# ASSET CLASS OVERVIEW

## POLE TOP STRUCTURES

CP BUS 4.02 – PUBLIC

2026–31 REGULATORY PROPOSAL

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# 1. Overview

Our pole top replacement program is critical to our ability to maintain network reliability and minimise safety risks as far as practicable in accordance with our legislated and regulatory obligations.

In the current regulatory period, our existing asset management approach for cross-arms has generally maintained network performance. Consistent with this, our forecast intervention volumes for the 2026–31 regulatory period is slightly lower than our corresponding replacements in the 2021–26 regulatory period.

Further, our annual forecast replacement rate equates to 1.5 per cent of our total cross-arm population. This implies that on average, our cross-arms will need to last 67 years before we replace them, which is slightly higher than our observed cross-arm service life.

Our total forecast expenditure for the 2026–31 regulatory period however, represents a small increase on the current period. This is driven by higher average units in the forecast period.

A summary of our forecast expenditure for pole top structures for the 2026–31 regulatory period is set out in table 1.

**TABLE 1 FORECAST POLE TOP INTERVENTIONS: EXPENDITURE ($M, 2026)**

| EXPENDITURE | FY27 | FY28 | FY29 | FY30 | FY31 | TOTAL |
|---|---|---|---|---|---|---|
| LV pole top replacement | 5.3 | 4.8 | 4.8 | 3.9 | 4.4 | **23.1** |
| HV pole top replacement | 2.0 | 1.4 | 1.7 | 1.6 | 1.5 | **8.2** |
| **Total** | **7.3** | **6.2** | **6.4** | **5.5** | **5.9** | **31.3** |

Note: HV pole top replacements include a small volume of sub-transmission replacements

# 2. Background

Pole top structures support our overhead conductors and low voltage (LV) service lines on poles.

Specifically, cross-arms are mounted horizontally on a pole to support insulator, overhead conductors, overhead service lines, LV components, high voltage (HV) fuses and other electrical equipment. Cross-arms are designed to ensure phase to phase clearance requirements are met.

This section provides an overview of our pole top structures asset class, including a high-level summary of our compliance obligations, pole population and age profile.

## 2.1 Compliance obligations

We operate under a combination of national and state legislation which establish our obligations and the regulatory framework under which we operate.

The National Electricity Rules sets out reliability and safety obligations and the Electricity Distribution Code of Practice include performance requirements. We must also manage our network assets in accordance with the Electricity Safety Act 1998, the Electricity Safety (Management) Regulations 2019, the Electricity Safety (Bushfire Mitigation) Regulations 2023 and the Victorian Environment Protection Act 2017.

These obligations can be summarised as follows:

- Electricity Safety Act 1998 – requires us to minimise safety risk 'as far as practicable' including bushfire danger
- Electricity Distribution Code of Practice – requires us to manage our assets in accordance with principles of good asset management and to minimise the risks associated with the failure or reduced performance of assets
- National Electricity Rules – requires us to forecast expenditure to maintain the quality, reliability and security of supply of our networks and maintain the safety of the distribution system
- Victorian Environment Protection Act (2017) – requires us to reduce the risk of harm from our activities to human health and the environment and from pollution or waste.

In short, we must maintain reliability, minimise safety risk 'as far as practicable' including bushfire danger arising from our network, and reduce the risk of harm to the environment.

## 2.2 Asset population

Our pole top structures asset class includes LV, HV and sub-transmission cross-arms. The corresponding material types used are wood and steel.

As shown in table 2, the majority of this asset class are LV wood.

**TABLE 2 CROSS-ARM POPULATION**

| CROSS-ARM TYPE | WOOD | STEEL | TOTAL |
|---|---|---|---|
| LV | 41,573 | 116 | 41,689 |
| HV | 6,887 | 9,138 | 16,025 |
| Sub-transmission | 212 | 3,222 | 3,434 |
| **Total** | **48,672** | **12,476** | **61,148** |

## 2.3 Asset age profile

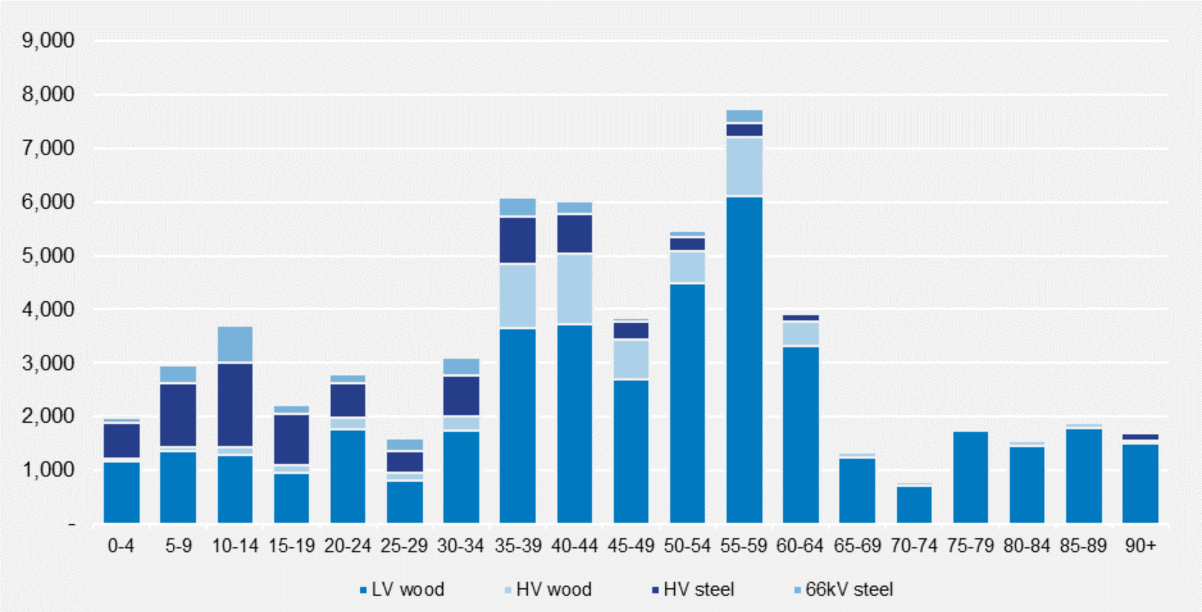
Table 3 sets out the expected service life for our different pole top asset types. Service life is the expected period of time after which the asset is unlikely to be fit for purpose, typically determined by safety, technology and/or obsolescence.

**TABLE 3 CROSS-ARM EXPECTED SERVICE LIFE (YEARS)**

| CROSS-ARM TYPE | EXPECTED SERVICE LIFE |
|---|---|
| Wood cross-arm | 50 |
| Steel cross-arm | 70 |

The corresponding age profile of our cross-arm asset population is shown in figure 1

**FIGURE 1 NUMBER OF CROSS-ARMS BY MATERIAL AND AGE (YEARS)**



# 3. Identified need

The performance of our cross-arms may impact our network service level as failures may lead to a loss of supply for customers, pose safety risks to our personnel and the public.

The identified need, therefore, is to manage our cross-arm population to maintain reliability and minimise safety risks as far as practicable, consistent with our regulatory and legislative obligations.

This section outlines the historical performance of our cross-arms, which has informed how we assess (and respond, as required to) this identified need.

## 3.1 Historical asset performance

Consistent with our regulatory obligations, we inspect our crossarms on serviceable poles every five years as our crossarms are located in low bushfire risk area (LBRA). We also inspect crossarms on added control serviceable[1] poles each year. These cyclic inspections provide snapshots in time of the crossarm condition and identify any defects.

In assessing the need to intervene on our cross-arm asset population, we monitor several asset performance indicators, including asset failures, high priority defects, and asset condition. These indicators inform our underlying asset management response—for example:

- increasing unassisted asset failures indicates a likely need to act immediately and review asset management practices (noting that robust inspection practices and governance over the application of these methods may drive low failure rates, but if the underlying condition of the relevant asset population is poor and/or deteriorating, high and/or increasing intervention volumes may still be prudent and efficient)
- increasing high-priority defects or deteriorating condition (relative to asset management thresholds) indicates a likely need to act soon to increase interventions over time, and/or undertake risk-based assessments.

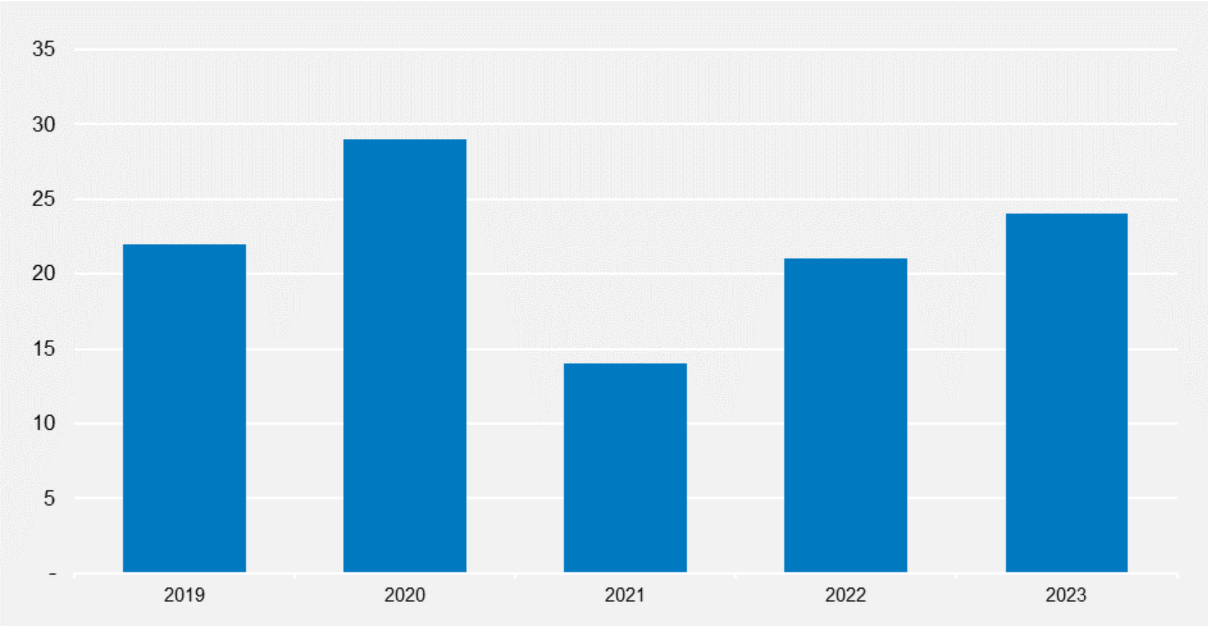
As shown below, our existing asset management approach for cross-arms has generally maintained network reliability and minimised safety risks as far as practicable in the current regulatory period.

### 3.1.1 Failures

Our cross-arm failures since 2019 are shown in figure 2.

[1] Added control serviceable poles have reduced capacity and require additional controls.

**FIGURE 2 CROSS-ARM FAILURES**




### 3.1.2 Defects

Our response to identified defects depends on the nature and severity of the defect, and may include more frequent re-inspections. High priority defects that result in intervention are shown in table 4.

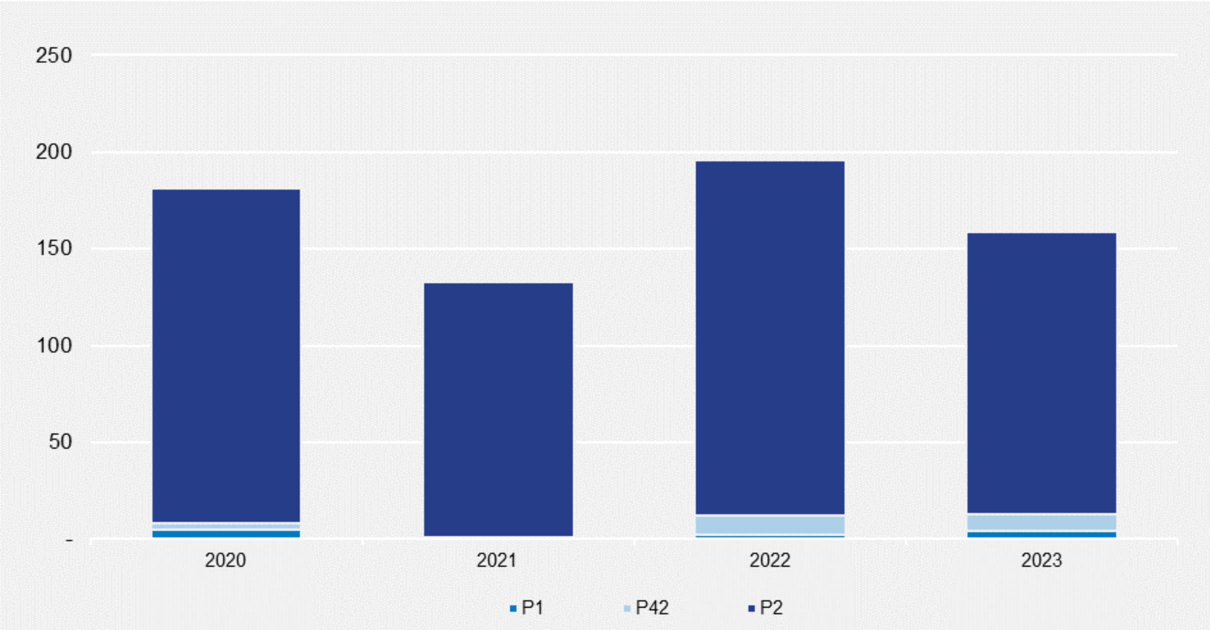
**TABLE 4 RESPONSE TIMEFRAMES FOR HIGH PRIORITY DEFECTS**

| PRIORITY | TIMEFRAME FOR INTERVENTION |
|---|---|
| P1 | Make safe within 24 hours of identification (replacements or repairs can occur beyond the initial 24 hours) |
| P42 | Addressed within 42 days of identification |
| P2 | Addressed within 32 weeks of identification |

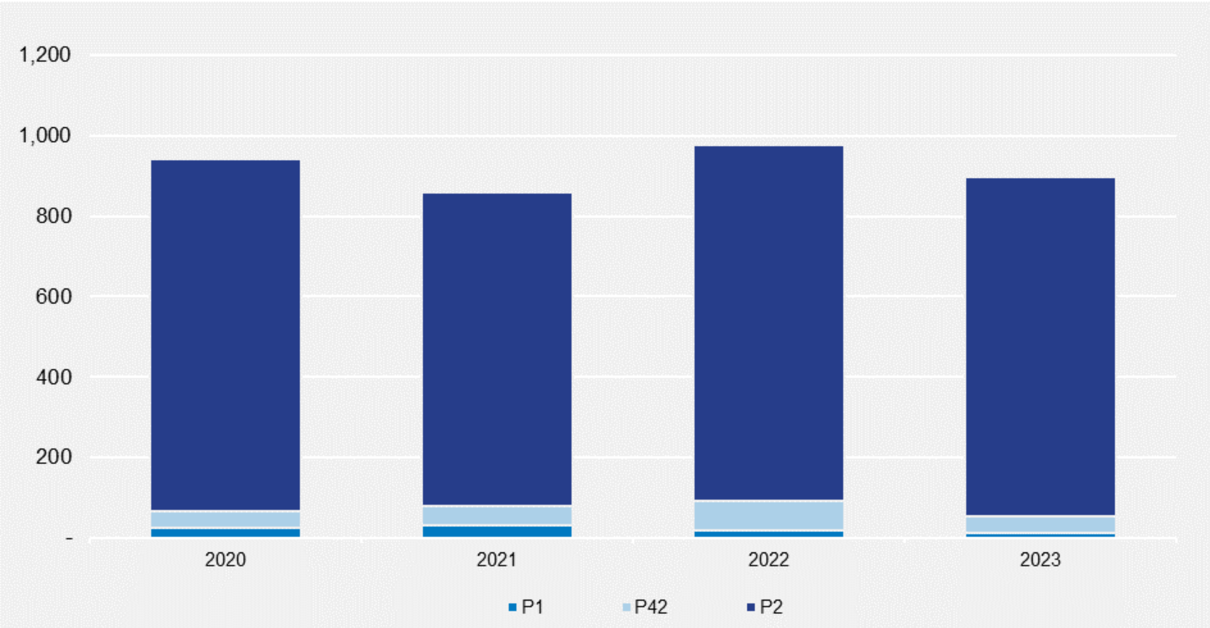
In 2020, we introduced a new inspection practice for cross-arms, where a pole top camera is used at all inspections. Pole top cameras were previously only used every five-years for cross-arms on serviceable poles and every two-years for cross-arms on added control serviceable poles.

To reflect the impact of this change in our inspection practice, figure 3 and figure 4 below show HV and LV cross-arm defects from 2020 onwards. The majority of these are P2 defects.

## FIGURE 3 HV CROSS-ARM DEFECTS




## FIGURE 4 LV CROSS-ARM DEFECTS

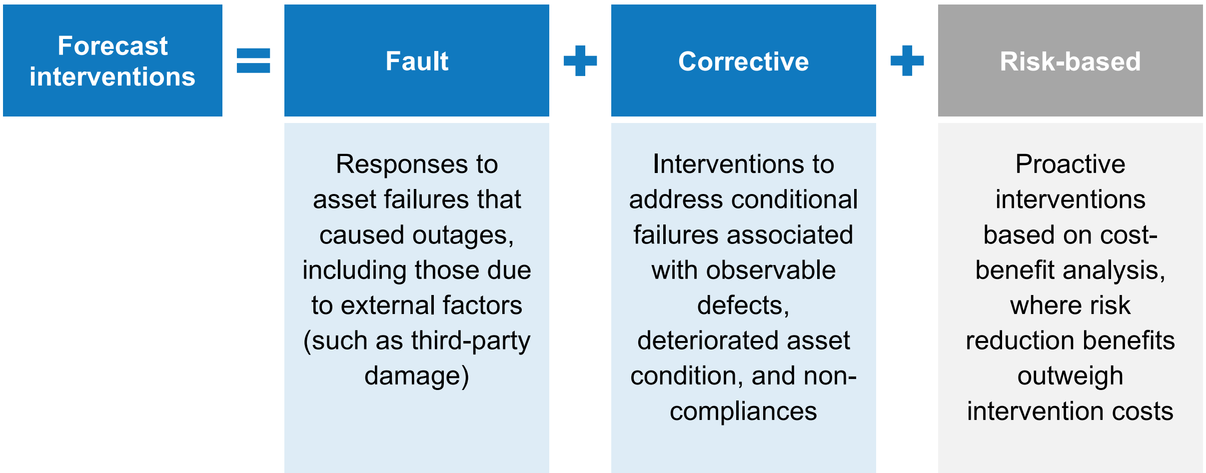


# 4. Forecast interventions

Our current asset management approach for pole top structures includes cyclic inspections and interventions, where required, to meet our required service levels consistent with our compliance obligations. Typically, the replacement of cross-arms is the only credible intervention response to defects and failures as refurbishment or repairs are not viable, and additional inspection and maintenance will not address the underlying asset condition.

The derivation of our forecast interventions for the 2026–31 regulatory period, for our high-volume asset, are based on two broad categories—faults and corrective forecasts. We are not forecasting any risk-based programs. This approach is summarised in figure 5 further detail on each category provided below.

**FIGURE 5 FORECAST CATEGORIES**




## 4.1 Forecast volumes

For the 2026–31 regulatory period, a summary of our forecast volumes for cross-arms is shown in table 5. These comprise a combination of the forecast categories above, and converted into voltage level forecasts.

**TABLE 5 FORECAST POLE TOP INTERVENTIONS: VOLUMES**

| VOLUMES | FY27 | FY28 | FY29 | FY30 | FY31 | TOTAL |
|---|---|---|---|---|---|---|
| LV pole top replacement | 210 | 151 | 176 | 171 | 157 | 864 |
| HV pole top replacement | 847 | 760 | 754 | 618 | 701 | 3,678 |
| **Total** | **1,056** | **910** | **929** | **788** | **857** | **4,541** |

Note: HV pole top replacements include a small volume of sub-transmission replacements

In total, our forecast intervention volumes are slightly lower than those completed in the 2021–26 regulatory period.

### 4.1.1 Fault forecasts

Faults, including from third-party damage, occur somewhat randomly across our network. Accordingly, our fault-based pole top intervention forecast is based on a simple average over the previous five-year period.

### 4.1.2 Corrective forecasts

Our corrective forecasts for cross-arm replacements are based on defect find rates and annual inspection volumes, consistent with independent statistical analysis on the best fit of our historical data.[2] These forecasts comprise the majority (over 80 per cent) of our total cross-arm intervention forecast.

Our defect find rate is the number of defects found per inspection conducted. Our defect find rate is derived from our historical average defect find rates since 2020 to reflect the impact of the new cross-arm inspection practice introduced in 2020 (as outlined in section 3.1.2). This rate excludes defective cross-arms that were replaced as part of our pole replacement program.

### 4.1.3 Top-down portfolio review

As noted earlier, our cross-arm intervention volume forecasts are lower than the corresponding intervention volumes in the current regulatory period.

As a further top-down consideration, our annual forecast replacement rate equates to 1.5 per cent of our total cross-arm population. This implies that on average, our cross-arms will need to last 67 years before we replace them, which is slightly higher than our observed cross-arm service life.

## 4.2 Expenditure forecast

To develop expenditure forecasts for our pole top structures asset class, we have multiplied the forecast intervention volumes by a volume-weighted average of the most recent unit rates derived from our audited RIN data.

Table 6 summarises this expenditure forecast for the 2026–31 regulatory period.

**TABLE 6 FORECAST POLE TOP INTERVENTIONS: EXPENDITURE ($M, 2026)**

| EXPENDITURE | FY27 | FY28 | FY29 | FY30 | FY31 | TOTAL |
|---|---|---|---|---|---|---|
| LV pole top replacement | 2.0 | 1.4 | 1.7 | 1.6 | 1.5 | 8.1 |
| HV pole top replacement | 5.3 | 4.8 | 4.7 | 3.9 | 4.4 | 23.1 |
| **TOTAL** | **7.3** | **6.2** | **6.4** | **5.5** | **5.9** | **31.3** |

Note: HV pole top replacements include a small volume of sub-transmission replacements

[2] CP ATT 4.02 – Simon Holcombe (Melbourne University) - EDPR defect forecasting methodology – Aug2024 – Public, pp 16-18

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