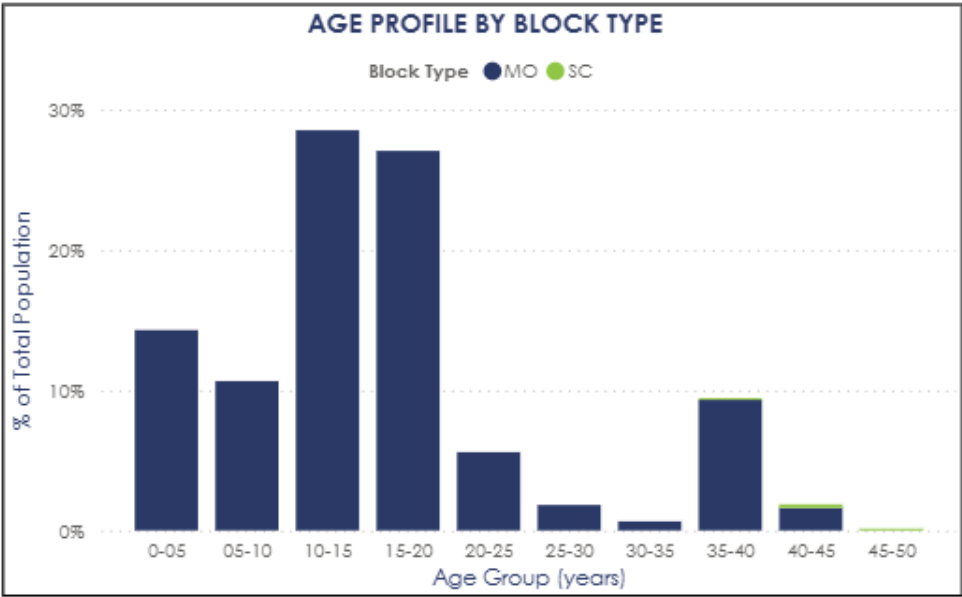


Figure 6: Age profile of surge arresters by block type

4. Asset Performance

Surge Arresters are inspected during routine station inspections and in closer detail at the intervals for maintenance of their associated Transformer or Circuit Breaker or line entry equipment. Surge arresters are not maintainable and very minimal corrective action can be performed on them other than replacement with modern metal oxide type to fix a defect or replace after a failure.

4.1. Defects

Surge arresters generally reach the end of their life when:

- Performance deterioration of voltage/impedance characteristics, beyond acceptable limits.
- Corrosion or deterioration of seals allows moisture to enter the arrester housing.
- Energy dissipation levels beyond design limits.

4.1.1. Performance Deterioration

Silicon carbide (SC) surge arresters tend to wear down over time, especially in areas with frequent or intense surge activity. Because of this, it was common practice-particularly about two decades ago to replace SC arresters once they reached a set number of arresting operations, especially in high incidence regions.

On the other hand, manufacturers of metal oxide (MO) surge arresters claim their performance doesn't degrade with repeated operations. So far, this has held true across the transmission network, with no signs of deterioration due to usage. That said, we have seen issues with two specific MO arrester models, but these appear to be isolated cases linked to type or batch defects rather than operational wear.

4.1.2. Corrosion / Physical Deterioration

In many cases the corrosion or deterioration of housing seals will determine the technical life of surge arresters, especially when the operating duty is very low and performance deterioration is not significant. The presence of moisture, humidity or other contamination within the surge arrester housing affect the operation of internal spark gaps and hence impact on its correct functioning and reliability. Internal moisture can also create overpressure and if on board safety devices function as designed, the overpressure results in emergency automatic venting, that is a low impact, but permanent form of failure.

Surge arresters $\leq 330\text{kV}$ and that have polymer housings do not use seals. The polymer insulation is moulded directly onto the reinforced metal oxide blocks. This construction method is intended to eliminate the risk of seal failure and moisture entry into the surge arrester housing.

4.1.3. Dissipation of Excessive Energy Levels

All forms of surge arresters are likely to fail in the event of extreme overload, such as continuous flow of network fault current, or exposure to lightning/network transients beyond the designed duty.

Polymer insulated metal oxide arresters, are often designed without the need for overpressure vents, but there can be an internal material breakdown that produces gaseous plasma. Pressure from these gases can then lead to elastic expansion of the polymer housing and the universal design criterion is that the housing will ultimately burst to release excessive pressure.

4.2. Failures

4.2.1. Porcelain housed metal oxide types

[C.I.C] CS type at 550kV and 330kV – an early/mid-1980's porcelain housed metal oxide surge arrester design. In 2010 there was operation and venting/internal failure of 500 kV [C.I.C] CS type at LYPS (owned by the power station) and two off 330kV [C.I.C] CS type venting/internal failures at WOTS (on 91/1/10 and later 2/2/10). Both are of a similar design, and, in these cases, the failure mode was benign, arresters vented externally, causing a system trip. The LYPS failure has been linked to pollution effects. The WOTS failures have been attributed to deterioration of the metal oxide block characteristics. All this specific type and voltage class has now been all replaced.

[C.I.C] type at 275kV a 1980's porcelain housed metal oxide surge arrester design located on B phase at HYTS M2 500/275kV Power transformer had to be urgently replaced in 2019 due to high leakage current (power losses) found during routine Power transformer testing. All of this specific type and voltage class has now been replaced.

[C.I.C] type at 500kV and 220kV; in early 2000's [C.I.C] type had failed due to flange corrosion, seal failure and moisture entry. The entire fleet has been replaced.

Major failures and deterioration have been observed in all original 1980s higher voltage (500kV, 330kV, 275kV, and 220kV) metal oxide surge arresters, specifically the [C.I.C] and later [C.I.C] types. Similar units from the same era and technology are still in service:

- [C.I.C] type on the 220kV network
- [C.I.C] type on the 66kV network

There remains a relatively small population of XAQ type and a larger population of early 1980's HV metal oxide surge arresters, namely [C.I.C] 66kV type. Neither have had major failures to date but are fundamentally smaller size/ lower energy version of the failed units. Both these types have been and are being progressively replaced in conjunction with major station circuit breaker and power transformer replacement projects, and the remainder of 220kV types proposed as part of the asset replacement program.

4.2.2. Polymer housed metal oxide type

Major failures have occurred with polymer housed metal oxide types.

At 500kV, [C.I.C] Early life failure of a polymer housed metal oxide surge arrester occurred in February 2011 at HWTS. Arrester was installed in 2000, operated/vented and failed in the absence of any system incident or adverse weather. Failure mode was safe. There was no evidence of moisture entry, and the investigation was inconclusive, but there have been no subsequent failures of a similar nature. In the absence of a network transient that could have initiated the event, it has been assumed that the failure was an isolated material / batch defect.

At 220kV, [C.I.C] type: Early life failure of a polymer housed metal oxide surge arrester at ERTS occurred in 2014. No cause determined, however there has been no incidences since. Another [C.I.C] type: suffered a Mechanical failure of a 220kV surge arrester at NRCS due to undue force on the terminal during the process of installing the line conductor during associated plant maintenance.

At 66kV, polymer surge arresters have operated due to abnormal overstressing incidents, in 2024 a surge arrester failed at HOTS and in 2016 at MWTS, in both cases due to a single underslung disconnecter drop out causing unbalanced network conditions and abnormal overvoltage.

4.2.3. Silicon Carbide type

There have been no failures of Silicon carbide (SC) type in recent years, as the remaining population is extremely low due to targeted replacement programs. The inherent air gaps in the design, mean the arrester block is not continuously energised and so can remain defective, and not fully functioning correctly without any knowledge until the surge arresters have to function to limit overvoltage. Whereas metal oxide type is gapless and are effectively in operation all the time and block weaknesses are revealed more quickly result in insulation failure.

5. Asset Health

The asset health condition is illustrated by the likelihood of failure profile derived from the data and insights presented in Section 4 Asset Performance of this document, specifically within the performance analysis. The following graphs illustrate the likelihood of failure profiles from multiple perspectives, including object type, voltage level, and asset age, and the likelihood score reflects the probability of failure, with 1 being the least likely and 5 being the most. Refer to the table below and REF: AMS 01-09 Section 5.4 for detail. By examining these dimensions, we can obtain a comprehensive view of the asset health condition and the associated program of work proposed.

LIKELIHOOD BUCKET	LIKELIHOOD SCALE
5	Very Likely
4	Likely
3	Possible
2	Unlikely
1	Very Unlikely

Table 1: Likelihood Scale

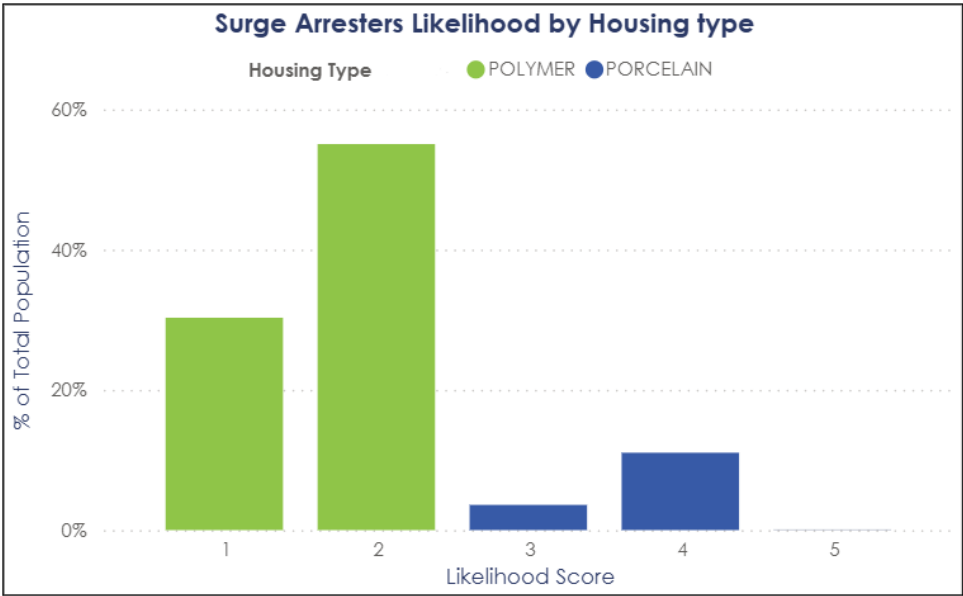


Figure 7: Surge Arresters Likelihood Score by Housing Type

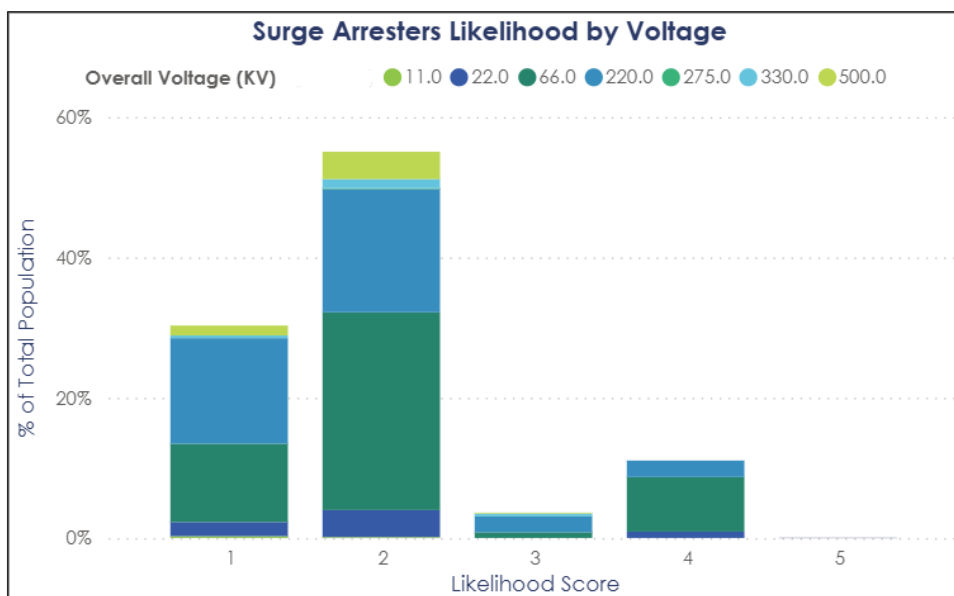


Figure 8: Surge Arresters Likelihood Score by Voltage Class

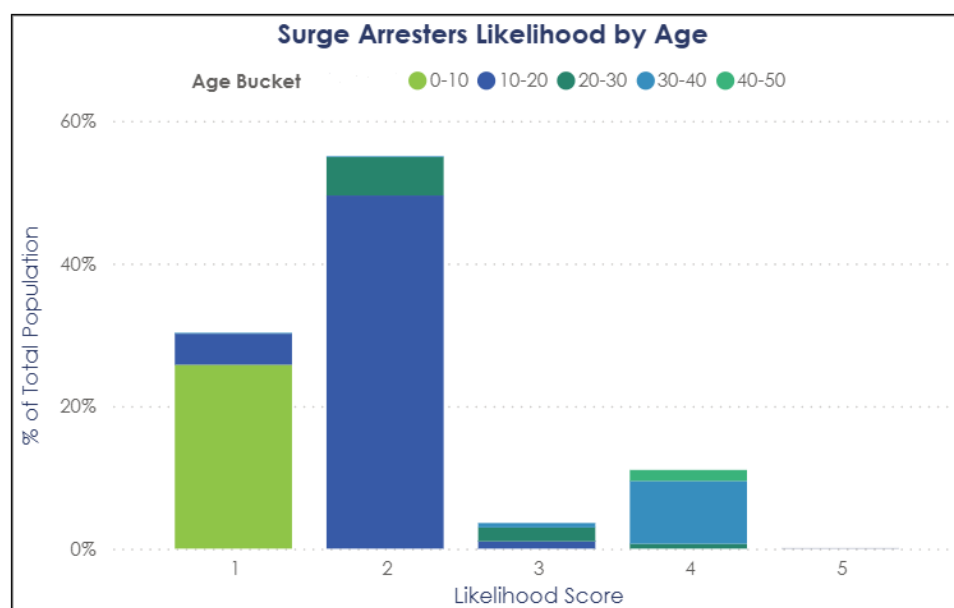


Figure 9: Surge Arresters Likelihood Score by Age Profile

The data above indicates that all remaining SC surge arresters have been given a likelihood score of 4, which reflects a high probability of failure or need for replacement. This is due to their age, increased safety risks, and outdated technology. Over time, SC arresters become less effective and more vulnerable to failure, especially during high-energy surge events. Unlike modern MO surge arresters, SC types rely on series gaps, resulting in slower response times and higher residual voltages, which compromises protection performance.

The 66kV and 220kV porcelain-housed MO surge arresters, especially [C.I.C], with an average age of 40 years, present a reliability and safety concern. While MO technology is more advanced than SC, the porcelain housing introduces a risk of violent fragmentation in the event of internal failure or explosion. Their advanced age further increases the likelihood of failure, especially under electrical stress or during switching operations. A failure near critical assets such as power transformers could result in severe consequences, including equipment damage, extended outages, and safety hazards. Due to their deteriorating condition and the high impact of potential failure, these arrester types are proposed for replacement in the 27-32 period.

6. Related Matters

6.1. Surge Arrester Condition Monitoring

Currently surge arresters are visually inspected for corrosion and external defects/damages during their associated plant maintenance. Surge arresters on power transformers are also checked by a lower voltage power loss / leakage current measurement during the offline Power Transformer condition monitoring test program. Both are very limited in being able to accurately condition assess internal health at normal operating voltages, due to the non-linear voltage characteristics of surge arresters.

Since 2015, modern surge arresters on higher voltages 220-500kV locations, and those on power transformers are installed with phase segregated earth leads (and isolated from structures) to facilitate on-line leakage currents at ground levels. Harmonic Leakage currents can be used to assess relative health. Unfortunately, this is not possible or cost effective to implement on the older surge arresters due to the group earthed designs/structure bonding used at the time. As such there are no cost-effective techniques available to accurately assess the internal deterioration of individual older surge arrester cohort.

Long term performance of metal oxide surge arresters depends on the quality of manufacturer and its hermetic seal performance. The porcelain housed gapless surge arresters are now all exceeding 35 years. Testing samples of replaced arresters in the HV Laboratory setting may be the only effective method to assess the internal condition of older units and help understand future performance issues.

6.2. Inherently Safer Design

Surge arresters are low-cost, sacrificial devices designed to protect high-value equipment from overvoltage transients. After significant operation or if moisture ingress has occurred, older porcelain-housed units have been known to fail catastrophically, posing safety and collateral damage risks. The preferred time to replace older arresters is during planned upgrades of adjacent switchgear or power transformers to optimise outage windows and improve system reliability. Modern polymer-housed designs are shatter-resistant, and feature sealed, embedded construction, eliminating common failure modes of these legacy units.

7. Proposed Program of Work

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 surge arresters, risk treatment required to achieve this over time involves replacement & maintenance activities. Justification for these projects are developed based on current risk and extrapolated 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 (PoF)

The conditional PoF for surge arresters is calculated using a Health Score methodology, which incorporates three key parameters: asset age, make/model and blocking type. Asset management use these Health Score models to estimate the likelihood of failure over the next year.

This will calculate the asset PoF for the next one year. The remaining life and future PoF forecasts are calculated again, using Weibull distribution with SAP parameters that have been calculated based on method established by AusNet, described in REF: AMS 01-09, Appendix E. The Weibull parameters are calculated based on the assumption that the failure mode of the in-service asset correlated with the failure mode of a failed asset. The health score is analysed using the Weibull distribution to determine the statistical Weibull parameters for calculating PoF and remaining life.

Consequence of Failure (CoF)

AusNet assigns a monetised value to CoF which provides an economic basis of calculating potential consequence.

The cost of failure for surge arrester is assessed through key lenses: Safety, Environment, Customer/Market Impact and Financial consequences. These lenses provide a structured view of the potential impacts resulting surge arrester failure, resulting in outages and/or line drops. Table 1 summarises the focus of each lens:

CONSEQUENCE LENSES	DESCRIPTION
Safety	Threat to health and safety of people
Market Impact	Loss of Supply to Customers Impact on energy market
Financial	Asset/Component replacement costs Collateral damage Emergency response repairs/replacements

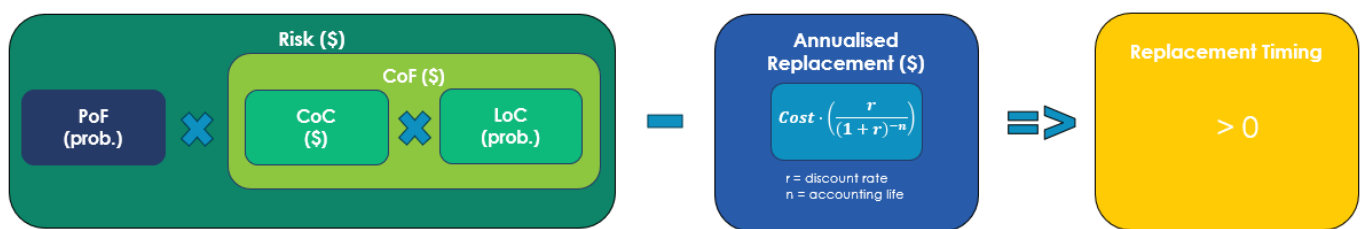
Table 2: Consequence lens description

7.2. Economic Viability

7.2.1. Economic Model

Asset Management 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 shown 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 REF: ANT – TRR 2027-32 Asset Replacement Economic Model – Surge Arrester – Final



7.3. Engineering Validation

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

Assessments as to whether the model's recommendations such as, asset replacement, refurbishment or no action are reasonably practicable. This involves verifying condition data, evaluating operational priorities, and considering strategic timing of interventions. Where appropriate, recommendations and alternative actions based on 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 AusNet modelling process transforms surge arrester performance and health analysis into economic assessment. The confluence of this in conjunction with risk models promotes a limited number of surge arresters for prioritised replacement.

In general, the most significant asset types requiring replacement through TRR 2027-32 are:

- Remaining 22 kV porcelain housed Silicon Carbide type surge arresters
- [C.I.C] porcelain housed Metal Oxide surge arresters
- Remaining 220kV [C.I.C] porcelain housed Metal Oxide surge arresters on power transformers

In addition, AusNet major station replacement strategy considers the condition of surge arresters and their associated assets being protected. Remaining 66kV [C.I.C] will be replaced with new metal oxide polymer

housed type in conjunction with major station projects during 2027-2032. Refer to Appendix 1 for details under asset replacement program.

8. Asset Strategies

8.1. New Assets

- Continue to purchase gapless polymer housed metal oxide surge arresters to IEC Standards
- Install new surge arresters $\geq 220\text{kV}$ with the ability to measure individual phase leakage currents from ground level

8.2. Inspection

- Continue with routine visual inspection and annual thermo-vision scans

8.3. Condition Monitoring

- Investigate methods to monitor metal oxide surge arresters' leakage current, when more than mid-life stage
- Investigate feasibility of HV laboratory assessment of a sample of past replacements
- Continue off-line electrical testing of transformer surge arresters

8.4. Spares

- Maintain strategic spares holding of surge arresters for all voltage classes in service

8.5. Replacement

- Proactively replace 9 off 22 kV porcelain housed Silicon Carbide type surge arresters
- Proactively replace 44 off 66kV [C.I.C] porcelain housed surge arresters
- Proactively replace 9 off 220kV [C.I.C] porcelain housed surge arresters

9. Resource Revisions

No.	TITLE
1	AMS 01-05 Strategic Asset Management Plan
2	AMS 01-09 Asset Risk Assessment Overview
3	ANT – TRR 2027-32 Asset Replacement Economic Model – Transmission Surge Arresters

10. Schedule of Revisions

ISSUE NUMBER	DATE	DESCRIPTION	AUTHOR	APPROVED BY
8	10/12/12	Review, Update and Revised Structure	[C.I.C]	[C.I.C]
9	17/09/15	Strategy update review	[C.I.C]	[C.I.C]
10	29/06/20	Strategy update review	[C.I.C]	[C.I.C]
11	30/06/2025	Update and review	[C.I.C]	[C.I.C]

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Appendix

Appendix 1 - Program of Works

FLOC DESCRIPTION	START-UP DATE	VOLTAGE	MANUFACTURER	MODEL	STATION
[C.I.C]	30/06/1976	22	[C.I.C]	[C.I.C]	BATS
[C.I.C]	30/06/1976	22	[C.I.C]	[C.I.C]	BATS
[C.I.C]	30/06/1976	22	[C.I.C]	[C.I.C]	BATS
[C.I.C]	30/06/1981	22	[C.I.C]	[C.I.C]	BETS
[C.I.C]	30/06/1981	22	[C.I.C]	[C.I.C]	BETS
[C.I.C]	30/06/1981	22	[C.I.C]	[C.I.C]	BETS
[C.I.C]	30/06/1980	22	[C.I.C]	[C.I.C]	KTS
[C.I.C]	30/06/1980	22	[C.I.C]	[C.I.C]	KTS
[C.I.C]	30/06/1980	22	[C.I.C]	[C.I.C]	KTS
[C.I.C]	30/06/1989	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	30/06/1989	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	30/06/1989	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	FTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	GNTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	GNTS
[C.I.C]	10/02/1986	66	[C.I.C]	[C.I.C]	GNTS
[C.I.C]	30/06/1986	66	[C.I.C]	[C.I.C]	GNTS
[C.I.C]	30/06/1986	66	[C.I.C]	[C.I.C]	GNTS
[C.I.C]	30/06/1986	66	[C.I.C]	[C.I.C]	GNTS
[C.I.C]	30/06/1986	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1986	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1986	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS

[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	HOTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	LY
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	LY
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	LY
[C.I.C]	16/03/1988	66	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	16/03/1988	66	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	16/03/1988	66	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	66	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	FBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	FBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	FBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	TBTS
[C.I.C]	30/06/1985	220	[C.I.C]	[C.I.C]	TBTS

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