Bushfire Mitigation Plan

UE-PL-0009

united energy

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1. Plan Introduction

1.1 Contacts

Table 1: Contacts

Responsibility	Title	Address	Contact Details
BMP Responsible Organisation	United Energy Distribution Pty Ltd ACN 70 064 651 029	40 Market Street Melbourne, 3000 Victoria	Phone: 13 20 99
BMP Preparation	Bushfire Mitigation Manager	40 Market Street Melbourne, 3000 Victoria	Phone: 13 20 99 United Energy | Home NetworkSafety@United Energy.com.au
BMP Carrying Out	General Manager Service Delivery (UE) and Vegetation Management	40 Market Street Melbourne, 3000 Victoria	Phone: 13 20 99 United Energy | Home NetworkSafety@United Energy.com.au
	General Manager Electricity Networks	40 Market Street Melbourne, 3000 Victoria	Phone: 13 20 99 United Energy | Home NetworkSafety@United Energy.com.au
BMP Emergency Contact			Phone: 13 20 99 (24 x 7 emergencies and faults contact number for members of the public)

1.2 Regulation Compliance Information

Table 2 provides a cross reference of the sections of the United Energy Bushfire Mitigation Plan (BMP), to the specific items required in Regulation 7 of the "*Electricity Safety (Bushfire Mitigation) Regulations 2023*".

Table 2: Regulation Compliance Information

Regulation	7 – Prescribed particulars for bushfire mitigation plans – major electricity companies.	United Energy Plan Reference
7(1)(a)	the name, address and telephone number of the major electricity company;	Section 1.1
7(1)(b)	the position, address, email address and telephone number of the person who was responsible for the preparation of the plan;	Section 1.1
7(1)(c)	the position, address, email address and telephone number of the persons who are responsible for carrying out the plan;	Section 1.1
7(1)(d)	the email address (if any) and telephone number of the major electricity company's control room so that persons in the room can be contacted in an emergency that requires action by the major electricity company to mitigate the danger of bushfire;	Section 1.1
7(1)(e)	the telephone number of the major electricity company that members of the public can call in an emergency that requires action by the major electricity company to mitigate the danger of bushfire;	Section 1.1
7(1)(f)	the bushfire mitigation policy of the major electricity company to minimise the risk of fire ignition from its supply network;	Section 3.1
7(1)(g)	the objectives of the plan to achieve the mitigation of fire danger arising from the major electricity company's supply network;	Section 3.2

Regulation	7 – Prescribed particulars for bushfire mitigation plans – major electricity companies.	United Energy Plan Reference
7(1)(h)	a description, map or plan of the land to which the bushfire mitigation plan applies;	Sections 2.2 & 4.2
7(1)(i)	the preventative strategies and programs to be adopted by the major electricity company to minimise the risk of the major electricity company's supply networks starting fires;	Section 6
7(1)(j)	details of the preventative strategies and programs referred to in paragraph (i) (including details in relation to timing and location) by which the major electricity company will ensure that, in its supply network, each polyphase electric line originating from every zone substation specified in Schedule 1 has the required capacity;	Not Applicable to UE
7(1)(k)	details of testing that will be undertaken before the specified bushfire risk period each year by which the major electricity company will ensure that its supply network can operate to meet the required capacity in relation to each polyphase electric line in accordance with paragraph (j);	Not Applicable to UE
7(1)(l)	details of the preventative strategies and programs referred to in paragraph (i) (including details in relation to timing and location) by which the major electricity company will ensure that, within an electric line construction area, each electric line with a nominal voltage of between 1 kV and 22 kV that is constructed, or is wholly or substantially replaced, in its supply network is a covered or underground electric line;	Not Applicable to UE
7(1)(m)	details of the preventative strategies and programs referred to in paragraph (i) by which the major electricity company will ensure that, in its supply network, each low voltage overhead electrical cable or wire that is constructed after the commencement of these Regulations in a hazardous bushfire risk area is insulated;	Not Applicable to UE
7(1)(n)	details of the processes and procedures by which the major electricity company will ensure that the major electricity company installs and maintains in operation an Automatic Circuit Recloser in relation to each SWER line in its supply network;	Section 6.6
7(1)(o)	a plan for inspection that ensures that: a) the parts of the major electricity company's supply network in hazardous bushfire risk areas are inspected at intervals not exceeding 37 months from the date of the previous inspection. b) the parts of the major electricity company's supply network in other areas are inspected at specified intervals not exceeding 61 months from the date of the previous inspection.	Section 6.1
7(1)(p)	details of the processes and procedures for ensuring that each person who is assigned to carry out inspections referred to in paragraph (o) and of private electric lines a) has satisfactorily completed a training course approved by Energy Safe Victoria; and b) is competent to carry out such inspections;	Section 6.14
7(1)(q)	details of the processes and procedures for ensuring that persons (other than persons referred to in paragraph (p)) who carry out or will carry out functions under the plan are competent to do so;	Section 6.14
7(1)(r)	the operation and maintenance plans for the major electricity company's supply network: a) in the event of a fire b) during a total fire ban day c) during a fire danger period	Section 6.15 To Section 6.19

Regulation	7 – Prescribed particulars for bushfire mitigation plans – major electricity companies.	United Energy Plan Reference
7(1)(s)	the investigations, analysis and methodology to be adopted by the major electricity company for the mitigation of the risk of fire ignition from its supply network;	Section 8 Section 9.1 Section 9.2
7(1)(t)	details of the processes and procedures by which the major electricity company will; a) monitor the implementation of the bushfire mitigation plan; and b) audit the implementation of the plan; and c) identify any deficiencies in the plan or the plan's implementation; and d) change the plan and the plan's implementation to rectify any deficiencies identified under subparagraph (iii) e) monitor the effectiveness of inspections carried out under the plan; and f) audit the effectiveness of inspections carried out under the plan; and g) before the specified bushfire risk period each year, report to Energy Safe Victoria the results of testing undertaken in that year in accordance with regulation (k);	Section 10.1 Section 10.2 Section 11 Section 11 Section 10.1 Section 10.2 Section 6.5
7(1)(u)	the policy of the major electricity company in relation to the assistance to be provided to fire control authorities in the investigation of fires near the major electricity company's supply network;	Section 6.15
7(1)(v)	details of processes and procedures for enhancing public awareness of; a) the responsibilities of the owners of private electric lines that are above the surface of the land in relation to maintenance and mitigation of bushfire danger; and b) the obligation of the major electricity company to inspect private electric lines that are above the surface of the land within its distribution area.	Section 6.16 Section 6.9
7(1)(w)	a description of the measures to be used to assess the performance of the major electricity company under the plan.	Section 11
7(2)	In sub regulation (1)(l), covered, in relation to an electric line, means that a system of insulation is installed on any bare open wire forming part of the electric line.	Not Applicable to UE
7(3)	In sub regulation (1)(m)— electrical cable or wire means the whole or any part of a cable, wire or similar thing used or to be used for the purpose of transmitting, distributing or supplying electricity, but does not include— (a) any thing enclosing or supporting the cable, wire or similar thing; or (b) a cable, wire or similar thing directly used in converting electrical energy into another form of energy. *Insulated*, in relation to an electrical cable or wire, means an electrical cable or wire that is separated from any adjoining conductive material by a permanently affixed protective layer of non-conductive material.	Not Applicable to UE
7(4)	In sub regulation (1)(o), supply network does not include a terminal station, a zone substation or any part of the major electricity company's underground supply network that is below the surface of the land.	Section 6.1.2

1.3 Referenced Documents

All referenced documents except those listed in Appendix D do not form part of this BMP.

1.4 BMP Approvals and Revisions

1.4.1 General

All proposed document approvals and revisions requiring ESV acceptance must be coordinated via the Network Risk and Assurance Manager.

1.4.2 Approvals

Five yearly reviews of the United Energy Bushfire Mitigation Plan (UE-PL-0009) must be reviewed and approved by the following authorised roles prior to being submitted to Energy Safe Victoria (ESV) for acceptance:

Reviews

- Bushfire Mitigation Manager – United Energy
- Network Risk and Assurance Manager
- Head of Network Risk and Performance

Approvals

- General Manager Electricity Networks

1.4.3 Revisions

1.4.3.1 United Energy Bushfire Mitigation Plan (UE-PL-0009)

Proposed changes to the United Energy Bushfire Mitigation Plan (UE-PL-0009) regardless of the materiality, must be discussed with ESV before being formally submitted for acceptance.

Major changes

Before submitting to ESV, all proposed major changes must be reviewed and approved by the roles listed in section 1.4.2.

A revision requested by ESV is to be treated as a major change.

No change can be operationalised until formal acceptance has been received from ESV.

Minor changes

Before submitting to ESV, all proposed minor changes must be reviewed by the Network Risk and Assurance Manager and approved by the Head of Network Risk and Performance.

No change can be operationalised until formal acceptance has been received from ESV, unless ESV advise otherwise.

1.4.3.2 Incorporated Documents

Proposed changes to the documents listed in Appendix D - Bushfire Mitigation Plan Documents, regardless of materiality, must be discussed with ESV before being formally submitted for acceptance.

Major changes

Before submitting to ESV, all proposed major changes must be reviewed and approved by the roles listed on the Documented Control page of the respective documents.

A revision requested by ESV is to be treated as a major revision.

No change can be operationalised until formal acceptance has been received from ESV

Minor changes

Before submitting to ESV, all proposed minor changes must be reviewed and approved by the roles listed on the Document Control page of the respective documents.

No change can be operationalised until formal acceptance has been received from ESV, unless ESV advise otherwise.

2. Introduction

2.1 Legislation

Section 113A (1) of the *Electricity Safety Act 1998* requires that a major electricity company must prepare and submit to Energy Safe Victoria (ESV) a plan every 5 years for the mitigation of bushfire in relation to the company's supply network.

In accordance with the *Electricity Safety (Bushfire Mitigation) Regulations 2023* this BMP provides the prescribed particulars as specified in Regulation 7.

A copy of the current accepted bushfire mitigation plan will be available for inspection:

a) on the company's intranet site
b) at the company's principal office in the State during ordinary business hours
c) on the company's website.

2.2 United Energy

The United Energy network supplies electricity to customers in Melbourne's southeast and the Mornington Peninsula. Statistics regarding the United Energy distribution network are shown in Table 3.

Table 3: United Energy Distribution Network Statistics

Attribute	Statistic
Network area	1,472 Km^2
Length of overhead lines	10,012km
Length of underground lines	3,483km
Number of poles (all poles)	202,601
Number of zone substation transformers	116
Number of distribution substation transformers	14,155
Total number of customers	715,652
Customer density	486 per Km^2
Network availability	99.994%

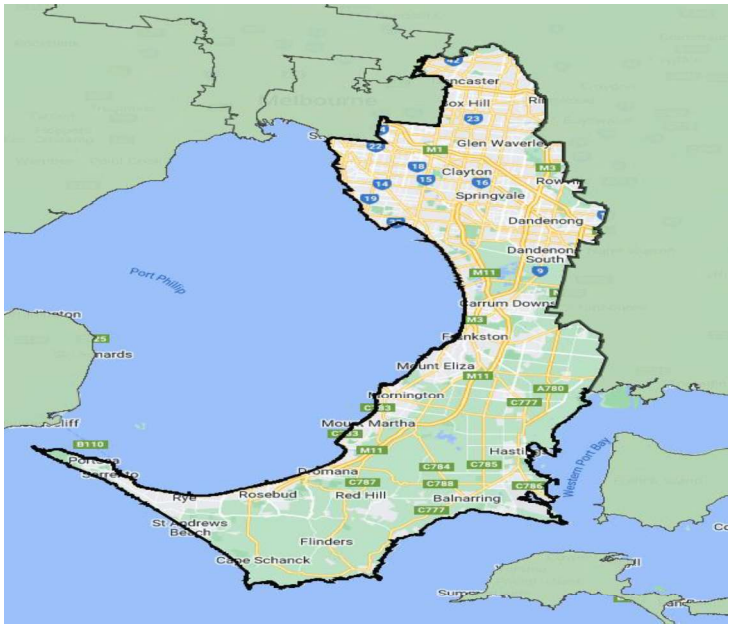

Figure 1: United Energy Distribution Area

3. Bushfire Mitigation Policy & Objectives

3.1 Bushfire Mitigation Policy

In accordance with the Bushfire Mitigation Policy (PO-0003) (refer Appendix C), United Energy is committed to providing our customers with safe, reliable, and affordable electricity network services through the application of an effective asset management framework. We are committed to bushfire mitigation activities and making our communities safer. Therefore, we plan, design, construct, operate, maintain, and decommission the network to minimise As Far As Practicable (AFAP) the bushfire danger arising from the electricity network.

3.2 Objectives

The objectives of this BMP are to:

- Minimise the risk of fire starts from electrical assets.
- Achieve compliance with the relevant legislative and regulatory requirements while providing flexibility within the business to encourage innovation, continuous improvement, and the effective use of resources.
- Define the companies approach to the management of the risk of bushfires caused by electricity assets.
- Reference the policies and procedures that explain how United Energy achieves the commitments in the BMP in a single document.
- Demonstrate a high level of commitment to meeting bushfire mitigation responsibilities.

4. Document Scope

4.1 Bushfire Mitigation Framework

United Energy's bushfire mitigation framework is shown in Figure 2 and demonstrates a comprehensive and whole of business approach to what is the biggest risk in the business. The proactive planning and scheduling of this program is based principally on a whole of asset life approach that includes design, construction, operation, maintenance and decommissioning. The annual governance systems of vegetation, asset inspection and maintenance activities are supported by a regime of reporting and auditing.

The continuous improvement elements encompass a large body of proactive capital works, trialling and adoption of new technologies, and our response to audit outcomes.

The response aspects of the plan include our operational processes to faults and Total Fire Ban (TFB) or Catastrophic days, asset failure investigations, and fire start reporting.

The framework also has a significant aspect of proactive stakeholder management, including overhead Private Electric Lines (PEL) owners, Councils (vegetation management), other agencies, specific community messaging and our ongoing interface with customers.

Figure 2: Bushfire Mitigation Framework

This BMP applies to assets that could cause fire ignition in all areas of United Energy's supply network. Electricity networks have been a source of fire ignition since their construction and consequently a considerable amount of investigation has been and continues to be undertaken into the causes to enable preventative actions to be taken.

This BMP forms part of the United Energy electricity safety management scheme pursuant to section 113D of the Electricity Safety Act.

4.2 Electrical Network Map

The United Energy HV overhead network is shown in Figure 3 and is colour coded as follows:

66kV Sub-transmission Lines
22kV 3 Phase and 1 Phase Lines
6.6 or 11kV 3 Phase Lines
12.7kV SWER Lines

To maintain clarity, the LV overhead network has not been shown. Full network details are available from United Energy's Geographical Information System (GIS).

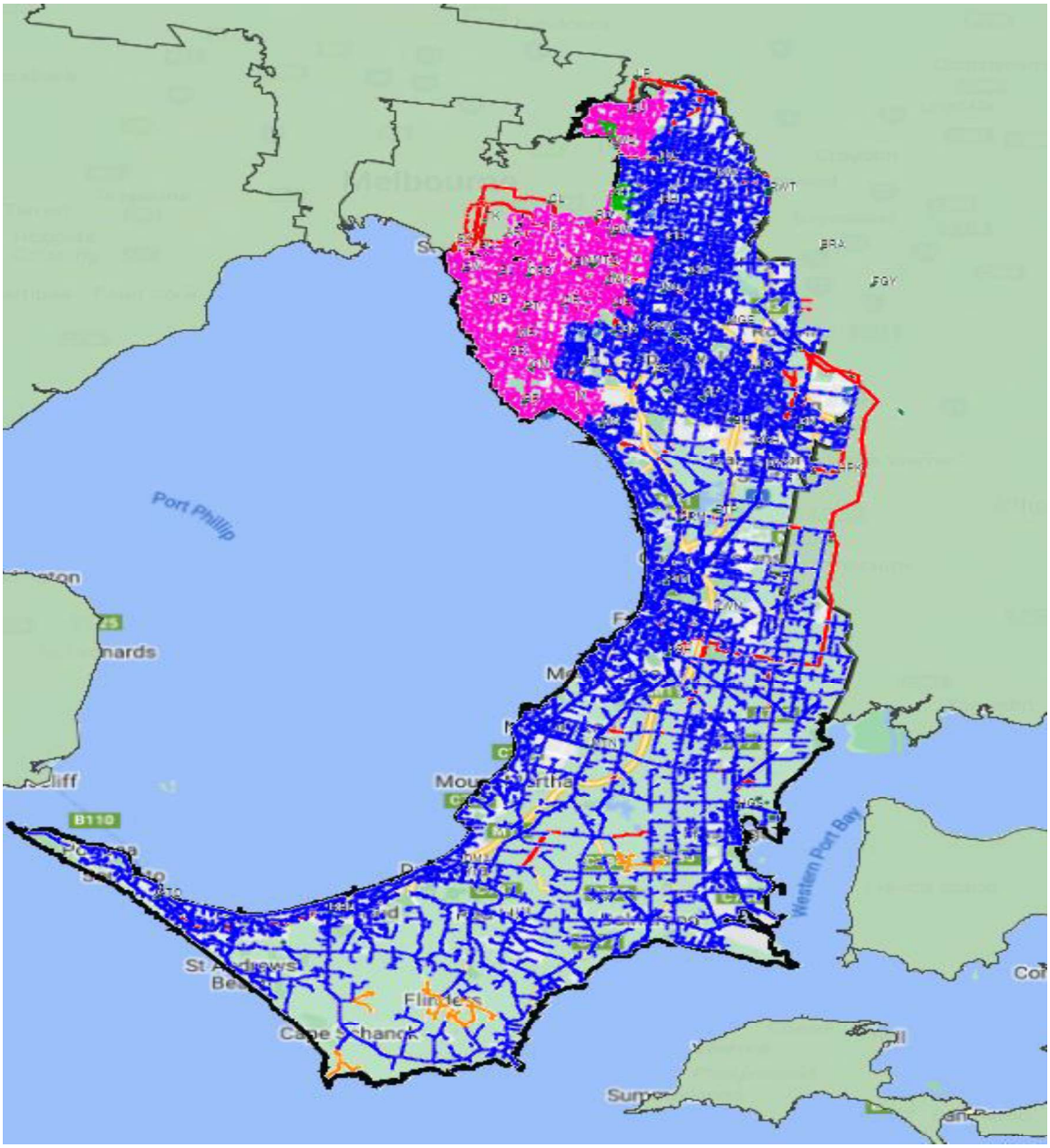

Figure 3: United Energy Overhead Network

4.3 Bushfire Risk Areas

The bushfire risk areas in United Energy's operating region are shown in Figure 4. These areas are updated as part of the Country Fire Authority (CFA) Fire Hazard Mapping Project and may change as areas are reviewed across the state.

Approximately 9% of United Energy assets are located in Hazardous Bushfire Risk Areas (HBRA) based on pole population.

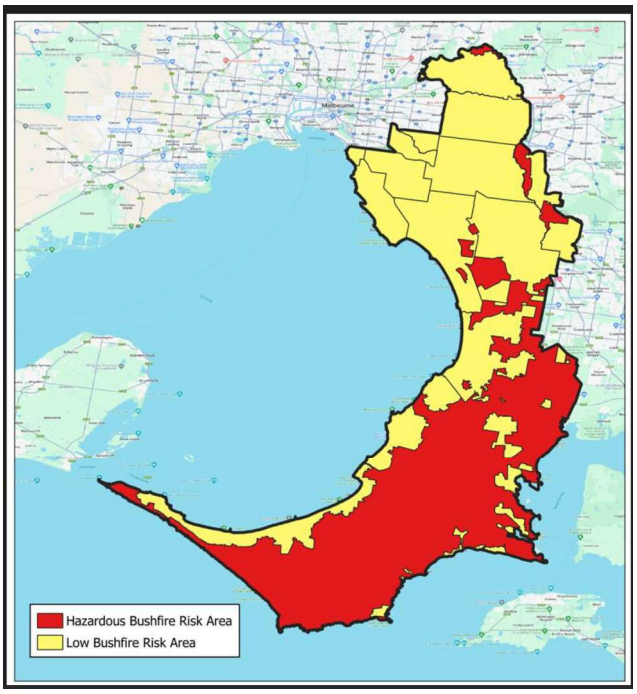

Figure 4: Bushfire Risk Areas

5. Management Structure

The implementation and control of Bushfire Mitigation (BFM) related activities are discharged via many roles throughout United Energy. Each role has a position description which lists the key activities. The carrying out of bushfire related activities contained within this plan is overseen by the United Energy Service Delivery and Vegetation Management team and the Network Risk and Assurance Manager.

6. Bushfire Mitigation Strategies and Programs

United Energy has developed policies, strategies, frameworks, plans, procedures, and work instructions to support its bushfire mitigation activities. These are described in the following sections.

6.1 Monitoring Asset Condition

Preventative maintenance strategies have been created for all of United Energy's assets. These strategies were developed from Reliability Centred Maintenance (RCM) methodologies and involve undertaking on-condition tasks based on a program of condition monitoring of the electrical network assets. The RCM rules are configured in United Energy's Asset Management System, SAP, which automatically generates time-based work orders for inspection and maintenance planning.

United Energy procedures outline the review timeframes within and identify any changes that have been adopted.

The United Energy electricity safety management scheme outlines how United Energy identifies needs, develops and manages policies and provides a systematic process through the identification of strategic, operational and program/project level risks to:

- Determine accountability for risks.
- Provide an assessment of controls and the control environment.
- Analyse and evaluate risks.
- Manage the risks to AFAP levels.

6.1.1 Pole Inspection

Pole inspection is carried out in a dedicated program conducted over the cycles (referred to as cyclic inspections) summarised in Table 4.

Table 4: Asset Inspection Cycle

Included poles	Type of inspection	Cycle
Serviceable pole in HBRA including overhead PEL	Full inspection	37 months
Serviceable pole in LBRA including overhead PEL	Full inspection	61 months
Limited Life serviceable poles	Above ground inspection	13 months

The types of inspection are defined as follows:

- Full inspection includes:
  - Assessment of pole condition from ground level to two metres above
  - Visual assessment of pole condition from two metres above ground level to the top of the pole using binoculars
  - Assessment of pole condition below ground level
  - Identifying wood destroying insects
  - Undertaking of preservative treatment of hardwood poles
  - Assessment of the surrounding area for safety issues.

Further information relating to the full inspection of poles is defined within the Asset Management Plan-Poles (UE-PL-5062).

- Above ground inspection includes:
  - Sound test and visual assessment of pole condition from ground level to two metres above. Where an area of concern is identified, a full inspection of the pole is undertaken.
  - Visual assessment of pole condition from two metres above ground level to the top of the pole using binoculars
  - Assessment of the surrounding area for safety issues.

Further information relating to the visual inspection of poles is defined within the Asset Management Plan-Poles (UE-PL-5062).

Both inspection types include the inspection of electrical assets between poles and/or other structures.

Operational instructions for the inspection, testing and assessment of assets are contained in the Asset Inspection Manual (UE-MA-2003).

Operational instructions for the inspection of poles located in inaccessible locations are contained within the Management of Notifications & Asset Risk (UE-PR-0266) which allows for a risk assessment to be undertaken if the asset is not accessible. The risk assessment considers when access is expected to become available for the inspection and a workflow for the inspection to be completed.
This manual describes the various types of electrical assets and the observations or tests necessary to identify and assess their condition. It also gives a detailed description of items that need to be identified for replacement or repair. The manual sets out criteria for categorising the priority for remedial maintenance actions, and the reporting and information recording requirements.

The Asset Inspection Officer is responsible for preparation of the asset inspection program using maintenance plans established within SAP and monitoring of the performance of the contractor in adhering to the program. Each maintenance plan covers all the poles within a specific electrically isolatable section of the network. The management of maintenance plans are contained within the Inspection & Maintenance Plan (UE-PL-5001).

6.1.2 Other Above Ground Asset Inspection

In addition to the inspection of poles, other above ground assets are also inspected as summarised in Table 5. The Asset Inspection Manual (UE-MA-2003) details all relevant work instructions except for indoor substations which is detailed in the Indoor Maintenance Manual Non-Pole Distribution Substation (UE-MA-2615).

Table 5: Other Above Ground Asset Inspection Cycles

Asset Type	HBRA – Inspection Timeframes	LBRA - Inspection Timeframes
Pole type substations and switchgear Pole type substations are visually inspected for condition and ground clearances. Pole mounted switchgear are visually inspected.	37 months	61 months
LV services LV services are visually inspected for condition using stabilised binoculars. Clearances are visually assessed and measured where required with an approved device.	37 months	61 months
Conductors Conductors and associated hardware (such as spreaders and spacers) are visually inspected for condition using stabilised binoculars.	37 months	61 months
Pillar cabinet asset inspection In this inspection LV pillars & LV cabinets are visually inspected for condition, safety and security	37 months	61 months
Substation and Switch station - Property maintenance inspection In this inspection Ground Type, Indoor, and Kiosk substations and HV switching stations are visually inspected for condition. including hot spot, oil and gas level checks	6 months	6 months
Substation and Switch station - Electrical inspection In this inspection Ground Type, Indoor, and Kiosk substations and HV switching stations are visually inspected by the completion of inspection tasks to identify defects of all electrical assets by a competent authorised electrically trained person.	37 months	61 months
Pole top assemblies Pole top assemblies are inspected for condition from the ground using stabilised binoculars as well as an elevated camera where required. The inspection generally extends from two metres above ground to the pole top and includes assessment of all pole top assets including conductors, insulators, cross-arms, attachments, pole mounted plant and equipment etc.	37 months	61 months

6.1.3 SWER Earth Testing

The frequency of the testing of Single Wire Earth Return (SWER) earths is detailed in Earthing Systems Life Cycle Strategy (UE-PL-2016). This testing regime is in addition to the normal cyclic inspection program as detailed above.

Table 6: SWER Earth Testing Cycles

Asset Type	HBRA–Testing Timeframes	LBRA – Testing Timeframes
Isolating Substations SWER Earths Testing Earthing systems associated with isolating substations are subject to routine testing to assess earthing integrity.	2 years	N/A
Distribution substations SWER Earths Testing Earthing systems associated with distribution substations are subject to routine testing to assess earthing integrity.	6 years	N/A

6.1.4 Thermal Imaging

Thermal surveys are used in conjunction with the asset inspection program to determine the condition of overhead assets and identify potential points of failure before this occurs. The frequency of surveys is based on the risk of occurrences and the consequences of failure.

Operational procedures for prioritising defects identified through thermal and/or corona imaging are contained within the Asset Management Plan-Overhead Conductors (UE-PL-5064).

6.1.5 Line Condition Observation Program

To observe compliance with the policies outlined in this plan and to help maintain employee awareness, line condition observations are conducted in HBRA across the business leading up and into the declared fire danger period.

Line condition observations are undertaken in addition to the cyclic asset inspection program focusing on targeted sample areas each year, carried out in the lead up to the fire season. Line condition observations utilise the use of drones to capture pole top asset images which are then assessed by desktop assessment. Operational procedures are contained within the Line Condition Observation Program Procedure (PR-0025).

6.2 Priority Classifications

The defect priority classification applies to all defects found on above ground assets. Asset defects identified by the inspection program or reported from internal or external sources are either:

- Rectified as soon as practicable as a fault, or
- assessed for their associated risk and prioritised for remedial action

Procedures for reporting of a network defect are contained within the Asset Inspection Manual (UE-MA-2003).

This manual sets out the criteria for classification of defects as shown in Table 7.

Table 7: Defect Classification

Defect Priority	Required Rectification Timeframe
P1	24 hours
P42	42 days
P2	32 weeks
P3	3 years/re-inspection
POPP	Opportunistic or reassessment
PN	Information only

6.3 Remedial Maintenance

United Energy's maintenance programs are generated from several different sources, the main one being the asset inspection program (refer Section 6.1).

Maintenance defects can also be raised via:

- Employees or contractors
- Customer calls
- Line condition observations
- BFM vegetation inspections/audits.

Refer Section 10.2 for more information on audits.

6.3.1 Defect Management

Maintenance works identified through the inspection program, audits, observations or raised by customers are issued for remediation. Resources are scheduled to match the needs of the issued projects to achieve the required response times. The defect priority and rectification timeframes are detailed in Section 6.2.

6.3.2 Faults/Fault Follow-up

Customer fault calls are received by the United Energy Customer Contact Centre 24 hours a day, 7 days a week. Likewise, fault calls may also be received by United Energy's Network Control Centre directly from asset inspectors, operators, and emergency services. The Dispatch Group has responsibility for prioritising trouble orders and assigning to field crews.

Trouble orders are prioritised as P1 to P8 using the following principles:

- Safety of the public and our workforce
- Customer satisfaction
- Supply reliability and quality
- Field crew workload management – including stand-down impacts.

There are two trouble order classifications:

- Supply faults which relate directly to supply issues including all supply fail, part supply fail, dim lights, and intermittent supply.
- Non-Supply faults which include faults which may or may not have supply impacts such as wires down, car hit pole, wire low, animal on asset etc.

Priorities assigned to trouble orders are detailed in Electricity Call Out Guidelines Procedure (UE-PR-9352).

Where the fault crew have undertaken partial or temporary repairs, a Priority 42 SAP Notification is created stating the timeline that the repairs are required to be completed. An email FaultFollowup@ue.com.au of the requirement is also sent. In circumstances where the technical review of a follow-up item deems there is the potential for a fire start and the item is in a HBRA, a risk assessment is undertaken to determine if any actions are required for a TFB/Catastrophic day.

6.3.3 Audits/Observations

Asset defects identified during audits/observations are communicated in accordance with the particular audit process.

6.3.4 Non-Cyclic Maintenance

Maintenance items found out of cycle are reported direct to the Network Control Centre (NCC) or maintenance group where defects are prioritised and attended to within the timeframes specified in Section 6.2.

6.4 Asset Replacement/Modification for Specific Assets

United Energy has several specific BFM related life cycle plans that deal with the replacement and modification of United Energy assets. These include:

- HV Outdoor Fuses Life Cycle Strategy (UE-PL-2012): High voltage fuse failures can result in fire starts. HV fuses are inspected as part of the cyclic asset inspection program.
- Surge Arresters Life Cycle Plan (UE-PL-2013): Surge arresters protect electrical assets from damage which may otherwise result in a fire start. Surge arrestors are inspected as part of the cyclic asset inspection program.
- Pole Top Structures Lifecycle Plan (UE-PL-2006): The failure of crossarms and securing hardware, which include crossarm braces, kingbolts and anti-split bolts which may result in a fire start are inspected as part of the cyclic asset inspection program.
- HV Conductor Clashing Prevention Strategy (UE-PL-2306): Spreaders and spacers prevent conductor clashing and hence potential fire starts. These assets are inspected as part of the cyclic asset inspection program.
- Asset Management Plan Poles (UE-PL-5062): Poles are essential in maintaining safe clearances between overhead electricity network assets and the ground, other structures and vegetation and are inspected as part of the cyclic asset inspection program. Any failures may result in a fire start.
- Asset Management Plan-Overhead Conductors (UE-PL-5064): Connector and conductor failures may result in fire starts. Overhead conductors are inspected as part of the cyclic asset inspection program.

6.5 Rapid Earth Fault Current Limiters

6.5.1 Rapid Earth Fault Current Limiter (REFCL) Installation

United Energy has installed REFCLs at Mornington (MTN) and Dromana (DMA) zone substations to reduce the bushfire risk in the areas supplied by these stations. These REFCLs are not mandated as per the requirements of the *Electricity Safety (Bushfire Mitigation) Regulations 2023* but were justified on the principles of AFAP noting that MTN and DMA combined represent over 55% of UE's total network bushfire risk. United Energy also has a REFCL installed at

Frankston South (FSH) zone substation however the primary driver for this installation was supply reliability with FSH representing less than 1% of the total network bushfire risk.

6.5.2 Rapid Earth Fault Current - Operating Modes

6.5.2.1 Earth Fault Discrimination Disabled

This operating mode is enabled on TFB/Catastrophic fire risk days. In this mode the REFCL will automatically trip the feeder circuit breaker if the earth fault is sustained. If the REFCL is unable to determine which feeder has the fault, it will close the Neutral Earth Resistor (NER) circuit breaker allowing earth fault protection to clear the fault (if it can detect it).

Earth Fault Discrimination Enabled

This operating mode is enabled at all other times. In this mode, in the event of a sustained earth fault, the REFCL will close the NER circuit breaker allowing earth fault protection to clear the fault whilst maintaining protection discrimination.

6.5.3 REFCL Availability Restrictions

The REFCL will be temporarily switched out of service and the station returned to NER earthing when:

- network switching requires parallels with other feeders
- load transfers, that result in network capacitance, exceed the rating of the arc suppression coil
- there is the presence of a repeating or restriking fault that the REFCL is unable to clear
- a system or component failure requires the REFCL to be taken out of service
- operation of the REFCL is likely to significantly impact supply reliability e.g. unexpected loss of network hardening.

United Energy has deployed REFCLs with the intention of targeting the maximum level of bushfire safety performance whilst maintaining operational capability of the network where possible, having regard to the safety and other benefits of customers not losing electricity supply. The choice of operating mode is determined by the relative fire risk and the condition of the network.

Instructions for the restoration of supply is contained within the Total Fire Ban Day Action Plan (UE-PL-0009.1).

On declared TFB or Catastrophic days, United Energy's REFCLs will be operated at higher levels of sensitivity when network conditions allow i.e. abnormal network switching, capacitive imbalance, health of network elements etc. **Error! Reference source not found.** Table 8 lists the REFCL settings that United Energy will use in different conditions subject to various exceptions.

Table 8: REFCL Application on United Energy 22kV Polyphase Networks

Condition	Operating Mode	Setting Group	Explanation
TFB Days, including when fire danger rating is "Catastrophic" when FDI is 30 or greater	EF Discrimination Disabled	High sensitivity	Available at MTN and DMA only. Configured to provide the optimal settings for bushfire safety.
TFB Days, including when fire danger rating is "Catastrophic" when FDI is 30 or greater	EF Discrimination Disabled	Normal sensitivity	MTN and DMA when network conditions do not allow for high sensitivity mode. FSH at all times.
All other times i.e. no TFB or Catastrophic declaration	EF Discrimination Enabled	Normal sensitivity	
Operational switching, including for fault finding	All	Normal sensitivity	REFCL may be taken out of service or moved to EF Discrimination Enabled mode to facilitate fault finding in accordance with Total Fire Ban Day Action Plan (UE-PL-0009.1).

6.5.4 Performance Caveats

There are instances (including TFB and Catastrophic days) where the expected performance cannot be guaranteed and/or achieved due to one or more unexpected constraints. Such instances are:

- Network configuration outside of system normal parameters.

- Any single phase switching of the following distribution assets will require the NER circuit breaker to be closed (bypassing REFCL operation):
  - Greater than five kilometres of overhead line
  - Any length of underground cable
  - Any section containing a capacitive balancing system.
- Normal Sensitivity setting group may be used should network conditions constrain the application of High Sensitivity. Examples of such constraints include (but not limited to) the following:
  - Network configuration abnormal due to contingencies
  - Unacceptable of loss of capacitive balance.
- Performance at the selected sensitivity will not be available should any of the REFCL backup protection systems be required to activate due to an unforeseen contingent event.
- The REFCL will be taken out of service if the REFCL is faulty and/or its performance becomes unpredictable and/or impact the performance, reliability, or safety of the network.

6.6 SWER ACRs

All of United Energy's SWER systems are protected by a SWER ACR which has programable and remote reclose settings and commit to ensuring this functionality is maintained on any new or augmented (split) overhead SWER systems.

6.7 Low Voltage Overhead Electrical Cable/wire

United Energy constructs or replaces overhead low voltage lines with insulated electrical cable or wire in HBRA as detailed in the Asset Management Plan – Overhead Conductors (UE-PL-5064) and the Electricity Safety (Bushfire Mitigation) Regulations 2023.

6.8 Vegetation Management

United Energy is responsible for the management of vegetation around power lines and other electricity assets in both the rural and urban areas of the network. In some urban locations there are "Declared Areas", where the Councils are managers of public land and are responsible for keeping trees clear of electric lines.

United Energy's vegetation activities are managed in accordance with the Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3).

United Energy's Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3) was submitted to ESV for endorsement as prescribed by the *Electricity Safety (Electric Line Clearance) Regulations 2020.* The plan outlines management processes, programs and cycles for maintaining clearances between vegetation and network assets.

6.9 Private Electric Lines

Inspections

United Energy has obligations under the *Electricity Safety Act 1998* to inspect PELs that are above the surface of land within its distribution area, other than any prescribed parts of these lines as defined in Regulation 9 of the *Electricity Safety (Bushfire Mitigation) Regulations 2023.* Points of Supply definitions are determined as per the *Electricity Safety Act 1998.* Overhead PELs are inspected to identify any defects, or infringing vegetation, which may affect the fire and/or electricity safety of the line.

6.9.1 Electricity Safety (Bushfire Mitigation) Regulations 2023

The *Electricity Safety (Bushfire Mitigation) Regulations* were amended in 2023, which included additional requirements associated with overhead PELs:

- inspection of clearances
- hazard tree inspection by qualified arborists.

Inspections are undertaken to include the prescribed standards of inspection contained in section 10 of the *Electricity Safety (Bushfire Mitigation) Regulations 2023*. There are three variations to these prescribed standards of inspection being applied by United Energy.

United Energy meets the required outcomes of regulation 11(1)(j), 11(1)(k) and 11(1)(l) by the inspection techniques summarised below.

1. The condition of hardwood overhead PEL poles located in concrete is determined by drilling down at an angle to inspect the condition of the pole below concrete level to determine the millimetres of wood free of decay and the presence of termites.
2. The condition of treated pine overhead PEL poles is determined by assessing the degree of external rot by removing surface decay and also measurement of the pole girth (450mm minimum and working strength of 2kN). United Energy meets the required outcomes of regulation 11(1)(l) by the inspection technique shown in (3) below.
3. The condition of steel overhead PEL poles located in concrete is determined by a visual inspection down to the point where the pole enters into the concrete to ensure that the pole retains 75% of steel thickness in the corroded area when compared against a non-corroded area on the pole.

Operational procedures for United Energy's overhead PEL inspection program are contained within the following documents:

- Maintenance Manual LV Private Overhead Electric Lines (UE MA 2620)
- Section 9 of the Asset Inspection Manual (UE-MA-2003).

United Energy inspect overhead PELs on a cycle not exceeding 37 months in HBRA, and 61 months in LBRA in accordance with Asset Inspection Manual (UE-MA-2003) and the *Electricity Safety (Bushfire Mitigation) Regulations 2023*. The inspection is carried out from the point of supply to the point at which the line is connected to a building or other structure on the private property. This includes all private poles and supporting structures and fittings supporting the line.

The inspection of overhead PELs is to ensure that customers are compliant with their fire and electrical safety responsibilities and obligations and to provide a basis for United Energy to meet both its regulatory and public safety obligations. The intended outcome is to ensure that overhead PELs are inspected in accordance with the *Electricity Safety (Bushfire Mitigation) Regulations 2023* and any defects are rectified by the owner as required by the same regulations. The inspection is not an audit of compliance with Wiring Rules AS/NZS 3000, as this is normally the responsibility of a certified Licensed Electrical Mechanic.

6.9.2 Overhead PEL Vegetation Inspection

PEL's are inspected in accordance with the Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3). In accordance with the requirements within the *Electricity Safety (Bushfire Mitigation) Regulations 2023,* if a potential hazard tree is identified during any inspection of a PEL it is referred to the Vegetation Management group to allow for an assessment by a suitably qualified arborist to determine if the tree is to be classified as a hazard tree. PEL owners will be notified of any non-compliant or hazardous vegetation identified.

6.9.3 Customer Consultation

In accordance with the *Electricity Safety (Bushfire Mitigation) Regulations 2023,* a notification of intention to inspect the overhead PEL (see Appendix B) from the Point of Supply to the Point of Attachment is issued. A notice is delivered to the property owner, occupier, customer and or available property representative not less than 21 days and not more than 45 days before entering property to inspect the line. Evidence of an issued & dated copy of the intention to inspect notice will be saved as an attachment to the Function Location in SAP within two days of creation. This will be delivered by regular post.

Overhead PEL owners will be notified of any defects found, and United Energy will monitor the defect rectification process through to completion. The inspection is carried out from the point of supply to the point at which the line is connected to a building or other structure (not including a pole) on the private property. This includes all private poles and supporting structures (not a building) and fittings supporting the line including in situations where sections of the overhead PEL are connected by underground cables before the private line reaches a building. Where a private pole has been incorporated into the construction of a building – this is particularly common with water pump sheds – it is impossible to perform the boring test. In these cases, the inspector should assess the serviceability of the structure, or the inspection should be referred to the supervisor for guidance.

For any identified defect/s, a Notification will be raised with the appropriate damage code. The Asset Inspector then completes the Private Line Inspection Report (PLIR) process. Asset inspectors will issue a PLIR to the landowner/occupier/tenant or managing agent at the time of inspection. A photo of the PLIR is captured and submitted with the notification data to be recorded in the United Energy SAP system.

For defects that are hazardous or requiring urgent attention (likely to fail within one week), the maintenance planner and/or United Energy Dispatch team will be contacted immediately for action which may include disconnection of the overhead PEL.

Overhead PEL inspection data details are recorded in the United Energy GIS/SAP database including follow-up actions.

In situations where the property owner fails or otherwise declines to comply with United Energy's or its appointed Service Provider's requests to remedy overhead PEL defects, relevant details will be forwarded to ESV for assistance for processing, management and advice.

Subsequent to a referral of an overdue overhead PEL defect to ESV, United Energy will continue to liaise with the customer to seek to remediate the defect(s) in question. This ongoing contact assistance is totally reliant on the customer's acceptance of any United Energy communication attempts. Where overdue defect(s) have not been remediated and in United Energy's opinion presents a fire or safety risk, United Energy may:

- disconnect supply to the customer; or
- in the case of vegetation clearing being required, enter the property and complete the work at the customer's expense.

6.9.4 Disconnection

Overhead PELs in HBRAs will be made safe before the fire season. Overhead PELs that are identified as having a fire risk defect as per United Energy's Maintenance Manual LV Private Overhead Electric Lines (UE-MA-2620) are disconnected on TFB/Catastrophic days.

Where the overhead PEL defect in a HBRA cannot be made fire safe or has exceeded the priority timeframe the overhead PEL shall be allocated to the defect work crew with instructions to disconnect and reconnect supply on TFB days.

The list of potential disconnections will be made available to the NCC via a disconnection spreadsheet and maintained from 1 October until the end of the fire season by the Maintenance and Asset Inspection group.

The specific actions for the management of overhead PELs with outstanding urgent fire defects, on days of TFB/Catastrophic, are contained in United Energy's Total Fire Ban Day Action Plan (UE-PL-0009.1).

6.10 New Technologies

United Energy is committed to continuous improvement. This often involves trialling or developing new technologies, which if successful and meets AFAP requirements will be adopted as normal business practice. United Energy will keep ESV informed of inflight initiatives (listed below) and new initiatives on a quarterly basis.

6.10.1 Early Fault Detection

United Energy continues to evaluate the in-service performance of Early Fault Detection technology for application on HV lines in HBRAs.

6.10.2 Non-destructive testing

United Energy continues to evaluate non-destructive technologies for wood pole condition assessment. United Energy has recently evaluated and trialled a resistograph type technology and will implement this technology in H2 2024 to replace the 13mm auger bit.

6.10.3 Smart meter detection algorithms

United Energy continues to leverage AMI smart meter data to develop algorithms to reduce network safety risk. The performance of all algorithms are constantly being monitored and adjusted to achieve optimum safety outcomes.

United Energy is currently developing and trialling algorithms to identify potential HV fuse candling and overloaded distribution transformers.

6.10.4 SWER broken conductor detection

United Energy is continuing to work with industry partners to develop technology to detect and isolate SWER broken conductors.

6.10.5 LiDAR clearance detection

Light Detection and Ranging (LIDAR) technology combines the use of remote sensing and software tools to generate a 3D digital model of assets and the surrounding environment. Engineering analysis of this model allows the assessment of distances between conductors and surroundings.

United Energy use the application of LiDAR technology for conductor clearance measurement by developing algorithms to identify clearance issues in relation to the following to complement the cyclic asset inspection program:

- **Conductor to ground clearances**: The intent of this use case is to determine the vertical clearance between the lowest point of a catenary for each circuit (Sub-transmission / HV / LV) and verify compliance.
- **Pole top structure clearances:** The intent of this use case is to determine the spacing of conductors at the supporting pole and verify compliance.

- **Phase to phase (mid span) clearances:** The intent of this use case is to determine the displacement between conductors at mid span and verify compliance.

6.11 Asset Replacement Programs

United Energy has identified proactive asset replacement programs to improve risk reduction in the highest fire risk areas of the network.

6.11.1 Replacement of EDO Fuses

EDO fuse failures have been identified as a contributor to fire starts within the United Energy network. To mitigate fires caused by EDO fuse failures, United Energy is proactively replacing all EDO fuses in HBRA with Boric Acid fuses.

This replacement program commenced in 2019 and will be completed before the end of 2024.

6.12 Resourcing

United Energy ensures appropriate resources are available to carry out the activities outlined in this plan.

A detailed asset inspection program, of the following years work, is developed and provided to our asset inspection service provider to enable them to plan their resource requirements to meet the program's needs.

United Energy is responsible for the overall vegetation program management with sub-contractor/s engaged to complete inspection and cutting tasks.

6.13 Training

United Energy has an established and documented system to ensure that employees and contractors who are working on or near the electricity network are suitably competent and adequately trained to carry out their duties.

The key steps that United Energy has in place to manage competency and training requirements are illustrated in Figure 5.

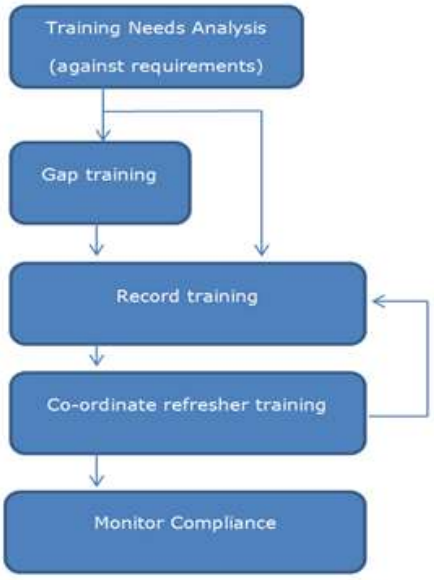

Figure 5: Competency and Training Process

In United Energy, the Electricity Networks business unit sets the training standard for workers who are working on or near the electricity network. The training standards are established through the industry committee Victorian Electricity Supply Industry (VESI) Skills and Training Reference Committee for consistency within the State and nationally through Industry Reference Committees.

If training is required specifically for United Energy this is co-ordinated as enterprise training for employees. For contractors, requirements for additional training would be included in a contract agreement.

Further detail can be found in the Qualification and Training Requirements for Network Access (UE-PR-310.00).

All Asset Inspectors are required to meet the training requirements as specified in the *VESI Skills and Training Matrix.* These training requirements are confirmed by United Energy when an application request is made for an Asset Inspector to work on the network.

Where the qualification (being Cert II in ESI Asset Inspection UET20612 or subsequent version) has been attained in a State or Territory of Australia other than Victoria, induction to United Energy requirements (including our procedures) is conducted by a person holding a Certificate IV in Training and Assessment.

United Energy has developed enterprise specific competency standards for the activity of asset inspection. These standards provide contractors and training providers with the information necessary to develop appropriate training courses that will enable individuals to become approved to inspect United Energy assets.

6.13.1 Ongoing competency

Audit processes are in place to ensure that there is consistent application of knowledge and skill to the standard of performance required for asset inspectors.

Asset Inspector audit findings are rated and the cause of the finding identified. This may result in the need for refresher training or mentoring of the Asset Inspector to ensure the required competency is achieved.

Overall performance of the asset inspector is monitored whereby frequency rates of audits are determined based on their performance.

United Energy has implemented the ESI worker system which has enhanced the portability of the ESI workforce by mutual recognition of agreed training standards. Training is recorded in the ESI worker system and can be viewed to confirm currency of training for the task being undertaken. Further information can be located at *VESI.com.au – ESI Worker*.

The training programs for specific job roles in bushfire mitigation activities are described below.

6.13.2 Asset Inspection

As per ESV's *Training Approval Statement, Asset Inspectors* working on the United Energy network are required to hold a Certificate II in Asset Inspection (Course Code: UET20612 or subsequent version).

The *VESI Skills and Training Matrix* stipulates the requirements and frequency of refresher training for Asset Inspectors. The matrix is available at *www.vesi.com.au. – Training Matrix and Guidelines.*

6.13.3 Vegetation Management

All training requirements for vegetation management are covered in the Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3).

6.13.4 Line Work

The *VESI Skills and Training Matrix* stipulates the qualifications and refresher training for a line worker. The employing company is required to organise training to the standards referred to in the matrix. The employing company will keep records of all training undertaken.

Line worker apprentices are engaged in bushfire mitigation activities from time to time. This provides experience in a broad range of tasks. When companies engage apprentices, they work under the *VESI Apprentice Supervision Guidelines* as published on the VESI website *www.vesi.com.au.*

Formal training of apprentices, in line work, is conducted by a Registered Training Organisation (RTO) and this training is supported "on the job" by designated mentors and tradespersons.

6.13.5 Technical Standards

United Energy's Technical Standards group provide information to United Energy employees and contractors with regard to new initiatives in the design and construction of network assets. If a significant new item of equipment or a significant new technical standard is being introduced, then specially convened information sessions may be conducted.

All contractors or other external persons associated with works on United Energy assets can register with United Energy to gain "read only" access to United Energy's technical standards.

6.14 Liaison with Other Organisations

United Energy has a procedure for coordinating BFM activities and emergency procedures with relevant organisations which may include any of the following:

- ESV
- CFA

- Fire Rescue Victoria (FRV)
- State Emergency Service (SES)
- Department of Energy, Environment and Climate Action (DEECA)
- Department of State Development, Business & Innovation (DSDBI)
- Municipalities
- Mutual Aid Plan Planning Committee (MAPPC)
- Bureau of Meteorology (BOM)
- Other Distribution/Transmission Network Operators.

Actions to be undertaken in the event of a major event or emergency are contained in the Incident Management Procedure (UE-PR-0251) and Crisis Management Plan (JEQA4UJ443MT-154-386).

These documents include the responsibilities for communications with emergency services and other relevant organisations during events such as:

- Loss of the Operations Control Centre
- Major supply outages
- Major plant faults
- Lack of supply capacity (load shedding)
- Fires and incidents.

6.15 Public Awareness

To maintain community awareness of bushfire hazards, United Energy provides information to the public concerning various BFM activities. United Energy is committed to enhancing public awareness of:

- the potential risks associated with overhead PELs
- the risks of planting inappropriate vegetation near electrical lines
- vegetation species suitable for planting near powerlines
- inspection timeframes
- other fire related matters.

As part of its Vegetation Management and overhead PEL inspection programs, United Energy makes the following information available to its customers, via the United Energy website:

- **Trees, powerlines and your property**
- **Your private overhead electric lines**.

United Energy prepares an annual BFM communications plan with a high-level objective of being recognised as an organisation which values genuine engagement with its key stakeholders and local communities.

The communications plan may be outworked using various forms and channels including social media posts, traditional media releases, newspaper articles & advertisements, radio advertisements & interviews, TV interviews and face to face meetings with various stakeholders.

United Energy releases an annual communication to Registered Electrical Contractors (RECs) within our service territory, in an effort to raise awareness and appreciation of the importance of overhead PEL maintenance works and complying with the regulations and United Energy's processes.

For details of communication with overhead PEL owners refer to Section 6.9.

6.16 Assistance Provided to Fire Agencies

There are two rural fire fighting services, operating within United Energy's service area:

- DEECA - who are responsible for state forests and parks.
- FRV - who are responsible for metropolitan areas and regional cities and is resourced largely by full time staff.
- CFA - who are responsible for all rural areas and is resourced by full time staff and volunteers.

United Energy will provide assistance and work with the relevant fire control agency in the investigation of fires near our supply network.

United Energy's Emergency Management Liaison Officers (EMLOs) are available to attend fire agency command centres and provide information or assistance with issues relating to our distribution assets. An EMLO is a person that acts as a go-between or the link between two organisations to communicate and coordinate their activities.

6.16.1 Significant Fire Management

Any requests for resources to assist fire agencies are coordinated by the Network Controller, from United Energy's NCC.

In the event of a significant fire, United Energy's operational and maintenance activities include:

- Receiving notification from or supplying notification to the relevant fire control agency regarding a fire event.
- Liaison with the relevant fire control agency regarding appropriate actions as required. This may include de-energisation of electrical assets upon request.
- Dispatching field crews for fault rectification or as directed/requested by the relevant fire control agency.
- Deployment of EMLOs if required to any Incident Control Centre established by the relevant fire control authority.

Further detail of actions to be undertaken in the event of a major event or emergency are contained in the Incident Management Procedure (UE-PR-0251) and Crisis Management Plan (JEQA4UJ443MT-154-386).

6.16.2 Information Exchange

There are a number of different forums for information exchange that take place between the fire agencies and United Energy.

A Regional Integrated Fire Management Planning Committee operates in each Region. Each committee includes representatives from the FRV, local fire brigades, DEECA, and local municipalities. A United Energy representative may either attend committee meetings or provide written reports on the status of United Energy's Bushfire Mitigation Program upon request.

Each year prior to the fire danger period, the FRV/CFA is requested by ESV to hold an information day to provide a briefing and forecast for the coming season. Information presented includes the likely severity of the season and identification of high-risk areas. This information day is attended by Victorian electricity distributors (including United Energy), transmission operators and representatives from the ESV.

Information relating to the Fire Season declaration dates is provided to United Energy by FRV/CFA both through the receipt of Fire Season Declaration notices and also through discussions with FRV Regional Community Safety Managers.

6.17 Total Fire Ban Days

United Energy has a Total Fire Ban Day Action Plan (UE-PL-0009.1) which is invoked on TFB/Catastrophic days. The plan contains BFM strategies to be employed on days of extreme fire weather conditions to minimise the risk of a fire ignition being caused by United Energy's electricity network and is implemented under the direction of the Network Control Centre Manager with assistance from the Emergency Manager (EM).

This action plan also details and documents strategies for the management of:

- enhanced TFB/Catastrophic day protection and REFCL settings
- any non-compliant (VP1) spans
- any overdue asset inspection or maintenance
- overhead PELs identified for disconnection
- any planned work.

For works involving welding, cutting, grinding, or use of naked flame, permits from the appropriate organisation (eg. CFA, FRV, and DEECA) are available if required.

6.18 Declared Fire Danger Period (DFDP)

6.18.1 Use of Vehicles, Plant and Equipment

During the DFDP, United Energy will continue with normal operation of its electrical assets. The majority of United Energy's operational and maintenance activities are configured to be undertaken for the full 12 months of the year, irrespective of the DFDP.

There are however some activities that are specific to the DFDP. These involve the use of vehicles, plant, and equipment off road and the carrying of firefighting equipment and are documented in the procedure Minimising Fire Start Risk on Total Fire Ban Days (PR-0016).

6.18.2 Line Condition Observation Program

This is a series of field observations undertaken across the distribution network (see Section 6.1.5).

6.18.3 Enhanced BFM Activities

This is a program of additional activities that may be undertaken each fire season. A decision is made by Senior Management based on information received from various sources, including the CFA and other emergency services. Activities that are considered include:

- Additional Thermographic and Corona Camera inspections emanating from selected zone substations in high-risk areas identified by CFA.
- Focusing some of the existing audit/observation programs in these high-risk areas identified by CFA.
- Additional auditing/observation programs covering both asset condition monitoring and vegetation management in high-risk areas identified by CFA.

7. Program Timing

United Energy has produced a set of combined BFM program milestones which specify the completion dates required for key BFM activities. A copy of the BFM program milestones document is attached in Appendix A.

The asset inspection program dates are determined by the maintenance plan, in accordance with the relevant asset policy and are generated from SAP.

Remedial maintenance and asset replacement/modification is completed in accordance with the priority classification policy (refer Section 6.2).

Timing of vegetation management activities are undertaken in accordance with United Energy's Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3).

8. Fire Investigation

Any F-Factor/fire starts events initiated by United Energy assets according to ESV/AER regulatory guidelines are reported to ESV (via OSIRIS) and the AER annually (via spreadsheet).

The NCC identifies any fire starts from outage information or from external advice and notifies the EM who investigates each situation according to the information provided. The EM then sends details to the Network Risk & Assurance team for checking and collation and forwarding to ESV and the AER as per as per regulatory guidelines.

At the annual BFM post season review, fire start/F-Factor statistics are presented and discussed.

Operational procedures for the reporting of fire starts are contained within the ESV/AER and Cintellate Incident Reporting Procedure (PR-0018).

9. Key Measures

9.1 Asset Maintenance and Vegetation Performance Measures

9.1.1 Asset Maintenance Performance

The Asset Maintenance Compliance Measure (AMCM) is a measure of line inspection and maintenance compliance. The AMCM measures the completion performance of inspection and maintenance activities against policy targets.

An explanation of how the AMCM is calculated is provided within Asset Maintenance Compliance Measure (AMCM) Work Instruction (WI-0002) and the objective is to reduce the AMCM to zero by the start of the Fire Danger Period and to maintain zero throughout the period.

9.1.2 Vegetation Performance

Vegetation compliance is measured as a discrete count of relevant Vegetation Priorities (VPs) outstanding, as reported to ESV. Vegetation performance measures are detailed in United Energy's Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3).

9.2 Fire Starts

Reporting of ground and asset fires is undertaken as they occur and reported to ESV and the AER annually as per regulatory guidelines. Reporting procedures are contained within the ESV/AER and Cintellate Incident Reporting Procedure (PR-0018).

9.3 Asset Failures

As part of continuous improvement towards the mitigation of bushfires, United Energy records the causes of fire ignition which are attributed to failures of electricity assets. Analysis of asset failures and failure trends are carried out in order to develop improvements to maintenance policies, technical standards, work practices and enhanced preventative actions which all contribute to risk management strategies. Investigation of failed assets is the responsibility of the Asset Investigation section.

The Asset Failure Investigation Procedure (UE-PR-2020.1) details the reporting, analysis, and investigation of failed assets.

9.4 BFM Milestones

United Energy have produced a set of BFM program milestones which specify the completion dates required for key Electricity Networks BFM activities. These BFM activities are:

- Submit the Electric Line Clearance Management Plan (if required) to ESV.
- Conduct an annual BFM post season review.
- Submit the Bushfire Mitigation Plan (if required) to ESV.
- Complete the annual internal compliance audit of the Bushfire Mitigation Plan.
- Complete the overhead PEL mail out to United Energy customers.
- Conduct the annual summer pre-season briefing to Senior Management.
- Complete the Line Condition Observation (LCO) program.

The achievement of these milestones is closely monitored and a copy of the BFM Program Milestones is attached in Appendix A.

10. Reporting, Monitoring and Auditing

10.1 Report and Monitoring

The Bushfire Mitigation Committee provides management and governance of the bushfire mitigation processes and fire season readiness activities.

Reporting processes are established which ensures that all levels of the BFM management structure, including executive management levels and ESV, are informed of the status of the company's preparedness and fire performance.

The reporting process incorporates requirements for:

- Prior to the Declared Fire Danger period
- During the fire danger season
- On Total Fire Ban days.

Reporting and monitoring arrangements for TFB/Catastrophic days are contained in the Total Fire Ban Day Action Plan (UE-PL-0009.1).

BFM Status Report

The main method of monitoring the BFM plan is the BFM Status report, which includes the AMCM and outstanding HBRA vegetation. This report measures the status of a range of BFM activities against policy or program targets. Reported activities include asset inspection (including overhead PELs), priority maintenance and vegetation outside policy clearance programs.

It is provided to senior management and employees involved in BFM activities and ESV. The report is also loaded onto United Energy's Intranet site for viewing by all United Energy personnel.

The BFM Status report is compiled and reported on a monthly basis, outside the Declared Fire Danger Period and then reverts to weekly reporting during the Declared Fire Danger Period. The frequency of this reporting enables close monitoring by both United Energy management and ESV.

The frequency of this reporting is sufficient to enable the detection and rectification of any situation that could jeopardise the achievement of a state of full preparedness by the start of the Declared Fire Danger Period.

Asset Maintenance Compliance Measure

United Energy's strategy to reduce the AMCM is to closely monitor the key programs associated with the BFM program. This includes maintenance and asset inspection items.

Asset Inspection

The Asset Inspection program is monitored by the Asset Inspection Group.

An automated daily exception report is generated from SAP and distributed by e-mail to relevant employees who monitor the asset inspection program. The Asset Inspection Group investigates any overdue poles and associated assets to ensure appropriate action has been taken (including overhead PEL poles).

Maintenance

An automated daily HBRA maintenance report is generated from SAP (via a Tableau report) and distributed to relevant employees by e-mail. The United Energy Maintenance group check for any outstanding maintenance items to ensure prompt action. This report is also used to calculate the weekly AMCM data as per the Asset Maintenance Compliance Measure (AMCM) Work Instruction (WI-0002).

Vegetation Clearance

United Energy produce a weekly report which is distributed to key stakeholders, which provides program status updates on vegetation management programs. Vegetation reporting is detailed in United Energy's Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3).

ESV

United Energy's reporting schedule to ESV, on its BFM activities, is listed below:

- Bushfire Mitigation Plan (supplied every 5 years, minimum).
- BFM Status Report (reported monthly or weekly during the Declared Fire Danger period).
- AMCM, Vegetation Compliance and REFCL operational data (reported monthly or weekly during the DFDP).
- Fire Start Statistics (reported to ESV as per the ESV reporting requirements).
- Safety Program Report (Quarterly).
- REFCL Performance Report (supplied annually).

Reporting on issues found through ESV audit processes is carried out on request.

10.2 Auditing

United Energy provides information for the preparation of audit and inspection programmes as per procedure Developing the Annual Consolidated Audit Program Procedure (PR-0017).

Considering the range of audit and inspection programmes conducted across the organisation, each programme is required to determine the:

- scope of review or focus area
- classification of review activity as Audit or Inspection
- training/competency/qualification requirements of the auditors/inspectors.
- frequency of review activities
- method of selecting or prioritising the items/aspects to review.

United Energy also has a program of system audits to validate the effectiveness of BFM processes, policies and systems used to manage or monitor BFM activities, these include:

- Internal audits of the BFM management programs and processes which are carried out by Audit Services. These audits are conducted to an internal audit schedule, which can be viewed on United Energy's Intranet site and are typically carried out between May and August each year.

- An annual ESV audit which is conducted in the lead up to the fire danger period and concentrates on adherence to the BFM plan and the processes and procedures that support the plan.

Audit improvement recommendations are documented and followed up for completion.

Other audits undertaken are described below.

Asset Inspection Audits

United Energy's asset inspection service provider has a self-audit program that they manage and maintain. Any findings require a follow up audit of all inspectors where sub-standard work is identified. An intensified audit program is then established for that inspector until the attainment of satisfactory results.

Additionally, United Energy's asset inspection service provider engages an independent third party to audit the performance of their asset inspectors.

United Energy's asset inspection service provider includes the results of their completed audits (including overhead PEL inspections) and corrective actions proposed/undertaken in their monthly asset inspection report.

United Energy also has its own independent audit program for monitoring the performance of asset inspectors. United Energy's Maintenance Services Officers are responsible for performing this function. Operational procedures for these audits are contained within the Asset Inspection Audit Framework (UE-PR-5061).

Monitoring and auditing of the effectiveness of inspections and the competence of persons assigned to carry out inspections under the plan shall be done by monitoring and auditing the adherence to works practices which demonstrate skills and knowledge in Asset Inspection.

Maintenance Audits

Maintenance project field audits are undertaken by the Service Delivery Maintenance Group, who have an audit program that includes random audits of completed projects, to ensure that the relevant technical standards and design specifications have been achieved in the finished project. Any additional audits are completed upon request.

This program results in a number of maintenance projects being audited each year.

Service Delivery have a structured audit program that audits key maintenance works and involves Program Managers, Construction Project Leaders and Maintenance Officers.

Vegetation Audits

United Energy's Vegetation Quality & Engagement Team audit the activities and effectiveness of our vegetation management contractor. The vegetation management contractor also has their own internal audit program which includes:

- Accuracy of vegetation identification and classification
- Vegetation trimming/removal to the requirements of the code.

United Energy's Vegetation audit activities are detailed within the Electric Line Clearance (Vegetation) Management Plan (CPPAL & UE 2021-2026 ELCMP V2.3).

11. Reviewing

The United Energy BMP is frequently reviewed and amended as required. There are various means by which feedback is obtained and potential improvements are identified including:

- Changes in Regulation.
- Post Fire Season Review – this review meeting is held at the end of the fire danger period to review performance under the plan. Attendees include United Energy senior managers, corporate risk personnel, internal auditors, and key personnel involved in the BFM program. Presentations are delivered on the business's performance in each of the key BFM activities. Improvement opportunities are discussed and included into the BMP if required.
- Summer Pre-Season Briefing – this briefing is held before the start of the fire declaration period. It provides an opportunity to report on the progress of BMP activities and to plan contingencies, if the need arises, to meet the requirements of the plan.
- Internal and external audit findings.
- Technology changes.

12. Referenced Documents

Table 9: Internal References

Title	Document No.
Asset Failure Investigation Procedure	UE-PR-2020.1
Asset Inspection Audit Framework	UE-PR-5061
Asset Inspection Manual	UE-MA-2003
Asset Maintenance Compliance Measure Work Instruction	WI-0002
Asset Management Plan - Poles	UE-PL-5062
Asset Management Plan - Overhead Conductors	UE-PL-5064
Bushfire Mitigation Policy	PO-0003
Crisis Management Plan	JEQA4UJ443MT-154-386
Developing the Annual Consolidated Audit Program Procedure	PR-0017
Earthing Systems Life Cycle Strategy	UE-PL-2016
Electric Line Clearance (Vegetation) Management Plan	CPPAL&UE 2021-2026 ELCMP V2.3
Electricity Call Out Guidelines Procedure	UE-PR-9352
ESV/AER and Cintellate Incident Reporting Procedure	PR-0018
HV Conductor Clashing Prevention Strategy	UE-PL-2306
HV Outdoor Fuses Life Cycle Strategy	UE-PL-2012
Incident Management Procedure	UE-PR-0251
Indoor Maintenance Manual Non-Pole Distribution Substation	UE-MA-2615
Inspection and Maintenance Plan	UE-PL-5001
Line Condition Observation Program Procedure	PR-0025
Maintenance Manual LV Private Overhead Electric Lines	UE MA 2620
Minimising Fire Start Risk on Total Fire Ban Days	PR-0016
Pole Top Structures Lifecycle Plan	UE-PL-2006
Qualification and Training Requirements for Network Access	UE-PR-310.00
Surge Arresters Life Cycle Plan	UE-PL-2013
Trees, powerlines and your property	
Your private overhead electric lines	
Management of Notifications & Asset Risk	UE-PR-0266

Table 10: External References

Title	Document No.
Country Fire Authority Act 1958	
Electricity Safety Act 1998	
Electricity Safety (Bushfire Mitigation) Regulations 2023	
Electricity Safety (Electric Line Clearance) Regulations 2020	

Title	Document No.
ESV Training Approval Statement	
Knapsack Spray Pumps	AS 1687 - 1991
Overhead Line Design	AS/NZS 7000 - 2016
Portable Fire Extinguishers	AS 1841.2 - 1997
VESI Apprentice Supervision Guidelines	
VESI Skills and Training Matrix	

13. Definitions

Table 11: Terms and Definitions

Term	Definition
Fire Danger Period	A period declared under section 4 of the Country Fire Authority Act 1958 to be a fire danger period
United Energy	United Energy Pty Ltd
Total Fire Ban/Catastrophic Day	A day that has been declared to be a day of total fire ban or a catastrophic day under section 40(1) of the Country Fire Authority Act 1958

Table 12: Acronyms

Acronym	Definition
ACR	Automatic Circuit Recloser
AFAP	As Far As Practicable
AMCM	Asset Maintenance Compliance Measure
BFM	Bushfire Mitigation
BMP	Bushfire Mitigation Plan
BOM	Bureau of Meteorology
CFA	Country Fire Authority
DEECA	Department of Energy, Environment and Climate Action
DFDP	Declared Fire Danger Period
DSDBI	Department of State Development, Business & Innovation
EM	Emergency Manager
EMLO	Emergency Management Liaison Officer
ESI	Electricity Supply Industry
ESMS	Electricity Safety Management Scheme
ESV	Energy Safe Victoria
FRV	Fire Rescue Victoria
GFN	Ground Fault Neutraliser
GIS	Geographical Information System
HBRA	Hazardous Bushfire Risk Area
LBRA	Low Bushfire Risk Area

Acronym	Definition
LCO	Line Condition Observation
LIDAR	Light Detection and Ranging
MAPPC	Mutual Aid Plan Planning Committee
NCC	Network Control Centre
NER	Neutral Earth Resistor
PEL	Private Electric Line
PLIR	Private Line Inspection Report
REC	Registered Electrical Contractor
REFCL	Rapid Earth Fault Current Limiter (Also referred to as a GFN within United Energy)
RCM	Reliability Centred Maintenance
RTO	Registered Training Organisation
SES	State Emergency Service
SWER	Single Wire Earth Return
TFB	Total Fire Ban
VESI	Victorian Electricity Supply Industry
VP	Vegetation Priority

Appendix A: BFM Program Milestones

Table 13: BFM Program Milestones

Item No.	BFM Milestone Description	Activity	Responsible Officer/Business Stream	Target Date
1	Submit Electric Line Clearance (Vegetation) Management Plans to ESV.	Management Plan submission is a regulatory requirement.	Vegetation Manager	As required
2	Conduct the annual BFM Post Season Review.	Review previous fire season.	Head of Network Risk and Performance	31 May
3	Conduct annual internal audit of the BFM Plan.	Identify areas for auditing and undertake audit	Head of Audit Services	30 September
4	Submit BFM Plan to ESV.	BFM Strategy plan submission is a regulatory requirement.	Network Risk and Assurance Manager	As required
5	Complete mail out to United Energy overhead PEL customers.	Letters will raise awareness / importance of overhead PEL maintenance works with overhead PEL owners.	Network Risk and Assurance Manager	30 November
6	Conduct the annual BFM Pre Season Review.	Review the upcoming fire season preparedness.	Head of Network Risk and Performance	30 November
7	Complete Line Condition Observation program.	Ensure program of observations are completed.	Network Risk and Assurance Manager	31 December

Appendix B: Overhead PEL Inspection Notification Letter

United Energy Distribution Pty Limited ABN 70 064 651 029

To the Occupier,

Address

Address

In accordance with section 113F of the Electricity Safety Act 1998, please be advised that between xx/xx/xxxx and xx/xx/xxxx, our Asset Inspector will inspect all private electric lines above the surface of land on the property you occupy, except for those parts of the lines that are installed after the point at which they are connected to a building or other structure (not including a pole).

The inspection may reveal that defects exist and maintenance is required on a private electric line on the property that you occupy.

If this is the case, we will give the owner written notice of the maintenance work that is required to be carried out.

Please contact our Service provider Business Support Officer, xxxx xxxxxx – Asset Inspection, on:

Office: P: (03) 9173-6797

Email: UEDPOEL@zinfra.com.au

If you have any queries with respect to this notice.

If this is the case, we will give the owner written notice of the maintenance work that is required to be carried out.

Please contact our Service provider Business Support Officer, xxxx xxxxxx – Asset Inspection, on:

Office: P: (03) 9173-6797

Email: UEDPOEL@zinfra.com.au

If you have any queries with respect to this notice.

Figure 6: Overhead PEL Inspection Notification Letter

Appendix C: Bushfire Mitigation Policy

Bushfire Mitigation Policy

CitiPower, Powercor and United Energy are committed to providing our customers with **safe, reliable and affordable** supplies of electricity and network services through the application of our Integrated Network Management System. We are committed to bushfire mitigation activities and making our communities safer. Therefore, we plan, design, construct, operate, maintain and decommission the network to minimise as far as practicable the **bushfire danger** arising from the electricity network.

We will achieve our commitment by adopting the following principles:

- Minimise **fire ignition** risks as far as practicable.
- Apply a **risk-based approach** to optimise the management and development of our network and systems.
- **Comply** with all relevant legislative and regulatory requirements as well as Australian and industry standards and any other requirements to which we subscribe.
- Continuously improve our management systems and activities by **embracing innovation and technology** to enhance our reputation, leading the industry in adopting and promoting network management practices where it makes sense to do so.

We meet these important commitments by conducting the following activities:

- **Monitor and evaluate** appropriate metrics to effectively manage network performance.
- Focus on **reducing** the number of network fire risk **incidents** and their **consequence**.
- Ensure that **developments** having a relevance to fire risk reduction are adequately **supported.**
- Work with our communities and other agencies to ensure a **coordinated approach** to fire risk management.
- Maintain an accepted **bushfire mitigation plan.**

We strive for excellence in everything we do and are always **accountable** for our own performance including the management and operation of our network to achieve the objectives outlined in this Policy.

This Policy is to be read in conjunction with the **Network Management Policy** and the **Network Safety Policy.**

Glen Thomson
General Manager Electricity Networks

March 2024
PO-0003

Figure 7: Bushfire Mitigation Policy

Appendix D: Bushfire Mitigation Plan Documents

Table 14 lists the documents that United Energy will not change without first seeking ESV approval and are the only documents that form part of the BMP. References within these documents do not form part of the BMP.

Table 14: Bushfire Mitigation Plan Documents

Count	Document Title	Document Number	Revision Number	Date
1	Total Fire Ban Day Action Plan	UE-PL-0009.1	1	1 July 2024

Appendix E: Revision History

Table 15: Revision History

Rev No.	Revision Summary	Reviewer / Approver	Date
1			