



# Transmission Operations Australia 2

## **BUSHFIRE MITIGATION PLAN 2016-2021**

**Electricity Safety (Bushfire Mitigation) Regulations 2013**



**1<sup>st</sup> JUNE 2016 – 31<sup>ST</sup> MAY 2021**

Administrator: Head of Network Compliance		Document Owner: Eric Lindner Chief Executive Officer	
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## CONTACT INFORMATION/APPROVALS


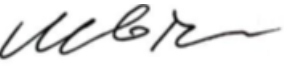

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1	Plan submitted to ESV.	Bushfire Mitigation Manager	18/3/2016
2	Plan re-submitted to ESV.	Senior Bushfire Mitigation Advisor	31/5/2016
3	Plan updated to include reporting frequency for BFM Status Report.	Senior Bushfire Mitigation Advisor.	17/6/2016

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# 1 COMPLIANCE INFORMATION

The purpose of this section is to provide assistance to quickly identify 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.	Location in TOA2 Plan
7(1)(a)	the name, address and telephone number of the major electricity company;	<u>Contact Information</u>
7(1)(b)	the position, address and telephone number of the person who was responsible for the preparation of the plan;	<u>Contact Information</u>
7(1)(c)	the position, address and telephone number of the persons who are responsible for carrying out the plan;	<u>Contact Information</u>
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;	<u>Contact Information</u>
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;	<u>Contact Information</u>
7(1)(e)	the bushfire mitigation policy of the major electricity company to minimise the risk of fire ignition from its supply network;	<u>Section 5.1</u>
7(1)(f)	the objectives of the plan to achieve the mitigation of fire danger arising from the major electricity company’s supply network;	<u>Section 5.2</u>
7(1)(g)	a description, map or plan of the land to which the bushfire mitigation plan applies;	<u>Section 2.2,</u>
7(1)(h)	the preventative strategies and programs to be adopted by the major electricity company to minimise the risk of the major electricity company’s supply networks starting fires;	<u>Section 6</u>
7(1)(i)	a plan for inspection that ensures that – (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; and (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;	<u>Section 6.2</u>
7(1)(j)	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	<u>Section 6.7</u>

	satisfactorily completed a training course approved by Energy Safe Victoria 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;	<u>Section 6.7</u>
7(1)(l)	the operation and maintenance plans for the major electricity company's supply network— (i) in the event of a fire; and (ii) during a total fire ban day; and (iii) during a fire danger period;	<u>Section 6.9</u> <u>Section 6.11</u> <u>Section 6.12</u>
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;	<u>Section 7</u>
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); and (v) monitor the effectiveness of inspections carried out under the plan; and (vi) audit the effectiveness of inspections carried out under the plan;	<u>Section 9</u> <u>Section 9.6</u> <u>Section 9.6 &amp; Section 10</u> <u>Section 10</u> <u>Section 9.6</u> <u>Section 9.6</u>
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;	<u>Section 6.10</u>
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 electric lines that are above the surface of the land within its distribution area.	<b>Not Applicable</b>
7(1)(q)	a description of the measures to be used to assess the performance of the major electricity company under the plan.	<u>Section 8 &amp; Section 9</u>

## 2 INTRODUCTION

### 2.1 Transmission Operations (Australia) 2 Pty Ltd

Transmission Operations (Australia) 2 Pty is the company established to design, construct, operate, maintain and own the transmission assets for the connection of the 240 MW Ararat Wind Farm. The transmission assets comprise the Ararat Terminal Station and 21 km of 132kV transmission line (details provided in Element 2). These connections assets are very similar to those designed and constructed and now being operated by TOA2's sister company, Transmission Operations (Australia) Pty Ltd (TOA) for the connection of the Mt Mercer wind farm.

TOA2 is a wholly owned subsidiary of Transmission General Holdings (Australia) Pty Ltd (TGHA), whose ultimate owners are:

- Cheung Kong Infrastructure Holdings Ltd (CKI) owns 50% of TOA2; and
- Power Assets Holdings Ltd (PAH) owns 50% of TOA2

TOA2 resources and manages the design, construction, operations and maintenance of its network, plus manages the provision of its back office services through contractual arrangements with Powercor Network Services and CHED services. These service providers are part of the Victorian Power Networks (VPN) Group which also includes CitiPower and Powercor. These Contractual Arrangements enables TOA2 to utilise the policies, procedures, resourcing and management systems of the VPN Group.

This document references the policies, procedures, resourcing and management systems of the VPN Group as those of Primary Service Providers.

The 132kV transmission powerline and the Ararat Terminal Station commenced construction in July 2015. Commissioning of the transmission powerline and station is planned to be completed in July 2016.

### 2.2 Ararat Wind Farm

The site of the Wind Farm is located approximately 180km northwest of Melbourne in Victoria, and between 9km and 17 km northwest of Ararat, on both sides of the Pyrenees Highway.

The wind farm consists of 75 x 3.4MW wind turbines providing a collective generating capacity of 255MW.

The power generated by the Wind Farm will be transmitted via a 132kV transmission line to the proposed 220/132kV Transmission Substation (ARTS). The transmission line extends across the Ararat Rural City Council area and the Pyrenees Shire Council area. The proposed Transmission Substation interfaces via the Ararat Terminal Station to the existing 220kV Ballarat-Horsham (BATS-HOTS) transmission line.

The 132kV transmission line itself has 106 poles, all of which are located in the Hazardous Bushfire Risk Area (HBRA) and covers a distance of approximately 21 kms.

Overall the Ararat Wind Farm will have a life span of 25 years and will generate enough electricity to power around 120,000 homes per annum, or approximately six per cent of Victoria's households.

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Figure 1 - Location of the Ararat Wind Farm

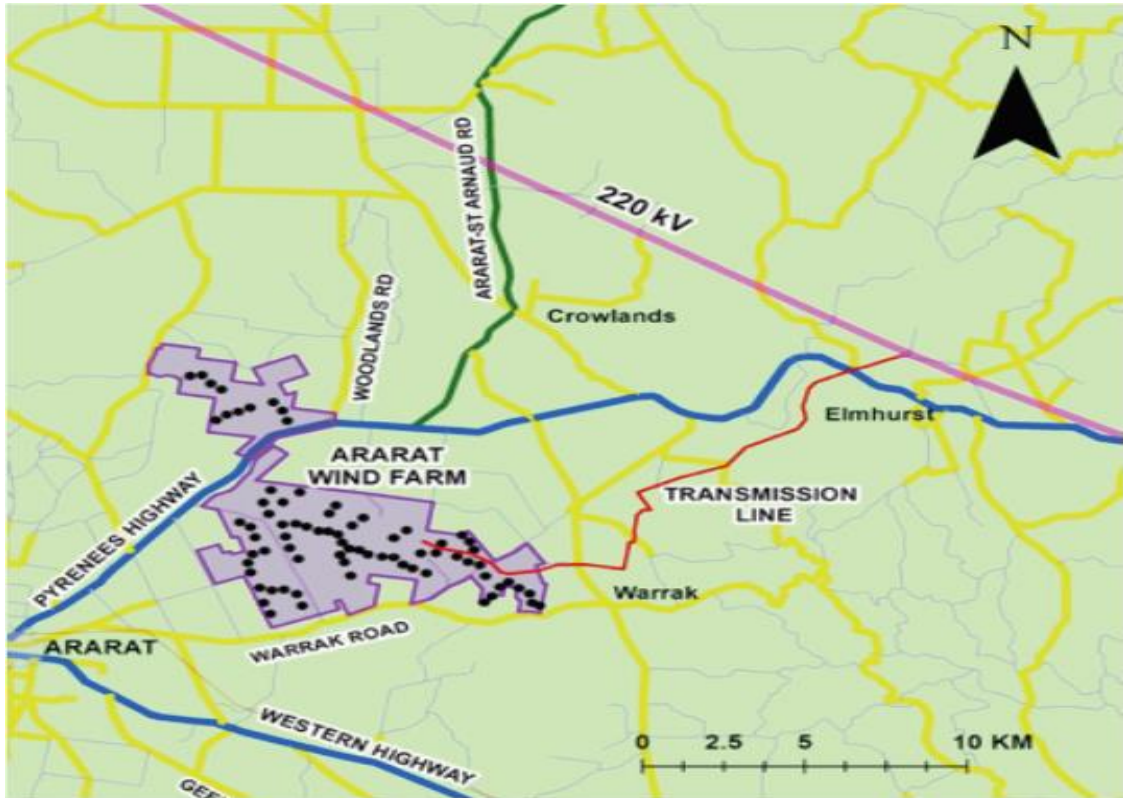
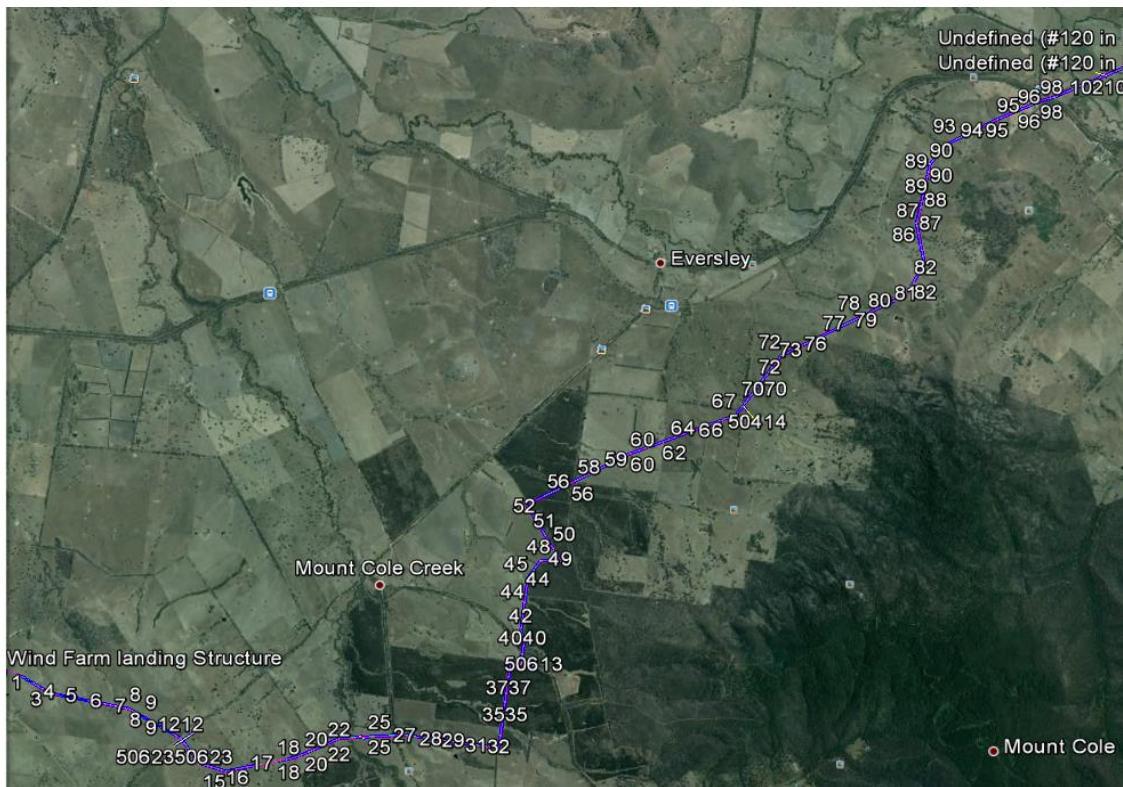


Figure 2 – TOA2’s approved transmission line corridor from AWF to ARTS



Internet link to Ararat Wind Farm <http://www.ararat-windfarm.com/>

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### 3 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 –

- a) the date when the accepted bushfire mitigation plan is first accepted under this Division; or
- b) 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 provides the prescribed particulars as specified in Regulation 7.

A copy of the accepted TOA2 BFMP will be published on the website of TGHA.

A copy of the current accepted bushfire mitigation plan will be available for inspection at the company's principal office in the State of Victoria during ordinary business hours.

This plan is a living document and will evolve as the fire danger period approaches each year. Appendices to this document will be reviewed and additional information may be added to the appendices as it becomes available.

### 4 SCOPE

As outlined in Section 2.1, this document references the Bushfire Mitigation Plan framework, documents, resourcing and organisational responsibilities of the VPN Group as those of “Primary Service Providers”.

The Transmission Operations Australia 2 bushfire mitigation BFM program includes asset inspection, maintenance, construction, asset replacement, vegetation management, performance monitoring and auditing. The planning and scheduling of this program is based principally on the system of asset inspection and maintenance reporting supported by a program of audits.

TOA2 is responsible for the Bushfire Mitigation Plan which outlines the Bushfire Mitigation program to be managed by TOA2 Primary Service Providers. This strategy plan applies to and is limited to TOA2 electricity transmission network assets within the TOA2 electricity transmission network.

The TOA2 BFM plan makes reference to other plans, manuals, standards, policies, procedures and work instructions, when combined with this plan, cover all of the activities that contribute to the overall reduction of bushfire risk.

Other key documents include:

- The TOTAL FIRE BAN (TFB) DAY ACTION PLAN - refer Appendix A
- The 2016 TO 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat - (Refer Appendix B)

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- Asset Management Plans
- Electricity Safety Management Scheme (ESMS) and Safety Case
- Technical Standards (covering design & construction of assets)
- Maintenance Policies
- TOA2 Operational Procedures

## 5 BFM POLICY & OBJECTIVES

### 5.1 BFM 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.

### 5.2 Objectives

- Minimise the risk of fire starts originating from TOA2 transmission network assets with the aim of zero fire starts.
- 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.
- Describe TOA2's 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 reference document.
- Demonstrate a high level of commitment to meeting bushfire mitigation responsibilities.

### 5.3 TOA2 Business Service Model

TOA2 employs a service model that enables it to better focus on its long term asset ownership and performance. This model involves the purchase through contracts with related entities within the VPN Group, the majority of services required to undertake its day to day business. The key contracts are:

Utility Support Services Agreement – CHED Services (a VPN subsidiary) provides specialist corporate services to TOA2, including, Finance, Company Secretarial, Internal Audit, Legal, Human Resources, Corporate Affairs, Regulation, Customer Services, Information Technology and Office Administration;  
 Engineering, Procurement and Construction Agreement— Energy Solutions (a VPN subsidiary) undertakes the design, construction and commissioning of the Ararat Terminal Station and connections assets;

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Operating and Maintenance Agreements – Energy Solutions (a VPN subsidiary) undertakes the operation and maintenance of the Ararat Terminal Station and connections assets. These contracts allow TOA2 immediate access to best of kind utility management services, quality asset management and reliable operations as well as access to the appropriate skills and expertise to oversee the establishment and provision of the ongoing appropriate governance structure.

Utilisation of this model by Transmission Operations Australia (TOA) (TOA2’s sister company) for the transmission connection of the Mt Mercer wind farm has demonstrated that it delivers high quality assets that operate with high reliability.

The non-price terms and conditions specified in the agreements clearly define the roles and responsibilities of the Service Provider and TOA2. Key requirements of the contracts to ensure safe operations of TOA2 network include:

**Safety Requirements**

The contract specifies that Safety in operation is a key requirement. This includes the safety of personnel engaged in operating and the general public who may interact with the Network during its operation and potentially during its decommissioning.

Service Provider shall ensure that all work systems, plans, processes and those personnel employed to carry these out comply with all applicable Laws, Standards, Codes of Practice and Guidelines at both a State and Federal levels regarding work health and safety.

**Operating Period**

25 years unless otherwise terminated in accordance with termination provisions.

**Resourcing and Performance**

The contracts require that the Service Provider continuously over the term performs all requirements safely as specified in the contract. Key contract requirements are that the Service Provider must provide a safe and stable connection to the Victorian Transmission Network from the Wind Farm. In particular the contract requires:

- a) connection to the 220kV declared shared network at the Terminal Station;
- b) transforms supplied 132kV voltage to the required 220kV;
- c) complies with the AEMO issued PCRs
- d) does not introduce material adverse voltage fluctuations;
- e) does not adversely affect power quality;
- f) provides communications pathways between the wind farm and AEMO and AusNet facilities; and
- g) complies with the requirements outlined in the Functional Specifications and PCRs.

Service Provider must undertake its business safely and with due care and respect to its site, neighbouring landowners and the community in a manner that does not bring disrepute to the Wind Farm.

The Service Provider must resource and performs in accordance with the specified KPIs. Should these not be met penalties will apply in accordance with the contract with the ultimate penalty of TOA2 terminating the contract.

**Maximum Response Times**

The contract specifies for events required actions and maximum response times.

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## Breach of Contract

The contract specifies the identification of contract breach, the cure plan requirements to resolve the non-conformance. In an event where the breach cannot be remedied, the contract can be terminated.

## Reporting

The contracts enable TOA2 to be provided with any reports that it considers reasonable to measure and monitor the Service Provider's performance under the contracts.

The Operation and Maintenance agreements stipulate the requirements for responding to any emergencies or safety concerns.

## 5.4 Management Structure Overview

TOA2 Primary Service Providers have 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. TOA2 policies and plans including the BFM plan are governed via TOA2's management structure. (Refer TOA2 Safety Case, section 1.9 "Risk Governance").

# 6 POLICY

## 6.1 Asset Management Plan

TOA2 Primary Service Providers have developed asset management plans, policies and standards to meet transmission network asset management requirements including bushfire mitigation.

An asset management plan has been developed to ensure that appropriate strategies, plans and systems are in place to manage the transmission assets owned by TOA2.

**(Refer to Appendix F)** - ASSET MANAGEMENT PLAN for the 132 KV Transmission Line from ARTS to Ararat Wind Farm.

## 6.2 Monitoring Asset Condition

Preventative maintenance strategies have been created for TOA2's transmission assets. These are detailed within TOA2's maintenance policies for the plant, station and transmission lines.

Asset inspection is conducted in accordance with the TOA2 Asset Maintenance Policy for 132 kV Transmission Line (from ARTS to Ararat Wind Farm). **(Refer to Appendix G)**.

## 6.3 Asset Maintenance

A Network Asset Maintenance Policy has been developed to ensure the application of a priority rating system that contributes to providing a reliable electricity supply network,

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maintains employee and public safety, mitigates the risk of fire ignition and enables regulatory compliance. **(Refer to Appendix H)** - Asset Maintenance Priority Policy for Transmission Operations Australia 2.

## 6.4 Non Cyclic Maintenance

In addition to maintenance found during cyclic inspection, maintenance may also be identified from the following:

- Reports from TOA2 Primary Service Providers and employees
- Reports from the general public

Maintenance found out of cyclic inspection by employees or TOA2 Primary Service Providers is reported using the "Report IT" application. Non Cyclic Maintenance items are then managed and repaired under the same processes and procedures as used for items identified in the cyclic asset inspection program.

## 6.5 Faults/Fault Follow-up

Repairs to defects identified through the TOA2 Primary Service Providers Network Faults/Outage process are managed in accordance with:

**Procedure 07- 20 – P00013** - Manage Network Faults

Temporary repairs to defects identified through the TOA2 Primary Service Providers Network Faults/Outages process may be flagged for follow up. These defects are managed in accordance with:

**Procedure 07- 20 - G0013** – Manage Fault Follow-up and Repair

## 6.6 Vegetation Management

TOA2's Primary Service Providers manage the vegetation management program in accordance with the following documents:

- Vegetation Management Policy
- 2016 to 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat

The 2016 to 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat is to be submitted to ESV for approval 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 transmission network assets. **(Refer to Appendix B)**.

TOA2 Primary Service Providers will carry out an annual vegetation inspection program across the TOA2 transmission network.

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## 6.7 Competency & Training

TOA2 Primary Service Providers ensure that persons who carry out or will carry out functions under the plan are competent to do so. Refer to information in the TOA2 ESMS 2016 (Section 2 - Management Structure).

TOA2 Primary Service Providers have developed a Guideline which outlines the qualification, training and licensing requirements for persons undertaking activities on, or requiring access to the TOA2 Electricity Transmission Network which is Technical Training **(18-80-G0003)**.

Personnel training records and authorisations are kept in the Primary Service Provider's database, which can be reviewed by TOA2. In addition, the Australian ESI Skills Passport is used by an individual as a mechanism to record training, authorities, competencies and induction. The Australian ESI Skills passport encourages nationally consistent practices, common training standards, and individual ownership of refresher training currency. Hence, evidence of currency of refresher training and network authorisations become easily accessible, and promotes portability of resources across jurisdictions, as well as assisting with mutual aid requests.

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

### 6.7.1 Asset Inspection

As per ESV's Training Approval Statement, Asset Inspectors working on the TOA2 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](http://www.vesi.com.au)

### 6.7.2 Vegetation Management

All training requirements for vegetation management are covered in the 2016 to 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat **(Refer to Appendix B)**.

### 6.7.3 Line-Worker

The VESI Skills and Training Matrix stipulate the qualifications and refresher training for a Lineworker. TOA2 Primary Service Providers are required to organise training to the standards referred to in the matrix and keep records of all training undertaken.

TOA2 contractor line-worker apprentices are engaged in bushfire mitigation activities from time to time. This provides experience in a broad range of tasks. When TOA2 contractors engage apprentices they work under the VESI Apprentice Supervision Guidelines as published on the VESI website. [www.vesi.com.au](http://www.vesi.com.au)

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

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## 6.8 Liaison With Other Organisations

TOA2 Primary Service Providers have 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)
- State Emergency Service (SES)
- Department of Environment, Land, Water & Planning (DELWP)
- Department of State Development, Business and Innovation (DSDBI)
- Victoria Police (VICPOL)
- Municipalities
- Bureau of Meteorology (BOM)
- Other Distribution/Transmission Network Operators

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

- Procedure **05 – P840** – Coordinating Bushfire Mitigation with other Organisations

## 6.9 Emergencies

Requests for TOA2 Primary Service Providers resources to assist fire agencies are coordinated by the Network Controller, from TOA2 contractor 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.

TOA2 Primary Service Providers will work with the relevant fire control agency to provide safe access to a fire or accident scene involving TOA2 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 the following TOA2 Primary Service Providers manuals:

- Manual **14-40-M0001** – Incident Reporting & Investigation Manual
- Manual **10 – C800** – Crisis and Emergency System Management Manual
- Manual **13-40-M0002** – Event Command Organisation Manual

## 6.10 Assistance Provided To Fire Agencies

There are two firefighting services, operating within TOA2's service area:

- The Department of Environment, Land, Water & Planning (DELWP) are responsible for state forests and parks.
- The Country Fire Authority (CFA) is responsible for all other rural areas e.g. private property and is resourced largely by volunteers.

TOA2 Primary Service Providers will provide assistance and work with the relevant fire control agency in the investigation of fires near TOA2's transmission network.

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TOA2 Primary Service Providers will supply Emergency Management Liaison Officers (EMLOs) to attend fire agency command centres and provide information or assistance with issues relating to TOA2 transmission assets if required.

## 6.11 Total Fire Ban Days

TOA2 Primary Service Providers have developed a Total Fire Ban Day Action Plan (TFBDAP) which is invoked on Total Fire Ban (TFB) days. The TFBDAP contains Bushfire Mitigation strategies which are applied on declared TFB days and are designed to minimise the risk of a fire ignition being caused by TOA2's transmission network.

The TFBDAP is implemented under the direction of the Manager Control with assistance from the TFB Day Coordinator. For a copy of the TFBDAP (**Refer to Appendix A**).

## 6.12 Declared Fire Danger Period

During the Declared Fire Danger Period TOA2 Primary Service Providers will continue with normal operation and maintenance of TOA2's electrical assets. The majority of TOA2'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 with specific requirements during the Declared Fire Danger period. These include:

1. Vehicle Movement Off-road (**Refer to Appendix D**)
2. Use of Flame /spark omitting equipment (**Refer to Appendix E**)
3. Fire Fighting Equipment to be carried (**Refer to Appendix D**)

## 6.13 Fire Management

In the event of a fire on TOA2's transmission network, the TOA2 Primary Service Provider's operational and maintenance activities will 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.
- 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 TOA2 Primary Service Provider's Event Command Organisation Manual (**13-40-M0002**) and Incident Reporting & Investigation Manual (**11-M700**).

# 7 FIRE INVESTIGATION

As part of continuous improvement towards the mitigation of bushfires, TOA2 Primary Service Providers investigate incidents of fire ignition caused by electricity assets. Detailed analysis of

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asset failure trends are also carried out in order to develop policy improvements and enhanced preventative actions.

Any fire starts initiated by TOA2 assets will be reported by TOA2 to ESV, as per ESV reporting guidelines. The TOA2 Primary Service Provider's Network Control Room identifies any fire starts from outage information or from external advice and notifies the Network Availability Officer (NAO) who collects information regarding each event. The NAO then sends a compiled report to the Network Safety Group in preparation for reporting to TOA2. In turn TOA2 reports to ESV in accordance with the ESV reporting guidelines.

The following TOA2 Primary Service Providers 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

## 7.1 Fire Starts

Ground Fires and Pole Fires will be reported to TOA2 by TOA2 Primary Service Providers as they occur. They will also be reported to ESV. Reporting of fire starts is carried out in accordance with the following TOA2 Primary Service Providers documents:

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

## 7.2 Asset Failures

As part of continuous improvement towards the mitigation of bushfires, TOA2 Primary Service Providers investigate incidents of fire ignition which are attributed to TOA2's electricity assets. Analysis of asset failure trends will also be carried out in order to develop improvements to maintenance policies, technical standards and enhanced preventative actions.

Investigation of failed assets is performed and carried out by the TOA2 Primary Service Providers Asset Investigation Group.

An Asset Failure Review Committee has been charged with reviewing asset failures and consists of representatives from Asset Investigations & Reliability, Lines Maintenance, Bushfire Mitigation, Plant and Stations Maintenance, Compliance and Safety, Technical Standards, Asset Inspection Contractor (Electrix), Works Practices and field resources from across the Primary Service Providers businesses. The committee meets quarterly to review asset failure investigations. This committee will also be responsible for reviewing TOA2's asset failures and recommending opportunities to improve the management of the assets of interest and mitigate future failures.

The following TOA2 contractor procedure covers the reporting, analysis and investigation of fires and failed assets:

- Procedure **05 – P880** – Asset Failure Investigation and Reporting

Investigation results and recommendations form the basis for review of relevant technical standards, works practices, maintenance policies and the initiation of any special asset

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inspection/replacement/modification programs. Policy reviews are managed by the TOA2 Primary Service Providers Asset Management Group.

## 8 PROGRAM TIMING

The inspection program dates are determined by the maintenance plan, in accordance with the relevant TOA2 asset policy and are generated from SAP. **(Refer to Appendix H)** - Asset Maintenance Priority Policy for Transmission Operations Australia 2.

Remedial maintenance and asset replacement/modification is completed accordance with the TOA2 priority classification policy. **(Refer to Appendix G)** TOA2 Asset Maintenance Policy for 132 kV Transmission Line (from ARTS to Ararat Wind Farm).

TOA2 Primary Service Providers have produced a set of BFM program milestones which specify the completion dates required for key BFM activities **(Refer to Appendix C)**. The BFM program milestones that relate to TOA2 are:

- Submission of the 2016 to 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat to ESV
- Submission of the TOA2 Bushfire Mitigation Strategy Plan 2016-2021 to ESV
- Complete the annual vegetation management inspection.

## 9 REPORTING AND MONITORING

TOA2 Primary Service Providers have a reporting process which ensures that all levels of the BFM management structure, including the TOA2 CEO and ESV, are informed of the status of TOA2's preparedness.

The reporting process incorporates requirements:

- Prior to the Declared Fire Danger period
- On Total Fire Ban days

Reporting and monitoring arrangements for TFB days are contained in the Total Fire Ban Day Action Plan **(Refer to Appendix A)**.

### 9.1 BFM Status

TOA2 Primary Service Providers will produce a monthly BFM status report to monitor the implementation of the BFM plan.

It will be provided to senior management, including the TOA2 CEO, various stakeholders involved in BFM activities and ESV.

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## 9.2 Asset Inspection

The TOA2 Asset Inspection program is monitored by the TOA2 Primary Service Providers Asset Inspection Team. 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 Team investigates any poles overdue for inspection to ensure appropriate action has been taken.

## 9.3 Maintenance

TOA2 Primary Service Providers produce an automated daily Priority 1 report, 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 also 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 the following TOA2 contractor work instruction:

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

## 9.4 Vegetation Clearance

TOA2 Primary Service Providers will provide a status report to the TOA2 CEO of all hazardous bushfire risk area spans at the completion of the annual inspection. This information will be used to monitor and audit performance.

## 9.5 ESV Reporting

TOA2 Primary Service Providers reporting schedule of BFM activities to ESV is listed below.

- 2016 TO 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat (submitted by 31<sup>st</sup> March)
- Bushfire Mitigation Strategy Plan (submitted every 5 years)
- BFM Status Report (reported annually prior to declared fire season)
- Ground and Pole Fire starts (reported as they occur)
- Fire Start Statistics (reported to ESV as per the ESV reporting requirements)

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

## 9.6 Audits

TOA2 Primary Service Providers have produced a policy document covering auditing and inspection programme requirements, which sets out the requirements of all audits and inspection programmes - Policy: **JEQA4UJ443MT-175-29**.

Various audits undertaken on TOA2 assets include;

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- Audits undertaken by the Field Audit and Quality Group which facilitate sample audits of completed maintenance projects ensuring that the relevant technical standards and design specifications have been achieved.
- Auditing of the TOA2 asset inspection program is included in the overall auditing program currently conducted by TOA2 Primary Service Providers.
- TOA2 Primary Service Providers have an independent audit program for monitoring the performance of asset inspectors. The Maintenance Services team is responsible for performing this function.
- 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.
- Vegetation audits are carried out in accordance with the 2016 to 2017 Electric Line Clearance (Vegetation) Management Plan, Transmission Operations Australia 2 - Ararat **(Refer to Appendix B)**.
- A program of system audits is also conducted by TOA2 Primary Service Providers Audit Services Group covering BFM management programs and processes.

## 10 REVIEWING

The TOA2 BFM Strategy Plan is reviewed each year. Any deficiencies identified from this review will require adjustments and improvements to be made to the plan to better meet the implementation and objectives of the plan. The outcomes of the review and required improvements will be reported to the TOA2 CEO.

## 11 APPENDICES

**APPENDIX A** - TOA2 TOTAL FIRE BAN DAY ACTION PLAN 2016-2017

**APPENDIX B** - 2016 TO 2017 ELECTRIC LINE CLEARANCE (VEGETATION) MANAGEMENT PLAN, TRANSMISSION OPERATIONS AUSTRALIA 2 - ARARAT

**APPENDIX C** - TOA2 BFM PROGRAM MILESTONES

**APPENDIX D** - VEHICLE FIRE EQUIPMENT & VEHICLE MOVEMENT REQUIREMENTS

**APPENDIX E** - DECLARED FIRE DANGER PERIOD - BUSHFIRE MITIGATION REQUIREMENTS

**APPENDIX F** – ASSET MANAGEMENT PLAN FOR THE 132KV TRANSMISSION LINE FROM ARTS TO ARARAT WIND FARM

**APPENDIX G** – ASSET MAINTENANCE POLICY FOR 132 KV TRANSMISSION LINE (FROM ARTS TO ARARAT WIND FARM)

**APPENDIX H**– ASSET MAINTENANCE PRIORITY POLICY FOR TRANSMISSION OPERATIONS AUSTRALIA 2

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