

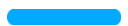


# Electricity Safety - Bushfire Mitigation Plan

ENGIE Hazelwood Mine



**Classification:**  Confidential  Restricted  Unclassified  Internal



## REVISION/CHECKING HISTORY

REV No.	AUTHOR	DATE	CHECKED BY	APPROVED BY		
0	P Brimblecombe		C Morley	30 Sep 2010	R Polmear	
1	P Brimblecombe		C Morley		S Kemsley	
2	P Brimblecombe	7 Dec 2012	S Kemsley	7 Dec 2012	S Kemsley	7 Dec 12
3	P Brimblecombe	14 Jun 2013	S Kemsley	19 Jun 2013	D Day	Jun 2013
4	P Brimblecombe	13 May 2014	S Dargan	May 2014	S Kemsley	Jun 2014
5	P Brimblecombe	Jun 2015	S Kemsley	Jun 2015	S Kemsley	Jun 2015
6	P Brimblecombe	Jun 2016	L Zajarski	Jun 2016	P Brimblecombe	Jun 2016
7	P Brimblecombe	Oct 2016	P Brimblecombe	Oct 2016	P Brimblecombe	Oct 2016
8	P Brimblecombe	Mar 2017	S.Dargan	Apr 2017	S Dargan	2017
9	N.Wynn	July 2017	R.Dugan	Aug 2017	N.Wynn	Aug 2017
10	N.Wynn	Aug 2017	C.Barlow	Aug 2017	N.Wynn	Aug 2017
11	N.Wynn	Aug 2017	A.Cooke	Aug 2017	N.Wynn	Aug 2017
12	N.Wynn	May 2018	M.Anderson	May 2018	A.Cooke	June 2018
13	N.Wynn	July 2019	N.Wynn	July 2019	M.Anderson	July 2019

## REVISIONS

REV No.	DATE	DESCRIPTION OF CHANGE
0		Development of document from draft for approval
1		Update based on ESV clarifications, organisational change and document review process
2	7 Dec 2012	Update based on ESV clarifications and recommendations
3	19 Jun 2013	Review and update for proposed new regulations
4	12 May 2014	Review and update for current year
5	June 2015	Review to reflect recommendations and affirmations from Board of Inquiry's October 2014 report into the Hazelwood Mine Fire and update for current year
6	June 2016	Review and update for current year
7	Oct 2016	Update based on ESV clarifications and recommendations

8	Jun 2017	Review and update for current year, including business closure
9	July 2017	Final review and update with reference to the closure project
10	Aug 2017	Checked by ENGIE legal C Barlow
11	Aug 2017	Add changes recommended by ESV, document classification, section 6 references update.
12	May 2018	Reviewed following cessation of BWE operations
13	July 2019	Reviewed and updated for the current year

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## 1 Purpose

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Comply with the requirements of relevant Victorian legislation.

### **Relevant Legislation and Regulations**

- **Electricity Safety Act 1998(Vic) (Version No 025)**
- **Electricity Safety (Bushfire Mitigation) Regulations 2013 (Version No 62)**

As a business that has electrical transmission lines above its premises which includes a hazardous bushfire area, ENGIE Hazelwood meets the definition of a “specified operator”.

## 2 Scope

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This plan details the practices and procedures in place at ENGIE Hazelwood for the prevention of fire caused by overhead electrical assets and the mitigation of any fire incident that may occur. As most of the “at risk” electrical equipment is associated with Mine operations, the main responsibilities for this plan are with Mine personnel.

## 3 Responsibilities & Authorities

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### 3.1. Mine Stream Leader:

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The Mine Stream Leader shall:

- a) ensure that the processes and procedures required to comply with the applicable Regulations are in place and followed;
- b) ensure that this Electricity Safety – Bushfire Mitigation Plan is reviewed and updated at least annually or when operational changes occur during current Mine rehabilitation phases and in line with legislation, regulations and industry “Best Practices”; and
- c) have an audit process in place to ensure that the requirements of the Plan and associated regulatory requirements are being met.

### 3.2. Mine Production Manager:

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The Mine Production Manager shall:

- a) ensure that all operational personnel and contractors understand their responsibilities and comply with this Plan;

### 3.3. Head of Compliance:

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The Head of Compliance shall:



- a) ensure that this Electricity Safety – Bushfire Mitigation Plan is reviewed and updated annually to comply with the Regulations and ensure that any changes to relevant operational procedures are compliant with the Regulations and reflected in this Electricity Safety – Bushfire Mitigation Plan.

### 3.4. Project Director:

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The Project Director shall:

- a) ensure that a copy of the current Plan is submitted to Energy Safe Victoria (ESV) annually before 1 July each year: and
- b) confirm that each submission gains ESV approval.

## 4 Prescribed Particulars

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### a) The name address and telephone number of the specified operator:

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- Name: ENGIE Hazelwood
- Address: Brodribb Road, Morwell VIC 3840
- Phone No: (03) 5135 5000

### b) Person responsible for the preparation of the Plan:

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Mine Electrical Asset Engineer,  
Ph (03) 5135 5003  
PO Box 195, Morwell, VIC 3840

### c) Person responsible for carrying out the Plan:


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Mine Electrical Asset Engineer,  
Ph (03) 5135 5003  
PO Box 195, Morwell, VIC 3840

### d) Emergency contacts are the Mine High Voltage Availability Officer:

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Mine Electrical Asset Engineer,  
Ph (03) 5135 5003 / mobile 0408 126 223



PO Box 195, Morwell, VIC 3840

#### e) **Fire Policies:**

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ENGIE Hazelwood manages and maintains its overhead line infrastructure to ensure that the probability of these lines causing a fire is minimised, in a known high-risk environment.

The Mine Fire Service Policy (refer to Paradigm original document ID 2589), provides a framework of standards and guidelines which are aimed at:

- Outlining management's commitment to minimising the risks associated with fire at the Hazelwood Mine;
- Protecting the safety of ENGIE Hazelwood employees, contractors and third parties attending the Mine;
- Protecting Mine plant, equipment, infrastructure and exposed coal reserves;
- Minimising fire-related disruptions to the decommissioning, demolition and rehabilitation operations;
- Providing a means of promptly reporting, containing and extinguishing fires at the Mine;
- Preventing the development of a major coal fire giving rise to impacts on third parties and the environment; and
- Ensuring that all Mine infrastructure for fire prevention, mitigation, and suppression meets industry best practice, and operational requirements.

#### f) **The objectives of the Plan:**

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ENGIE Hazelwood is required to ensure that its Fire Risk Management Plan maintain processes and procedures that control risk of the operations of its overhead lines infrastructure so as to not cause a fire in a known high-risk environment. To ensure this objective is achieved the lines are regularly inspected and vegetation is removed where identified. The Electrical Safety - Electric Line Clearance Plan (Paradigm original document ID 50008) and the Computerised Maintenance Management System (Maximo) are used to manage the maintenance of related assets and the correction of any identified faults.

The electrical overhead line infrastructure is required to be maintained at a high level of security from fire, as it provides secure power supplies to the major mine pumping stations, used for fire risk management in the Mine environment.

#### g) **Plan of the mine showing overhead power lines:**

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The whole of the Hazelwood site is in an area assigned by the Country Fire Authority (CFA) as a Fire Hazard Rating of "High".

Note: The "at risk" business power lines are shown in black. The other coloured lines on the map indicate overhead electrical lines, on the Hazelwood site and owned by Major Electrical Company's (MEC's).

A drawing of Mine showing all electrical overhead power line assets is shown at Appendix 1.

A Site Locality Map is shown at Appendix 2.



#### **h) Preventative strategies:**

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There is limited vegetation on site and all vegetation is reviewed at least annually within the process described in the procedure, Mine Vegetation Assessment for Fire Risk (refer to the Paradigm original document ID 51447). Any vegetation identified as a potential fire risk near electrical assets is removed.

Hazelwood Rehabilitation Project Local Electrical Instructions (refer to the Paradigm original document ID 3136) – section 14.11 detail the maintenance practices relating to vegetation removal near and external inspection of the ENGIE Hazelwood high voltage overhead line system in the mine within the required 3-year time frame. All electrical overhead lines are routinely inspected by contracted inspectors. All faults are recorded and managed through, the Computerised Maintenance Management System (Maximo). This allows Hazelwood personnel to independently review all reported faults as an audit of the inspection work.

Due to the limited extent of the electrical network within the mine, all areas of the network are accessible at all times and clearances to power lines are much greater than the minimum requirements.

#### **i) Plan for inspection:**

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A contract for the inspection of all overhead high voltage power lines on a 3-year cycle is maintained and the scope includes the inspection of a nominated portion of the mine distribution system and all limited life poles on site. This is managed by a time-based routine within the Computerised Maintenance Management System (Maximo).

#### **j) Accreditation of Lines Inspectors:**

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ENGIE Hazelwood does not directly employ linesmen. Annual (and other) line inspections are conducted by accredited, contracted external service providers

All inspections are completed by persons with Certificate II accreditation in Asset Inspection (or equivalent as approved by ESV). Inspector qualifications are checked, as part of the Contract Management Process (refer to SMS documents within Paradigm, original ID 49509, 49510 & 49511), when the external inspector presents themselves for access to the equipment. The Responsible Officer for the contract controls access to the site, monitors progress and checks on site activities.

Other personnel carrying out ad hoc inspections, as part of normal operational activities on the power distribution system, are trained by Registered Training Organisations to Units of Competency in the Australian Qualifications Framework as Electrical Operators and authorised by ENGIE Hazelwood to operate the mine high voltage power distribution system.

#### **k) Operation and Maintenance Plans for at-risk electrical lines:**

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NOTE: The following Plans include several additional safeguards and/or redundancies added to the Hazelwood Mine power distribution system in line with the October 2014 Report of the Board of Inquiry into the Hazelwood Mine Fire Recommendations and Affirmations.

For additional information regarding decommission activities relating to HV infrastructure please refer to Appendix C

#### **i) in the event of a fire: -**

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In the event of a fire:

- The Hazelwood Mine power distribution system (“at risk supply network”) is designed to operate without substantial impairment, so as to ensure power supply is maintained to all critical plant systems. This may involve the utilisation of redundancy built into the system.
- Any non-essential planned critical asset maintenance activity will be cancelled. That all available Hazelwood personnel shall be called upon to assist with the fire response.
- The Mine Fire Service Technical Guidelines (Paradigm document original ID 54977) details the requirements for the operation of electrical lines to plant and pumping systems which supply the Mine’s reticulated fire service system.
- In the event of a major fire within the business, the Hazelwood Project Emergency Response Plan (Paradigm original document ID 55545) shall be implemented and actions necessary to protect the Mine’s power systems will be directed by the Hazelwood Emergency Commander or CFA Incident Controller with technical support from ENGIE Hazelwood personnel.

#### **ii) during a day of Total Fire Ban: -**

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During a day of Total Fire Ban:


- All planned maintenance work on the power distribution system shall be cancelled. This includes all work scheduled by Ausnet Services that would affect the redundant electrical supply requirements for the site. (The Mine power distribution system (“at risk supply network”) is expected to operate without substantial impairment. This may involve the utilisation of redundancy built into the system.)
- All non-essential planned maintenance activity shall be cancelled and any essential maintenance which is proposed to proceed, will be risk assessed to ensure that it did not constitute a fire risk.

On High and Extreme fire risk days, the protection of electricity supply and electrical substations (as critical Mine infrastructure), shall be detailed on a Hazelwood Mine Fire Readiness Plan, (Appendix 2 of Paradigm original document ID 36546) issued under the Fire Readiness Planning Guidelines (Paradigm original document ID 36546). This document is issued on the day prior to each day of Total Fire Ban, as well as internally assessed days of high fire risk for the Mine.

#### **iii) during a fire danger period: -**

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During a fire danger period:

- All inspections and high priority maintenance work shall have been completed prior to the start of the fire danger period to minimise fire risk due to the power distribution network. Any required vegetation removal will have been completed. Due to susceptibility of coal mines to fire, ENGIE Hazelwood will declare a Fire Season for the Mine, independently of the CFA declared season (which typically takes effect some time prior to the CFA fire season). The declaration of a Mine Fire Season under the Fire Readiness Planning Guidelines (Paradigm original document ID 36546) initiates a series of preparatory measures within the Mine to ensure all protective equipment and systems are serviceable and that necessary training and inspections have been conducted to implement a high level of preparedness.
- Maintenance activities for the overhead lines assets are planned around the requirements for pumping systems supplying the Mines reticulated water system. All maintenance activities are risk ranked and prioritised within ENGIE Hazelwood's computerised maintenance management system (Maximo).

### **I) Investigations, analysis and methodology to be adopted for the mitigation of the risk of fire ignition from at-risk electrical lines:**

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All fires shall be reported and entered into Hazelwood's Incident Management System (INX), with both reporting and investigations being undertaken as per the business procedure (Paradigm original document ID 35510)

The electrical lines for the business are designed to limit the risk of fire ignition. This is achieved through several design initiatives which are not practical for the public distribution system.

1. There are no automatic reclose facilities enabled within the Mine. This limits the possibility of energising a damaged line without suitable inspection and monitoring of the situation.
2. All Mine feeders are installed with Sensitive Earth Leakage protection to protect personnel and plant in the event of a fault. This system limits the amount of energy delivered to an earth fault. By limiting the duration and magnitude of fault current, the chance of a fault causing a fire is minimised.
3. All the Mine high voltage overhead lines operate at 6,600V. The line hardware specified and used on all new installations is 12,000V and 22,000V hardware. This minimises the risk of an electrical fault that will cause a fire.
4. All operations of protection at the substations supplying power to the business overhead electric lines require a full inspection of the line prior to the restoration of supply (Hazelwood Rehabilitation Project Local Electrical Instructions, Paradigm original document ID 3136).
5. Overhead electric line design is managed to minimise the number of crossovers (especially mid span crossovers) to limit the potential for conductor clash.
6. Major changes to the high voltage overhead lines distribution system are modelled by an independent engineering consultant to ensure there is no overloading of individual lines that might contribute to ignition of fires. With the Mine now in its rehabilitation phase, it no longer produces coal and all Large Mining Equipment (LME) activities have ceased. This has resulted in a large reduction of LME related 6,600 V lines and therefore, the risk of overloading power lines is greatly reduced.

Mine fire is subject to risk assessment under the Occupational Health and Safety Regulations 2007 (Vic), Part 5.3. Under these regulations fire has been determined to be a Major Mining Hazard. In accordance with the requirements of these Regulations, a detailed risk assessment has been undertaken and a series of control measures established to reduce risks to the extent that is reasonably practicable. These risk assessments and control measures are subject to periodic review in accordance with the requirements of the Regulations, and oversight from the relevant Regulator (WorkSafe Victoria).

In addition to meeting our Worksafe commitments ENGIE Hazelwood is required to assess risks that may have the potential to impact upon public health and safety, community facility and the environment. ENGIE assess those risks through its Risk Management Plan (RMP) (formally the Risk Assessment and Management Plan (RAMP)), a requirement of the Mining License under the *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2013*, Schedule 15 (4.1) and MIN5004, Section 1A). The RMP provides a detailed assessment of mine fire and the prevention and mitigation measures implemented and incorporated into its policies and procedures. It is also a condition of the license that the RMP must be approved by the Department Head of DJPR ERR. Additionally, a summary of all fires on site are sent to both the CFA and DJPR ERR, for further review and oversight, on a monthly basis.

#### **m) Details of the processes and procedures by which the specified operator will:**

##### **i) Monitor the implementation of the bushfire mitigation plan: -**

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When the Annual Fire Season for the Mine is declared, the Mine Production Manager provides weekly reports to the Mine management team on the status of relevant fire preparedness activities under the Fire Readiness Planning Guidelines (Paradigm original document ID 36546).

##### **ii) Audit the implementation of the bushfire mitigation plan: -**

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All elements of regulatory compliance are audited/inspected by Hazelwood internal personnel/auditors, Independent Auditors and various Regulators, including DJPR ERR and Worksafe. These Regulators have adopted a process of audits and site inspections specifically related to fire, both prior to and during the declared fire season.

##### **iii) Identify any deficiencies in the plan or the plans effectiveness: -**

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All fire policies and procedures are reviewed annually prior to the commencement of the Annual Fire Season declared for the Mine as per the Mine Pre-Fire Season Checklist (Paradigm original document ID 36549).

In addition, business processes ensure the update of policies and procedures based on input from any incident investigations, internal audits, external audits, regulator reviews, etc, by logging and monitoring of action items using Hazelwood's Incident Management System (INX).

The regulatory audits relating to fire preparedness conducted by WorkSafe Victoria and DJPR ERR can also identify deficiencies in the plans or systems in use on site. Recommendations from the regulators are enforceable and must be complied with.

##### **iv) Change the plan and the plans implementation to rectify any deficiencies identified: -**

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As noted in point iii), ENGIE Hazelwood has a process to capture and implement improvements for policies and procedures based on findings, recommendations and / or employee suggestions.

**v) Monitor the effectiveness of inspections carried out under the plan: -**

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All contractors working on site are subject to routine inspections and audit under our procedure SMS Evaluation of Contractors Procedure (Paradigm original document ID 49513).

This procedure requires the Contract Manager to check the contractor on site and confirm that the all health and safety requirements are being met, that the contractors' personnel are qualified and licensed for the work they are performing, and documented work procedures are being followed to the required standard.

**vi) Audit the effectiveness of inspections carried out under the plan: -**

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All elements of regulatory compliance are audited by Hazelwood internal auditors, ENGIE auditors, Independent Auditors and various regulators, including Worksafe and DJPR ERR Inspectors. This would include both the processes used and documentation created under point (v). All faults identified would be planned for rectification by Hazelwood employees and physically inspected by Hazelwood employees. This allows ENGIE Hazelwood to audit the findings of the contracted inspectors.

**n) The policy in relation to assistance to be provided to fire control authorities in the investigation of fires near the specified operator's at-risk electrical lines:**

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ENGIE Hazelwood maintains a close relationship with the local CFA due to the high risk of fire to the business.

Regular meetings and joint exercises are held with the CFA.

In line with the Board of Inquiry's October 2014 Report into the Hazelwood Mine Fire Recommendations and Affirmations, a number of additional training, resource sharing and communication initiatives have been implemented between ENGIE Hazelwood and the CFA.

ENGIE Hazelwood's, Emergency Response Plan Hazelwood Project (Paradigm original document ID 55545) details the relationship between ENGIE Hazelwood, the CFA and other state emergency service organisations.

The Emergency Response Plan details the requirements for statutory investigations as well as regulatory investigations by other emergency services authorities, and the support to be provided by ENGIE Hazelwood.

In addition, significant fires are also reported to DJPR ERR and Worksafe. Should a significant fire be caused by the mine electrical assets, a report would also be provided to ESV under our procedures.

## **5 Accessibility of Documents**

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- a) The current approved version of this document is kept on the business document management system and a copy is accessible at the Head Office during normal business hours.
- b) A copy of the version approved by ESV is also available on Hazelwood's public web site.

## 6 References

Number	Description
Paradigm original document ID 2589	Mine Fire Service Policy
Paradigm original document ID 3136	Hazelwood Rehabilitation Project Local Electrical Instructions
Paradigm original document ID 55545	Emergency Response Plan Hazelwood Project
Paradigm original document ID 36546	Fire Readiness Planning Guidelines
Paradigm original document ID 49513	SMS Evaluation of Contractors Procedure
Paradigm original document ID 35510	Incident Management Reporting Procedure
Paradigm original document ID 50008	Electrical Safety – Electrical Line Clearance Plan
Paradigm original document ID 51447	Mine Vegetation Assessment for Fire Risk
Paradigm original document ID 36549	Mine Pre-Fire Season Checklist
Paradigm original document ID 54977	Mine Fire Service Technical Guidelines
Paradigm original document ID 49509	SMS 1 Contractors Self Evaluation Form
Paradigm original document ID 49510	SMS 2 ENGIE Health & Safety Evaluation Form
Paradigm original document ID 55886	Safety Inspection Form (formally SMS 3)
HP CM MD 18/355	Hazelwood Mine - Risk Management Plan – RMP 3.2

n/a	Occupational Health and Safety Regulations 2007 (part 5.3)
n/a	Board of Inquiry Report into the Hazelwood Mine Fire (October 2014)

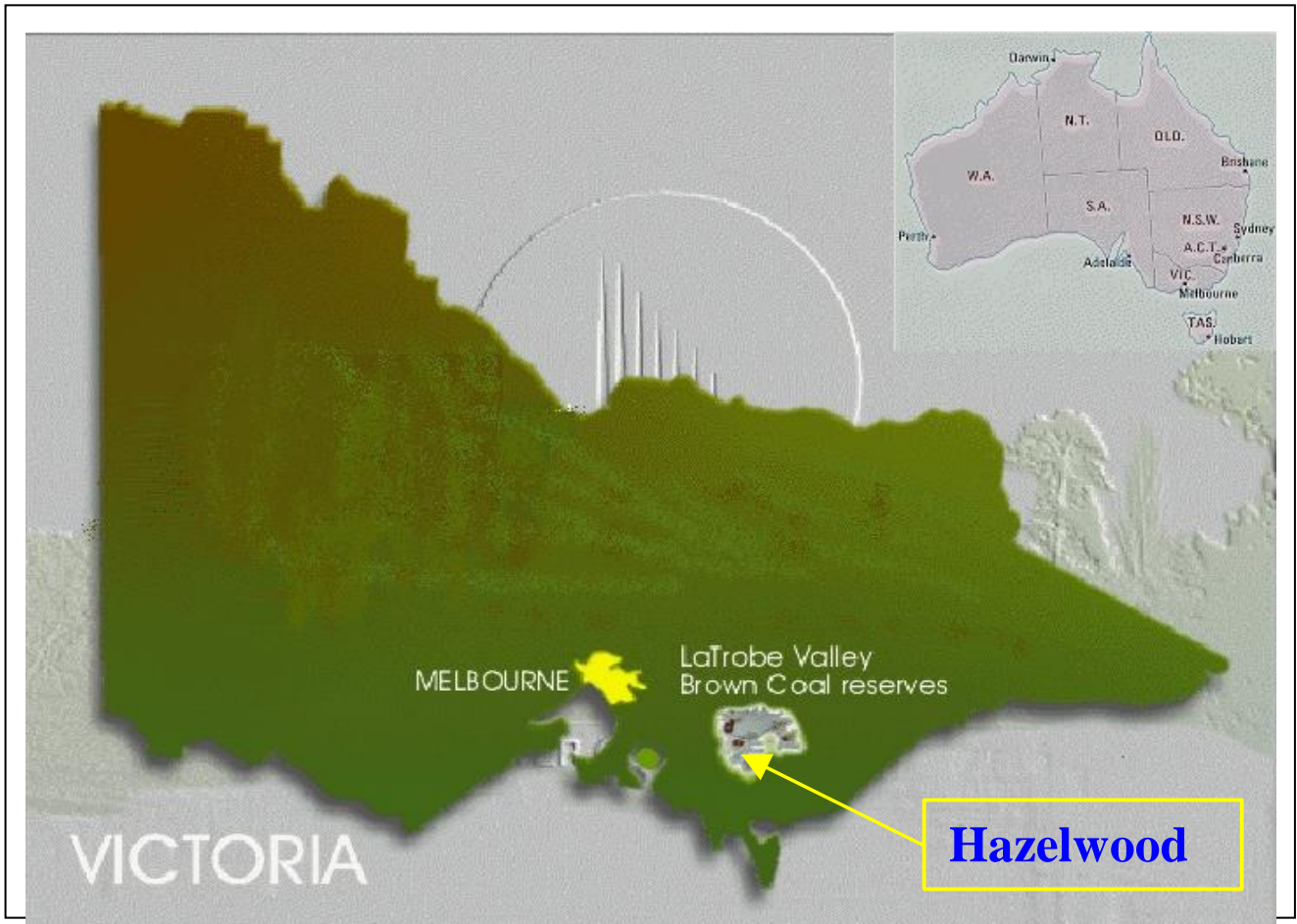
## Appendix A - Mine Electrical Overhead Lines as of June 2019

Note: the “at risk” business power lines are shown in black. The other coloured lines on the map indicate overhead lines, on our site, owned by Major Electrical Company’s (MEC’s).



## Appendix B - Hazelwood Locality Map

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## Appendix C - Decommissioning Activities

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The Hazelwood HV Distribution System will reduce to 50% of its current size by 2021, the planned commencement of the Mine filling. The remaining 50% (50km) of HV distribution is expected to remain in service until post mine fill (currently estimated to 2030+).

The strategy for Power Supply to critical assets (Fire Pump Stations, Mine Depressurisation Bores etc) is, multiple supplies from multiple zone Sub Stations, this strategy will remain until the critical asset is no longer required.

Critical Powerlines that restrict Mine Rehabilitation works will be relocated, as required.

All Hazelwood Electrical Assets will be fully maintained until the asset is no longer required and decommissioned, overhead assets will be maintained until they are no longer required and demolished.

Maintenance Summary - Ongoing:

- Quarterly vegetation inspections and 4 monthly spraying to control vegetation
  - Skid mounted Electrical Control Cubicles
  - Skid mounted Transformers.
  - Wooden Poles
  - HV mining cables
  - Pumps and Supply cables
- 12 monthly Line clearance inspection and clearing. October.
- 2 yearly Earth grid testing and repair of in-service assets, unused assets are tagged out.

3 yearly Overhead Asset inspection by a qualified Asset Inspector.