

Bushfire Mitigation Plan

Electricity Safety (Bushfire Mitigation) Regulations 2013

Powercor



March 29, 2017

Revision 4.1b

Administrator: Head of Network Compliance

Document No: 05-M810

Bushfire Mitigation Plan

Powercor

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Document Revision History

Revision No.	Revision Summary	Reviewer/ Approver	Date
1	Plan submitted to ESV	Bushfire Mitigation Manager	27 June 2014
2	<ul style="list-style-type: none"> • Plan amended to include ESV Direction relating to Powerline Replacement projects (Section 8.5). • Plan amended to include information relating to auditor training and qualification requirements (Section 12.1). • Plan amended to include information relating to ESV Direction regarding SWER ACR replacement/installation program as per 2012-2013 BFM Plan (Section 8.5). • Plan amended to include the requirements Electricity Safety (Bushfire Mitigation) Amendment Regulations 2015 dated 23 June 2015. • Plan amended to include information relating to vegetation auditing (Section 12.1). • Plan amended to include information relating to the trial installation of Rapid Earth Fault Current Limiters (REFCLs) to enable Powercor to meet the requirements of the proposed Electricity Safety Further Amendment (Bushfire Mitigation) Regulations 2015 (Section 8.8). • Plan amended to include an update on the SWER ACR Replacement/Installation Program (Section 8.5). • Plan amended to remove reference to the Conductor Tie Performance Study (Section 8.8). • Plan amended to include planned commission dates for the trial installation of Rapid Earth Fault Current Limiters (REFCLs) at the Gisborne and Woodend Zone Substations (Section 8.8). • Plan amended to include the new asset inspection training requirements (Section 8.10). • Plan amended to include information relating to the prioritisation of SWER ACR replacements and also information added regarding SWER ACR settings on TFB Days (Section 8.5). 	Bushfire Mitigation Manager	<p style="text-align: center;">10 July 2014</p> <p style="text-align: center;">10 July 2014</p> <p style="text-align: center;">3 September 2015</p> <p style="text-align: center;">3 September 2015</p> <p style="text-align: center;">3 September 2015</p> <p style="text-align: center;">17 September 2015</p> <p style="text-align: center;">18 December 2015</p> <p style="text-align: center;">18 December 2015</p> <p style="text-align: center;">18 December 2015</p> <p style="text-align: center;">18 December 2015</p> <p style="text-align: center;">4 March 2016</p>
3	<ul style="list-style-type: none"> • Plan amended to include the requirements of the Electricity Safety (Bushfire Mitigation) Amendment Regulations 2016 relating to Rapid Earth Fault Current Limiters (REFCLs), Electric Line Construction Areas and SWER ACRs. (Section 6.5) • Additional information regarding ACR protection application on TFB Days (Section 6.6) • Expanded descriptions in Section 6.11 – Training, and Section 8 – Fire Investigation • Added new milestone for vegetation reporting in Section 9.4 – BFM Milestones and Appendix C • Amended Appendix A TFB Day Action Plan, revised re-energisation of supply requirements • Removed Appendix B – Electric Line Clearance (Vegetation) Management Plan • Rev 3.1 – minor amendment to Section 6.5, additional information regarding the intended application of REFCL operating modes 	Head of Network Compliance	5 December 2016
4	<ul style="list-style-type: none"> • Added Section 6.18 HVABC replacement program and 	Head of Network Compliance	29 March 2017

Appendix K listing the project sites

- Amended **Section 6.5.3** to include further information about Fusesavers for the SWER ACR replacement program
- Amended **Section 6.5.1 Table 1** to include the bring-forward of EHK zone substation into REFCL tranche 1

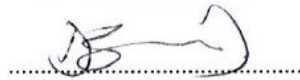
1 PLAN INTRODUCTION

1.1 CONTACTS & APPROVALS

Responsibility	Title	Address	Contact Details
BMP Responsible Organisation	Powercor Australia Ltd.	40 Market Street Melbourne, 3000 Victoria	Phone: 13 22 06
BMP Preparation	Bushfire Mitigation Manager	40 Market Street Melbourne, 3000 Victoria	Phone: 13 22 06
BMP Carrying out	Head of Network Compliance	40 Market Street Melbourne, 3000 Victoria	Phone: 13 22 06
BMP Emergency Contact			Phone: 13 24 12 (24 x 7 emergencies and faults contact number for members of the public)

Prepared By

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Bushfire Mitigation Manager
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29/03/2017

Date

Approved By

Matt Thorpe
Head of Network Compliance
Level 7, 40 Market St, Melbourne

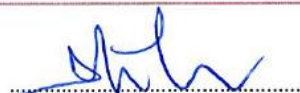


29/03/2017

Date

Endorsed By

Steve Neave
General Manager Electricity Networks
Level 7, 40 Market St, Melbourne



29/03/2017

Date

1.2 PLAN DEFINITIONS

Act: Electricity Safety Act 1998.

Fire Danger Period: a period declared under section 4 of the *Country Fire Authority Act 1958* to be a fire danger period.

Total Fire Ban Day: a day that has been declared to be a day of total fire ban under section 40(1) of the *Country Fire Authority Act 1958*.

For other definitions refer to the Act, Regulations and Code.

1.3 REGULATION COMPLIANCE INFORMATION

The following table provides a cross reference of the sections of the Powercor Bushfire Mitigation Plan (BMP), to the specific items required in Regulation 7 of the “Electricity Safety (Bushfire Mitigation) Regulations 2013”.

Reg	7 - Prescribed particulars for bushfire mitigation plans—major electricity companies.	Powercor Plan Reference
7(1)(a)	the name, address and telephone number of the major electricity company;	Contacts & Approvals
7(1)(b)	the position, address and telephone number of the person who was responsible for the preparation of the plan;	Contacts & Approvals
7(1)(c)	the position, address and telephone number of the persons who are responsible for carrying out the plan;	Contacts & Approvals
7(1)(d)	the 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;	Contacts & Approvals
7(1)da	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;	Contacts & Approvals
7(1)(e)	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)(f)	the objectives of the plan to achieve the mitigation of fire danger arising from the major electricity company’s supply network;	Section 3.2
7(1)(g)	a description, map or plan of the land to which the bushfire mitigation plan applies;	Section 4.1, Section 4.3
7(1)(h)	the preventative strategies and programs to be adopted by the major electricity company to minimise the risk of the major electricity	Section 6 to 6.18

Reg	7 - Prescribed particulars for bushfire mitigation plans—major electricity companies.	Powercor Plan Reference
	company's supply networks starting fires;	
7(1)(ha)	<p>details of the preventative strategies and programs referred to in paragraph (h) (including details in relation to timing and location) by which the major electricity company will ensure that—</p> <p>(i) in its supply network, each polyphase electric line originating from a selected zone substation has the required capacity; and</p> <p>(ii) on and from 1 May 2023, in its supply network, each polyphase electric line originating from every zone substation specified in Schedule 2 has the required capacity;</p>	Section 6.5
7(1)(hb)	<p>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 (ha);</p>	Section 6.5
7(1)(hc)	<p>details of the preventative strategies and programs referred to in paragraph (h) (including details in relation to timing and location) by which the major electricity company will ensure that, on and from 1 May 2016, 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;</p>	Section 6.5
7(1)(hd)	<p>details of the processes and procedures by which the major electricity company will ensure that, before 1 May 2023, the major electricity company has installed an Automatic Circuit Recloser in relation to each SWER line in its supply network;</p>	Section 6.5
7(1)(i)	<p>a plan for inspection that ensures that –</p> <p>(i) 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.</p> <p>(ii) 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.</p>	Section 6.1
7(1)(j)	<p>details of the processes and procedures for ensuring that each person who is assigned to carry out inspections referred to in paragraph (i) and of private electric lines has satisfactorily completed a training course approved by Energy Safe Victoria</p>	Section 6.11

Reg	7 - Prescribed particulars for bushfire mitigation plans—major electricity companies.	Powercor Plan Reference
	and is competent to carry out such inspections;	
7(1)(k)	details of the processes and procedures for ensuring that persons (other than persons referred to in paragraph (j) who carry out or will carry out functions under the plan are competent to do so;	Section 6.11 & 10.1
7(1)(l)	the operation and maintenance plans for the major electricity company's supply network— (i) in the event of a fire (ii) during a total fire ban day (iii) during a fire danger period	Section 6.17 Section 6.15 Section 6.16
7(1)(m)	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 9.3
7(1)(n)	details of the processes and procedures by which the major electricity company will; (i) monitor the implementation of the bushfire mitigation plan; and (ii) audit the implementation of the plan; and (iii) identify any deficiencies in the plan or the plan's implementation; and (iv) change the plan and the plan's implementation to rectify any deficiencies identified under subparagraph (iii) (v) monitor the effectiveness of inspections carried out under the plan; and (vi) audit the effectiveness of inspections carried out under the plan; and (vii) 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 7(1)(hb);	Section 10 Section 10.1 Section 11 Section 11 Section 10.1 Section 10.1 Section 6.5
7(1)(o)	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 6.14
7(1)(p)	details of processes and procedures for enhancing public awareness of; (i) the responsibilities of the owners of private overhead electric lines that are above the surface of the land in relation to maintenance and mitigation of bushfire danger; (ii) the obligation of the major electricity company to inspect private overhead	Section 6.8 and Section 6.13 Section 6.8

Reg	7 - Prescribed particulars for bushfire mitigation plans—major electricity companies.	Powercor Plan Reference
	electric lines that are above the surface of the land within its distribution area.	
7(1)(q)	a description of the measures to be used to assess the performance of the major electricity company under the plan.	Section 12
7(2)	In subregulation (1)(i) 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 8.1
7(3)	<p>For the purposes of subregulation (1)(ha)(i)—</p> <p>(a) the major electricity company must select a sufficient number of zone substations so that—</p> <p style="padding-left: 40px;">(i) at 1 May 2019, the points set out in column 6 of the Table in Schedule 2 in relation to each zone substation selected, when totalled, are not less than 30; and</p> <p style="padding-left: 40px;">(ii) at 1 May 2021, the points set out in column 6 of the Table in Schedule 2 in relation to each zone substation selected, when totalled, are not less than 55; or</p> <p>(b) if there are an insufficient number of zone substations (specified in Schedule 2) in a major electricity company's supply network for the major electricity company to comply with paragraph (a)(i) or (ii), the major electricity company must ensure that each polyphase electric line originating from every zone substation that is specified in Schedule 2 and is in its supply network has the required capacity.</p>	<p>Section 6.5</p> <p>Section 6.5</p>

2 Introduction

2.1 LEGISLATION

Section 113A (1) of the Electricity Safety Act 1998 (incorporating amendments as at 1 January 2012) requires that a major electricity company must prepare and submit to Energy Safe Victoria, for acceptance under this Division, a plan for the company's proposals for mitigation of bushfire in relation to the company's supply network at the end of each period of 5 years commencing on the later of-

1. the date when the accepted bushfire mitigation plan is first accepted under this Division; or
2. the date of the most recent acceptance of a revision of the accepted Bushfire Mitigation Plan submitted under this Division.

In accordance with the Electricity Safety (Bushfire Mitigation) Regulations 2013 this Bushfire Mitigation Plan (BMP) provides the prescribed particulars as specified in Regulation 7.

This plan can be found on Powercor's Intranet site by following this path:

Home > Our Organisation > CitiPower and Powercor > Electricity Networks > Network Compliance > Bushfire Mitigation > BFM Strategy

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

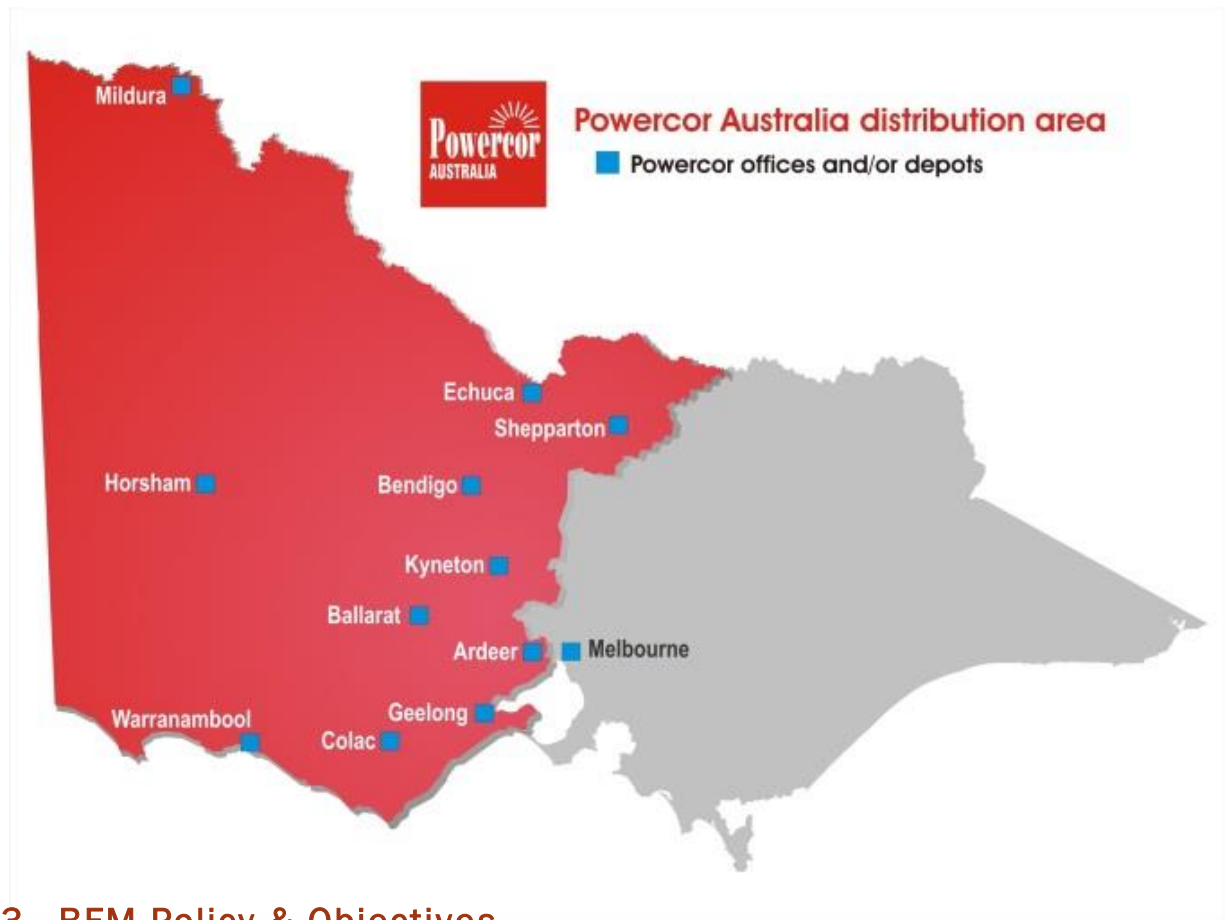
- (a) on the company's Internet site; and
- (b) at the company's principal office in the State during ordinary business hours.

This Bushfire Mitigation Plan is a living document and will evolve as the fire danger period approaches. Appendices to this document will be reviewed and additional information will be added to the appendices as it becomes available.

2.2 POWERCOR AUSTRALIA

Powercor Australia operates the largest electricity distribution network in Victoria, servicing customers in central and western Victoria, as well as Melbourne's outer western suburbs. Statistics regarding the Powercor distribution network are shown below.

Attribute	Statistic
Network area	145,651 square kilometres
Underground lines	11.60%
Number of poles (all poles)	547,567
Number of zone substation transformers	140
Number of distribution substation transformers	82,780
Total number of customers	750,248
Customer density	5.15 per square kilometre
Network availability	99.97%



3 BFM Policy & Objectives

3.1 POLICY

To minimise the risk of fire starts from its electrical assets as far as reasonably practicable by complying with legislative and regulatory requirements, whilst allowing flexibility within the business to encourage innovation, continuous improvement and the efficient use of resources.

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 relating to bushfire mitigation activities into one document
- demonstrate a high level of commitment to meeting bushfire mitigation responsibilities

4 Scope

Powercor's bushfire mitigation framework is illustrated below 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 removal. The annual governance systems of vegetation and 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 (including VBRC) works, trialing and adoption of new technologies, and our response to audit outcomes.

The response aspects of the plan include our operational processes to faults and TFB days, asset failure investigations, and fire start reporting.

The framework also has a significant aspect of proactive stakeholder management, including POEL owners, Councils (vegetation management), other agencies, specific community messaging and our ongoing customer interfacing



This BMP applies to assets that could cause fire ignition in all areas of Powercor'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.

The main causes of fire ignition are:

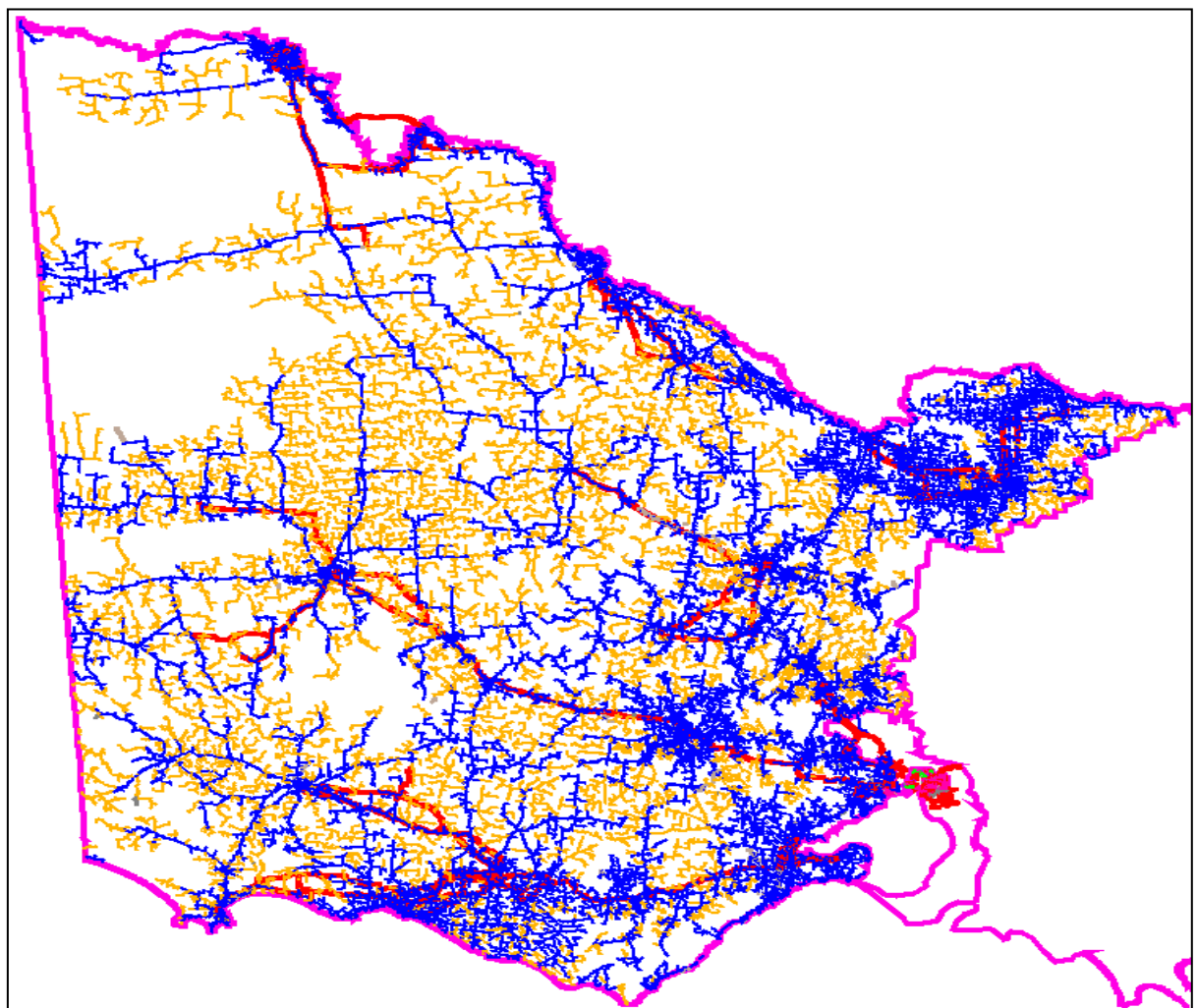
- Surface contamination of insulators, combined with moisture, resulting in electrical tracking (leading to pole/cross arm fires)
- Failure or malfunction of network devices such as Surge Arresters and Expulsion Drop out (EDO) fuses
- Contact between vegetation and the electricity network
- Bird/animal or 3rd party contact with electricity assets
- Failure of line hardware (electrical and mechanical)
- Conductor failures

This BMP makes reference to other plans, manuals, standards, policies, procedures and work instructions which, when combined with this plan, cover all of the activities that contribute to the reduction of bushfire risk.

Other key documents include:

- The TFB Day Action Plan - refer Appendix A
- The Electric Line Clearance (Vegetation) Management Plan
- The Asset Management Framework & associated Plans
- The Event Command Organisation (ECO) Manual
- Electricity Safety Management Scheme
- The Asset Inspection Manual
- Technical Standards (covering design & construction of assets)
- Maintenance Policies
- The various Manuals, Procedures, Guidelines and Work Instructions covering BFM related activities
- Technical Bulletins

4.1 ELECTRICAL NETWORK MAP

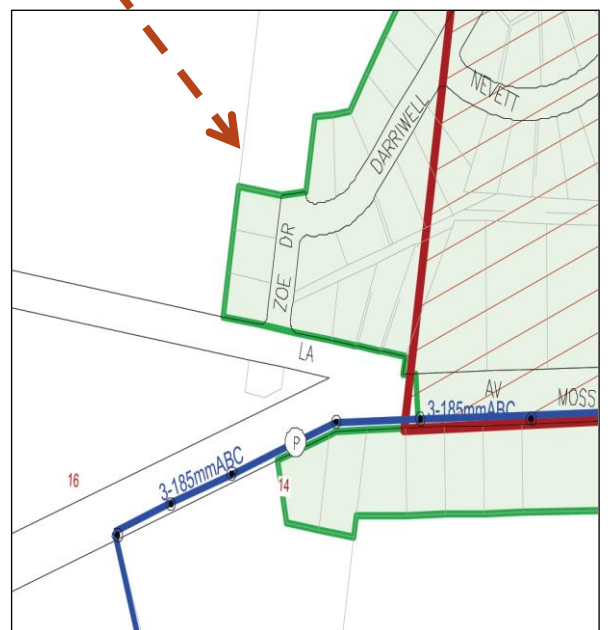
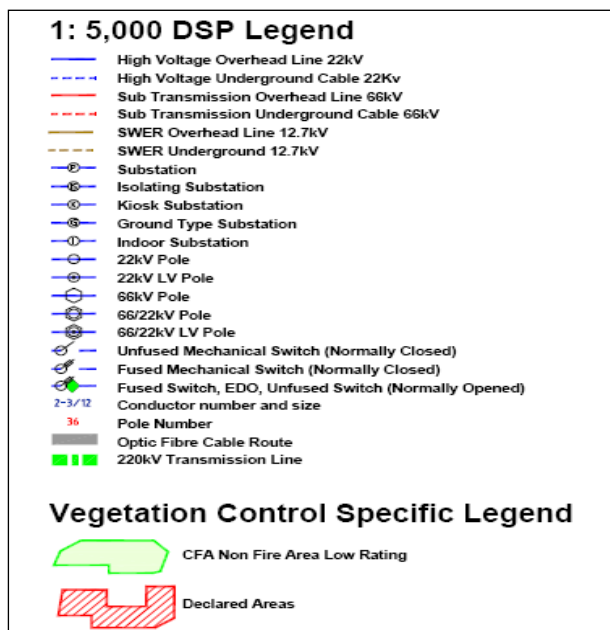
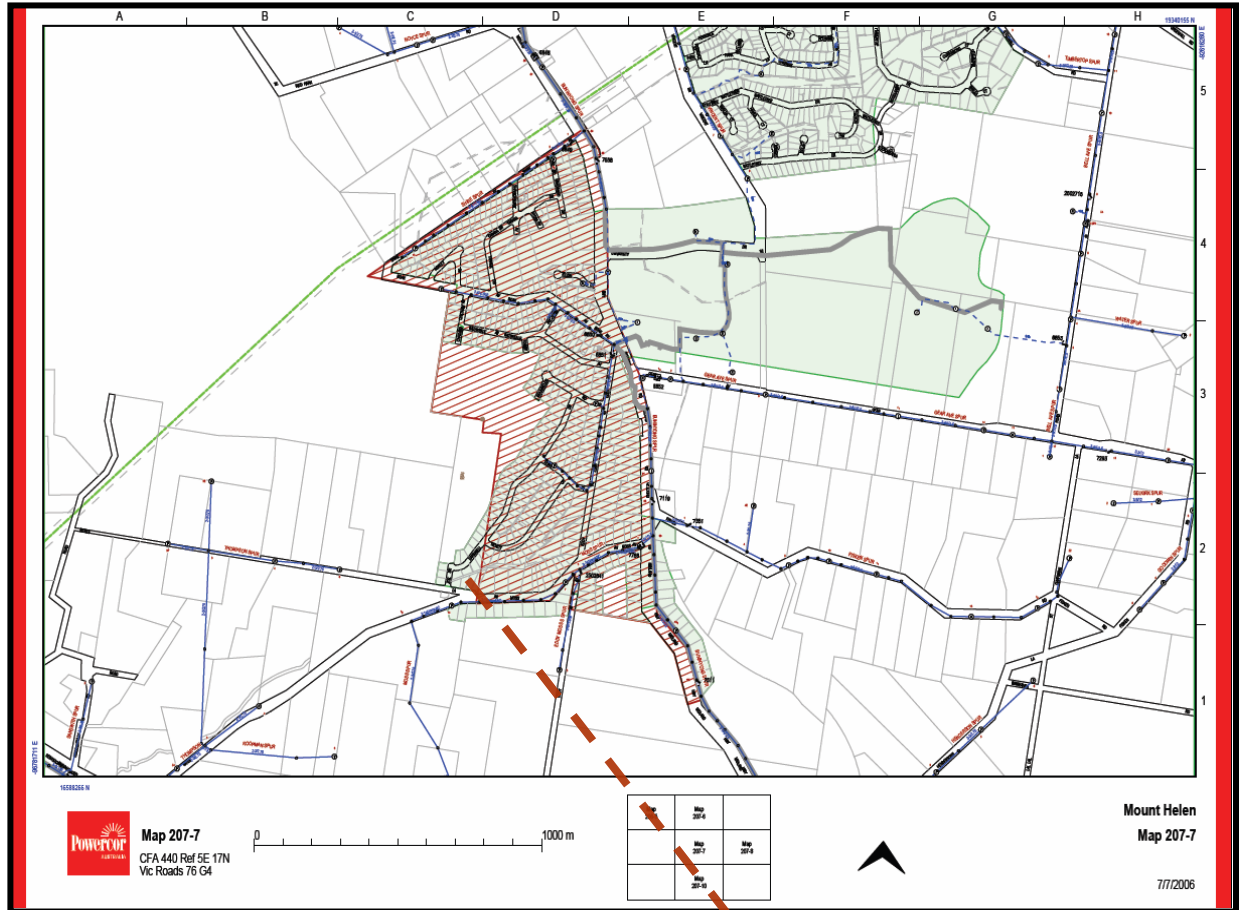


The Powercor HV Overhead Network (displayed above) is colour coded as follows:

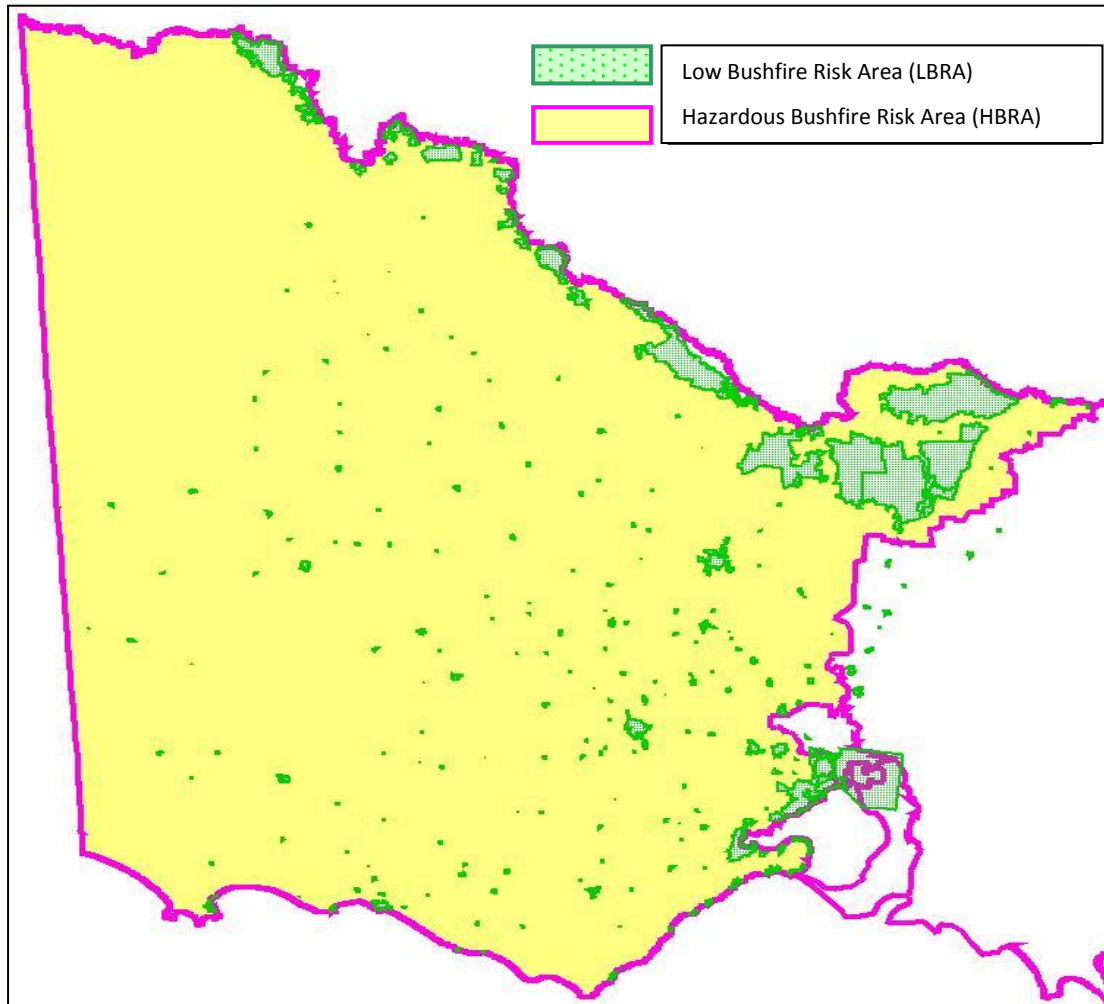
- 66kV Sub-transmission Lines
- 22kV 3 Phase and 1 Phase lines
- 12.7kV SWER Lines

To maintain clarity the LV Overhead network has not been shown. Full network details are available from Powercor's Graphical Information System (GIS).

4.2 GIS BOOK SAMPLE



4.3 BUSHFIRE RISKS AREAS



Bushfire Risk Areas are updated as part of the CFA Fire Hazard Mapping Project and may change as areas are reviewed across the state.

Approximately 51% of Powercor assets are located in Hazardous Bushfire Risk areas (percentage based on pole population).

5 Management Structure

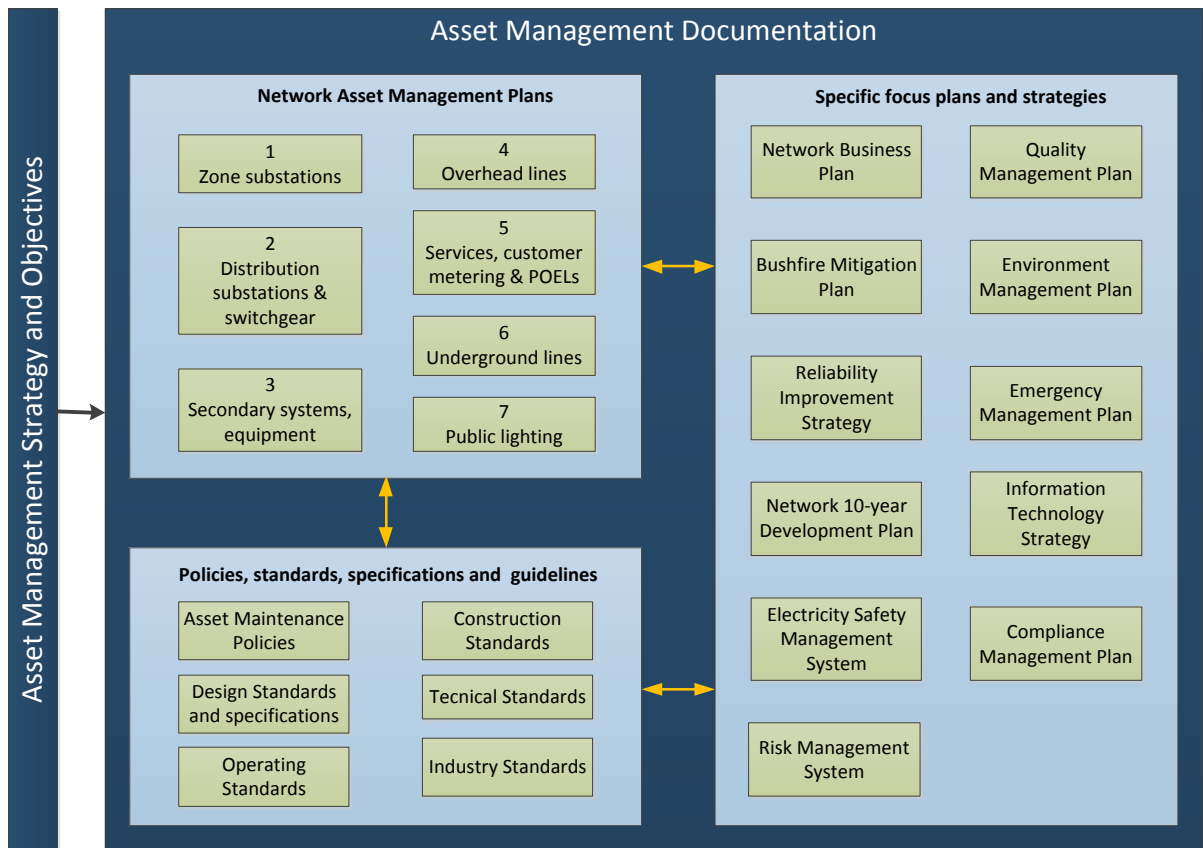
Powercor has a formal management structure for the implementation and control of BFM related activities. This structure has clearly assigned authorities and responsibilities associated with each position. It takes into account the inter-relationships between those that manage, perform, record, verify and report bushfire mitigation activities and has been set up to maintain independence of reporting and monitoring tasks. External to the BFM management structure are the Audit Services group which annually audit and report on BFM performance and compliance.

A copy of the current Powercor Management Structure is available on the Company's Intranet site.

6 Policies and Strategies

Powercor uses a number of strategies, plans, policies and standards to achieve its' Asset Management objectives. The principle documents for ongoing asset management will be the Network Asset Management

Plans, Specific focus plans/strategies and policies, standards, specifications and guidelines. The diagram below shows how all these documents relate.



Powercor has developed and implemented a number of policies and procedures across a broad range of areas to minimise the risk of fire ignition starting from its supply network. These areas include:

- Bushfire Mitigation
- Asset Management
- Incident Reporting & Investigation
- Private Overhead Electric Lines
- Environmental
- Information Technology
- Purchasing and Procurement
- Contract and Contractor Management

The specific policies, strategies and procedures related to BFM activities are described below.

6.1 MONITORING ASSET CONDITION

Preventative maintenance strategies have been created for all of Powercor’s zone substations, sub-transmission and distribution assets. These strategies were developed from Reliability Centred Maintenance (RCM II) 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 Powercor’s Asset Management Enterprise System, called SAP, which automatically generates time based work orders for inspection and maintenance planning.

Asset maintenance policies are developed, reviewed and implemented in accordance with:

- **Procedure 18-05-P0003 - Asset Maintenance Policy and Asset Management Plan Review and Development**
- **Document 18-80-CP0005 - Electricity Safety Management Scheme**

These documents outline how Powercor 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; and
- Manage the risks to as low as reasonably practicable levels.

Hazardous Bushfire Risk Areas (HBRAs)

1. All serviceable poles shall receive a full inspection within 1 month of their 5 year cyclic inspection date.
2. All serviceable poles shall be programmed to receive an above ground inspection within 1 month of their 2.5 year cyclic inspection date; this period may be increased to accommodate access issues up to a period of 37 months from last inspection. (Program applicable to all poles scheduled for cyclic inspection from 1/1/2012)
3. All Limited Life poles shall receive a full inspection within 1 month of their 2.5 year cyclic inspection date.

Low Bushfire Risk Areas (LBRAs)

1. All serviceable poles shall receive a full inspection within 1 month of their 5 year cyclic inspection date.
2. All Limited Life poles shall receive a full inspection within 1 month of their 2.5 year cyclic inspection date.

Definition of inspection types:

Full Inspection - Full inspection of pole and pole top assets in accordance with:

- **05-C001-D390 – Network Asset Maintenance Policy for Inspection of poles.**

Pole Above Ground Inspection – Visual inspection of pole and pole top assets in accordance with:

- **05-C001-D390 – Network Asset Maintenance Policy for Inspection of poles.**

Note: This inspection excludes excavation, treatment, and pole assessment at or below ground line.

(Both inspection types include the inspection of electrical assets between poles).

Operational instructions for the inspection, testing and assessment of assets are contained in:

- **Manual 05 - M450 - Asset Inspection Manual**

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 approved replacement or modification programs. The manual sets out criteria for categorising the urgency for remedial maintenance actions and the reporting and information recording requirements.

Due to access difficulties associated with the inspection of poles located in inaccessible locations these inspections are conducted in accordance with:

- **Procedure 18-20-P0004 – Inaccessible Asset**

The Asset Inspection Officer controls the program of power line inspection in accordance with Powercor's policies using maintenance plans established within SAP. Each maintenance plan covers all of the poles within a specific electrically isolatable section of the network. Maintenance plans are managed in accordance with:

- **Procedure 18-20-P0002 –Asset Inspection**

When SAP transaction "Date Monitoring" is run, pole inspection orders (PINS) are created in accordance with the scheduled dates specified in the maintenance plans. These work orders are electronically transferred to the Field Mobile Computing (FMC) system, reviewed by the Asset Inspection Officer and released to the Asset Inspection contractor. FMC is an interface application, linked to SAP and GIS, that prepares data for dispatch to the Asset Inspection contractor. Individual work orders are created by the Asset Inspection contractor and downloaded to individual asset inspectors.

Asset Inspectors carry out the inspections and enter the results into a Portable Data Assistant (PDA). After inspection the "as found" data, in the PDA, is uploaded to FMC via remote data transfer connection. An overnight batch run in SAP automatically updates the equipment details as per the uploaded data and raises Notifications for all defects identified. Each Notification contains details of the defect located on a specific pole.

The Asset Inspection Officer is responsible for preparation of the asset inspection program and monitoring of the performance of the contractor in adhering to the program. This is performed with the use of exception reporting to monitor variations from policy. A daily automated report is generated and sent to key stakeholders across the business.

6.1.1 Thermal and Corona Imaging

Thermal imaging inspections are undertaken in accordance with:

- **Policy No. 05 - C001.D - 570 - Thermovision Policy**

Corona imaging inspections are undertaken in accordance with:

- **Guideline 18-20-G0001 - Corona Camera Application Guideline**

The thermal and corona inspection policies/guidelines stipulate the required inspection schedules and repair timeframes.

6.1.2 SWER Earths

This inspection program involves the testing of Single Wire Earth Return (SWER) isolating substations and distribution substations.

These inspections are carried out in accordance:

- **Policy No. 05 - C001.D - 291 - SWER Isolating Transformer Earthing Systems**
- **Policy No. 05 - C001.D - 292 - SWER Distribution Transformer Earthing Systems**

6.2 PRIORITY CLASSIFICATIONS

Asset defects identified by our inspection program or are internally/externally reported are assessed for their associated risk and prioritised for remedial action.

Any report of a network defect will be managed in accordance with:

- **Policy No 05 - C001.A - 025 - Priority Policy**

This policy sets out the criteria for classification of defects.

6.3 REMEDIAL MAINTENANCE

Powercor's maintenance programs are generated from a number of different sources, the main one being the asset inspection program (refer **Section 6.1**).

Maintenance can also be identified from the following:

- Reports from employees or contractors
- Customer calls
- Line Condition Observations
- Senior Management Program Reviews
- BFM Vegetation Inspections/Audits
- The “Report It” Application

Refer **Section 10.1** for more information on audits.

Defect Management:

Maintenance works identified through the inspection program are issued for remediation. Resources are scheduled to match the needs of the issued projects in order to achieve the required response times.

Faults/Fault Follow-up:

Repairs to defects identified through the Network Faults/Outage process, including temporary repairs are managed in accordance with:

- **Procedure 07- 30 – P0013 - Manage Network Faults**

Audits/Observations:

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

Non Cyclic Maintenance:

Maintenance found out of cycle is reported using the “Report It” Application.

6.4 ASSET REPLACEMENT/MODIFICATION

Powercor has a number of specific BFM related policies that deal with the replacement and modification of Powercor assets. These include:

- Brown EDO fuse mounts more than 30 years old
- Unacceptable types of surge diverters
- Black or brown EDO fuse tubes
- Unacceptable types of bird covers
- Fitting of LV spreaders
- Replacement or reinforcement of unserviceable poles
- Replacement of deteriorated cross-arms
- Pole fire mitigation
- Conductor Management
- Spreaders, Vibration Dampers and Armour Rods

These activities are carried out in accordance with:

- **Policy No. 05 - C001.D - 320 - High Voltage Fuses**
- **Policy No. 05 - C001.D - 540 - Distribution Surge Arresters**
- **Policy No. 05 - C001.D - 330 - Insulators, Associated Hardware & Bird Covers**
- **Policy No. 05 - C001.D - 255 - Low Voltage Spreaders**
- **Policy No. 05 - C001.D - 392 - Management of Unserviceable Poles**

- Policy No. 05 - C001.D - 280 - Cross Arms
- Policy No. 05 - C001.D - 398 - Permanent Reinforcing of Wood Poles
- Policy No. 05 - C001.D - 281 - Pole Top Fire Mitigation
- Policy No. 05 - C001.D - 251 - Bare Conductor Policy
- Document No. - 01 - 00 - M0020 – Overhead Conductors Asset Management Plan

In addition to these, Powercor is progressively replacing the aged and slow operating electromechanical feeder protection relays at Zone Substations. The new relays have faster operating times which has the benefit of reducing the fault clearance time and reducing the fault energy supplied.

6.5 ELECTRICITY SAFETY (BUSHFIRE MITIGATION) AMENDED REGULATIONS 2016

This section describes how Powercor complies with the amended Electricity Safety (Bushfire Mitigation) Regulations 2013, of 1 May 2016, specifically the obligations regarding:

- Rapid Earth Fault Current Limiters (REFCLs);
- Single Wire Earth Return (SWER) Automatic Circuit Reclosers (ACRs); and
- Electric Line Construction Areas.

6.5.1 Rapid Earth Fault Current Limiters

To minimise the risk of the electricity network starting fires, Powercor will install Rapid Earth Fault Current Limiters (REFCLs) in accordance with the amended regulations.

REFCL Installation

Powercor will install REFCLs at 22 zone sub-stations with a program for delivery over three tranches as shown in table 1 below. The three tranches will ensure sufficient points are achieved by each of the tranche milestone dates, as defined in regulation 7(3) of the amended regulations. Each polyphase line originating from the zone substations will also meet the required capacity, by the required date, as defined in clause 5 of the amended regulations.

The installation program includes, but not limited to, all necessary sub-station works, line hardening and capacitive balancing works required to achieve the required performance criteria whilst ensuring a safe network and maintaining existing network reliability and supply quality, as a minimum.

Table 1 – REFCL installation program

Count	Tranche 1				Tranche 2				Tranche 3			
	Station	Planned Install ^[1]	Req'd Capacity	Pts	Station	Planned Install ^[1]	Req'd Capacity	Pts	Station	Planned Install ^[1]	Req'd Capacity	Pts
1	Gisborne	Apr-17	Apr-19	3	Bendigo TS	May-20	Apr-21	5	Stawell	Mar-23	Apr-23	1
2	Woodend	May-17	Apr-19	4	Charlton	Mar-20	Apr-21	2	Ararat	Apr-23	Apr-23	1
3	Colac	Mar-19	Apr-19	5	Bendigo	Apr-20	Apr-21	1	Waurm Ponds	May-21	Apr-23	4
4	Camperdown	Apr-18	Apr-19	4	Ballarat South	Apr-21	Apr-21	5	Corio	Apr-21	Apr-23	1
5	Winchelsea	Apr-19	Apr-19	5	Ballarat North	Mar-21	Apr-21	4	Koroit	Apr-22	Apr-23	2
6	Maryborough	Apr-19	Apr-19	5	Geelong	Apr-21	Apr-21	4	Terang	Mar-22	Apr-23	2
7	Castlemaine	May-18	Apr-19	4					Hamilton	Mar-21	Apr-23	2
8	Eaglehawk	Jun-19	Apr-21	5					Merbein	Apr-23	Apr-23	1
Subtotal				35				21				14
Total				35				56				70
Target				30				55				69

[1] the Planned Install dates are subject to change and represent targeted completion dates (noting that capital works will commence at least one year prior). Tranche 1 sites 1 to 7 are sufficient to achieve the required 30 Points. An 8th site, Eaglehawk, is included in tranche 1 as the planned installation date is comparable to the tranche 1 required capacity date, and these works may be accelerated if one or more of the other sites are unable to be completed by April 2019 (to ensure the full 30 points are still achieved).

There are many variables that may be outside Powercor's control, including but not limited to the in-service performance of the new technology, product reliability and defect response, single supplier dependency, HV customer impacts, Distribution Code restrictions, unforeseen (unintended) consequences of the REFCL performance (eg: SAIDI impacts), changing network augmentation requirements (eg: the timing of Torquay zone substation, and the relationship to Waurm Ponds). Powercor is committed to meeting the Req'd Capacity dates as a minimum.

REFCL inspection and testing

Prior to the commencement of each fire season, Powercor will undertake a testing regime at each of the locations where a REFCL has been installed and commissioned. The testing will involve a portable earth fault test truck with a variable 22kV resistor.

With the 22kV system energised and the REFCL in service, a phase to ground fault will be applied via the test truck at a nominated point on the 22kV network. Measurements will be undertaken at the affected zone substation 22kV bus in accordance with the relevant Inspection and Test Report (ITR).

The completed ITR for each location will be submitted to ESV as part of the pre-summer reporting requirements.

The testing regime is currently in development as part of the trial project (anticipated conclusion of trial is 30 September 2017). It is anticipated that the trial sites of Gisborne and Woodend will be operated at the "required capacity" prior to the 2017/18 fire season. Commissioning results will be forwarded to ESV within 1 month of the completion of each project at the required capacity.

REFCL Operating Mode

Powercor is in the process of installing the first two REFCLs at Gisborne and Woodend zone substations as a trial project.

The objective of the trial is to understand how to optimize the REFCL performance for fire safety improvement whilst balancing the other impacts to the overall network. This includes a particular focus on the implications surrounding system stability and operational protocols to ensure that all learnings are carried forward into the remaining 20 REFCL installations.

For the 2016/17 summer period, Powercor will select an operating mode and sensitivity aimed at minimising fire risk, whilst maintaining an acceptable level of supply quality.

REFCL Capabilities

Three (3) operating modes are available for selection;

1. Fire Risk Mode – This mode utilises the **Soft Fault Confirmation** technique demonstrated at the 2015 REFCL Test program at Kilmore South.
 - a. When a fault is detected the REFCL applies residual compensation and minimises the voltage on the faulted phase.
 - b. After a configurable delay time, Powercor's control relay requests a Soft Fault Confirmation test to confirm both the permanence of the fault and the identity of the faulted feeder.
 - c. If a permanent feeder target is identified, the feeder **Circuit Breaker is directly tripped**.

There is a tangible customer impact when operating in this mode as feeder based protective devices such as ACR's and fuses will not operate, and so all customers on a feeder are disconnected regardless of fault location.

Application - Powercor intends to utilise this mode on TFB Days and throughout the fire season, nominally being October through to March each year. During the trial period this mode will be deployed on non-TFB days as determined by the project team. The intent of the trial period is to gain a greater understanding of this operating mode. The most likely triggers for not using this mode on non-TFB days will include adverse reliability impacts, storm events and/or unpredictable performance.

2. Normal Mode – This mode utilises the Classical Fault Confirmation technique more associated with typical resonant networks which only utilise the Arc Suppression Coil.
 - a. When a fault is detected the REFCL applies residual compensation and minimises the voltage on the faulted phase.
 - b. After a configurable delay time, Powercor's control relay requests a Classical Fault Confirmation test to confirm both the permanence of the fault and the identity of the faulted feeder.
 - c. If a permanent feeder target is identified the feeder **Circuit Breaker is directly tripped**.

During the confirmation test, residual compensation is switched off leaving only a tuned coil in service and the current is limited to the residual only. Traditional fault detection elements compatible with resonant networks will be trialled with this mode however there is still a tangible customer impact since HV fuses will not operate for earth faults.

Application – Powercor intends to utilise this mode in conjunction with “enhanced” fault detection and isolation devices such as ACR’s compatible with resonant earthing systems. Currently Powercor does not have any such devices tested or deployed. Subject to sourcing and installing any new “enhanced” devices as part of the trial, it is intended that this mode would only be deployed on low fire danger days for the purposes of trialing and testing the fault detection and discrimination performance of the REFCL with the “enhanced” devices.

3. Bypass Mode – This mode uses the **Soft Fault Confirmation** technique demonstrated at the 2015 REFCL Test program at Kilmore South.
 - a. After a configurable delay time, Powercor’s control relay requests a Soft Fault Confirmation test to confirm both the permanence of the fault and the identity of the faulted feeder.
 - b. If a permanent feeder target is identified, the **Neutral Earthing Resistor (NER)** Circuit Breaker is closed.

Closing the NER permits the operation of conventional current based discriminant earth fault detection schemes. This expedites fault finding and minimises customers off supply for a given fault.

Application – Powercor intends to utilise this mode on non-TFB Days. During the trial period this mode will be deployed when the “Fire Risk mode” and “Normal mode” are not deployed (see above). The most likely triggers for not using this mode will include adverse reliability impacts, storm events and/or unpredictable performance.

The REFCL will be bypassed for any equipment failure and/or unpredictable performance that is causing an adverse reliability or safety impacts.

REFCL Sensitivity

Earth fault sensitivity is an independent consideration to the selected operating mode. Powercor’s REFCL system is designed to be capable of three (3) separate setting groups for neutral operating voltage and these can be individually configured for different applications.

It is intended to target a sensitivity level which strikes a balance between performance and reliability. Respecting variable damping conditions, this initial sensitivity is in the range of 6-8kΩ as we begin to understand the behaviour of the network and the inherent characteristics which cause further displacement from the initial balance point.

As the trial progresses, the sensitivity will be increased with the aim of achieving a minimum of 12.7kΩ on days of Total Fire Ban throughout the 2017/18 fire season.

REFCL TFB Days Operating Mode

On days of Total Fire Ban, Powercor will deploy the “Fire Risk Mode” operating mode with the best available sensitivity to maintain stability.

REFCL Backup Capability

1. In modes where the Soft Fault Confirmation technique is preferred, the Classic Fault Confirmation technique will be requested in instances where the REFCL inverter is unavailable. This may be due failure, internal disturbance or disconnection during the initial compensation process due to a second phase having been involved in the fault.
2. The REFCL system will be supervised throughout the trial and summer period via Neutral Overvoltage protection. The response of this protection will be to close the NER CB should the REFCL not correctly handle the fault within an acceptable time frame. This is applicable to all operating modes and will be subject to review prior to the following fire season.

6.5.2 Electric Line Construction Areas

As a preventative strategy to reduce the likelihood of powerline-initiated bushfires, the amended regulations define a higher standard for electric line works in the Electric Line Construction Areas. In accordance with these amended regulations, any Powercor new works to be undertaken in the Electric Line Construction Areas that meet the defined criteria will comply with the higher standards of construction. These standards will apply to construction of 22kV, SWER and LV assets and must utilise either:

- underground cable, or
- overhead covered conductor

Application of Electric Line Construction Area

The higher standards in Electric Line Construction Areas form part of the Powercor design and construction processes from 1 May 2016 and are applied as follows:

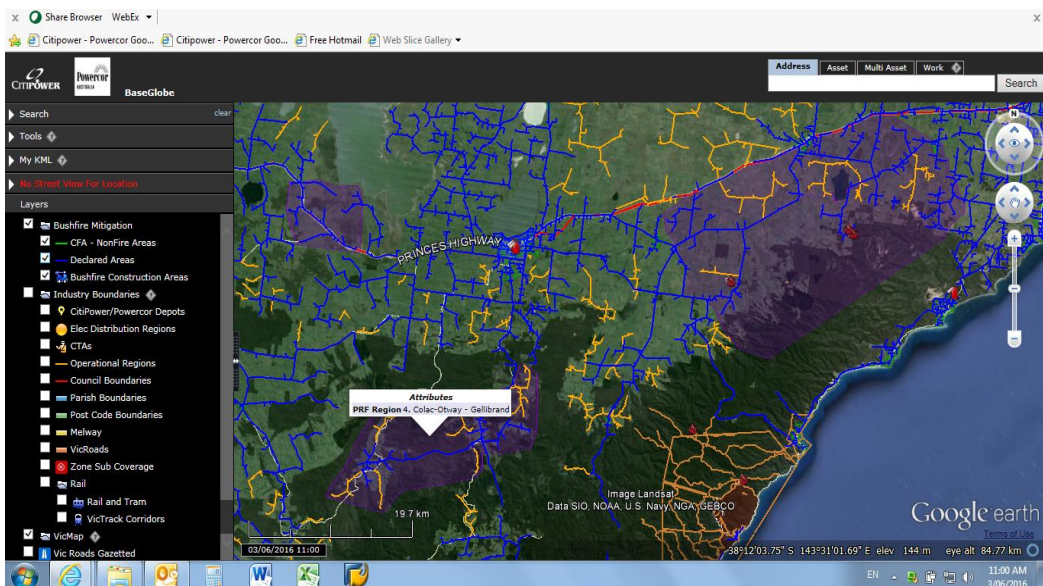
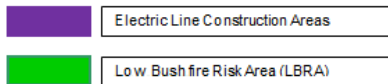
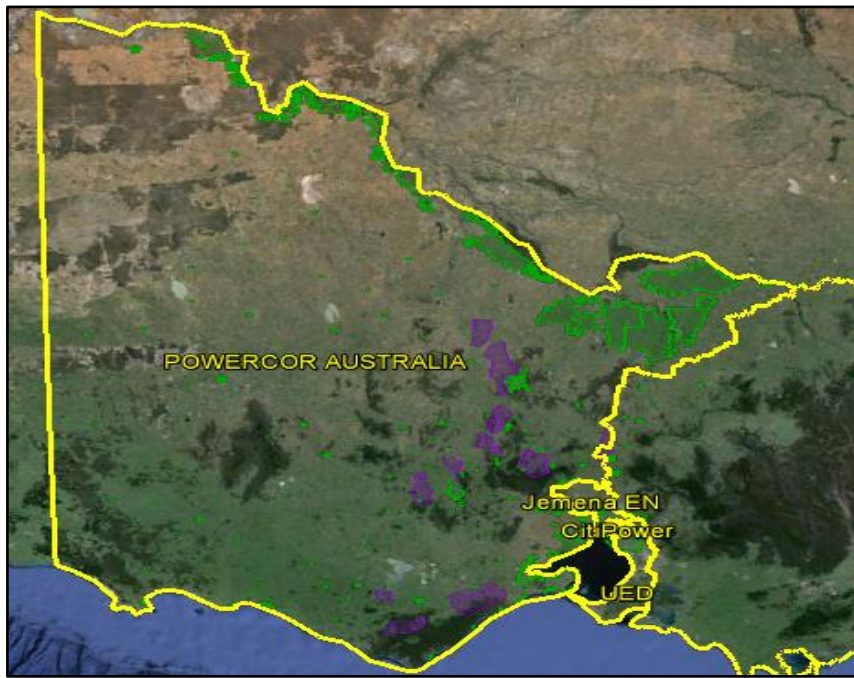
- all new construction ie: “greenfields”:
 - new customer connections
 - new feeder or feeder extensions
- all works involving re-conductoring on 4 or more consecutive spans:
 - re-conductoring, conductor replacement or line relocation project greater than or equal to 4 consecutive spans
 - includes any subsidiary HV circuits and/or dual circuits on the same poles
 - includes any single span tee-off
 - excludes any multi-span spur lines that may tee-off from the spans being re-conductored
 - excludes maintenance works that affect the pole top structure on individual poles
 - eg: a crossarm change, a substation replacement
 - excludes replacement or upgrades of assets on individual poles
 - eg: a pole substation upgrade, a switch replacement
- excludes any fault repair works that inhibits timely restoration of supply to customers
- excludes 66kV works

All customer initiated projects comply with the above criteria from 1 May 2016

Identification of Electric Line Construction Areas

There are 15 Electric Line Construction Areas in Powercor's distribution area. The areas are in accordance with the amended regulations and are derived from plans lodged in the Central Plan Office of the Department of Environment, Land, Water and Planning. These areas can be viewed on Powercor's Google Earth Enterprise application by selecting “Bushfire Construction Areas” layer. The areas are displayed in purple, and all assets within these areas are visible to the user.

A screen capture from Powercor's Google Earth Enterprise application showing these areas (shaded purple) is shown below, including a close up of the Colac area.



6.5.3 SWER ACRs

Powercor will install SWER ACRs as per the program summarised in section 6.6. The program will achieve completion of all SWER ACRs within the 2016 – 2020 regulatory period. The program allows for 100 units in 2016 including project planning and initiation activities and higher volumes in the following 4 years to complete the entire program of 1,062 SWER ACRs.

Given the high volumes involved, Powercor will use alternate approved products dependent on supplier availability and contractual arrangements over the duration of the program. Subject to Powercor technical approval processes, this may include but not be limited to the Schneider W27, the Siemens Fusesaver O-CO and/or the Noja OSM models.

Where Fusesaver is used on SWER lines, in place of an existing ACR or fuse protection, the Fusesaver will be installed on its own without a collocated partnering fuse, and the existing ACR or fuse at that site will be removed.

Auditing of the effectiveness of the inspections carried out under the plan is discussed in section 10.1.

6.5.4 Reporting

Powercor will provide progress and status reports to ESV in accordance with ESV requirements. Powercor and ESV have agreed on a reporting format that addresses

1. REFCL deployment with key program milestones
2. SWER ACR deployment with monthly totals completed (planned vrs actuals)
3. Electric Line Construction Areas with monthly deployment totals

This report is to be submitted monthly.

6.6 ESV DIRECTIONS

Under section 141 (2)(d) of the Electricity Safety Act 1998, ESV may issue directions in relation to electrical safety.

Current Directions

Bushfire Mitigation related Directions issued by ESV to Powercor prior to 30 June 2014 that require outworking during the term of this plan include;

- Powerline Replacement Projects
- SWER ACR Replacement/Installation Program
- Fitting of Armour Rods and Vibration Dampers : issued 4 January 2011
- Fitting of Spacers in Aerial Lines : issued 4 January 2011

Powerline Replacement Projects

This direction was completed by Powercor in 2015.

SWER ACR Replacement/Installation Program

In relation to the ESV direction relating to the installation of New Generation Electronic Automatic Circuit Reclosers (ACRs) to single wire earth return (SWER) lines issued on 5/4/2012, Powercor includes the following information:

1. **(Direction)** - *The location of all SWER ACRs whose protection settings and reclose functions cannot be remotely controlled by Powercor's SCADA system.*

A list showing the location of these SWER ACRs is shown in **Appendix I**.

(Please note - that this list includes all such ACRs that are on SWER systems including systems that have multiple ACRs).

2. **(Direction)** - *The location of all SWER fuses downstream from the SWER isolating transformer, excluding distribution substation fuses.*

A list showing the location of these SWER fuses is shown in **Appendix J**.

(Please note - that Powercor's understanding of the intent of this direction, as agreed in discussions with ESV and confirmed in our letter dated 24 April 2012, is to identify all SWER systems that do not have an ACR of any description. The intent was not to provide detail of all downstream fuses where such fuses exist in addition to the first fuse on the SWER system).

These Appendix list, in the case of:

- a) **SWER systems that have ACRs:**

- i. ACR description
- ii. The feeder name that it is part of, and
- iii. The location by coordinates (latitude/longitude) of the pole on which the ACR is mounted.

b) For those SWER networks that do not have ACRs:

- i. The name of the isolating substation (ISO) that isolates that SWER system from the 22 kV network
- ii. The feeder name that it is part of, and
- iii. The location by coordinates of the pole on which the ISO is mounted.

3. **(Direction)** - A description of the methodology to be used to prioritise the installation of ACRs identified in (1) and (2) above.

The following methodology will be used to prioritise the installation of remotely controllable devices at those locations identified in (1) and (2) above.

- i. The first group of 179 SWER ACR's were completed as listed in the Powercor 2013 Quarter 2 MEC Report). Since 2012 a small number of new generation ACR's have been installed as part of replacement or augmentation projects. This has reduced slightly the number of new generation ACR's required to be installed during 2016-2020.
- ii. The remaining SWER ACR's will be replaced during the 2016-2020 period. Due to updates completed in the annual Fire Consequence mapping outputs, some of the Low Consequence sites from 2012 have now been re-rated as High Consequence. These remaining Manual ACR's will be prioritised based on
 - a. 80% Highest Consequence using the Tolhurst model 2015/16 Ash Wednesday FDI70 with previous burn history consequence scenario, and
 - b. SWER ACR that are within the Electric Line Construction Areas

Where there are program efficiencies realised in installing an ACR in a location with a lower prioritisation rating, this will be brought forward ie: ACR's in a similar geographic location
- iii. The last priority will be to install ACRs on current fuse protected SWER systems. These will also be prioritised based on the 80% Highest Consequence using the Tolhurst model 2015/16 Ash Wednesday FDI70 with previous burn history consequence scenario. Again, where there are program efficiencies realised in installing an ACR in a location with a lower prioritisation rating, this will be brought forward ie: ACR's in a similar geographic location. Where an existing ACR has been identified as defective it may also be brought forward for replacement.

A table showing a breakdown of the replacement/installation program is shown below.

	Existing New Generation ACR	Existing Manual ACR	Number Required	Total SWER Systems
SWER System Without ACR	0	0	417	417
SWER System With ACR	221	645	645	866
Total	221	645	1062	1283

In addition, once existing stocks of current ACRs have been utilised and whenever there is a need through fault maintenance or system augmentation to replace or install a SWER ACR outside of the highest consequence area, the new generation device will be used.

4. **(Direction)** - A program is developed by 31 August 2012 to ensure that all locations identified in (1) and (2) above have ACRs, whose protection settings and reclose functions can be remotely controlled by Powercor's SCADA system.

A program for the replacement of all SWER ACRs identified in (1) and (2) above is shown below:

Period	2016	2017	2018	2019	2020
Volume	(100) 117 ^[1]	265	265	265	150

[1] 100 units were planned, 117 units were installed

Enhanced ACR Protection Settings on Total Fire Ban days

Enhanced TFB day protection settings are applied to SWER and 3 phase ACRs to reduce the fault energy in the event of a fault.

For ACRs that do not have the enhanced TFB Day setting functionality, these devices will have auto-reclose suppressed on TFB days

The enhanced TFB day protection setting regimes are applied to ACRs based on the following criteria

- SWER ACR's located within 80% Highest Consequence using the Tolhurst model 2015/16 Ash Wednesday FDI70 with previous burn history consequence scenario
- SWER ACR's that are within the Electric Line Construction Areas

NOTE: All new generation SWER ACRs, regardless of the location, will have enhanced TFB Day settings applied on TFB Days

- 3 phase ACRs within 80% Highest Consequence using the Tolhurst model 2015/16 Ash Wednesday FDI70 with previous burn history consequence scenario and where the fault energy > 1 mJoule
- 3 phase ACR's that are within the Electric Line Construction Areas

The above criteria will result in 421 ACRs with enhanced TFB Day protection settings applied on TFB days for the 2016/17 fire season. This is 47 more ACRs than the previous fire season.

NOTE:

For the 2015/16 fire season, there will be 7 manual SWER ACRs that will require manual suppressions to be applied. These suppressions will be applied and remain in place for the period 6 December 2016 to 6 April 2017. These devices are listed in **Appendix I**.

5. **(Direction)** - That sufficient ACRs are installed by 30 November 2012 to eliminate the need to attend and manually suppress the automatic reclose function on any SWER lines in the areas of highest 80 percent fire loss consequence on total fire ban and code red days.

Refer to 3(i) above.

6. **(Direction)** - A reporting mechanism is in place to track the progression of (4) and (5) above.

Refer above, section 6.5.4 – Reporting

7. **(Direction)** - Progression of the plan, including targets, is reported to Energy Safe Victoria (ESV) on a quarterly basis.

Refer above, section 6.5.4 – Reporting

Fitting of Armour Rods and Vibration Dampers

This direction was issued on 4 January 2011, with the requirement to establish and deliver a program that would ensure that all locations requiring the fitting of armour rods and/or vibration dampers to be completed;

- In HBRA – before 1 November 2015
- All other areas – before 1 November 2020

The following program is in place to ensure the completion of this direction

	2013	2014	2015	2016	2017	2018	2019	2020	TOTAL
HBRA	34,992	93,103	49,463	19,789 ^[1]					197,347
LBRA					8,000 ^[2]	35,000 ^[2]	35,000 ^[2]	35,000 ^[2]	113,000 ^[2]

^[1] some spans have been carried over into 2016 and these have been reported to ESV.

^[2] The LBRA quantities will be validated during the design phase in Q1/Q2 2017. There is also a separate review process that Powercor will undertake in consultation with ESV in Q1 2017 looking at a specific terrain assessment methodology in accordance with AS7000 to eliminate spans that will not require armour rods or vibration dampers.

Fitting of Spacers in Aerial Lines (issued 4 January 2011)

This direction was issued on 4 January 2011, with the requirement to establish and deliver a program that would ensure that

- Bare wire LV spans in HBRA areas are to have LV spreaders fitted – *this direction was completed by Powercor in 2011*
- Conductors on the same support to maintain minimum separation in accordance with ENA document C(b)1 Guidelines for design and maintenance of overhead distribution and transmission lines.
 - In HBRA – before 1 November 2015 (completed)
 - All other areas – before 1 November 2020

The following program is in place to ensure the completion of this direction

	2014	2015	2016	2017	2018	2019	2020	TOTAL
HBRA	33	180	33					246
LBRA			survey ^[1]	TBA ^[1]	TBA ^[1]	TBA ^[1]	TBA ^[1]	TBA ^[1]

^[1] The quantity of locations in the LBRA will be known once the LiDAR survey has been completed (anticipated completion is 30 March 2017)

6.7 VEGETATION MANAGEMENT

Powercor 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.

Powercor’s vegetation activities are managed in accordance with:

- **Electric Line Clearance (Vegetation) Management Plan**

Powercor’s Electric Line Clearance (Vegetation) Management Plan has been submitted to ESV for endorsement as prescribed by the Electricity Safety (Electric Line Clearance) Regulations 2015. The plan outlines management processes, programs and cycles for maintaining clearances between vegetation and network assets.

6.8 PRIVATE OVERHEAD ELECTRIC LINES

Inspections

Powercor has an obligation under the Electricity Safety Act 1998 to inspect Private Overhead Electric Lines (POELs). Point of Supply definitions are determined as per the Electricity Safety Act 1998. POELs are

inspected to identify any defects, or infringing vegetation, which may affect the fire and/or electrical safety of the line.

Inspections are undertaken to include the prescribed standards of inspection contained in section 10 of the Electricity Safety (Bushfire Mitigation) Regulations 2013. There are 3 variations to these prescribed standards of inspection being applied by Powercor.

Powercor meets the required outcomes of regulation 10(1)g(ii), 10(1)g(iii) and 10(1)h(ii) by the inspection techniques shown in (1) and (2) below.

- (1) The condition of hardwood POEL 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 POEL poles is determined by assessing the degree of external rot and also measurement of the pole girth. Powercor meets the required outcomes of regulation 10(1)i by the inspection technique shown in (3) below.
- (3) The condition of steel POEL 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.

The POEL inspection program is conducted in accordance with:

- **Policy No. 05 - C001.D - 430 - Low Voltage Private Overhead Electric Lines**
- **Policy No. 05 - C001.D - 431 - High Voltage Private Overhead Electric Lines**
- **Manual 05 - M450 - Powercor Asset Inspection Manual**

Powercor's inspection cycle for Private Overhead Electric Lines is as follows:

All Private Overhead Electric Lines (POELs) shall be inspected within a 36month timeframe.

Powercor's asset inspectors attempt to liaise with POEL owners regarding POEL inspection requirements before commencing any work. If the POEL owner is not home or is not spoken to, the asset inspector is required to leave a pamphlet informing POEL owners that an inspection of their POEL was undertaken, a brief summary of inspection findings and general information regarding POELs including the requirement for Powercor to inspect POELs as required under the Electricity Safety Act 1998. A copy of this pamphlet is contained in **Appendix F**.

The annual POEL mail out ensures that all Powercor customers who have a POEL will receive a letter and a brochure. The letter provides relevant information as well as our policy on defective POEL's. The brochure covers topics including ownership, responsibilities, maintenance, vegetation clearance, electrical safety, disconnection and a guide to POEL inspection. The mail out of these normally commences in early November.

Powercor notifies the owners of up-coming POEL inspections, as required in the Electricity Safety (Bushfire Mitigation) Regulations 2013. These letters notify the owner which part of the line we will be inspecting and what will happen if defects are found (Refer **Appendix G**). Notice is given not less than 21 days and not more than 45 days before inspection.

Disconnection

Private Overhead Electric Lines that are identified as having a fire risk defect are disconnected on TFB days. Land owners, or occupiers, who are responsible for a defective POEL, are given up to 30 days to rectify vegetation infringements or other urgent defects. Every attempt is made to contact the customer by phone as soon as we become aware of the defect during the declared fire danger period. If such defects are not corrected within this time the owner, or occupier, is given further written notice following which they are

advised that the matter has been referred to the ESV as required, according to referral advice provided by ESV.

Powercor regularly contacts the responsible land owner, or occupier, by telephone to monitor the progress of corrective action. POEL's referred to ESV for non-compliance are reinspected in accordance with POEL policy.

Any hazardous POEL's found during inspections are disconnected to ensure fire and/or electrical safety. Supply is not restored until the installation is safe to reconnect.

ESV has approved the disconnection of POEL's with urgent fire defects on TFB days. When a disconnection is necessary, Powercor's Customer Compliance Group advises the customer and creates an entry in OMS which prompts the Operations Control Centre to dispatch a crew to disconnect supply.

Identification and rectification of defective Low Voltage POELs are managed in accordance with the following:

- **Procedure JEQA4UJ443MT-158-503 - Identification and Rectification of Defective POELs (LV)**

The specific actions required for the management of POELs with outstanding urgent fire defects, on days of TFB, are contained in Powercor's TFB Day Action Plan (refer **Appendix A**).

6.9 NEW TECHNOLOGIES AND INITIATIVES

Powercor is committed to continuous improvement and this often involves trialing or developing new technology/initiatives, which if proven successful, are adopted as normal business practice.

Powercor has established a Fire Mitigation Improvement Plan (FMIP) to identify targeted initiatives/projects to minimise the risk of fire starts from its electrical assets.

The FMIP identified a number of initiatives/projects across a range of electrical assets types that are aimed at reducing the risk of fire start. Each of these initiatives/projects are in various stages of investigation or implementation.

As a result of the introduction of the Electricity Safety Further Amendment (Bushfire Mitigation) Regulations 2016, which make provision for requirements for major electricity companies to increase safety standards on specific components of their networks in order to reduce bushfire risk, Powercor is conducting a trial installation of two (2) Rapid Earth Fault Current Limiters (REFCLs) at the Gisborne and Woodend Zone Substations

The objective of the Woodend and Gisborne trials is to gain a better understanding of the methods of operation of the REFCL's on the Powercor network, and an understanding of the costs of installing a REFCL, and achieving the electrical rebalancing of the affected distribution networks.

To achieve these objectives, the trials will gather essential data regarding the various technical and operational issues encountered with this type of installation, including the amount of inductance and electrical balance required in the network, given the network:

- capacitance
- damping, and
- dissymmetry

The line rebalancing works are currently one of the "unknown" cost factors which will only be informed by a trial. The trials will involve a detailed survey of our network to validate the network data in our Geographic Information System (GIS), required for accurate calculation of the voltages, capacitance, damping and dissymmetry to determine the impedance required to meet the requirements of the proposed regulations.

The trial project at GSB and WND is scheduled for commissioning and trial through the 2016/17 fire season. Planning and initial scoping activities have also commenced for the next tranche of projects at CLC, CDN, WIN, CMN and MRO zone substations (see **Section 6.5**)

The undertaking of these initiatives reaffirms Powercor's commitment to developing and maintaining its electricity supply network to reduce the bushfire risk across its distribution area.

6.10 RESOURCING

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

Each year, typically in the third quarter, historical data is entered into various forecasting models for asset maintenance activity. The forecasts obtained from these models, for following years work, are then entered into Powercor's Asset Management System (SAP). Resource requirements are then checked against the projects listed in SAP and resources are sourced accordingly.

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

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

6.11 TRAINING

Powercor has an established and documented system to ensure that employee and contractors who are working on or near the Networks are suitably competent and adequately trained to carry out their duties.

The key steps that Powercor has in place to manage competency and training requirements are illustrated below:

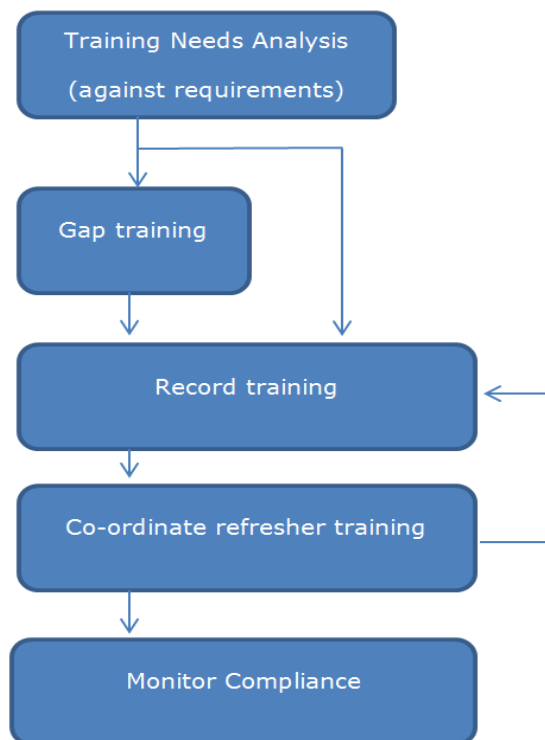


Fig. Competency and training process

In Powercor, the Electricity Networks business unit sets the training standard for workers who are working on or near the Network. The training standards are established through the industry committee VESI Skills and Training Reference Committee for consistency within the State and nationally through the Industry Skills Council (name to be changed to Service Skills Organisations in 2016 refer <https://www.education.gov.au/AISC> for more information).

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

Powercor has a documented Technical Training Policy (JEQA4UJ443MT-173-25) and Technical Training Guideline (JEQA4UJ443MT-173-28) which references the training requirements.

All Asset Inspectors are required to meet the training requirements as specified in the VESI Skills and Training Matrix for Asset Inspectors. These training requirements are confirmed by Powercor 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 Powercor requirements (including our procedures) is conducted by a person holding a Certificate IV in Training and Assessment.

Powercor 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 Powercor assets.

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.

Powercor has implemented the Australian ESI Skills Passport in 2010. The Australian ESI Skills Passport system has enhanced the portability of the ESI workforce by mutual recognition of agreed training standards. Training is recorded in the passport and can be viewed to confirm currency of training for the task being undertaken. Further information can be located at www.esipassport.com.au.

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

Asset Inspection

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

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

Vegetation Management

All training requirements for vegetation management are covered in the Electric Line Clearance (Vegetation) Management Plan in **Appendix B**.

Line work

The VESI Skills and Training Matrix stipulate 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 RTO and this training is supported "on the job" by designated mentors and tradespersons.

Technical Standards

Powercor's Technical Standards group provide information to Powercor employees, Local Service Agents (LSAs) and contractors with regard to new initiatives in the design and construction of network assets, generally on a monthly basis. 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 Powercor assets can register with Powercor to gain “read only” access to Powercor’s technical standards.

Information sessions are also stored in the “Source” document portal on Powercor’s Intranet System for future viewing.

6.12 LIAISON WITH OTHER ORGANISATIONS

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

- Energy Safe Victoria (ESV)
- Country Fire Authority (CFA)
- Metropolitan Fire Brigade (MFB)
- State Emergency Service (SES)
- Department of Environment Land Water & Planning (DELWP)
- Department of State Development, Business & Innovation (DSDBI)
- Municipalities
- Mutual Aid Plan Planning Committee (MAPPC)
- Bureau of Meteorology
- Other Distribution/Transmission Network Operators

Actions to be undertaken in the event of a major event or emergency are contained in:

- **Manual 14 - 40 - M0001 – Incident Reporting & Investigation Manual**
- **Manual 13 - 40 - CP0001 Crisis and Emergency System Management Manual**
- **Manual 13 - 40 - M0002 - Event Command Organisation Manual**

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

Communication processes for BFM related activities are managed in accordance with:

- **Procedure 16 – 30 – P0003 - Coordinating Bushfire Mitigation with other Organisations**

6.13 PUBLIC AWARENESS

In an effort to maintain community awareness of bushfire hazards, Powercor provides information to the public concerning various BFM activities. Powercor has a commitment to enhancing public awareness of:

- the potential risks associated with POELs
- 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 POEL inspection programs Powercor makes the following information brochures available to its customers, free of charge:

- “Planting Trees Near Power Lines”
- “POELs - Understanding Your Responsibilities”

Powercor prepares a BFM communications schedule detailing activities and timelines for each fire danger period.

Powercor’s Regional Business Managers (RBMs) are involved in communication programs with customers, asset owners and municipalities. There are a total of three RBMs covering the following regions:

- Northern
- Southern
- Central
- Metro

RBMs also provide a range of information to the relevant Regional Emergency Management Team (REMT) associated with the following activities:

- Asset Inspection
- Maintenance programs
- Vegetation Pre-summer Audit
- Vegetation Management

Other communication programs may be conducted in various forms including media releases, newspaper articles & advertisements, radio advertisements & interviews, TV interviews and face to face meetings with various stakeholders.

Powercor sends out letters to Registered Electrical Contractors (RECs), within our service territory, in an effort to raise awareness and appreciation of the importance of POEL maintenance works and complying with the regulations and Powercor’s processes.

For details of communication with POEL owners refer Section 6.8

6.14 ASSISTANCE PROVIDED TO FIRE AGENCIES

There are two rural fire fighting services, operating within Powercor’s service area:

- The DELWP are responsible for state forests and parks.
- The CFA is responsible for all other rural areas and is resourced largely by volunteers.

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

Powercor’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.

Emergencies

Any requests for resources to assist fire agencies are coordinated by the Network Controller, from Powercor's Operations Control Centre.

Fire emergencies are communicated directly to the Operations Control Centre via a direct phone number for emergency services organisations. Fault Crews are then promptly dispatched according to the information received.

Powercor will work with the relevant fire control agency to provide safe access to a fire or accident scene involving Powercor assets. This may include de-energisation of electrical assets upon request.

Actions to be undertaken in the event of a major event or emergency are contained in:

- **Manual 14 - 40 - M0001 – Incident Reporting & Investigation Manual**
- **Manual 13 - 40 - CP0001 - Crisis and Emergency System Management Manual**
- **Manual 13 - 40 - M0002 - Event Command Organisation Manual**

Powercor also has representation on the State Control Centre Electricity Industry roster for Emergency Management Liaison Officers (EMLOs). An EMLO will provide the technical or subject matter expertise relating to the Electricity Industry and embeds an EMLO into the SCC to provide face-to-face coordination.

Information Exchange

There are a number of different forums for information exchange to take place between the fire agencies and Powercor.

A Regional Integrated Fire Management Planning Committee operates in each Region. Each committee includes representatives from the CFA, local Brigades, DELWP, and local municipalities. RBMs may either attend committee meetings or provide written reports on the status of Powercor's Bushfire Mitigation Program.

Each year prior to the fire danger period, the 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 Powercor), transmission operators and representatives from the ESV.

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

6.15 TOTAL FIRE BAN DAYS

Powercor has a TFB Day Action Plan which is invoked on TFB days. The TFB Day Action 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 the Powercor's electricity network.

The TFB Day Action Plan is implemented under the direction of the Manager Control with assistance from the BFM Coordinator. A copy of the TFB Day Action Plan is attached in **Appendix A**.

POEL's which are located in hazardous bushfire risk areas and have defects which are not fire safe are disconnected on days of TFB. These lines are not reconnected until the end of the TFB or until the fire danger has subsided.

For works involving welding, cutting, grinding, or use of naked flame permits from the appropriate organisation (eg. CFA, MFB, and DELWP) are used and adhered to.

6.16 DECLARED FIRE DANGER PERIOD

During the Declared Fire Danger Period Powercor will continue with normal operation of its electrical assets. The majority of Powercor's Operational and Maintenance activities are configured to be undertaken for the full 12 months of the year, irrespective of Declared Fire Danger Periods.

There are however some activities that are specific to the Declared Fire Danger period. These include:

1. Vehicle Movement Off-road (see **Appendix D**)
2. Use of Flame /spark omitting equipment (see **Appendix E**)

3. Fire Fighting Equipment to be carried (see **Appendix D**)
4. Line Condition Observation Program – This is a series of field observations undertaken across the distribution network (see **Section 10.1 Auditing**)
5. 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.

6.17 FIRE MANAGEMENT

In the event of a fire, Powercor'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.
- Dispatching field crews for fault rectification or as directed/requested by the relevant fire control agency.
- Deployment of Emergency Management Liaison Officers if required to any Incident Control Centre established by the relevant fire control authority.
- Managing the fire event in accordance with:
 - **Event Command Organisation Manual 13-40-M0002**
 - **Incident Reporting & Investigation Manual 11-M700**

6.18 HIGH VOLTAGE AERIAL BUNDLED CABLE REPLACEMENT

To further mitigate the risk of bushfire, Powercor is undertaking a replacement program to progressively replace the Non-Metallic Screened High Voltage Aerial Bundled Cable (NMS-HVABC) within the hazardous bushfire risk areas.

Powercor will replace all of the NMS-HVABC (25 separate projects, total of 6.1kms) within HBRA. Design and planning commences in early 2017, with construction commencing in late 2017. Dependant on the site, the NMS-HVABC will be replaced with either HV underground cable, or metallic-screened HVABC. All sites will be completed by the end 2018.

A quarterly progress report will be provided to ESV for each of the 25 project sites.

7 Program Timing

Powercor have 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 C.

The asset inspection program dates are determined by the maintenance plan, in accordance with the relevant asset policy and are generated from SAP (Refer **Section 6.1**).

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

Timing of Vegetation management activities are undertaken in accordance with Powercor's Electric Line Clearance (Vegetation) Management Plan (refer **Appendix B**)

8 Fire Investigation

Any fire starts initiated by Powercor Assets according to ESV reporting guidelines are reported to ESV. The Network Control Room identifies any fire starts from outage information or from external advice and notifies the Network Availability Officer (NAO) who investigates each situation according to the information provided. The NAO then sends completed reports to the Manager Risk Management for checking and collation and forwarding to ESV as per the ESV reporting guidelines.

At the annual BFM post season review, ground fire start statistics are presented and discussed.

The following manual and policy cover the reporting requirements for fire starts:

- **Manual 14 - 40 - M0001 – Incident Reporting & Investigation Manual**
- **Policy 18 - 80 - CP0007 – ESMS Reporting to Energy Safe Victoria (ESV) and Fire Start Reporting to AER**

The Incident Reporting & Investigation Manual describes the requirements for the reporting and investigation of incidents involving employees and contractors, plant, property, customers or customer installations and facilities belonging to others where CP/PAL assets or works are involved.

The manual ensures that CP/PAL meets its responsibilities to employees, customers, members of the public and regulatory requirements.

Fires initiated from CP/PAL assets are reported in accordance with the manual and to the requirements stipulated in ESVs “Electrical Infrastructure Safety – Electrical Incident and Safety Performance Reporting Guidelines” located on the ESV website:

http://www.esv.vic.gov.au/Portals/0/electricity%20professionals/files/esms/Electrical_Safety_Performance_Reporting_Guidelines_Jun2016.pdf

9 Key Measures

9.1 BFM INDEX

As there is no current Industry Standard for the BFM Index calculation, Powercor has developed an in house BFM Index for its Bushfire Mitigation activities. This BFM Index is an index of preparedness measured against 5 key elements of our BFM program. It measures the performance of a range of inspection and maintenance activities against policy targets as well as vegetation outside policy clearance programs. The index is constructed from figures contained in Powercor’s consolidated BFM status report.

The BFM status report includes a breakdown of the individual elements that comprise the index, with their respective weightings (“Multipliers”), together with the actual incidence of non-compliant items. Elements covered include asset inspection, vegetation management, pole replacement and priority maintenance compliance with policy.

An explanation of how the BFM Index is calculated, providing information on the calculation formula and components is attached in **Appendix H**.

The objective is to reduce the index to zero by the start of the Fire Danger Period and to maintain zero throughout the period.

9.2 FIRE STARTS

Reporting on Ground Fires and Pole Fires is done as they occur and reported to ESV. This is carried out in accordance with:

- **Policy 18 - 80 - CP0007 – ESMS Reporting to Energy Safe Victoria (ESV) and Fire Start Reporting to AER; and**
- **Manual 14 - 40 - M0001 – Incident Reporting & Investigation Manual**

Powercor has an arrangement with the CFA for obtaining monthly attendance statistics for Grass/Scrub/Bush/Grazing and Cropping Property Codes fire starts within the CFA Regions located in Powercor’s distribution area. Powercor’s ground fire start information is then normalised against these CFA fire start statistics and included into the annual insurance liability submission.

9.3 ASSET FAILURES

As part of continuous improvement towards the mitigation of bushfires, Powercor 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.

An Asset Failure Committee provides management and governance of the asset failure investigation process. The committee consists of representatives from Asset Policy and Performance, Bushfire Mitigation, Plant and Stations Maintenance, Compliance, Safety, Technical Standards as well as Senior Management including the General Manager Electricity Networks. The committee meets quarterly to:

- Ensure actions resulting from asset failure investigations address the identified issues, are appropriately prioritised and completed in a timely manner.
- Monitor the overall performance of the network assets and ensure that appropriate causal analysis and investigation is undertaken when unfavourable trends become evident.

The following procedure covers the reporting, analysis and investigation of failed assets:

Procedure 18 – 06 – P0001 - Asset Failure Investigation and Reporting

9.4 BFM MILESTONES

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

- Submission of the Vegetation Management Plan to ESV
- Conducting the annual BFM Post Season review
- Submission of the Bushfire Mitigation Plan to ESV
- Update any CFA Fire Hazard Mapping Project changes to HBRA areas received before 30th June each year into GIS/SAP
- Conducting the annual summer Pre-Season Briefing to Senior Management
- Completion of POEL mail out to Powercor customers
- Commencement of weekly vegetation inspection and cutting progress reports to ESV
- Complete Senior Management BFM Program Reviews
- Completion of Line Condition Observation program

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

10 Reporting and Monitoring

Powercor has a reporting process 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.

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 days are contained in the TFB Day Action Plan (refer **Appendix A**).

BFM Status Report

The main method of monitoring the BFM plan is the BFM Status report, which includes the BFM Index. This report measures the status of a range of BFM activities against policy or program targets. Reported activities include pole replacement, asset inspection (including POELs), priority maintenance, POEL disconnections and vegetation outside policy clearance programs.

It is provided to senior management, the various people involved in BFM activities and ESV. The report is also loaded onto Powercor's Intranet site for viewing by all Powercor 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 Powercor 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.

Powercor's Senior Bushfire Mitigation Advisor prepares the BFM Status Report from automated reports generated from SAP and OMS.

BFM Index

Powercor's strategy to reduce the BFM Index is to closely monitor the key programs associated with the BFM program. This includes maintenance items, vegetation control and asset inspection.

Asset Inspection

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

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 Officer investigates any overdue poles to ensure appropriate action has been taken (including POEL poles).

Maintenance

An automated daily Priority 1 report is generated from OMS and distributed to relevant employees by e-mail. The Asset Inspection Officer checks any outstanding items, with the Outage Co-ordinator, to ensure prompt action.

An automated daily Priority 2 exception report is generated from SAP and distributed by e-mail to alert relevant employees of defects that are overdue for rectification or close to becoming overdue. The Senior Program Planner investigates any outstanding defects and follows up with the Program Manager Asset Maintenance to action them in accordance with:

- **Work Instruction 18 – 10 – W0006 - Management of Maintenance Items Outside Policy**

Vegetation Clearance

Powercor produce a weekly report which is distributed to key stakeholders. This report provides program status updates on all vegetation management programs. Status reporting on vegetation outside policy is included into the BFM Status report.

ESV

Powercor's reporting schedule to ESV, on its BFM activities, is listed below.

- Annual Vegetation Management Plan (supplied by the 31st March in each year)
- Bushfire Mitigation Plan (supplied every 5 years)
- BFM Status Report (reported monthly or weekly during the Declared Fire Danger Period)
- Bushfire Performance Index (reported monthly or weekly during the Declared Fire Danger Period)
- Ground and Pole Fire starts (reported as they occur)

- Fire Start Statistics (reported to ESV as per the ESV reporting requirements)
- POELs for disconnection on TFB days (reported monthly or weekly during the Declared Fire Danger Period)
- Safety Program Report (Quarterly)
- Electricity Safety (Bushfire Mitigation) Amended Regulations 2016 (monthly)

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

10.1 AUDITING

Powercor has produced a policy document covering auditing and inspection programme requirements:

- **JEQA4UJ443MT-175-29 - Audit and Inspection Programme Requirements**

This policy provides information for the process of preparing audit and inspection programmes conducted by both CitiPower and Powercor organisations.

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

Powercor 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 Powercor'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 include:

Asset Inspection Audits

Powercor's asset inspection contractor has a self-audit program that they manage and maintain. The audit program requires 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.

Powercor's asset inspection contractor includes the results of their completed audits (including POEL inspections) and corrective actions proposed/undertaken in their monthly asset inspection report.

Powercor also has its own independent audit program for monitoring the performance of asset inspectors. Powercor's Maintenance Services Officers are responsible for performing this function. These audits are conducted in accordance with:

- **05-C001.A-090 – Asset Inspection Compliance Audit Procedure**

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 Network Services Field Audit and Quality 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.

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

Vegetation Audits

Powercor's Vegetation Quality & Engagement Team audits the activities and effectiveness of our vegetation management contractor in accordance with a documented audit schedule.

The vegetation management contractor also has their own internal audit program which addresses two key issues:

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

Line Condition Observations

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

Powercor's Senior Bushfire Mitigation Advisor organises the line condition observation program and selects suitable managers and employees to participate in the program. Observations are conducted in the Hazardous Bushfire Risk Areas.

The program is undertaken in accordance with:

- **Work Instruction 16 – 30 - W0004 - Line Condition Observation**

11 Reviewing

The Powercor Bushfire Mitigation Plan is reviewed each year and adjustments/improvements are made to better meet the objectives of the plan. There are various means by which feedback is obtained and improvements are identified including:

- Changes in Regulation
- The Post Fire Season Review, which is held at the end of the fire danger period to review performance under the plan. Attendees include Powercor senior managers, corporate risk personnel, internal auditors, and key personnel involved in the BFM program. Presentations are delivered on the businesses performance in each of the key BFM activities. Improvement opportunities are discussed and included into the BMP if required.
- The Summer Pre-Season Briefing, which 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

Reviewing/Updating of the Bushfire Mitigation Plan is undertaken in accordance with:

- **Procedure Bushfire Mitigation Plan Review & Update**

The value of the measures contained in the BFM Index is reviewed annually before the start of each fire danger period.

This review considers each of the components of the BFM Index to determine ongoing relevance of each the contributing elements which make up the index. This review is carried out in accordance with:

Work Instruction 16-30-W0001 Bushfire Mitigation Index Review

12 APPENDICES

Appendix A
TFB Day Action Plan

Appendix B
removed

Appendix C
BFM Program Milestones

Appendix D
Vehicle Fire Equipment & Vehicle Movement

Appendix E
Declared Fire Danger Period - Bushfire Mitigation Requirements

Appendix F
Inspecting Power lines On Your Property Brochure

Appendix G
POEL Inspection Notification Letters

Appendix H
Powercor Consolidated Bushfire Mitigation Index of Fire Preparedness

Appendix I
List of SWER ACRs where protection settings & reclose functions cannot be remotely controlled

Appendix J
List of SWER Fuses Downstream from the SWER Isolating Transformer, Excluding Distribution Substation Fuses

Appendix K
List of HVABC replacement sites