

# AusNet Services 2017-18 Bushfire Mitigation System Audit Final Report

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## PREFACE

This report has been prepared by the Electrical Safety and Technical Regulation Division of Energy Safe Victoria.

Energy Safe Victoria (ESV) is the independent technical regulator responsible for electricity, gas and pipeline safety in Victoria. ESV was created under the Energy Safe Victoria Act 2005, and has objectives, functions and responsibilities conferred on it under this Act and the Electricity Safety Act 1998, Gas Safety Act 1997 and Pipelines Act 2005 (*the Acts*).

Our role is broad and includes regulating the design, construction and maintenance of electricity, gas and pipeline networks across the State. ESV develops and conducts an annual risk-based audit program to monitor and improve compliance with the requirements of the Electricity Safety Act (*the Act*) and subordinate regulations in businesses across Victoria.

Audits are an integral ESV activity in order to provide assurance to the Government and community that businesses are meeting their obligations, and to promote opportunities for continuous improvement.

ESV's process-based regulatory approach is consistently applied to its audit methodology, whereby broadly speaking ESV conducts:

- ▶ 'systems' office based audits to test and challenge the effectiveness of the businesses system controls (policies, procedures and practices), and
- ▶ 'field' audits and inspections to confirm those listed controls (policies, procedures and practices) are being applied as stated.

This approach is more suited to the control of network risks where they are complex, geographically diverse, and have significant consequences (regardless of whether or not the risk may occur rarely).

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## SUMMARY

This report outlines the findings from an audit conducted on 11 and 13 December 2017 that specifically focused on pole inspection. Pole inspection has been the subject of the Victorian Bushfire Royal Commission (VBRC) deliberations and is often raised by stakeholders concerned about the adequacy of maintenance and asset management.

The audit was conducted against the procedures and criteria as set out in AusNet Services' Bushfire Mitigation (BFM) Plan and procedures. This was preceded by a desktop assessment of AusNet Services' policies and procedures carried out at the ESV Southbank office.

This audit follows an annual BFM Systems and Field audit of AusNet Services in August 2017. The key focus areas for the August 2017 audit were:

- ▶ maintenance priority decision making
- ▶ management of the Bushfire Mitigation Index (BMI)
- ▶ field assessment of asset inspection practices against policy and procedures
- ▶ assessment of condition of key BFM related assets.

The August audit found no noncompliance or areas of concern.

This second round of Systems and Field audits was conducted on the Mansfield 1 (MSD1) feeder between Woods Point and Jamieson and was chosen by ESV for the audit as it is remote and resides within the Hazardous Bushfire Risk Area (HBRA). The audits were completed in accordance with ESV's standard Procedures<sup>1</sup> and the "BFM System Audit Plan" presented to AusNet Services six business days prior to the audit.

The December 2017 audit focused on two key areas:

- ▶ to assess AusNet Services' system for managing its Bushfire Mitigation responsibilities with emphasis on its asset assessment and reassessment practices and criteria
- ▶ to assess the decisions made by the Asset Inspector in the field.

The objective of the audit was to confirm that AusNet Services has appropriate engineering analysis, risk assessment, procedures and processes, and that it follows these procedures/processes in relation to:

- ▶ asset inspection
- ▶ asset re-inspection.

The systems audit on 13 December 2017 found that AusNet Services has a documented system in place to manage its pole population including maintenance.

The system includes an overarching asset management strategy for poles as submitted to the Australian Energy Regulator (AER) during a price determination which contains asset lifecycle management and analysis of unassisted pole failures. This analysis concludes that unassisted pole failures have been managed effectively with the rate of failure well below 0.01% of the pole population per annum. This system also includes criteria and processes for the classification of maintenance items.

The systems audit found no instances where a pole had been reclassified as serviceable after originally being classified as unserviceable, unless the pole was "staked". The audit also found no recorded failures of poles that have been re-inspected and re-assessed.

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<sup>1</sup> ESTR Operations manual, Section 6.5 - Audit and assessment practice

The field audit also confirmed that, in many cases, the required maintenance works had already been completed on many of the assets selected as part of the field audit in accordance with AusNet Services' bushfire mitigation program and procedures.

The field audit assessed 19 sites / poles on the MSD1 feeder between Jamieson and Woods Point on 11 December 2017 against the assessment criteria in the AusNet Services Asset Inspection Manual (document number 30-4111).

The field audit found that, when assessing poles, AusNet Services is applying its asset maintenance criteria consistently and effectively in accordance with industry standards.

The ESV auditor agreed with previous maintenance and defect assessments of the AusNet Services Asset Inspector. No findings arose from the field audit.

In short, AusNet Services' Asset Management Strategy and Practice is consistent in approach with past SECV practice and ESV expectations.

No noncompliance was found during this audit; however ESV identified two (2) Opportunities for Improvement (OFI). They are offered as feedback and an opportunity to conduct further research and apply risk management that may further improve performance.

The two opportunities for improvement relate to AusNet Services:

- ▶ more clearly articulating in its re-assessment process document that, once a pole has been classified as unserviceable, it cannot be reclassified as serviceable unless there was an error in the original classification or the pole was "staked"
- ▶ more clearly articulating in its re-assessment process document the rationale behind the re-assessment process as conveyed during the audit. This rationale should include that re-assessment is:
  - to facilitate the alignment of works scheduling to increase the integration of planned works
  - to minimise the frequency of customer supply interruptions
  - a preventative measure to ensure the pole is safe to remain on the network for 90 days
  - to more clearly articulate that it complies with the VESI (SECV) standard assessment criteria.

ESV's findings and recommendations associated with the OFI are summarised within the report and detailed in Appendix A.

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# 1 INTRODUCTION

## 1.1 Purpose

The purpose of this audit was to determine whether AusNet Services has appropriate asset inspection processes to effectively manage its network assets, and that it effectively applies these processes and procedures in the field.

The objectives of this specifically-focused Bushfire Mitigation (Systems and Field) audit were:

- ▶ to assess AusNet Services' system for managing its Bushfire Mitigation responsibilities with emphasis on its assessment and re-assessment criteria
- ▶ to assess the decisions made by the Asset Inspector in the field.

## 1.2 Background

### 1.2.1 Regulatory regime

#### ESV

ESV is the independent technical regulator responsible for electricity, gas and pipeline safety in Victoria. ESV was created under the Energy Safe Victoria Act 2005, and has objectives, functions and responsibilities conferred on it under this Act and the Electricity Safety Act 1998, Gas Safety Act 1997 and Pipelines Act 2005 (the Acts). The role of ESV is broad and includes regulating the design, construction and maintenance of electricity, gas and pipeline networks across the State. ESV has a team of officers who audit electrical and gas safety in businesses across Victoria.

#### Process-based & Outcome focused regulatory approach

The safety regime (inclusive of Safety Cases & Electrical Safety Management Schemes) is a process-based regulatory regime that utilises a mix of principle, performance and outcome based regulatory approaches. The Victorian government's position is that process-based regulatory approaches are preferred where<sup>2</sup>:

- a. Safety related risks are substantial and diverse, that must be managed simultaneously
- b. Multiple options exist to manage risk, and the selection of the correct option/s is critical to appropriate risk management
- c. The operators of electricity networks are capable of assessing risks and developing tailored solutions to manage risk.

ESV's position is that this approach is preferred for the regulation of electricity networks because<sup>3</sup>:

- a. It is more suited to the control of network risks where they are complex, geographically diverse, and have significant consequences (regardless of whether or not the risk may occur rarely)
- b. It recognises that Major Electricity Companies (MECs) are best placed to understand the risk of the networks that they operate, and are better able to select the most effective solutions to eliminate and reduce risks
- c. It recognises that network safety cannot be achieved through mandating detailed and prescriptive requirements for MECs to follow.

The key concept that differentiates this regulatory approach is that the MEC makes a proposal to ESV as to how safety outcomes will be achieved (a safety proposition); ESV then accepts or rejects the proposal. ESV does not develop its own view of what the proposal is, as this transfers accountability for adequate management of safety risks to ESV.

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<sup>2</sup> "Process-based regulation", p.7, in "Victorian Guide to Regulation (Updated July 2014) Toolkit 1: Purposes and types of regulation", <http://www.dtf.vic.gov.au/Publications/Victoria-Economy-publications/Victorian-guide-to-regulation>

<sup>3</sup> ESV draft policy "DOC 18 1309 DRAFT Acceptably Safe and Safety Case Regime discussion paper\_v1.7\_17.01.2017"

## **Electricity Safety Act & Electrical Safety Management Scheme (ESMS)**

ESV monitors and enforces the safety of the Victorian MECs' design, construction, operation and maintenance of electrical transmission and distribution networks. It monitors their compliance with their obligations under the Electricity Safety Act 1998 to minimise risk "so far as practicable".

Specifically, the Electricity Safety (Management) Regulations 2009 (Vic), state that a MEC must submit an Electrical Safety Management Scheme (ESMS) to ESV for acceptance in order to operate. An acceptable ESMS demonstrates to ESV that the MEC has an integrated governance structure with risk and asset management processes to:

1. Mitigate the safety risk associated with major safety events, particularly bushfire
2. Safeguard public and workers on or near the network
3. Protect property assets and the environment
4. Safely operate in the event of disruption to operations / supply such as a prolonged outage.

## **Electricity Safety (Bushfire Mitigation) Regulations & Plans**

The Electricity Safety (Bushfire Mitigation) Regulations 2013 require the MEC to demonstrate in a Bushfire Mitigation Plan (BFMP) how it manages the risk of bushfires, including details of its Bushfire Mitigation (BFM) activities and programs. It also prescribes the minimum intervals for MECs' inspection of assets as:

- ▶ intervals not exceeding 37 months from the date of the previous inspection in hazardous bushfire risk areas (HBRA), and
- ▶ intervals not exceeding 61 months from the date of the previous inspection in other areas (low bushfire risk areas (LBRA)).

An MEC's management of its assets is a key component to delivering these outcomes and is a key component of the Safety Case, ESMS and BFMP.

AusNet Services has two BFMPs, one for its distribution business and one for its transmission business. This audit considered only the distribution business BFMP.

ESV regularly audits against BFMPs.

## **Asset Management**

Asset lifecycle management is fundamental to informing decisions regarding how to sustainably address safety related risks and regulatory obligations. Inter alia, a MEC utilises a suite of asset management strategies / plans that explore these issues and define the MEC's approach to managing the lifecycle of the asset category.

During a price determination, the respective MEC makes its proposal for funding to the Australian Energy Regulator (AER). This process requires the MEC to articulate its forecast Opex and Capex expenditures in relation to physical assets for a five year period. In the case of electricity network poles, the associated expenditures are reviewed in detail as they constitute a significant proportion of the overall expenditure.

To efficiently manage the pole population and associated items, the asset management philosophy the Victorian MECs employ is a condition based monitoring and replacement program. This is consistent with wider industry practice. The key activities or outcomes of these programs are to inspect, repair, reinforce and replace. Pole reinforcement and the application of timber preservatives are used to extend the life of the pole, and delay replacement to achieve economic efficiency and reduce costs for electricity customers.

Additionally, these strategies follow an asset Lifecycle Management (LCM) philosophy. This involves the establishment of long term sustainable asset replacement and investment forecasts that take into consideration network safety and security. This process is supported through the monitoring and understanding of asset condition based assessment programs.

It also avoids the penalties imposed by some of the incentive frameworks that discourage unassisted asset failures, some of which is set out in the National Electricity Rules (NER).

These incentive schemes encourage continuous improvement of the services MECs provide, they include the:

- ▶ Service Target Performance Incentive Scheme (STIPS)
- ▶ F-factor Scheme - incentivising to reduce bushfire risks, particularly in bushfire prone areas
- ▶ Efficiency Benefit Sharing Scheme (EBSS)
- ▶ Capital Expenditure Sharing Scheme (CESS)
- ▶ Demand Management and Embedded Generation Connection Incentive Scheme (DMEGCIS).

The forecast volume and unit rates of future replacements are reviewed in detail. The AER utilises an age-based replacement forecast informed by the pole installation dates and respective useful lives. This is reported to the AER through a 'Category Analysis Regulatory Information Notice' (RIN) where all Capex and Opex expenditure forecasts are reported in templates. It is in the MEC's interest to demonstrate the condition and risk based investments that are required to meet its regulatory obligations.

ESV conducts regular risk focused audits of an MEC's asset management systems to ensure the MEC is effectively mitigating the key risks listed on the previous page. These audits focus on various areas across the full spectrum of asset management including:

1. Asset Management Strategies/Plans by class of asset – to determine if the MEC effectively manages its assets throughout the entire life cycle of the asset
2. Asset Inspection Practices and Manuals – to ensure Asset Inspectors are trained in a course approved by ESV, are competent, and ensure inspection occurs within the prescribed inspection intervals. Audits also review the Asset Inspection Manual and asset assessment criteria and confirm these criteria are providing safe network outcomes through monitoring and regulatory reporting of asset performance data. This takes cognisance of the risk posed (potential highest consequence) by the condition of the asset.
3. Asset Maintenance Practices – to ensure the activities are performed in accordance with published National and Victorian standards and intervals and include the latest innovations and technically acceptable methods; ESV investigates and may separately report upon such innovations.<sup>4</sup>

A key focus of the audits in all the above areas is the governance and systems for capturing, recording and reporting data to inform practices.

The MEC's asset management practices, procedures and inspection manuals are generally all consistent and based on National - Energy Networks Association (ENA) guidelines, and long standing Victorian (SECV) industry standards as demonstrated in Appendix B.

After the Victorian Bushfire Royal Commission (VBRC) the industry established standards for asset inspection qualifications and training. Competency is assessed against company practices by internal audits conducted by each MEC. ESV audits this practice too.

In Victorian the vast majority of work on poles is undertaken via Elevated Work Platforms (EWPs); however where access issues require work to be undertaken from ladders, the safety of workers climbing poles is managed by the 'safe to climb test' for poles as contained in section 4 of the VESI Fieldworkers Handbook<sup>5</sup>.

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<sup>4</sup> ESV document titled "Review of 'WoodScan' pole inspection technology (CM-7376)"

<sup>5</sup> Victorian Electricity Supply Industry (VESI) Fieldworkers Handbook – – 2008 updated edition"  
[http://www.vesi.com.au/files/WorkPractices/Fieldworker\\_Handbook/VESI\\_FIELDWORKERS\\_MANUAL.PDF](http://www.vesi.com.au/files/WorkPractices/Fieldworker_Handbook/VESI_FIELDWORKERS_MANUAL.PDF)

### 1.2.2 Description of situation

In August 2017 ESV completed a BFM audit of AusNet Services before the declaration of the bushfire season. The key focus areas for that audit were:

- ▶ maintenance priority decision making
- ▶ management of the Bushfire Mitigation Index (BMI)
- ▶ field assessment of Asset Inspection practices against policy, and
- ▶ assessment of asset condition of key BFM related assets.

The BFM system and field audits of December 2017 were conducted as pole inspection has been the subject of the Victorian Bushfire Royal Commission (VBRC) deliberations and is often raised by stakeholders concerned about the adequacy of maintenance and asset management.

The Mansfield 1 (MSD1) feeder between Woods Point and Jamieson was randomly chosen by ESV for the audit as it is remote and resides within the Hazardous Bushfire Risk Area (HBRA). ESV conducted both a systems and field audit to:

- ▶ investigate if AusNet Services' assets were being maintained in accordance with its processes and procedures concerning its inspection and maintenance classification system
- ▶ establish whether its inspection and maintenance classification system is being applied effectively in the field.

The audits were completed in accordance with ESV's standard Procedures<sup>6</sup> and the "BFM System Audit Plan" as sent to AusNet Services 6 business days prior to the audit.

## 1.3 Scope

The system audit scope was to review AusNet Services' engineering analysis and risk assessments, focussing on its procedures and processes for classifying maintenance priorities.

The field audit scope was to validate AusNet Services' documented asset inspection process, to verify the recorded asset inspection results with actual field assets and that the recorded information is in accordance with the asset inspection process and assessment criteria.

### 1.3.1 Inclusions

The Systems audit included reviewing internal process, procedures and the engineering analysis which support the processes for classifying maintenance priorities.

The Field audit included an assessment of a number of poles on the MSD01 feeder by ESV's accredited asset inspector to confirm the maintenance classification given to the poles by the AusNet Services assessor conformed to the Asset Inspection Manual assessment criteria.

### 1.3.2 Exclusions

The audit was limited to the maintenance classification system for wooden poles and the engineering and risk systems which support this system. The field component was to verify that the classification system is being appropriately applied.

## 1.4 Network Description

AusNet Services' distribution business covers the eastern part of the state of Victoria. Its terrain includes most of the mountainous areas of the state. It comprises more than 380,000 poles and 48,900 km of powerlines, and supplies over 658,000 customers in an area of more than 80,000 square kilometres.

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<sup>6</sup> DOC/15/17279 V7 - ESTR Operations manual, Section 6.5 - Audit and assessment practice

## 2 METHOD

The office based systems audit involved reviewing internal processes, procedures, engineering analysis and risk assessments to determine their effectiveness in assessing and classifying maintenance items and reassessing maintenance items.

The ESV Team Leader, Safety Outcomes Assurance and a Senior Network Safety Engineer conducted the office based audit at the head office of AusNet Services on 13 December 2017. Present from AusNet Services were a number of people responsible for various aspects of the bushfire mitigation plan (BFMP).

AusNet Services provided some of the information requested prior to the audit, which ESV assessed in advance of the audit. Additional documentation was provided during the audit, and further documents were requested and provided after the audit. AusNet Services provided ready access to its Southbank office and a suitable meeting room for the duration of the audit.

The field based audit involved an assessment of a number of poles on the MSD1 feeder against AusNet Services' assessment criteria as detailed in its Asset Inspection Manual document number 30-4111 to confirm the classification.

ESV utilised a qualified electrical distribution asset inspector to conduct the field audit and the assessment of poles condition against AusNet Services' assessment criteria with AusNet Services' representatives in attendance.

### 2.1 Audit grading

Audit findings were graded as follows:

- ▶ **Compliant:** The audit found evidence of compliance with the applicable process or procedure and that the process or procedure meets statutory and business requirements.
- ▶ **Opportunity for Improvement (OFI):** These findings do not indicate noncompliance and so do not require corrective action. They are offered as feedback and an opportunity to conduct further research and apply risk management that may further improve performance.
- ▶ **Minor Noncompliance (MNC):** A minor noncompliance is an action (or lack thereof) that could indirectly lead to an adverse impact relating to the reliability of electrical infrastructure or safety. Such actions are generally isolated occurrences.
- ▶ **Noncompliance (NC):** A noncompliance is an action (or lack thereof) that could directly lead to an adverse impact relating to the reliability of electrical infrastructure or safety.

## 3 RESULTS AND DISCUSSION

### 3.1 Referenced documentation

All documents referenced before, during, and after the audit were provided to ESV by AusNet Services.

### 3.2 Audit description

This was an audit of the AusNet Services' Bushfire Mitigation Plan, the systems which support this plan and the implementation of the plan.

This audit targeted the asset condition assessment and re-assessment processes, and the effectiveness of the implementation of these processes. The focus of the audit was on how the engineering and risk decisions are applied to the assessment, re-assessment and classification of pole maintenance.

### 3.3 Desktop review

The system audit was held at the AusNet Services' Southbank office covering the following elements:

- ▶ asset inspection process
- ▶ asset re-inspection process
- ▶ engineering analysis behind the asset inspection criteria.

### 3.4 Field Review

The field audit was conducted on the MSD1 feeder between Woods Point and Jameson in Eastern Victoria and covered the condition assessment of 19 poles.

A key focus for the audit was wood pole condition and how the above processes are applied.

### 3.5 Audit findings – summary

#### 3.5.1 System Audit

AusNet Services clearly specifies its requirements of wood poles in document DES 10-18. This document contains technical specifications for wood poles and makes references to relevant Australian Standards. This wood pole specification is based on the former State Electricity Commission of Victoria (SECV) wood pole specification, which was revised and rebranded as Victorian Electricity Supply Industry (VESI) Document # 0067 in 1993. Since then there have been a number of minor revisions; however the key aspects remain the same as the original SECV standard.

AusNet Services has an asset management strategy for poles, document AMS 20-70. This strategy identifies the major causes of unassisted pole failures using a FMECA (Failure Modes Effects Critical Analysis) approach. It includes analysis and failure profiles for different species of timber poles and considers the consequences of unassisted failures such as fire ignitions. This analysis concludes that unassisted pole failures have been managed effectively with the rate of failure well below 0.01% of the pole population per annum.

The criteria for the inspection and assessment of poles form part of the AusNet Services Asset Inspection Manual, document number 30-4111. The manual is detailed and includes asset identification photos, pole inspection classification criteria of remaining life information and the training requirements for asset inspectors. The training requirements for asset inspectors comply with those accepted by ESV.

AusNet Services document BFM-21-90 entitled “Re-assessment Process for Corrective Maintenance Work” details the process for re-assessing pole and crossarm remaining life. The re-assessment process has been in place since the SECV was privatised, with some minor revisions. These (poles and crossarms) are the only two asset items that AusNet Services allow to be re-assessed. The document explains that the reasons for re-assessment are to prioritise replacement works based on risk in such circumstances as where there is no access to the pole to perform maintenance work, (e.g. ground is flooded); the reassessment process is the same as the initial assessment process and is treated as a new inspection.

The classification criteria for pole condition are based on engineering work completed by the SECV in the 1980s before the industry was privatised. The outputs from this engineering work are a number of technical drawings, graphs and figures that formed part of the SECV Line Inspection Manual. This manual now forms the basis for AusNet Services (and other Distribution Businesses) pole life classification system for wooden poles.

AusNet Services’ process for re-assessing poles and crossarms, BFM 21-90 explains that the purpose of a re-assessment is to verify/confirm that the asset condition remains within accepted condition criteria until its scheduled maintenance or replacement.

During the audit AusNet Services explained that a pole that had been classified as “Unserviceable” at the original inspection will not be reclassified as serviceable even if the amount of sound wood identified at the time of re-assessment is greater than 30mm. (Note that a result of less than 30mm of sound wood is the determining factor in classifying a pole as unserviceable; this has not altered since the time of the SECV. The only exception to this is if there was an error in the original assessment practice, or if the wood pole has subsequently been staked (staking is the term used to describe the process where an approved metal beam/s is/are driven into the ground to support a pole at its base where the amount of wood has diminished).

The audit did not find any instances where a pole had been reclassified as serviceable after originally being classified as unserviceable, unless the pole is “staked”. The audit also found no recorded failures of poles that have been re-inspected.

An **Opportunity for Improvement** exists for AusNet Services to more clearly articulate in its re-assessment process document BFM 21-90 that once a pole has been classified as unserviceable it cannot be re-classified as serviceable, unless there was an error in the original classification, or the pole is staked.

Moreover, during the audit AusNet Services verbally conveyed the rationale and purpose behind the re-assessment practice. However an **Opportunity for Improvement** exists for AusNet Services to more clearly articulate in its re-assessment process document BFM 21-90 the rationale behind the re-assessment process. This rationale should include that re-assessment is to:

- ▶ facilitate the alignment of works scheduling to increase the integration of planned works
- ▶ minimise the frequency of customer supply interruptions
- ▶ be a preventative measure to ensure the pole is safe to remain on the network for 90 days
- ▶ more clearly articulate that it complies with the VESI (SECV) standard assessment criteria.

The **Opportunities for Improvement** are further detailed in Appendix A.



### 3.5.2 Field Audit

The field audit was conducted across 19 sites between Jamieson and Woods Point on wood poles on the MSD1 feeder. Data provided by AusNet Services contained asset information including previously recorded asset inspection data for all poles. The sites selected for the audit included:

- ▶ assets with defects that were re-assessed and subsequently the initial target dates for rectification were extended or reset according to the Asset Inspection Manual assessment criteria and classification
- ▶ assets with potentially significant defects or listed as “Limited Life Poles”<sup>7</sup>
- ▶ assets with no previously recorded defects.

A complete list of the audit data provided by AusNet Services is held within the ESV document management system under CM-7704-9.

The audit found that of the 19 audited sites:

- ▶ poles had been replaced at six sites
- ▶ poles had been “staked” at two sites and were now classified as serviceable, and
- ▶ deteriorated crossarms had been replaced at two sites.

The ESV auditor agreed with the previous maintenance and defect assessments undertaken by AusNet Services at all of the sites audited. All sound wood and girth measurements for poles assessed that were still in service were validated as accurate.

The audit did find two minor maintenance items (outside the scope of the audit) and confirmed each of the assets to be in the same condition as identified in the information provided.

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<sup>7</sup> Note: A “Limited Life Pole” means a Pole that when inspected by the Distribution Business in accordance with its standard procedure is considered serviceable, but because of its condition may not remain serviceable until the next routine programmed inspection and therefore will be inspected more frequently.



## 4 CONCLUSION

The system audit found that AusNet Services has documented systems and processes in place for assessing assets and for re-assessing assets. The system includes an overarching asset management strategy for poles as submitted to the Australian Energy Regulator (AER) during a price determination which contains asset lifecycle management and analysis of unassisted pole failures. This analysis concludes that unassisted pole failures have been managed effectively with the rate of failure well below 0.01% of the pole population per annum.

The systems audit found no instances where a pole had been reclassified as serviceable after originally being classified as unserviceable, unless the pole was “staked”. The audit also found no recorded failures of poles that have been re-inspected and re-assessed.

The field audit found that AusNet Services is applying its asset maintenance criteria consistently and effectively in accordance with expected industry standards when assessing poles.

The auditor agreed with the previous maintenance and defect assessments of the AusNet Services Asset Inspector. There were no findings arising from the field audit.

AusNet Services’ Asset Management Strategies and Practices are consistent in approach with ESV expectations.

## 5 RECOMMENDATION

ESV recommends that AusNet Services address the **Opportunities for Improvement (OFIs)** which have been identified during this audit, as detailed in Appendix A.

## APPENDIX A: AUDIT FINDINGS - DETAILED

### Finding 1

**Opportunity for Improvement:** AusNet Services should more clearly articulate in its re-assessment process document BFM 21-90 that once a pole has been classified as unserviceable it cannot be re-classified as serviceable, unless there was an error in the original classification, or the pole is “staked”.

### Finding 2

**Opportunity for Improvement:** AusNet Services should more clearly articulate in its re-assessment process document BFM 21-90 the rationale behind the re-assessment process as conveyed during the audit. This rationale should include that re-assessment is:

- ▶ to facilitate the alignment of works scheduling to increase the integration of planned works
- ▶ to minimise the frequency of customer supply interruptions
- ▶ a preventative measure to ensure the pole is safe to remain on the network for 90 days
- ▶ to more clearly articulate that it complies with the VESI (SECV) standard assessment criteria.

**APPENDIX B: BENCHMARKING OF MEC ASSET INSPECTION PRACTICES**

Pole Inspection Practice	AusNet Services	CitiPower / Powercor	United Energy	Jemena
Engineering standard	Based on SECV engineering	Based on SECV engineering	Based on SECV engineering	Based on SECV engineering.
Documents and references	SECV manuals / standards / charts Sound Wood: VESI Manual drawing VX9/7020/177 B Pole Girths: VESI manual drawing VX9/7020/178	SECV manuals / standards / charts Sound Wood: VESI Manual drawing VX9/7020/177 B Pole Girths: VESI manual drawing VX9/7020/178	SECV manuals / standards / charts Sound Wood: VESI Manual drawing VX9/7020/177 B Pole Girths: VESI manual drawing VX9/7020/178	SECV manuals / standards / charts Sound Wood: VESI Manual drawing VX9/7020/177 B Pole Girths: VESI manual drawing VX9/7020/178
Assessment criteria	Company asset inspection manual provided, contains detailed assessment criteria.  Pole assessment principles are consistent with established SECV practice and all other businesses.	Company asset inspection manual provided, contains detailed assessment criteria.  Pole assessment principles are consistent with established SECV practice and all other businesses.	Company asset inspection manual provided, contains detailed assessment criteria.  Pole assessment principles are consistent with established SECV practice and all other businesses.	Company asset inspection manual provided, contains detailed assessment criteria.  Pole assessment principles are consistent with established SECV practice and all other businesses.
Assessment classification	Serviceable pole – as SECV definition  Limited life varies for different pole strength classes: between 40mm and 60mm.  Unserviceable 30mm.	Serviceable pole – as SECV definition  Limited life is determined by the pole strength calculator.  Unserviceable 30mm.	Serviceable pole – as SECV definition  Limited life 70mm.  Unserviceable 30mm.	Serviceable pole – as SECV definition  Limited life 85mm.  Unserviceable 30mm.
Re-assessment Criteria	Re-assessment occurs to original assessment criteria.  AusNet Services has a reassessment procedure BFM 21-90.	Re-assessment occurs to original assessment criteria.  Additionally, P2 <sup>8</sup> unserviceable poles are tested using Woodscan and may be returned to serviceable or limited life based	Re-assessment may occur to original assessment criteria, although it is very rare.  Maintenance target dates for priority maintenance items are unable to be adjusted.	Re-assessment of poles does not occur. Pole are staked or replaced by the target date. However this is not stated in a written policy.

<sup>8</sup> Priority 2: allocated to items assessed to be at risk of failure within 32 weeks to 3 years, and need to be actioned within 32 weeks.

Pole Inspection Practice	AusNet Services	CitiPower / Powercor	United Energy	Jemena
		on WoodScan inspection results.	United Energy does not have a documented procedure for reassessment.	
Re-assessment Classification	Classification cannot be better than previous classification, e.g. a pole classified as unserviceable cannot be reclassified as serviceable, unless the pole has been staked.	Classification cannot be better than previous classification, e.g. a pole classified as unserviceable cannot be reclassified as serviceable, unless the pole has been staked, or a WoodScan result via trial.	Classification cannot be changed.	Classification cannot be changed.
Re-assessment approval and controls	<p>Prior consultation and approval is required for the re-assessment to occur from the Programs Planning Manager.</p> <p>Asset inspection manual</p> <p>Statistical review by manager and Management Committee level oversight.</p> <p>All unassisted pole failures are investigated.</p>	<p>Prior consultation and approval is required for the re-assessment to occur from the Lines Maintenance Manager.</p> <p>Asset inspection manual</p> <p>Statistical review by manager and Management Committee level oversight.</p> <p>All unassisted pole failures are investigated.</p>	<p>Prior consultation and approval is required for the re-assessment to occur from the Maintenance Manager</p> <p>Asset inspection manual</p> <p>Statistical review by manager and Management Committee level oversight.</p> <p>All unassisted pole failures are investigated.</p>	<p>Maintenance items that go beyond target dates have to be approved by the Maintenance Manager.</p> <p>Asset inspection manual</p> <p>Statistical review by manager and Management Committee level oversight.</p> <p>All unassisted pole failures are investigated.</p>
Pole Staking	Yes, per industry standards.	Yes, per industry standards.	Yes, per industry standards.	Yes, per industry standards.
New technology pole testing, i.e. WoodScan	No, however may commence trial of Woodscan technology soon.	Trial of unserviceable priority 2 (P2) <sup>8</sup> poles only.	Trial of unserviceable priority 2 (P2) <sup>8</sup> and some Limited Life poles only.	No

<sup>8</sup> Priority 2: allocated to items assessed to be at risk of failure within 32 weeks to 3 years, and need to be actioned within 32 weeks.