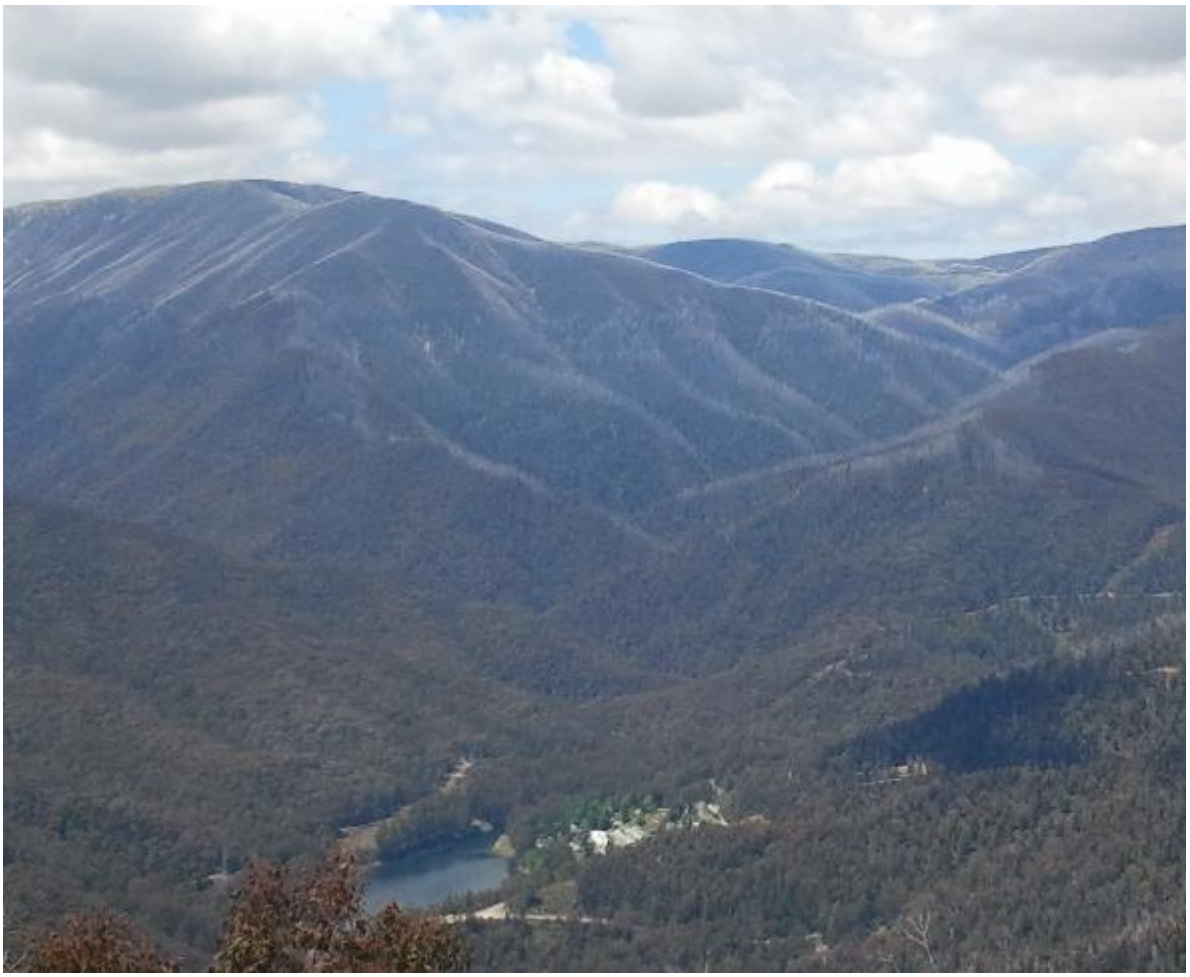
AGL Hydro

Bushfire Mitigation Plan 2021-2022



Hydro DMS: ML AL FI 01 (Rev5.2)

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Plan Revision History

Date	Version	Author	Comment	Sections
1.0	1 July 2016	S. Cariss	Initial 2016/17 Draft	All
1.1	11 Sep 2016	All	BMP Working Group Review	All
2.0	1 Oct 2016	S. Cariss	Release 2016/2017	All
2.1	28 Dec 2016	S. Cariss	Revised to include ESV Comments	All
3.0	01 Aug 2017	S. Cariss	BMP Working Group Review	All
3.1	12 Feb 2018	S. Cariss	Amendments following recommendations from ESV (Greg Sieburn)	Section 2 Section 7.4.1 Section 7.5 Section 13
4.0	01 Aug 2018	S. Cariss	BMP Working Group Review	All
4.1	07 Dec 2018	S. Cariss	Website URL updated	Section 2
4.2	27 June 2019	S. Cariss	Annual review AGL Hydro	All
4.3	09 July 2020	S. Cariss	Annual review AGL Hydro	All
4.4	25 Aug 2020	S. Cariss	ESV review feedback	Regulation Ref 6(h) Section 7.4.1 Section 9.5 Section 10.1
5.0	18 June 2021	S. Cariss	Annual AGL Hydro review	All
5.1	29 June 2021	S. Cariss	Minor changes resulting from the annual review and following the ESV Line Clearance Plan Systems Audit.	All
5.2	20 August 2021	S. Cariss	Changes resulting from the annual ESV review and approval processes.	All

Distribution

Copy	Position
1	AGL Hydro Reception
Electronic File	Energy Safe Victoria
Electronic File	Head of Hydro
Electronic File	Works Team Supervisor
Electronic File	Operations and Governance Manager
Electronic File	Works Team Supervisor
Electronic File	Works Team Leader - Eildon
Electronic File	Works Team Leader - Outlying Works
Electronic File	HSE Business Partner
Electronic File	AGL Web Site
Electronic File	AGL Hydro Document Management System

1. Regulation Compliance Summary

1.1. Victorian Regulation Compliance

Electricity Safety (Bushfire Mitigation) regulations 2013

Regulation 6: Prescribed particulars for bushfire mitigation plans – Specified Operators

Specified operator legal entity
AGL HP1 Pty Ltd (ACN 080 429 901); and AGL HP2 Pty Ltd (ACN 080 810 546); and AGL HP3 Pty Ltd (ACN 080 735 815) Trading as **AGL Hydro Partnership (ABN 86 076 691 481)**

Reg	**Requirement**	**Reference in this Plan**
6 (1)(a)	the name, address, and telephone number of the specified operator	Responsible Persons (Section 2)
6 (1)(b)	the position, address and telephone number of the person who was responsible for the preparation of the plan	Responsible Persons (Section 2)
6 (1)(c)	the position, address and telephone number of the persons who are responsible for carrying out the plan	Responsible Persons (Section 2)
6 (1)(d)	the telephone number of the specified operator's control room so that persons in the room can be contacted in an emergency that requires action by the specified operator to mitigate the danger of bushfire	Responsible Persons (Section 2)
6 (1)(e)	the bushfire mitigation policy of the specified operator to minimise the risk of fire ignition from its at-risk electric lines	Policy (Section 4)
6 (1)(f)	the objectives of the plan to achieve the mitigation of fire danger arising from the specified operator's at-risk electric lines	Objectives (Section 5)
6 (1)(g)	a description, map or plan of the land to which the bushfire mitigation plan applies, identifying the location of the specified operator's at-risk electric lines	Scope (Section 6)

Reg	Requirement	Reference in this Plan
6 (1)(h)	the preventative strategies and programs to be adopted by the specified operator to minimise the risk of the specified operator's at-risk electric lines starting fires	Preventative Strategies (Section 7)
6 (1)(i)	a plan for inspection that ensures that all of the specified operator's at-risk electric lines are inspected at regular intervals of no longer than 37 months	Inspection Programs (Section 8)
6 (1)(j)	details of the processes and procedures for ensuring that each person who is assigned to carry out the inspections referred to in paragraph (i) has satisfactorily completed a training course approved by Energy Safe Victoria and is competent to carry out such inspections	Qualifications, Training and Competency (Section 9)
6 (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	Operations and Maintenance Plans (Section 10)
6 (1)(l)(i)	the operation and maintenance plans for the specified operator's at-risk electric lines — in the event of a fire	Operations and Maintenance Plans (Section 10)
6 (1)(l)(ii)	the operation and maintenance plans for the specified operator's at-risk electric lines — during a total fire ban day	Operations and Maintenance Plans (Section 10)
6 (1)(l)(iii)	the operation and maintenance plans for the specified operator's at-risk electric lines — during a fire danger period	Investigations, Analysis and Methodology (Section 11)
6 (1)(m)	the investigations, analysis and methodology to be adopted by the specified operator for the mitigation of the risk of fire ignition from its at-risk electric lines	Processes and Procedures (Section 12)
6 (1)(n)(i)	details of the processes and procedures by which the specified operator will— monitor the implementation of the bushfire mitigation plan	Processes and Procedures (Section 12)
6 (1)(n)(ii)	details of the processes and procedures by which the specified operator will— Verification the implementation of the plan	Processes and Procedures (Section 12)

Reg	Requirement	Reference in this Plan
6 (1)(n)(iii)	details of the processes and procedures by which the specified operator will— identify any deficiencies in the plan or the plan's implementation	Processes and Procedures (Section 12)
6 (1)(n)(iv)	details of the processes and procedures by which the specified operator will— change the plan and the plan's implementation to rectify any deficiencies identified under subparagraph (iii)	Qualifications, Training and Competency (Section 9)
6 (1)(n)(v)	details of the processes and procedures by which the specified operator will— monitor the effectiveness of inspections carried out under the plan	Processes and Procedures (Section 12)
6 (1)(n)(vi)	details of the processes and procedures by which the specified operator will— Verification the effectiveness of inspections carried out under the plan	Processes and Procedures (Section 12)
6 (1)(o)	the policy of the specified operator in relation to the assistance to be provided to fire control authorities in the investigation of fires near the specified operator's at-risk electric lines	Assistance Provided to Fire Control Authorities (Section 13)

1.2. NSW Regulation Compliance

This plan is provided to meet the objectives and requirements of the NSW Electricity Supply (Safety and Network) Regulation 2014 in accordance with AS5577. This includes consideration of industry codes, guidelines, and practices as well as published standards. The primary objective of this plan is to ensure AGL Hydro's electrical infrastructure and associated sub-networks at our NSW small Hydro sites is safe in its design, construction, and operation and to support:

(a) safety of members of the public

(b) the safety of persons working on networks

(c) the protection of property

(d) the management of safety risks arising from the protection of the environment (for example, preventing bush fires that may be ignited by network assets)

2. Responsibilities

2.1. Responsible Persons

Regulation 6	Specification – Contact Details
6 (1)(a) Name, address and telephone number of the specified operator	***Simon Kelley*** ***Head of Hydro*** AGL Energy Kiewa Valley Hwy Mt Beauty 3699 Phone: 0429 002 094 Email: skelley@agl.com.au
6 (1)(b) Position, address and telephone number of the person who was responsible for the preparation of the plan	***Stuart Cariss*** ***Operations Governance Manager, Renewables*** AGL Energy Kiewa Valley Hwy Mt Beauty 3699 Phone: (03) 5754 3225 Email: scariss@agl.com.au
6 (1)(c) Position, address and telephone number of the persons who are responsible for carrying out the plan	***Col Perso*** ***Works Team Supervisor*** AGL Energy Kiewa Valley Hwy Mt Beauty 3699 Phone: 0428 348 595 Email: cperso@agl.com.au
6 (1)(d) Telephone number of the specified operator's control room so that persons in the room can be contacted in an emergency that requires action by the specified operator to mitigate the danger of bushfire	***AGL Dispatch Center*** ***Duty Generation Dispatcher*** 699 Bourke St Melbourne 3000 Phone: (03) 5754 3142 Email: agldc@agl.com.au
Information, including a copy of the Plan is available to be viewed by the state regulatory agencies or members of the public at AGL Hydro's office located at Kiewa Valley Highway Mt Beauty or by appointment during normal business hours. A copy of the Plan is also available on the AGL internet site at: https://www.agl.com.au/about-agl/how-we-source-energy/hydroelectric-assets	

2.2. Management Structure and Responsibilities

The AGL Hydro management structure with respect to this plan is as follows (refer to appendices):

Head of Hydro - responsible for:

- Overall management of AGL Hydro
- Timely completion and actioning of bushfire mitigation strategies; and
- Ensuring the actions of AGL Hydro meet legislative requirements.

Operations Governance Manager – responsible for:

- Compliance and Verification of the bushfire mitigation plan
- Ensure proper liaison with other fire attack and land management agencies; and
- Ensure the administration of the Bushfire Mitigation Plan meets legislative requirements

Works Team Supervisor – responsible for:

- Ensuring all outstanding work is completed in a timely manner and adequate resources are made available for the implementation of the plan
- Ensuring all outstanding compliance issues are addressed and to ensure that matters are communicated to senior management; and
- Ensuring all compliance and Verification outcomes are reported to the Operations Governance Manager in a timely manner

Works Team Leaders (Civil and Electrical) -— responsible for:

- Day to day operation of electric line asset maintenance in accordance with this plan
- Asset inspection, vegetation control program and liaison with other land management agencies in accordance with this plan; and
- Allocation of contracts, with the responsibility of ensuring training and competencies are maintained in accordance with this plan. Refer 4.5
- Development of the verification report prior to the declared fire season

Senior Electrical Engineer — responsible for:

- Providing technical advice as required to ensure that the assets are maintained to the required standard; and
- Assist with contractor evaluation and selection to ensure they are technically competent and can provide the required levels of service

3. References

3.1. Victorian

- AGL Hydro Line Clearance Plan 2021-2022
- AGL Hydro Electricity Safety Management Scheme 2015
- AGL Hydro Consultation, Communication and Dispute Resolution (HP AI AD 01)
- AGL Energy Customer Complaints Policy
- Electricity Safety Act 1998
- Electricity Safety (Electric Line Clearance) Regulations 2020
- Electrical Safety (General) Regulations 2019
- Electricity Safety (Management) Regulations 2019
- Electricity Safety (Bushfire Mitigation) Regulations 2013
- Electricity Safety (Bushfire Mitigation Duties) Regulations 2017

- Australian Standard AS4373 Pruning of Amenity Trees

3.2. New South Wales

- Electricity Safety Act 1995
- Electricity (Consumer Safety) Act 2004 (Section 32)
- Electricity Supply (Safety & Network Management) Regulation 2014
- Service and Installation Rules 2019 of NSW
- NSW Code of Practice – Installation Safety Management Plan
- NSW Code of Practice – Managing Electrical Risks in the Workplace
- ISSC 4 – Guideline for Managing Vegetation Near Powerlines

4. Policy

Reg	Requirement
6 (1)(e)	the bushfire mitigation policy of the specified operator to minimise the risk of fire ignition from its at-risk electric lines.

AGL Hydro's management and employees are committed to avoiding fire ignition caused by electrical assets and achieving compliance with relevant legislative and regulatory requirements while encouraging innovation, system improvement and the effective use of our flexible resources. AGL Hydro's policy is to mitigate as far as practicable the risk of fire starting from those at-risk assets that AGL Hydro own.

This Bushfire Mitigation Plan outlines the policies, procedures, standards, codes, and guidelines that AGL Hydro applies to construction, operation and management of our electrical infrastructure and sub-networks. The Plan also provides an overview of AGL Hydro's bushfire risk management strategies in relation to key stakeholders including local government, government agencies and emergency services.

AGL Hydro is committed to maintaining fire safe assets by:

- Periodic inspection of the assets to identify the works necessary to maintain fire safety
- Operation programs to remove or manage the identified risks; and
- Monitoring and reporting regimes to measure the state of preparedness for the declared bushfire season and the effectiveness or programs.

5. Plan Objectives

Reg	Requirement
6 (1)(f)	the objectives of the plan to achieve the mitigation of fire danger arising from the specified operator's at-risk electric lines.

The objectives of AGL Hydro's Bushfire Mitigation Plan are as follows:

- Public Safety
- Compliance by AGL Hydro with the Electricity Safety Act 1998 (Vic) and Electricity Safety Act 1995 (NSW) and associated regulations
- To maintain a program of inspection of assets on a regular basis dictated by the risks assessed at each location
- Reduce the risk of fire starting from its assets
- Vegetation management with compliance to minimum clearances and environmental practices
- Asset maintenance to a level consistent with industry standards

- Liaise with fire attack and land management agencies to formulate strategies to minimise damage to the environment in the case of bushfires
- Measurement, monitoring, reporting, and Verification of program achievement and performance including the rectification of non-conformances; and
- Regular assessment of all programs in accordance with the relevant standards, regulations, and codes.

6. Scope

6.1. Overview

AGL Hydro forms a key part of the AGL Renewables fleet which has one of the largest portfolios of Renewable generation assets across Australia. AGL Hydro was established from the breakup of the former State Electricity Commission of Victoria and now operates hydroelectric power stations across Victoria and NSW. Our three primary hydroelectric schemes are in the Kiewa, Dartmouth and Eildon catchments.

Overhead electric line assets in Victoria are in the Kiewa and Rubicon catchments, and within the Cairn Curran Power Station switchyard. Overhead electric line assets in New South Wales are in the Pindari, Copeton, Burrendong, and Glenabwn Power Station switchyards located at the base of Water NSW owned and operated dams. Maps identifying the areas where the assets are located are provided in the appendices.

AGL Hydro's bushfire mitigation strategy is described by this Bushfire Mitigation Plan along with other documents, including the Electric Line Clearance Management Plan (Vic), Position Statement on Joint Fire Fighting Roles (Vic), Line Inspection Manual (AEL Document ID: 9712402), the ESSA Guidelines for Design and Maintenance of Overhead Distribution and Transmission Lines, and all subordinate documents.

6.2. Maps

Reg	Requirement
6 (1)(g)	a description, map or plan of the land to which the bushfire mitigation plan applies, identifying the location of the specified operator's at-risk electric lines.

Refer to Appendices for the following maps of the land and location of at-risk electric lines:

- Kiewa Hydro Scheme Assets
- Dartmouth Hydro Scheme Assets
- Yarrawonga Power Station Asset
- Eildon Hydro Scheme Assets
- Rubicon Hydro Scheme Assets
- NSW Hydro Scheme Assets

7. Prevention Strategies

Reg	Requirement
6 (1)(h)	the preventative strategies and programs to be adopted by the specified operator to minimise the risk of the specified operator's at-risk electric lines starting fires.

7.1. Preventative Programs

The following preventative programs are adhered to, to minimise the risk of bushfire initiation AGL Hydro Assets:

- All conductor spans in all areas will be inspected prior to the start of the fire season to identify any trees infringing the clearance space and any other obvious line defects, which may be a cause of the ignition of fire. Inspections may be carried at other times depending on location and prevailing weather conditions
- The inspection will be carried out by the method determined by the Works Team Supervisor as the most appropriate in the circumstances including ground patrol or line inspection; and
- The clearance space prescribed in the line clearance regulations will always be maintained clear of vegetation. In carrying out the work necessary to achieve this, the duties assigned to the responsible person in the electric line clearance plans will be observed

7.2. Monitoring of Asset Condition and Vegetation

The procedures employed by AGL Hydro meet the requirements of electric line clearance regulations and include:

- Recurrent pruning and clearing will be conducted on a maximum 3-yearly cycle for hazardous fire areas, however, all reasonable efforts will be made to achieve an annual pruning and clearing cycle with the following objectives
- To maintain the clearance space during this period additional pruning and clearing will be required (regrowth space) and diseased and unstable vegetation in the area beyond this which is a hazard to the line (hazard space) must be removed or other remedial action taken
- Establishing the appropriate regrowth space will enable pruning and clearing to be limited to the 3-year cycle, but as this is dependent on climatic conditions during the cycle pre-summer, clearing may be necessary at some locations outside the normal cycle
- The pre-summer inspection program is produced by SAP and performed by Outlying Works staff
- The pre-summer Verification program of all AGL Hydro line assets for vegetation clearance is conducted by an independent, competent, external contractor on an annual basis. AGL Hydro monitors this program via regular Verifications of the contractors
- The ongoing inspection program is scheduled using SAP and undertaken by authorised competent employees and/or contractors (refer to the appendices)
- The ongoing Verification program consists of annual desktop Verifications of procedure and maintenance tasks and regular fault reporting arising out of routine line Verifications; and
- To maintain a high standard of compliance through technology and information exchange AGL Hydro undertakes to maintain best industry practice through regular communications and liaison with distribution and transmission network companies

7.3. Engineered Solutions

AGL Hydro will investigate engineering solutions prior to any clearing activities. Alternative methods shall be used where the benefits outweigh those of conventional practices.

AGL undertake to provide uniform and consistent asset management strategies for undertaking corrective (reactive) and preventive (pro-active) actions committed to avoiding fire ignition caused by electrical assets and achieving compliance with relevant legislative and regulatory requirements.

Asset management strategies comprise major capital upgrades and consideration to underground infrastructure aimed at reducing risk and ongoing O&M costs with respect to overhead lines and easements. (refer to the appendices).

7.4. Hardware Maintenance and Replacement

When conducting routine hardware and vegetation inspections AGL Hydro staff will note the absence of any cross-arm bird covers and arrange to have them replaced during the next scheduled line maintenance opportunity, or arrange an outage for replacement, prior to the commencement of the declare bushfire season.

AGL undertake to remove brown insulator hardware during the normal cyclic maintenance of overhead line assets. AGL Hydro has one Expulsion Drop out Fuse (EDO) at Cairn Curran Power Station. The replacement of this EDO is not planned although catchers for molten metal have been attached for compliance with bushfire mitigation standards.

AGL Hydro no longer has any pole mounted powder filled fuses (PFFs). There are however PFFs on station service transformers in the Rubicon Scheme. These areas have had risk assessments undertaken on the possibility of a fire start due to a malfunction and have been deemed to be safe in situ until a replacement program is undertaken

AGL Hydro has instructed its line maintenance service providers that all work carried out and hardware purchased and installed on AGL Hydro's behalf must be fully compliant with all bushfire mitigation standards.

7.5. Victorian Powerline Bushfire Safety Program

The Victorian Government recently introduced enhanced powerline fault detection and suppression requirements to reduce the risk of bushfires caused by faults on the state's regional and rural powerline networks including Rapid Earth Fault Current Limiter (REFCL) protection.

These requirements have been added to the Electricity Safety (Bushfire Mitigation) Regulations 2013 (Regulations) and form part of a raft of measures that have been undertaken as part of the Victorian Government Powerline Bushfire Safety Program (PBSP).

AGL has completed the necessary regulatory reviews to ensure all legislative obligations associated with the effect of a REFCL operation on our sub-network and equipment are met in readiness for our assets served by tranche one zone substation works for Rubicon A zone substation.

AGL will take reasonable precautions to minimise the risk of loss or damage to our equipment, premises or business that may result from the over-voltages that occur when a REFCL operates and will update this plan to reflect any at-risk electric lines and to demonstrate how our sub-network and equipment will operate safety during over-voltages associated with REFCL operation for approval by ESV.

7.6. Private Overhead Electric Lines

All AGL Hydro overhead line assets are either used for the transmission of generated electricity to the network supplier point of connection or used for the consumption of electricity from the network supplier point of connection. AGL Hydro is not a retailer that supplies customers via POEL's.

7.7. Key Timings

Key timings for preventative strategies are as follows:

- The Bushfire Mitigation Plan (BMP) will be completed and submitted to Energy Safe Victoria prior to the 1st of July each year
- The Electric Line Clearance Management Plan (LCP) will be completed prior to the 31st of March each year and submitted to Energy Safe Victoria upon request
- The agreed Bushfire Mitigation Index (BMI) will be submitted to Energy Safe Victoria by the end of each calendar month during the declared season
- The NSW HV customer Installation Safety Management Plans (ISMP) will be completed and available to the NSW transmission or distribution network companies prior to the 1st of September each year
- Inspection program dates are triggered by SAP (refer to the appendices)
- Timing for rectification works are determined by the priority status of work found; and
- Desktop Verification of plan & fire procedures shall occur in the first week of November each year.

8. Inspection Programs

Reg	Requirement
6 (1)(h)	the preventative strategies and programs to be adopted by the specified operator to minimise the risk of the specified operator's at-risk electric lines starting fires.
6 (1)(i)	a plan for inspection that ensures that all of the specified operator's at-risk electric lines are inspected at regular intervals of no longer than 37 months.

8.1. Inspection Methodology

The purpose of the inspection programs is to assess the condition of electricity generation and distribution assets, record test results and observations, and log results for further evaluation and action. Inspection programs have been designed for the surveillance of identified causes of fire ignition.

Structures are assessed using an infra-acoustic scanning technique (Woodscan®) to determine the residual strength at, or just above, ground line. Initially, the residual strength is determined as a percentage of the structures original strength given the structures strength group and size attributes.

The serviceability criteria assume that all structures were designed to an industry safety factor of 2.5:1. Our contracted service providers normally recommend that a limited state engineering analysis is undertake to structures found to be limited life or unserviceable. The flow chart below represents the serviceability rules adopted by SP Ausnet in Eastern Victoria. We have applied these rules to these assets because of the location of the project (within Ausnet supply area).

8.2. Load Assessments

It is critical that all load and structure information is associated with a directional bearing. These bearings are based on along-line and across-line coordinates from 0 – 360 degrees. To assess the applicable load of a structure we measure the following attributes:

- Exposed pole height
- Conductor sizes (including service cables)
- Span lengths, slope, and bearings
- Cross arm types and sizes
- Attachment heights for all attachments
- Stay attributes; and
- Exposure

8.3. Asset Performance and Health Index

Structures conforming to the requirements of the standard AS/NZS 7000 should have a Health Index (HI) greater than 1.0. (The ‘Health Index’ is the key performance measurement for serviceability and is calculated as ‘factored strength over factored load’).

The risk rating is based on the Serviceability category based on ‘Residual Strength’ as described in the flow chart above and the applicable loadings as measured in the field and defined in AS/NZS 7000. The risk table applicable to our assessments is:

WoodScan® status	Sustained Health Index	Ultimate Health Index	Both Indices
Measure	< 1.0	< 1.0	=> 1.0
Serviceable	Medium	Low	Very Low

Limited Life	High	Medium	Low
Unserviceable	Critical	Very High	Medium

8.4. Visual Inspections

Visual inspections of overhead electric line assets is undertaken by our contracted service providers utilising powered image stabilised binoculars and digital SLR cameras and includes, but is not limited to, the following:

- Cross-arms
- Poles
- Insulators
- Conductors
- Connectors
- Stays
- Transformers
- Switches
- Fusing and HV apparatus
- Earthing
- Vegetation; and
- Design

8.5. Inspection Schedule

The following inspections are undertaken:

- Pole top inspection is conducted on a 3-year cyclic rotation. Inspection results are recorded in the AGL computerised maintenance management system
- All poles, cross arms, conductors, and hardware belonging to AGL Hydro are inspected and tested on a 3-year cyclic rotation
- A Vegetation Line Clearance Verification of all AGL Hydro line assets is conducted annually by an appropriately qualified contractor with results recorded in AGL computerised maintenance management system

All issues or actions arising from any of these inspections are entered as jobs in the computerised maintenance management system SAP (refer to the appendices) and prioritised below. These SAP entries are reviewed as part of the annual Verification to ensure items have been completed in the required timeframe.

Priority/Code	Description
P1 (Immediate)	• Requires immediate remedial action
P2 (Break Schedule)	• Requires high priority remedial action within the current working week
P3 (Next Sched Week)	• Requires high priority remedial action within the next working week
P4 (Start 2-4 weeks)	• Requires remedial action within 2-4 weeks during fire & non fire season
P5 (Start 4+ weeks)	• Requires further assessment or remedial action within a period greater than 4 weeks in normal maintenance timeframes

8.6. High Voltage Cross Arms

Deteriorated HV cross-arms, where detected, will be replaced by galvanised steel cross-arms to prevent further deterioration and failure.

8.7. Personnel

This section outlines the process to be employed by all personnel, including contracted staff, carrying out asset inspections and tests carried out in a responsible manner and applies to all persons associated with this management plan.

All personnel, including contracted staff, must have satisfactorily completed the required competency-based training and their performance verified on an annual basis.

Random verifications are completed on all work conducted by contractors during the currency of each task. Any non-compliance issues are communicated to the relevant contractor or employee and corrective actions are taken immediately. These are recorded for verification purposes.

9. Qualifications, Training and Competency

Reg	Requirement
6 (1)(j)	details of the processes and procedures for ensuring that each person who is assigned to carry out the inspections referred to in paragraph (i) has satisfactorily completed a training course approved by Energy Safe Victoria and is competent to carry out such inspections.
6 (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.

9.1. Qualifications, Training and Competencies

Workers shall only undertake work for which they have been trained, assessed, and deemed competent to enable them to safely perform work and all relevant contractors must have sufficient knowledge, training, qualifications, and experience to ensure that tree activities under their control are conducted in a safe and environmentally responsible manner.

AGL Hydro engages contractors to perform annual inspections of at-risk electric assets and all work is carried out by suitably qualified and licensed personnel having experience in the types of work as laid out in the VESI framework.

AGL Hydro contractors who are suitably qualified will be considered as an “authorised person” or under the control of an authorised person under the Victorian High Voltage Code of practise on electrical safety for the work on or near high voltage electrical apparatus.

AGL Hydro records all contractor training and qualifications in the ‘RAPID Global’ and ‘cm3’ contractor management application systems including ensuring routine refresher training in relevant modules are current and work can be undertaken in a safe competent manner. Training records will be available prior to commencement of works or made accessible via the individuals Australian ESI Skills Passport.

AGL Hydro will have a representative responsible for carrying out this plan on site at the commencement of the inspections/clearance to observe/conduct appropriate inductions which may include such a request for records. If any worker associated with the work tasks covered under this plan are found to be performing works without required training/qualifications/experience or outside of their capabilities or the prescribed documentation, they are supposed to be working under then work will be immediately stopped and the associated personnel removed from the site.

9.2. Competency and Refresher Requirements

9.2.1. Asset Management

The following table outlines the Units of Competency required to be undertaken for the applicable Asset

Management and Inspection roles AGL Hydro. All Mandatory (M) units of competency shall be completed to undertake the role.

Qualification and Core Competency and Refresher Standard		Competency Standard Unit	Asset Inspector	Asset Inspector Trainee
Qualification				
Certificate II in Asset Inspection		UET20312	M	M
Apply ESI safety rules, codes of practice and procedures for work on or near electrical apparatus (Green Book / Blue book)		UETTDRRF01B	M	M
Prepare to work safely in the construction industry		CPCCOHS1001A	M	M
Working safely near live electrical apparatus as a non-electrical worker		UETTDREL14A	M	M
Refresher Requirements				
3 Yearly	Apply ESI safety rules, codes of practice and procedures for work on or near electrical apparatus (Blue book)	UETTDRRF01B	M	M
3 Yearly	Apply access procedures to work on or near electrical network infrastructure (Receive Access Permit)	UETTDRRF09B	M	M
3 Yearly	Control traffic with stop-slow bat	RIIWHS205D	M	M
3 Yearly	Implement traffic management plan	RIIWHS302D	M	M
3 Yearly	Manual Handling		M	M
3 Yearly	VESI Environmental Framework		M	M
3 Yearly	VESI Safety Framework		M	M
1 Year	Cardiopulmonary Resuscitation (CPR)	HLTAID001	M	M
1 Year	First Aid in an ESI environment	UETTDRRF10B	M	M
Other Requirements				
ESI Worker Card			M	M
Network Operator Induction			M	M

M – Mandatory; A – Additional (If worker requires for the works being performed)

9.2.2. Vegetation Management

The following table outlines the Units of Competency required to be undertaken for the applicable Vegetation role at AGL Hydro. All Mandatory (M) units of competency shall be completed to undertake the role.

9.2.2.1. Qualification and Competencies

Qualification and Core Competency Standard	Competency Standard Unit	Assessor	Cutter Working from EWP	Specialist Plant Operator	Tree Climber
Qualification					
Certificate II in ESI - Powerline Vegetation Control	UET20312	M	M	M	M
Apply ESI safety rules, codes of practice and procedures for work on or near electrical apparatus (Green Book / Blue book)	UETTDRRF01B	M	M	M	M
Elective Competency Standard Units					
Use climbing techniques to cut vegetation above ground near live electrical apparatus	UETTDRVC21A				M
Assess vegetation and recommend control measures in an ESI environment	UETTDRVC24A	M			
Use elevated platform to cut vegetation above ground level near live electrical apparatus	UETTDRVC25A		M		
Operate specialist equipment at ground level near live electrical apparatus	UETTDRVC31A			A	
Use specialised plant to cut vegetation above ground level near live electrical apparatus	UETTDRVC32A			M	
Apply pruning techniques to vegetation control near live electrical apparatus	UETTDRVC33A		M	M	M
Undertake release and rescue from a tree near live electrical apparatus	UETTDRVC34A				M
Fell small trees	AHCARB202A		A	A	A
Undertake standard climbing techniques	AHCARB204A				M
Apply chemicals under supervision	AHCCHM201A		A	A	A
Operate machinery and equipment	AHCMOM304A		A	M	A
Recognise plants	AHCPCM201A	M	A	A	A
Operate a mobile chipper/mulcher	FPIHAR2206B		A	A	A
Licence to operate a boom-type elevating work platform (boom length 11 metres or more)	TLILIC2005A		M		

M – Mandatory; A – Additional (If worker requires for the works being performed)

9.2.3. Refresher Requirements

Frequency	Qualification and Core Competency Standard	Competency Standard Unit	Assessor	Cutter Working from EWP	Specialist Plant Operator	Tree Climber
3 Yearly	Apply ESI safety rules, codes of practice and procedures for work on or near electrical apparatus (Blue book)	UETTDRRF01B	M	M	M	M
3 Yearly	Apply access procedures to work on or near electrical network infrastructure (Receive Access Permit)	UETTDRRF09B	M	M	M	M
1 Year	Cardiopulmonary Resuscitation (CPR)	HLTAID001	M	M	M	M
1 Year	First Aid in an ESI environment	UETTDRRF10B	M	M	M	M
1 Year	EWP Controlled Descent Escape	UETTDRRF08B		M		
1 Year	EWP Rescue	UETTDRRF03B		M		
1 Year	Undertake release and rescue from a tree near live electrical apparatus	UETTDRVC34A				M

M – Mandatory; A – Additional (If worker requires for the works being performed)

10. Operations and Maintenance Plans

10.1. Event of a Fire

Reg	Requirement
6 (1)(l)(i)	the operation and maintenance plans for the specified operator's at-risk electric lines — in the event of a fire

In the event of fire which prevents the safe operation of the HV overhead line, the line will be deenergised to minimise further ignition sources. Where the fire is in the area but presents minimal or no risk to the safe operation of the overhead line, the overhead line will continue to operate.

10.2. Days of Total Fire Ban and Fire Emergencies

Reg	Requirement
6 (1)(l)(ii)	the operation and maintenance plans for the specified operator's at-risk electric lines — during a total fire ban day

On days of Total Fire Ban and emergencies, the AGL Dispatch Centre Generation Dispatcher will inform team leaders of the declaration days of total fire ban, verbally and in writing before 7:30 am. Team leaders will organise to reschedule any planned works that may be considered by government fire service agencies, or under codes of practice, regulations, or statutory requirements, to pose a risk of fire ignition.

Where such tasks need to be performed to ensure the security and safety of the network all permits required by the government fire service agencies, or under codes of practice, regulations, or statutory requirements, will be obtained.

AGL Hydro does not have any reclose suppression line protection systems. Subject to safe access AGL Hydro high voltage pole assets in the Victorian Rubicon State Forest high risk area will be visually inspected subject to safe access, prior to 9:00am on Total Fire Ban days. Any potential hazards will be reported to the Works Team Supervisor and a decision made to remove the hazard or isolate the affected asset.

Records of events and instructions for days of Total Fire ban will be kept by AGL Hydro for inspection by regulatory and government fire service agencies if required. The Hydro Works Team Supervisor will remain in close liaison with government fire service in the approach to the fire season to confirm season start date.

10.3. During the Fire Danger Period

Reg	Requirement
6 (1)(l)(iii)	the operation and maintenance plans for the specified operator's at-risk electric lines — during a fire danger period

AGL Hydro assets will be operated in accordance with normal operating practices during the declared fire danger periods.

11. Investigations, Analysis and Methodology

Reg	Requirement
6 (1)(m)	the investigations, analysis, and methodology to be adopted by the specified operator for the mitigation of the risk of fire ignition from its at-risk electric lines.

Electrical events/faults, if they influence risk of fire ignition from the sites at-risk electric lines or not, are recorded and reported using AGL Hydro's 'myHSE Event Report' which if considered to be a 'Serious Electrical Event', are reported separately to ESV and/or WorkSafe Victoria. For faults/incidents/defects requiring further internal investigation the 'Incident Reporting and Investigation Procedure' is followed.

11.1. Fire Reporting and Investigations

AGL Hydro undertakes to investigate and analyse all fire ignitions originating from its electric line assets.

11.1.1. Definitions

Fires are categorised under two definitions as follows:

- Fire: the ignition of combustible materials on the ground including trees and other vegetation possibly caused by AGL Hydro's assets; and
- Significant Fire: a fire which causes injury or death, or significant damage to stock or property which includes trees, pasture and fencing possibly caused by AGL Hydro's assets.

11.1.2. Fire Reporting Procedures

Should a fire occur, which may have been caused by AGL Hydro assets it is to be reported by:

- A telephone report to the Works Team Supervisor, Operations Governance Manager and Head of Hydro
- An HSE incident raised in the AGL Hydro HSE Management System (myHSE)

When reporting fires causing minimal damage, and where it is unlikely that there will be any media involvement, the Head of Hydro, Operations Manager and Works Team Supervisor must be provided with at least the following information:

1. Current status of the fire (ie. out, under control etc.)
2. Attendance of any other authority (Police, CFA)
3. Date and time of discovery
4. Pole number
5. Locality or line/spur name
6. Injured personnel
7. Material damage
8. Line voltage
9. Possible cause; and
10. Details of preliminary information from the initial site inspection.

In the event of a significant fire, or if media involvement is likely, the Works Team Supervisor, Operations Governance Manager and Head of Hydro are to be provided with the following information, in addition to that above, as soon as possible:

1. Name of the person reporting the fire
2. Whether AGL Hydro Employees are still on site; and
3. If the police attended the incident.

Fire Report information must be submitted within 48 hours of first notification of the incident. Sufficient detail is to be included to allow a full understanding of the incident (including weather, pole/cross arm materials, conductor materials, etc.).

11.1.3. Pole Fire Report

In addition to the standard Fire Report Form, if a pole fire occurs the AGL Hydro nominated Works Team Leader involved must fill out a Pole Fire Report (refer appendices) and return the report to the Works Team Supervisor. Should the fire cause damage to non AGL Hydro assets, a Fire Report must also be submitted.

11.1.4. Pole and Cross arm Failure Report

Should a fire occur as the result of a pole, or cross arm failure, a Pole and Cross arm Failure Report (refer appendices) must be completed and returned to the Works Team Supervisor. Should a fire which damages AGL Hydro, or non AGL Hydro assets, occur as result of a pole or cross arm failure a Fire Report must also be completed and submitted.

11.1.5. Report to Energy Safe Victoria

If as the result of an incident, serious property damage, or a serious reduction in the level of public safety, has occurred or is likely to occur in Victoria, then all details of the incident must be reported to Energy Safe Victoria in accordance with the Electrical Safety Management Regulations 2009. Refer to the AGL Hydro Electrical Safety Management Scheme Manual for assistance with the reporting process requirements.

11.1.6. Investigations

In the event of any fire involving AGL Hydro assets; the Operations Governance Manager with the assistance of the Works Team Supervisor is to initiate an investigation into the cause and effects of the fire and produce if necessary, a plan for minimising the likelihood of a further similar occurrence. Every effort is to be made to commence the investigation within two calendar weeks of the incident and have the investigation completed and the recommendations and action plan produced within six calendar weeks of the incident. Investigation

findings, recommendations and action plans are then to be forwarded to the regulatory agencies for all notifiable incidents.

11.2. Response Review and Reporting

- AGL Hydro undertakes to respond as soon as practicable to all fires arising from their actions or asset. In the case of potential ignition sources from asset operations on days of total fire ban, AGL Hydro may open-off HV lines running through high-risk areas, dependent on weather conditions such as the Rubicon State Forest. All employees and contractors employed by AGL Hydro are instructed to report all fires immediately
- Bushfire Mitigation Plans, Electric Line Clearance Management Plans, Position Statement on Joint Fire Fighting Roles, Line Inspection Manuals, and all subordinate documents will be reviewed on an annual basis or more frequently if required
- All AGL Hydro procedures, documentation and asset readiness relating to bushfire mitigation, shall be reviewed each year in August prior to declaration of the fire season. All corrective actions identified shall be identified prior to the declaration of the fire danger period. A verification report and progress on corrective actions shall form part of the annual review of the plan prior to the declaration of the fire season; and
- AGL Hydro shall forward the bushfire mitigation index (refer to the appendices) relating to the Victorian assets to Energy Safe Victoria monthly during the declared period.

11.3. Assistance from Fire Agencies for Fires near Electrical Assets

The following procedures apply when assistance is required from fire agencies for fires near electrical assets:

- Access to assets - for personal safety reasons no access to any high voltage source (eg: switchyards, HV Lines, Poles) by any fire authority or personnel is permitted without prior approval from an authorised employee of AGL Hydro
- Co-ordination of resources - each year AGL Hydro shall circulate the AGL fire preparedness and capability statement with local fire agencies that includes the role of each agency in the event of a fire endangering or affecting any HV assets
- Appointed contact persons — in the event of an incident affecting any AGL Hydro asset, the Duty Officer shall notify the Works Team Supervisor or his delegate for allocation of resources; and
- Information exchange - AGL Hydro shall maintain a free exchange of information to all fire control agencies to enable a rapid, appropriate response to all incidents. The Works Team Supervisor will use this information exchange to best advantage to identify risks to and from AGL Hydro Assets and effectively apply lessons learnt from past events to manage future fire risk.

12. Processes and Procedures

12.1. Implementation Monitoring

Reg	Requirement
6 (1)(n)(i)	details of the processes and procedures by which the specified operator will— monitor the implementation of the bushfire mitigation plan

12.1.1. General

Monitoring the implementation of the plan is performed predominantly through the use and management of the AGL computerised maintenance management system (CMMS) which records any required scheduled or unscheduled works including, but not limited to, the preventative works listed in this plan.

The specific measure is the closure of maintenance work orders related to bushfire mitigation and line vegetation works which have a due date, or are required to be done, prior to the 1st of December or before the declared fire danger period each year, whichever is earlier.

This measure is referred to as the Bushfire Index and is calculated as follows:

Index Bushfire = Number of outstanding works / Total works required

12.1.2. Preparedness Reviews

AGL Hydro will undertake annual reviews of its bushfire preparedness in relation to overhead line assets and generation structures. Plan reviews by Senior Leaders, and other nominated staff, will be held annually to validate; the plan; the efficiency of maintenance programs, program compliance, and program relevance.

Random checks will be undertaken during October/November of each year into all facets of the implementation of the bushfire mitigation plan.

Plan reviews by Senior Leaders, include:

- The Operations Governance Manager
- The Works Team Supervisor
- The Senior Electrical Engineer
- Works Team Leader (Civil)
- Works Team Leader (Electrical); and
- Other nominated personnel as deemed necessary

Note: A delegate may be nominated in the absence of one of the above Leader.

Plan reviews will include checks and assessments of the following:

- Planning
- Monitoring inspections carried out
- Line maintenance database & SAP
- Urgent work
- Poles and Line hardware
- Trees/vegetation
- Communication effectiveness with the fire service agencies
- Response to days of Total Fire Ban and high fire danger; and
- HV switching procedures

All issues or actions arising from any of these reviews are entered as jobs in the computerised maintenance management system SAP (refer to the appendices) and prioritised as follows:

The Works Team Supervisor oversees each plan review and coordinates follow-up action to verify the implementation of the corrective action and that a works management work order is raised and tracked.

Records supporting the plan reviews will be made available to Energy Safe Victoria for review upon request Verification and will be independently verified every five years by external consultants.

The Works Team Supervisor shall ensure that bushfire mitigation index status reports are forwarded to the Operations Governance Manager and to Energy Safe Victoria during the currency of the declared fire season.

12.1.3. Plan Effectiveness and Monitoring

The results of plan reviews that identify deficiencies in the procedures or the plan implementation associated with the management of bushfire mitigation are added to the HSE management system and action register for further action and tracking. This register tracks the issue, responsible person, and progress status. The results of each plan review including the documented actions are advised to the Hydro Leadership Team.

The change to a procedure or this plan will be implemented in a timely manner depending on the significance of the issue identified. All items identified will be incorporated into the next annual revision of the manual.

12.1.4. Performance Indicators

Other performance measures which will be collated and reviewed annually prior to the resubmission of this plan to ESV include:

- Number of electrical events/faults that have occurred on the relevant Electric Lines with the cause identified to be directly related to their condition and/or compliance with the Regulations
- Annual Number of Fire Starts
- Number of Stakeholder complaints/correspondence received in relation to the relevant Electric Lines as measured through AGL Hydro's community and communications department
- Lost Time Injuries (LTI's) or Medical Treatment Injuries (MTI's) with the cause identified to be directly related to the Electric Lines
- Future Electric Line Clearance Plan submitted by 30th June each year
- Financial Penalties (Penalty Units) received

12.2. Implementation Verification

Reg	Requirement
6 (1)(n)(ii)	details of the processes and procedures by which the specified operator will— Verification the implementation of the plan

Verification the implementation of the plan is largely done as part of the annual review process prior to resubmission of this plan to ESV and a review prior to the declared fire danger period which will be undertaken by a representative responsible for carrying out this plan which includes:

- that the qualifications and experience of personnel performing any scheduled inspection and/or clearance works adheres to both ESV's and this plans requirements
- associated report/s have been submitted to the persons responsible for carrying out this plan
- all inspections, reports, and subsequent recommendations from have been conducted in line with the scope/timing of recommendations and to the quality of this plan and the applicable Acts, Regulations, Codes and Standards; and
- the inspections and recommendations from the report, if any, have an appropriate task/s entered into the AGL Hydro SAP works management systems and those task/s have been closed out following completion or the works.

12.3. Implementation Deficiencies

Reg	Requirement
6 (1)(n)(iii)	details of the processes and procedures by which the specified operator will— identify any deficiencies in the plan or the plan's implementation

Identification of any deficiencies in the plan or the plan's implementation is achieved through:

- the annual review process of this plan prior to resubmission to ESV
- Persons carrying out this plan to provide feedback to their Leader and/or the person/s responsible for the preparation of this plan when a deficiency is found

- AGL Hydro's critical control checks and workplace safety and environment observation/conversation program which requires employees and leaders to have routine observation/conversation which are entered into the AGL Hydro myHSE systems; and/or
- Review of site/asset risk registers.

12.4. Changes to the Plan's Implementation

Reg	Requirement
6 (1)(n)(iv)	details of the processes and procedures by which the specified operator will— change the plan and the plan's implementation to rectify any deficiencies identified under subparagraph (iii)

Changes to the plan and the plan's implementation if any deficiencies are identified are performed during the annual review of this plan prior to resubmission to ESV.

If there are more critical changes required to important information, including but not limited to, contact details or applicable procedures/policies these will be performed as soon as possible and resubmitted to ESV. The updated plans will then be reloaded into AGL Hydro's enterprise library and on the AGL Hydro webpage listed in the plan.

The annual review of this plan is performed by the persons responsible for preparing the plan in conjunction with the other stakeholders and responsible persons listed in this plan. These include, but is not limited to, updating the plan for any new or revised Legislation, Regulations or Codes, industry practices and Electric Line configurations and/or locations.

12.5. Monitor Effectiveness of Inspections

Reg	Requirement
6 (1)(n)(v)	details of the processes and procedures by which the specified operator will— monitor the effectiveness of inspections carried out under the plan

Monitor the effectiveness of inspections under the plan will be performed through the annual review of the performance measures listed above by the persons responsible for preparing the plan.

12.6. Verification of the Effectiveness of Inspections

Reg	Requirement
6 (1)(n)(vi)	details of the processes and procedures by which the specified operator will— Verification the effectiveness of inspections carried out under the plan

Verification of the effectiveness of any inspections carried out under the plan is performed through conducting a ground based visual assessment following the completion of the 36-month Electric Line Inspection works. This will be performed by personnel who have:

- Knowledge of applicable Acts, Regulations and Codes associated with this plan
- Knowledge of this plan and its review and verification obligations
- Knowledge and are familiar with, the Electric Lines subject to the review and verification; and
- A minimum of 3 years Electric Line management experience; or
- An independent 3rd Party.

13. Assistance Provided to Fire Control Authorities

Reg	Requirement
6 (1)(o)	the policy of the specified operator in relation to the assistance to be provided to fire control authorities in the investigation of fires near the specified operator's at-risk electric lines.

13.1. Investigations of fires

AGL Hydro will allow access to and assist fire control authorities in the investigation of fires at or near the relevant Electric Lines.

13.2. Liaison with Management Agencies

AGL Hydro will maintain a representative on the local Shire or Municipal Fire Prevention Committees to ensure that fire mitigation strategies are in place and communicated prior to the declaration of fire season.

AGL Hydro shall maintain links with the local government agencies such as the CFA, Parks Victoria, Water NSW and DELWP to ensure swift and effective, response to fire ignition within its area of responsibility.

A Victorian firefighting capability statement and response plan shall be distributed to the DELWP and CFA prior to the fire season each year detailing what AGL Hydro resources are available to fire agencies.

14. Public Awareness Programs

AGL Hydro has no private electric supply lines connected to any of its overhead assets. Where AGL Hydro has overhead lines passing over private or public land it shall inform, and make aware, the land holders of their obligations about ensuring limits of approach and clearance distances are maintained, allowing access for periodic inspections, and what actions will need to be undertaken if there is a non-compliance. This will be achieved by informing land holders in writing of AGL Hydro's needs for asset access and inspection times, their rights, and the procedure for settlement of any grievances arising.

15. Plan available for inspection

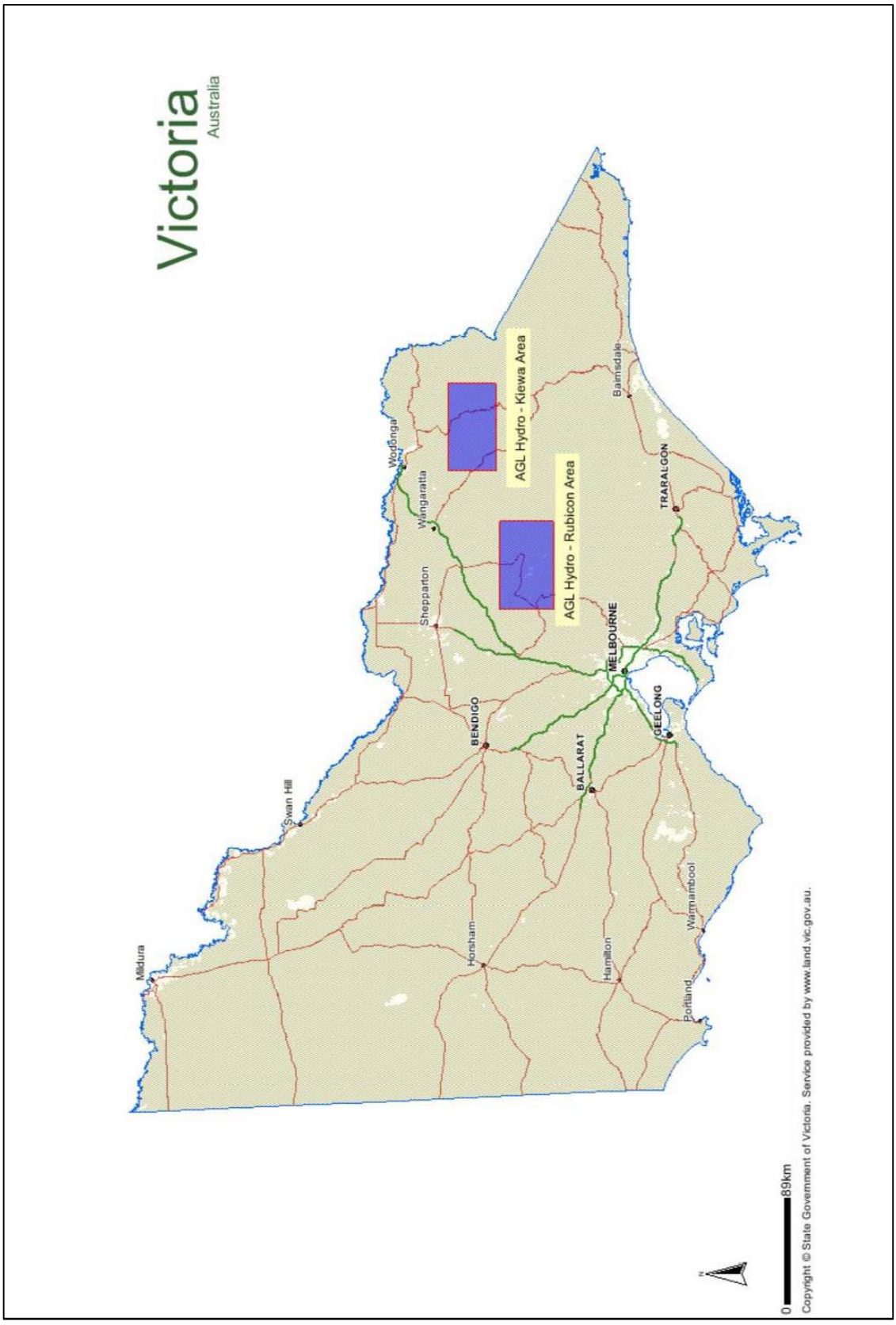
As per Section 83BA (3) (a) of the Act, the latest ESV approved Bushfire Mitigation Plan is available on the AGL internet site at: https://www.agl.com.au/about-agl/how-we-source-energy/hydroelectric-assets

Any superseded versions of the plan located at the above websites will be overwritten by the AGL Hydro person responsible for preparing the plan once an updated version of the document has been approved/accepted by ESV.

A hardcopy of the ESV approved/accepted Bushfire Mitigation Plan mentioned above is available for inspection at AGL Hydro's Mt Beauty Administration office, during normal business hours, located at Kiewa Valley Hwy, Mt Beauty 3699. Any hardcopy superseded versions of the plan will be destroyed by the person responsible for preparing the plan.

16. Victorian Assets

All overhead electric lines outline in this section are in a Hazardous Bushfire Risk Areas (HBRA).

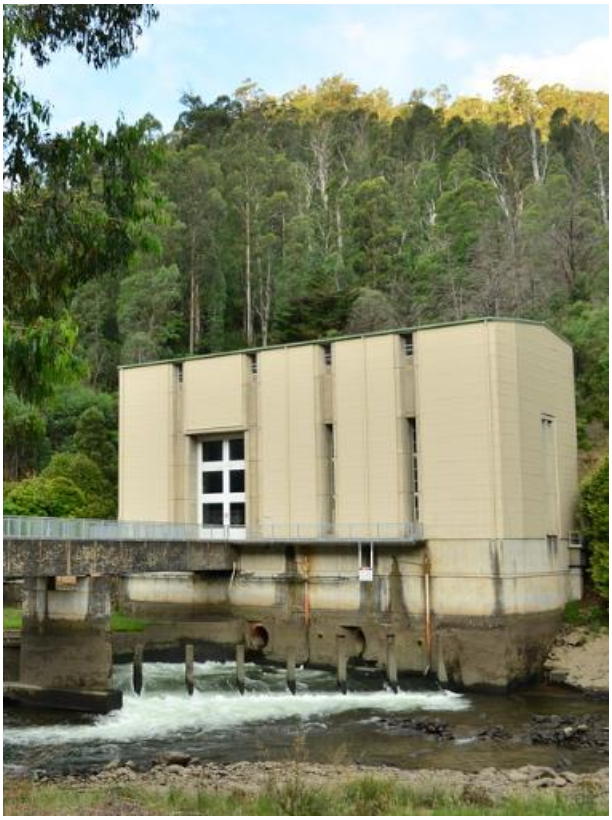


16.1. Kiewa Hydro Scheme Assets

16.1.1. Mount Beauty Depot and Regulating Pondage

16.1.2. West Kiewa Power Station

16.1.3. Clover Power Station

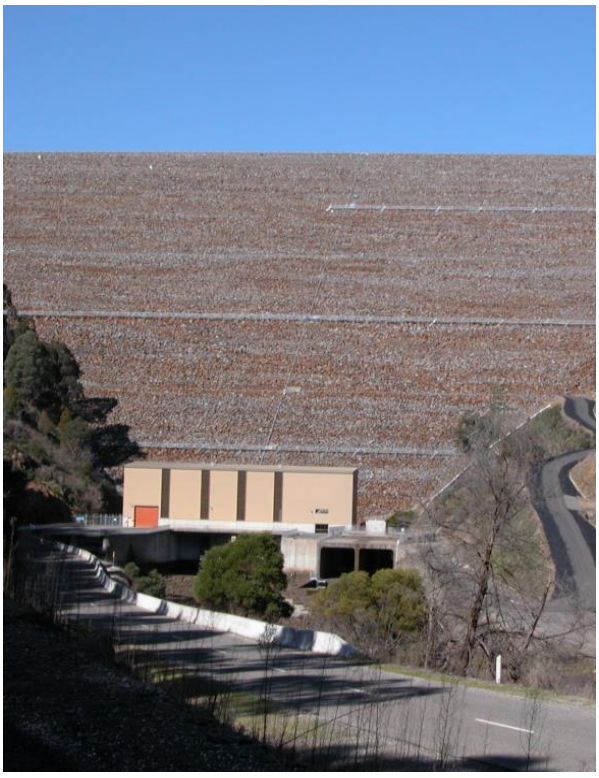


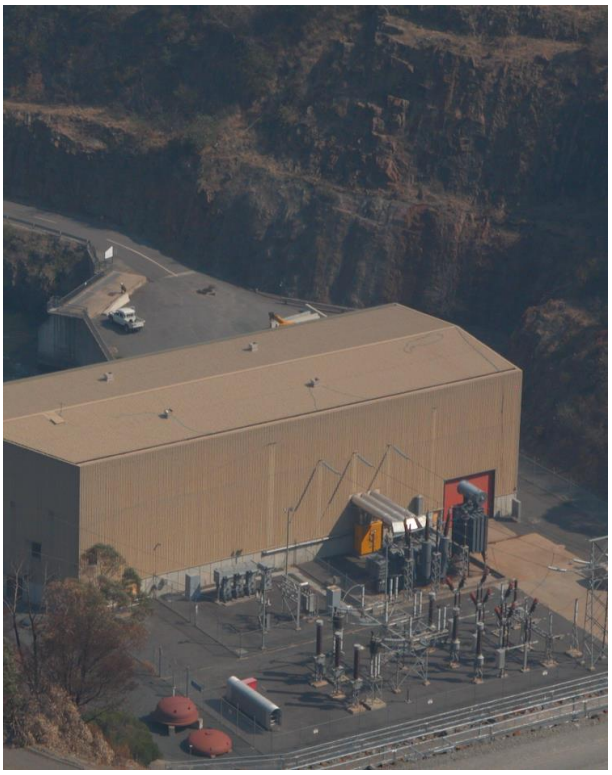
16.1.4. Bogong Power Station

16.1.5. McKay Creek Power Station

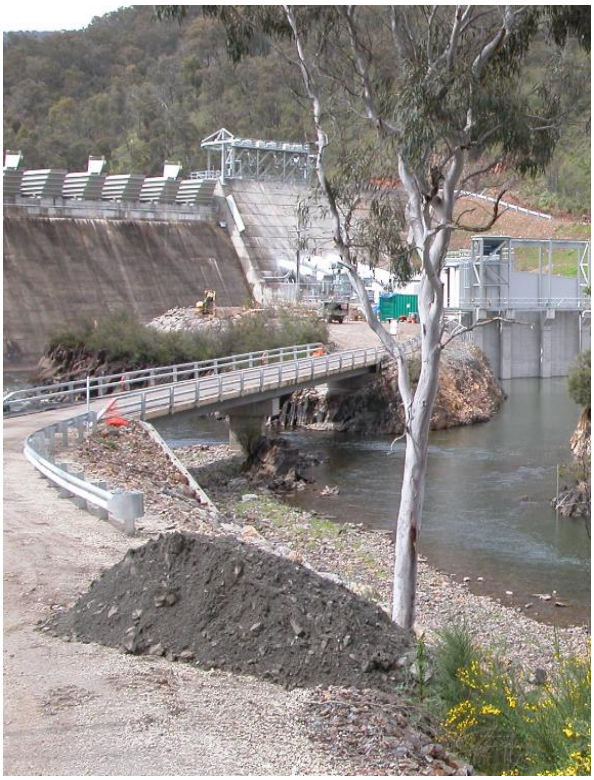
16.2. Dartmouth Hydro Scheme Assets

16.2.1. Dartmouth Power Station

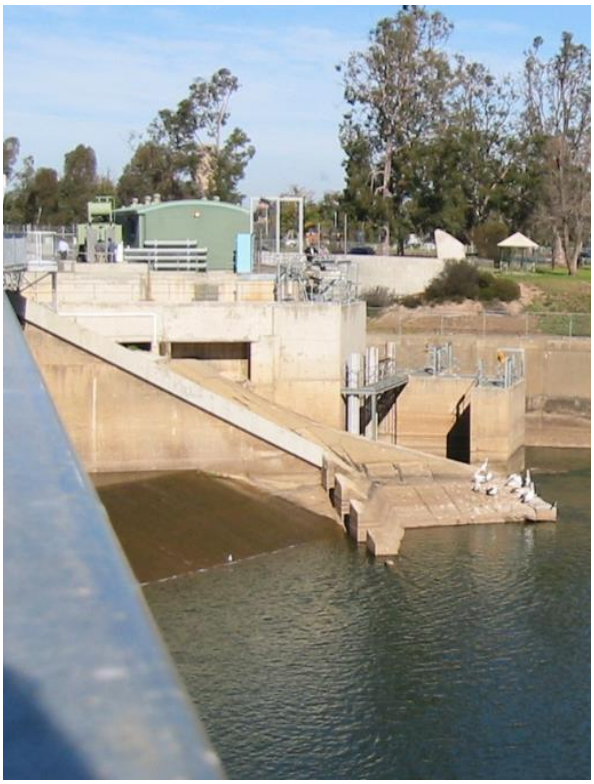




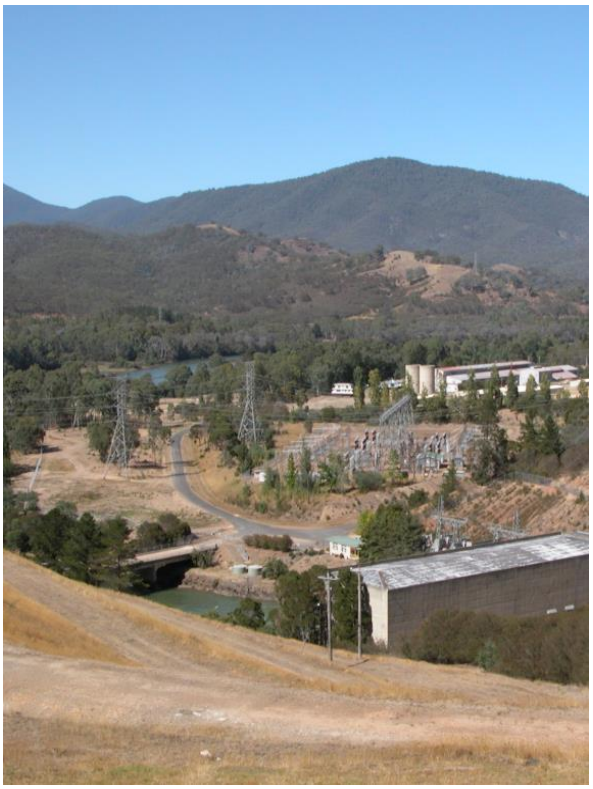
16.2.2. Banimboola Power Station



16.3. Yarrawonga Power Station Assets



16.4. Eildon Power Station Assets



16.5. Kiewa Hydro Scheme Overhead Powerlines

This section relates to all overhead electric lines in the Kiewa Hazardous Bushfire Risk Area (HBRA).

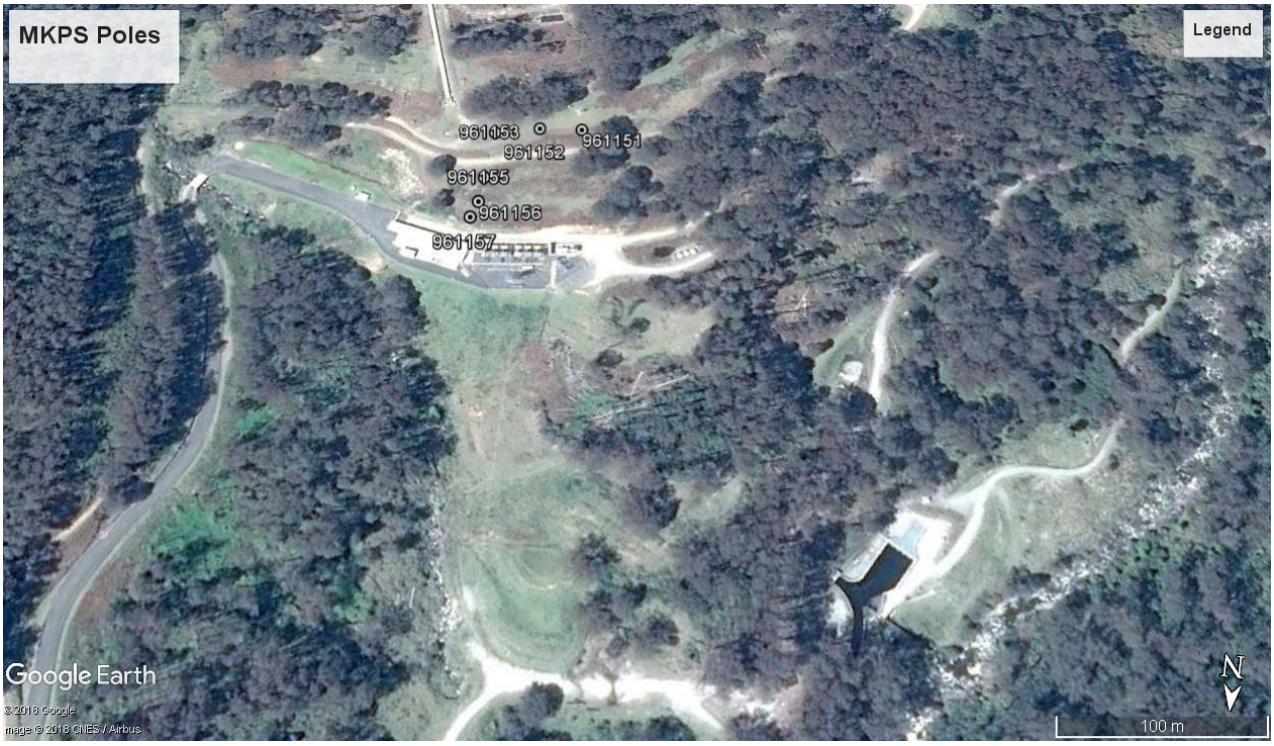
16.5.1. Kiewa – Mount Beauty Depot

16.5.2. Kiewa – West Kiewa

16.5.3. Kiewa – Clover and Bogong Creek Raceline

16.5.4. Kiewa – Bogong

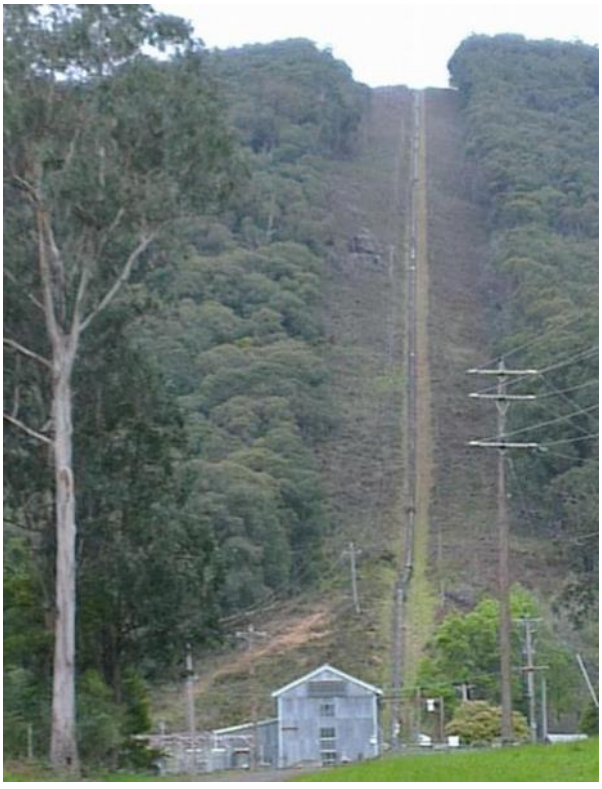
16.5.5. Kiewa – McKay Crk PS

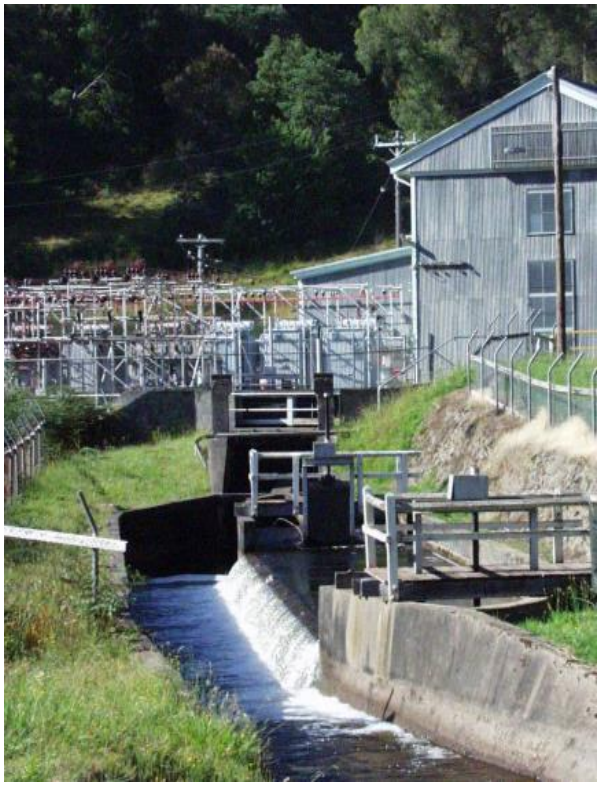


16.6. Rubicon Hydro Scheme Assets

16.6.1. Lower Rubicon PS

16.6.2. Rubicon PS



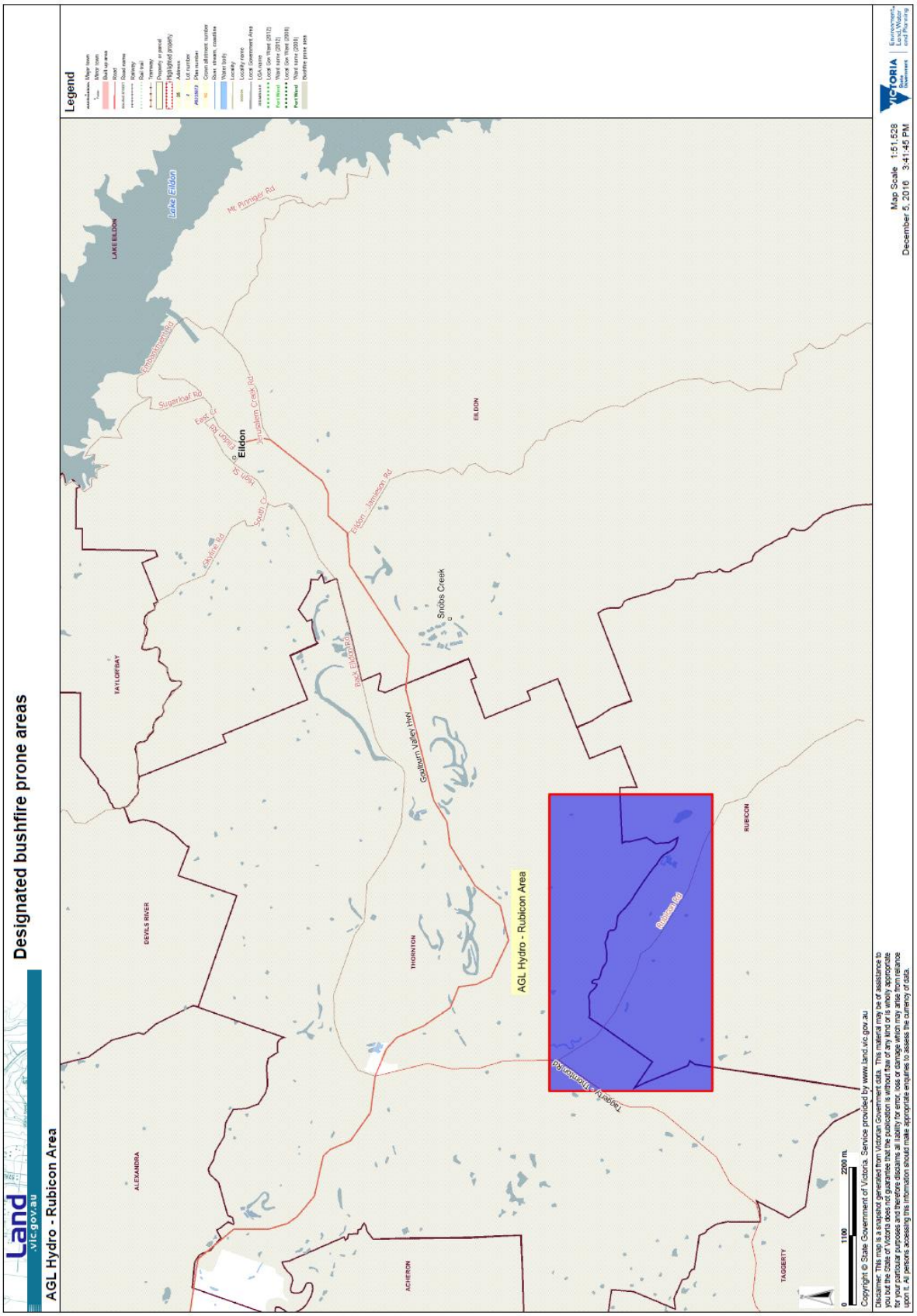


16.6.3. Rubicon Fall PS

16.6.4. Royston PS

16.7. Rubicon Hydro Scheme Overhead Powerlines

This section relates to all overhead electric lines in the Rubicon Hazardous Bushfire Risk Area (HBRA).



16.7.1. Rubicon A - Rubicon PS (Image 1)

16.7.2. Rubicon A - Rubicon PS including Lower Rubicon (Image 2)

16.7.3. Rubicon A - Rubicon PS (Image 3)

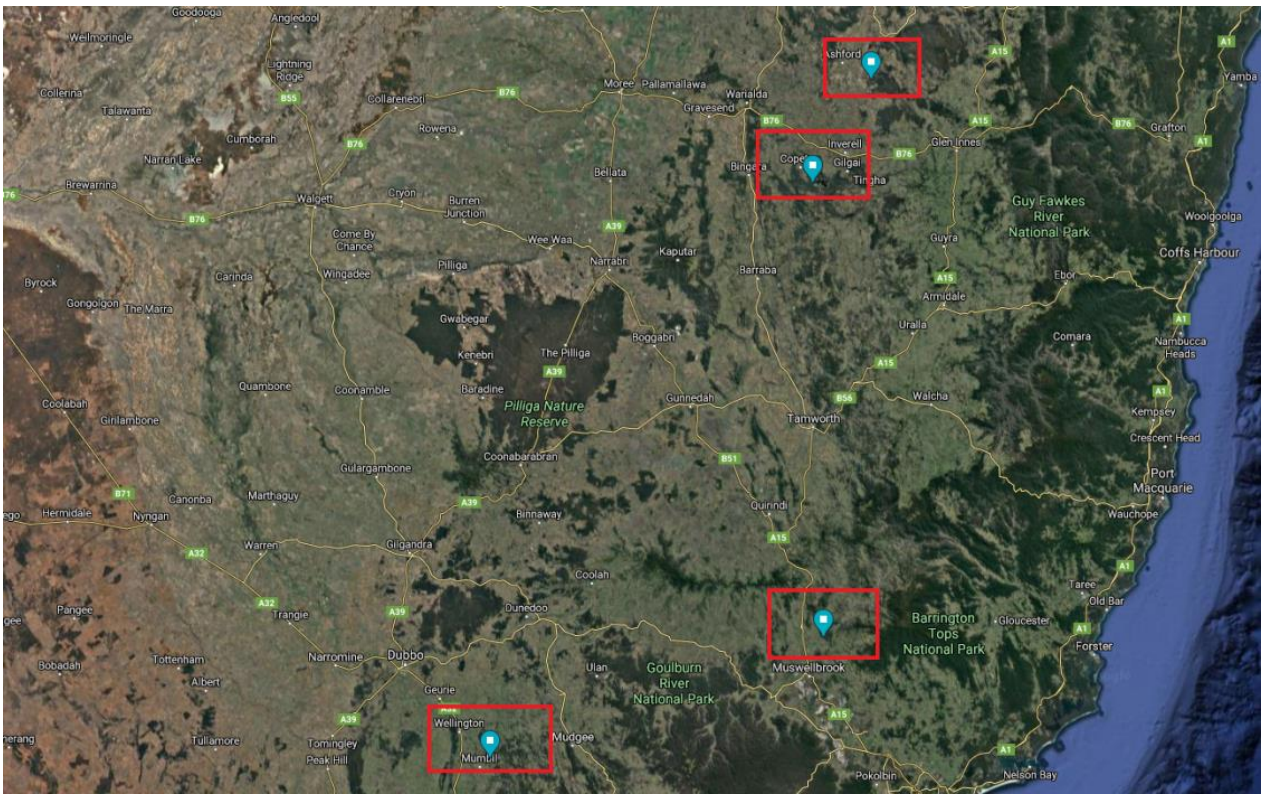
16.7.4. Rubicon PS

16.7.5. Rubicon Falls PS

16.7.6. Royston PS

16.8. NSW Assets

All NSW overhead electric lines are located with the confines of the power station switchyard of each asset located in the following Hazardous Bushfire Risk Areas (HBRA).



16.8.1. Pindari Power Station

Address	Pindari Dam Road
Connection Point: Connection clamp to the 66kV incoming line to the AGL Pindari substation. **AGL Asset Ownership:** AGL Pindari substation infrastructure including incoming 66kV pole structure and 66kV line connection clamp and dropper cable. **TNSP Asset Ownership:** 66kV incoming overhead line and insulator connected to the AGL incoming overhead line pole structure.	

NSW Rural Fire Service bushfire prone area assessment: Bushfire Prone Location	

16.8.2. Copeton Power Station

Address	Copeton Dam Road

Connection Point: 66kV incoming line aerial terminations on the AGL Copeton substation overhead landing span structure. **AGL Asset Ownership:** AGL Copeton substation infrastructure including incoming 66kV landing span structure and 66kV line connection clamp and dropper cable. **TNSP Asset Ownership:** 66kV incoming overhead line and insulator connected to the AGL incoming overhead line landing span structure.	

NSW Rural Fire Service bushfire prone area assessment: Bushfire Prone Location	

16.8.3. Burrendong Power Station

Address	Burrednong Dam Road
Connection Point: 132kV incoming line aerial terminations on the AGL Burrendong substation overhead landing span structure. **AGL Asset Ownership:** AGL Burrendong substation infrastructure including incoming 132kV landing span structure and 132kV line connection clamp and dropper cable. **TNSP Asset Ownership:** 132kV incoming overhead line and insulator connected to the AGL incoming overhead line landing span structure.	

NSW Rural Fire Service bushfire prone area assessment: Bushfire Prone Location	

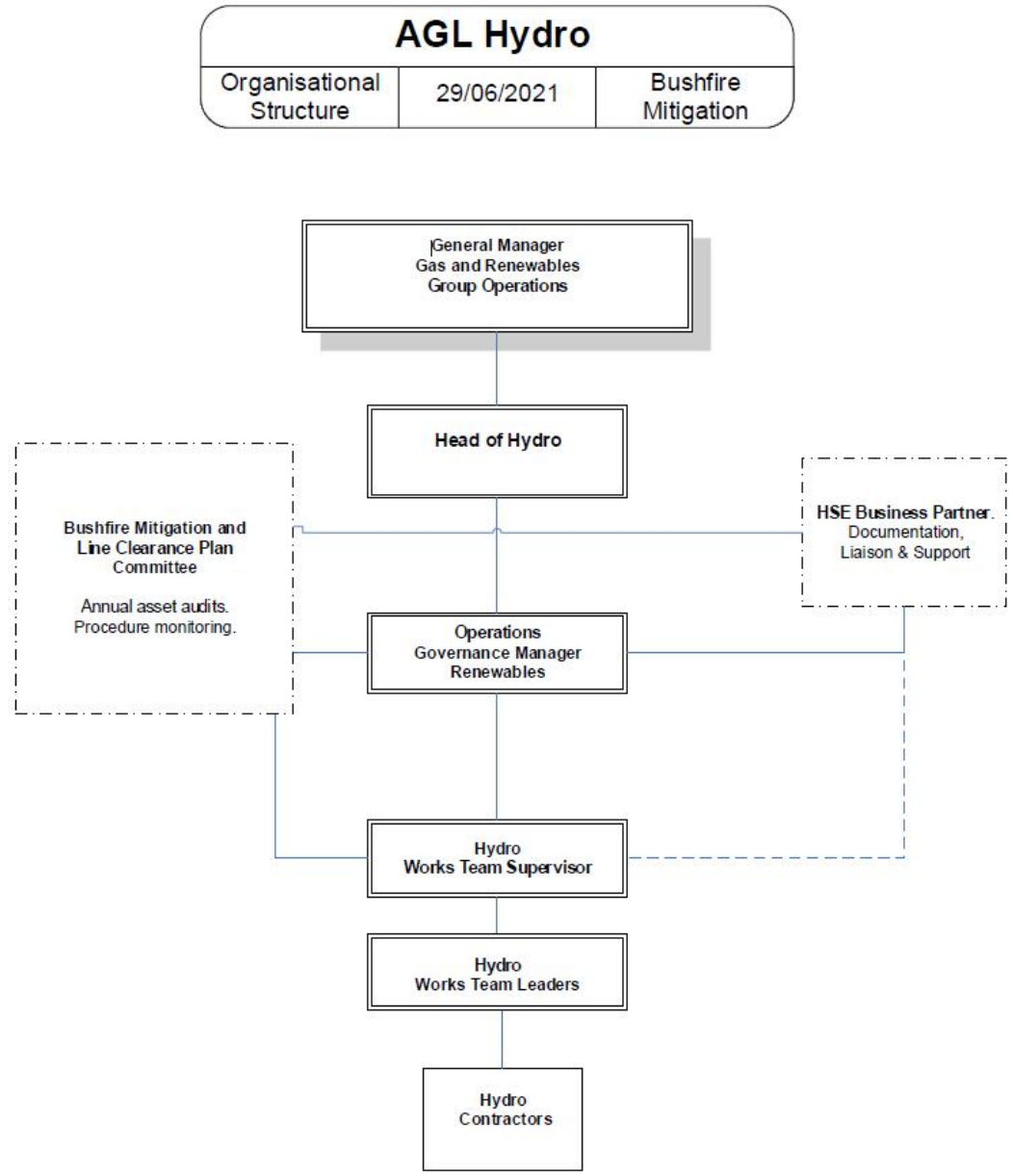
16.8.4. Glenbawn Power Station

Address	Glenbawn Dam Road
Connection Point: 33kV incoming line terminations on the AGL Glenbawn rotary air break switch located on the AGL Glenbawn substation overhead landing span structure. **AGL Asset Ownership:** AGL Glenbawn substation infrastructure including incoming 33kV landing span structure. **TNSP Asset Ownership:** 33kV incoming overhead line and insulator (connected to the AGL incoming overhead line landing span structure) and dropper cable to the AGL Glenbawn rotary air break switch.	

NSW Rural Fire Service bushfire prone area assessment: Bushfire Prone Location	

17. Appendices

17.1. Reporting Organisational Structure


AGL Hydro
Organisational Structure
29/06/2021
Bushfire Mitigation
General Manager
Gas and Renewables
Group Operations
Head of Hydro
Bushfire Mitigation and
Line Clearance Plan
Committee
Annual asset audits.
Procedure monitoring.
HSE Business Partner.
Documentation,
Liaison & Support
Operations
Governance Manager
Renewables
Hydro
Works Team Supervisor
Hydro
Works Team Leaders
Hydro
Contractors

17.2. AGL Hydro at-risk electric lines

The following table is an extract from our AGL Hydro electrical line pole and line register representing the AGL Hydro at-risk electrical lines.

Network Ref	Line Ref	Material	Process	Treatment	Overall Length	Height	GL Diameter	Original Diameter	Install Year	Pole Function	Terrain	Diameter Dd
961001	WEST KIEWA	HHD (S3)	Natural	CCA	12.5	10.5	310	310	2005	Strain	TC4 - Sheltered 10m-30m high	290
961002	NORTH KIEWA	SHD (S5)	Natural	Natural	9.2	7.2	340	340	1942	Strain	TC4 - Sheltered 10m-30m high	315
961004	WEST KIEWA	HHD (S3)	Natural	Creosote	11.8	9.8	300	300	1981	Strain	TC4 - Sheltered 10m-30m high	110
961004	WEST KIEWA	HHD (S3)	Natural	Creosote	11.8	9.8	300	285	1981	Strain	TC4 - Sheltered 10m-30m high	110
961005	WEST KIEWA	HHD (S2)	Peeled	Natural	9.5	7.5	287	287	1986	Angle	TC4 - Sheltered 10m-30m high	278
961010	WEST KIEWA	HHD (S3)	Natural	CCA	13	11	365	365	2005	Strain	TC4 - Sheltered 10m-30m high	370
961011	WEST KIEWA	HHD (S2)	Natural	CCA	14	12	385	385	2005	Strain	TC4 - Sheltered 10m-30m high	357
961016	WEST KIEWA	HHD (S3)	Natural	CCA	14	12	336	336	2005	Strain	TC4 - Sheltered 10m-30m high	320
961152	MCKAY CREEK	HHD (S3)	Natural	Natural	12.5	10.5	328	328	2000	Intermediate	TC2.5 - Sheltered few	327
961153	MCKAY CREEK	HHD (S4)	Natural	Natural	12	10	257	257	2000	Intermediate	TC2.5 - Sheltered few	194
961156	MCKAY CREEK	HHD (S4)	Natural	Creosote	11.5	9.5	330	330	1970	Strain	TC2.5 - Sheltered few	203
961198	MT BEAUTY DEPOT	HHD (S3)	Peeled	Natural	10.5	8.5	290	291	2000	Intermediate	TC2.5 - Sheltered few	267
961199	MT BEAUTY DEPOT	HHD (S3)	Natural	Natural	10.5	8.5	279	279	2000	Intermediate	TC2.5 - Sheltered few	287
961200	MT BEAUTY DEPOT	HHD (S4)	Natural	Natural	10	8	312	312	2000	Termination	TC2.5 - Sheltered few	295
961202	JUNCTION DAM	HHD (S2)	Peeled	Natural	10.5	8.5	365	365	1942	Termination	TC4 - Sheltered 10m-30m high	352
961206	BOGONG VILLAGE	HHD (S4)	Peeled	Natural	10.5	8.5	340	340	1942	Angle	TC4 - Sheltered 10m-30m high	283
961207	BOGONG VILLAGE	HHD (S4)	Peeled	Natural	10.5	8.5	241	241	1942	Termination	TC4 - Sheltered 10m-30m high	208
961213	PONDAGE 2	HHD (S3)	Natural	Creosote	12	10	304	304	1976	Termination	TC2.5 - Sheltered few	110
961218	YARD 3	HHD (S4)	Natural	CCA	14	12	329	329	2005	Intermediate	TC2.5 - Sheltered few	215
961220	YARD 5	HHD (S4)	Peeled	Natural	12	10	338	338	1986	Termination	TC2.5 - Sheltered few	210
962001	RUBICON	HHD (S3)	Natural	Natural	12	10	365	365	1972	Termination	TC4 - Sheltered 10m-30m high	361
962002	RUBICON	HHD (S1)	Peeled	Natural	12.5	10.5	355	355	1988	Termination	TC4 - Sheltered 10m-30m high	330
962005	RUBICON	HHD (S3)	Peeled	Natural	9	7	330	330	1972	Intermediate	TC4 - Sheltered 10m-30m high	295
9621012	RUBICON	HHD (S3)	Natural	Creosote	10	8	323	323	1972	Termination	TC4 - Sheltered 10m-30m high	180
962014	RUBICON	HHD (S1)	Peeled	Natural	8.5	6.5	265	265	1990	Strain	TC4 - Sheltered 10m-30m high	255
962015	RUBICON	HHD (S3)	Natural	Natural	9.5	7.5	215	215	1972	Strain	TC4 - Sheltered 10m-30m high	230
962016	RUBICON	HHD (S3)	Peeled	Natural	9.5	7.5	250	250	1972	Termination	TC4 - Sheltered 10m-30m high	250
962049	RUBICON	SHD (S5)	Natural	Creosote	12	10	293	305	1972	Termination	TC2.5 - Sheltered few	175
962050	RUBICON	HHD (S4)	Peeled	Natural	12.5	10.5	353	353	1986	Strain	TC2.5 - Sheltered few	270
962051	RUBICON	HHD (S2)	Peeled	Natural	11.5	9.5	360	360	1986	Strain	TC2.5 - Sheltered few	331
962052	RUBICON	HHD (S1)	Natural	CCA	12	10	350	350	2012	Strain	TC2.5 - Sheltered few	244
962054	RUBICON	HHD (S3)	Peeled	Natural	10.5	8.5	305	305	1986	Strain	TC2.5 - Sheltered few	291
962055	RUBICON	HHD (S4)	Peeled	Natural	12.5	10.5	435	435	1986	Intermediate	TC2.5 - Sheltered few	292
962056	RUBICON	HHD (S3)	Natural	Natural	12	10	303	303	1981		TC4 - Sheltered 10m-30m high	280
962057	RUBICON	HHD (S4)	Natural	Creosote	12	10	285	285	1972	Intermediate	TC4 - Sheltered 10m-30m high	188
962058	RUBICON	HHD (S3)	Natural	Creosote	21	18	390	390	1981	Strain	TC4 - Sheltered 10m-30m high	130
962060	RUBICON	HHD (S4)	Natural	Creosote	20	17.5	430	430	1981		TC4 - Sheltered 10m-30m high	60
962060	RUBICON	HHD (S4)	Natural	Creosote	20	17.5	430	430	1981		TC4 - Sheltered 10m-30m high	60
962061	RUBICON	HHD (S3)	Natural	Natural	12	10	300	300	1972		TC4 - Sheltered 10m-30m high	293
962078	RUBICON	SHD (S5)	Natural	Creosote	16	14	450	450	1976	Strain	TC2.5 - Sheltered few	138
962079	RUBICON	HHD (S4)	Natural	Creosote	17	15	390	390	1976	Strain	TC2.5 - Sheltered few	115
962080	RUBICON	HHD (S4)	Peeled	Natural	16	14	405	405	1943	TeeOff	TC2.5 - Sheltered few	365
962081	RUBICON	HHD (S3)	Natural	Creosote	11.5	9.5	275	275	1973		TC2.5 - Sheltered few	275
962082	RUBICON	HHD (S3)	Natural	Creosote	12	10	310	310	1972	Termination	TC2.5 - Sheltered few	282
962083	RUBICON	HHD (S3)	Natural	Creosote	10.7	8.7	210	210	1972	TeeOff	TC2.5 - Sheltered few	215
962084	RUBICON	HHD (S2)	Natural	Creosote	9	7	209	209	1973	Termination	TC2.5 - Sheltered few	202
962085	RUBICON	HHD (S3)	Natural	Creosote	9	7	215	215	1972	Termination	TC2.5 - Sheltered few	195
962088	RUBICON	HHD (S3)	Natural	Creosote	14	12	405	405	1976	Intermediate	TC2.5 - Sheltered few	244

Network Ref	Line Ref	Material	Process	Treatment	Overall Length	Height	GL Diameter	Original Diameter	Install Year	Pole Function	Terrain	Diameter Dd
962089	RUBICON	HHD (S4)	Natural	Creosote	16	13.5	430	430	1972	Strain	TC3 - Sheltered 3m-10m high	155
962090	RUBICON	HHD (S1)	Peeled	Natural	15	13	365	365	1938	Strain	TC3 - Sheltered 3m-10m high	250
962091	RUBICON	HHD (S3)	Natural	CCA	10.2	8.2	365	365	2005	Termination	TC2.5 - Sheltered few	360
962092	RUBICON	HHD (S3)	Peeled	Natural	16	14	370	370	1985	Intermediate	TC4 - Sheltered 10m-30m high	250
962093	RUBICON	HHD (S4)	Natural	CCA	14	12	345	345	2007	Intermediate	TC4 - Sheltered 10m-30m high	340
962094	RUBICON	HHD (S3)	Peeled	Natural	16	13.5	345	345	1983	Intermediate	TC2.5 - Sheltered few	259
962095	RUBICON	HHD (S3)	Shaved	Natural	15.5	13.5	340	340	1900	Angle	TC2.5 - Sheltered few	377
962096	RUBICON	HHD (S3)	Shaved	Natural	16	14	375	375	1900	Angle	TC2.5 - Sheltered few	270
962097	RUBICON	SHD (S5)	Natural	CCA	14.5	12.5	367	367	2010	Intermediate	TC4 - Sheltered 10m-30m high	364
962098	RUBICON	HHD (S3)	Peeled	Natural	14.5	12.5	336	336	1938	Intermediate	TC4 - Sheltered 10m-30m high	342
962099	RUBICON	HHD (S1)	Peeled	Natural	16	14	390	390	1990	Intermediate	TC4 - Sheltered 10m-30m high	254
962100	RUBICON	HHD (S4)	Peeled	Natural	19	16	390	390	1986	Intermediate	TC4 - Sheltered 10m-30m high	380
962101	RUBICON	HHD (S3)	Shaved	Natural	15	13	390	390	1939	Intermediate	TC4 - Sheltered 10m-30m high	255
962102	RUBICON	HHD (S1)	Peeled	Natural	16	14	390	390	1938	Intermediate	TC4 - Sheltered 10m-30m high	250
962103	RUBICON	HHD (S4)	Shaved	Natural	17	15	355	355	2000	Intermediate	TC4 - Sheltered 10m-30m high	361
962104	RUBICON	HHD (S3)	Natural	CCA	17	14.2	385	385	2013	Intermediate	TC2.5 - Sheltered few	355
962105	RUBICON	HHD (S2)	Natural	Creosote	16	14	385	385	1976	Intermediate	TC2.5 - Sheltered few	118
962106	RUBICON	HHD (S4)	Natural	Creosote	14.3	12.3	382	382	1976	Strain	TC2.5 - Sheltered few	257
962107	RUBICON	HHD (S1)	Peeled	Natural	13	11	365	365	1985	Intermediate	TC2.5 - Sheltered few	350
962108	RUBICON	HHD (S3)	Peeled	Natural	13.5	11.5	427	427	1986	Intermediate	TC2.5 - Sheltered few	435
962109	RUBICON	HHD (S3)	Peeled	Natural	14	12	380	376	1985	Angle	TC2.5 - Sheltered few	353
962115	RUBICON	HHD (S4)	Natural	CCA	18	15.5	395	395	2012	TeeOff	TC2.5 - Sheltered few	380
962116	RUBICON	HHD (S3)	Peeled	Natural	13	11	335	335	1990	TeeOff	TC2.5 - Sheltered few	305
962117	RUBICON	HHD (S2)	Natural	CCA	17	14.5	357	357	2012	Intermediate	TC2.5 - Sheltered few	230
962121	RUBICON	HHD (S1)	Peeled	Natural	16	13.5	363	363	1988	Intermediate	TC2.5 - Sheltered few	257
962122	RUBICON	HHD (S3)	Peeled	Natural	16	14	405	405	1990	Intermediate	TC2.5 - Sheltered few	388
962124	RUBICON	HHD (S3)	Natural	Creosote	14.5	12.5	362	362	1967	Intermediate	TC2.5 - Sheltered few	230
962126	RUBICON	HHD (S4)	Natural	CCA	14.5	12.5	357	357	2012	Intermediate	TC2.5 - Sheltered few	337
962128	RUBICON	SHD (S5)	Natural	Creosote	15	13	423	423	1973	Intermediate	TC2.5 - Sheltered few	280
962129	RUBICON	HHD (S3)	Natural	Creosote	16	14	422	422	2000	Intermediate	TC2 - Open terrain	75
962131	RUBICON	HHD (S3)	Peeled	Natural	16	14	337	337	1983	Intermediate	TC2.5 - Sheltered few	257
962133	RUBICON	HHD (S1)	Peeled	Natural	15	13	373	373	1991	Intermediate	TC2.5 - Sheltered few	345
962134	RUBICON	HHD (S3)	Natural	Natural	14	12	305	305	1944	Intermediate	TC2.5 - Sheltered few	340
962135	RUBICON	HHD (S3)	Shaved	Natural	15	13	340	340	1944	Strain	TC2.5 - Sheltered few	388
962136	RUBICON	HHD (S3)	Natural	Creosote	13	11	358	358	1944	Strain	TC2.5 - Sheltered few	326
962137	RUBICON	HHD (S3)	Peeled	Natural	13	11	323	323	1944	Strain	TC2.5 - Sheltered few	345
962138	RUBICON	HHD (S3)	Peeled	Natural	13	11	365	365	1991	Strain	TC2.5 - Sheltered few	345

17.3. Fire Report Form

FIRE REPORT FORM

Date:	Time:	Reporting Officer:

Significant fire, ie: injury or death or damage to stock or property which includes tress, pasture and fencing, details should be immediately phoned to the Manager of Renewables, Hydro Manager and Renewable Operations Manager.

Incident Details:	
Date and Time of Fire:	
Fire Source and Locality:	
Pole Number:	
Asset Number:	
Map Reference:	

Environmental Details:	
Weather at time of Fire:	
Consequences of Fire: (list damage)	
Injury or Death:	
Area of Fire:	
Day of Total Fire Ban:	
Temperature:	
Wind Direction:	
Wind Speed (Kph):	
Humidity (%):	

Pole Information:			
Pole Number:		Pole Location:	
Nearest Asset:		Line Number:	
Last Inspection Date:			
Pole Material:	Wood: Yes / No	Steel: Yes / No	Concrete: Yes / No
Cross-arm Material:	Wood: Yes / No	Steel: Yes / No	Concrete: Yes / No
Conductor Material:	SC: Yes / No	AAC: Yes / No	ACSR: Yes / No
	CU: Yes / No		

FIRE REPORT FORM

Voltage and Current Information:		
Fault Type:	**Three Phase:** Yes / No	**Phase to Ground:** Yes / No
Voltage (KV):		
Fault Current (A):		

Contributing Factors:					
Assets	**Tick**	**Assets**	**Tick**	**Assets**	**Tick**
Conductor		Joint Failure		"D" burn Through	
Clashing		Conductor Failure		Fuse	
Tie Failure		Bridging		EDO operation	
EDO Hang up		BA Failure		Low Voltage	
PFF failure		Transform Failure		Switch Failure	
Insulator	**Tick**	**Surge Diverter**	**Tick**	**Cross-Arm**	**Tick**
Mechanical Failure		Earth Leads		Fire	
Electrical Failure		End Cap		Broken Cross-arm	
Pollution		Surge Diverter failure		Termites	
Salt				Age rot	
Other				Other	
Fauna	**Tick**	**Lightning**	**Tick**	**Miscellaneous**	**Tick**
Intermediate		Fuse Separation		Service Failure	
Structure		Transformer Fail		U/G Asset Failure	
Complex Structure		Pole Failure		Overload	
Substation Pole		Miscellaneous		Earthing Failure	
Mid Span/Bird/Animal		Vehicle		PEL Failure	
Zone Sub Feeder	**Tick**	**ACR's**	**Tick**	**Fuses**	**Tick**
Feeder CB tripped		ACR Tripped		Fuses Operated	
CB Tripped to lockout		ARC Tripped lockout		No of Fuses Operated.	
Auto Reclose Suppressed		Auto Reclose Suppressed		Fuse Type PFF	
No of trips		Miscellaneous		Fuse Type EDO	
Mid Span/Bird/Animal		Vehicle		Fuse Type Acid Boric	
Protection Operation		Protection Operation		Protection Operation	
Other:		Other:		Other:	
Other:		Other:		Other:	

FIRE REPORT FORM

Additional Information	
Comments	Property Owners

Signed: ..... Date : .....

(AGL Responsible Officer)

Signed: ..... Date: .....

(Operations Manager)

17.4. Pole Fire Report Form

POLE FIRE REPORT FORM

Date:	Time:	Reporting Officer:

Significant fire, ie: injury or death or damage to stock or property which includes tress, pasture and fencing, details should be immediately phoned to the Manager of Renewables, Hydro Manager and Renewable Operations Manager.

Incident Details:	
Date and Time of Fire:	
Fire Source and Locality:	
Pole Number:	
Asset Number:	
Map Reference:	
Fire Report Form Submitted:	

Environmental Details:	
Weather at time of Fire:	
Consequences of Fire: (list damage)	
Injury or Death:	
Area of Fire:	
Day of Total Fire Ban:	
Temperature:	
Wind Direction:	
Wind Speed (Kph):	
Humidity (%):	

Pole Information:			
Pole Number:		Pole Location:	
Nearest Asset:		Line Number:	
Last Inspection Date:			
Pole Material:	Wood: Yes / No	Steel: Yes / No	Concrete: Yes / No
Cross-arm Material:	Wood: Yes / No	Steel: Yes / No	Concrete: Yes / No
Conductor Material:	SC: Yes / No	AAC: Yes / No	ACSR: Yes / No
	CU: Yes / No		

POLE FIRE REPORT FORM

Voltage and Current Information:		
Fault Type:	**Three Phase:** Yes / No	**Phase to Ground:** Yes / No
Voltage (KV):		
Fault Current (A):		

Primary Cause of Fire:					
Cause	**Tick**	**Cause**	**Tick**	**Cause**	**Tick**
Insulator damaged		Insulator Polluted		Equipment Failure	
Faulty		Salt		Broken Tie	
Lightning		Dust Ordinary		Other	
Vandalism		Dust Abnormal		Bird & Wire	
Other		Other			

Weather at time of Fire:					
Atmospheric	**Tick**	**Temperature**	**Tick**	**Wind**	**Tick**
Fine		Hot		Strong	
Humid		Mild		Moderate	
Fog		Cool		Calm	
Rain					
Drizzle					

Bonding Methods:					
Plates or Shunt Arms	**Tick**	**Conical Springs Fitted**	**Tick**	**Earthing Connection to Fittings**	**Tick**
X-arm Insulators		X-arm Insulators		x-arm	
Brace Bolt		Brace Bolt		Pole	
Pole Cap		Pole Cap		Fuse Bracket	
King Bolt		King Bolt		Other *	
Fuse Bracket		Fuse Bracket		None Fitted	
None Fitted		Coach screw		* please specify in comments	

POLE FIRE REPORT FORM

Additional Information
Comments

Signed: ..... Date : .....

(AGL Responsible Officer)

Signed: ..... Date: .....

(Operations Manager)

17.5. Pole and Cross Arm Failure Report

POLE AND CROSSARM FAILURE REPORT

Date:	Time:	Reporting Officer:

The purpose of this form is for when a pole has fallen due to deterioration or when free movement of the pole is possible and the pole is supported only by conductors, stays, services, ie: The pole base has no resistance to bending movement.

Incident Details:	
Date and Time of Fire:	
Fire Source and Locality:	
Pole Number:	
Asset Number:	
Map Reference:	
Fire Report Form Submitted:	

Environmental Details:	
Weather at time of Fire:	
Consequences of Fire: (list damage)	
Injury or Death:	
Area of Fire:	
Day of Total Fire Ban:	
Temperature:	
Wind Direction:	
Wind Speed (Kph):	
Humidity (%):	

Pole Information:			
Pole Number:		Pole Location:	
Nearest Asset:		Line Number:	
Last Inspection Date:			
Pole Material:	Wood: Yes / No	Steel: Yes / No	Concrete: Yes / No
Cross-arm Material:	Wood: Yes / No	Steel: Yes / No	Concrete: Yes / No
Conductor Material:	SC: Yes / No	AAC: Yes / No	ACSR: Yes / No
	CU: Yes / No		

POLE AND CROSSARM FAILURE REPORT

Consequence and Voltage Information:			
Consequence	Tick	Voltage Type	Tick
Injury		Low Voltage	
Death		6.6KV	
Material Damage		11KV	
Significant		22KV	
Negligible		Other	

Additional Information
Comments

Signed: ..... Date : .....

(AGL Responsible Officer)

Signed: ..... Date: .....

(Operations Manager)

17.6. Bushfire Rating Index

AGL Hydro Bushfire Mitigation Index Report

Month End 21/4/16

Inspections

Region	Line Inspection of Poles		Pre Summer Inspection		Routine Inspection		Poles Not Fire Safe - LL/US	
	Actual Number of poles	Actual Outstanding > 3 years	Actual Outstanding >1 year		Actual Outstanding >2 week		US > 12 Weeks	LL >12 Months
Kiewa Catchment	56	0	0		0		0	0
Rubicon Catchment	92	0	0		0		0	0
Cairn Curran	2	0	0		0		0	0
Total Sth Hydro	149	0	0		0		0	0
Index Percentage		2	9		20		9	5

Vegetation

Region	Spans Not Cleared Priority 1 & Priority 2		
	Number of poles	Priority 1 > 1 week	Priority 2 > 4 weeks
Kiewa Catchment	56	0	0
Rubicon Catchment	92	5	0
Cairn Curran	2	0	0
Total Sth Hydro	149	5	0
Index Percentage		15	8

Pole Attachments

Region	EDO's	Surge Diverters	
	Number of poles	Outstanding > 12 months	Outstanding > 4 Weeks
Kiewa Catchment	56	0	0
Rubicon Catchment	92	0	0
Cairn Curran	2	0	0
Total Sth Hydro	149	0	0
Index Percentage		5	5

Region	Attachments		Conductors		22 KV Bird Covers
	Number of poles	Priority 1 O/S >4 weeks	Priority 2 O/S > 6 Months	Priority 1 O/S > 4 Weeks	Priority 2 > 6 months	Outstanding > 12 weeks
Kiewa Catchment	56	0	0	0	0	0
Rubicon Catchment	92	0	0	0	0	0
Cairn Curran	2	0	0	0	0	0
Total Sth Hydro	149	0	0	0	0	0
Index Percentage		8	2	8	2	2

17.7. Engineered Solutions

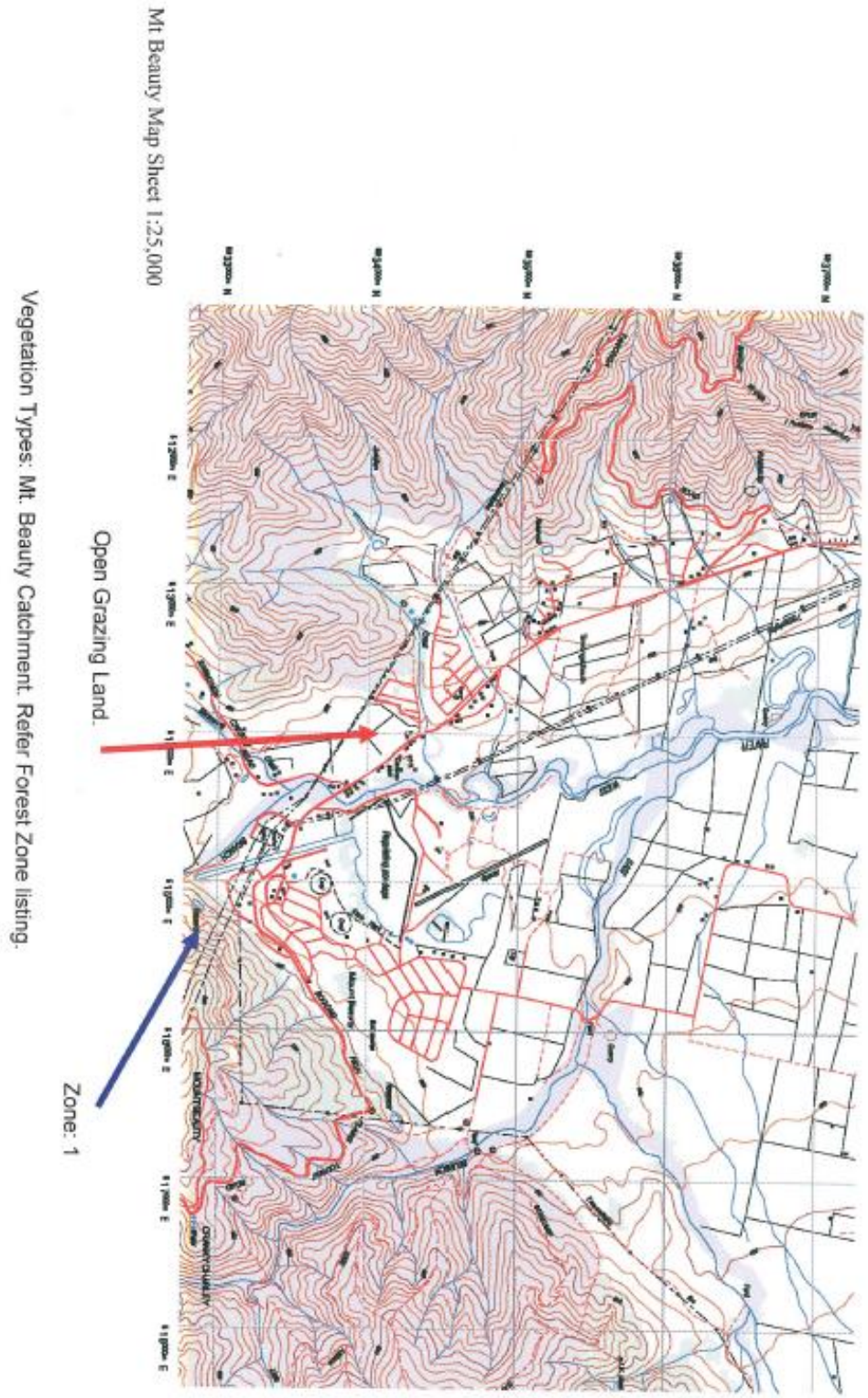
2008	Undergrounding of 5.3 km of overhead 6.6kV line between the Rubicon Haulage and Royston Power station
2014	Undergrounding of the 560m of overhead 240V line between the Royston Power station and the Royston Haulage
2014	Digital modernisation of the 22kV line protection throughout the scheme
2015	Undergrounding of 200m of the upper section of the 6.6kV line to Rubicon falls.
2017	Utilisation of fibre optical connection to site to enable dynamic line protection settings during high fire danger periods & TFB days
2017	Undergrounding of the 1300m 6.6kV line from the Rubicon Haulage to Rubicon Power station
2019	Rubicon A to Rubicon Power Station and Lower Rubicon Station 22kV overhead line REFCL hardening complete and is REFCL compliant
2020	Rubicon Power Station and Lower Rubicon Station 22kV and 6.6kV subnetwork electrical upgrades (REFCL hardening)
2020	Undergrounding the West Kiewa Power Station adit electrical winch LV overhead electrical supply
2021	Undergrounding the Junction Dam telemetry LV overhead electrical supply
2021	Undergrounding the Rubicon Haulage 6.6kV overhead electrical supply

17.8. Victorian Asset Firefighting Capability Statement

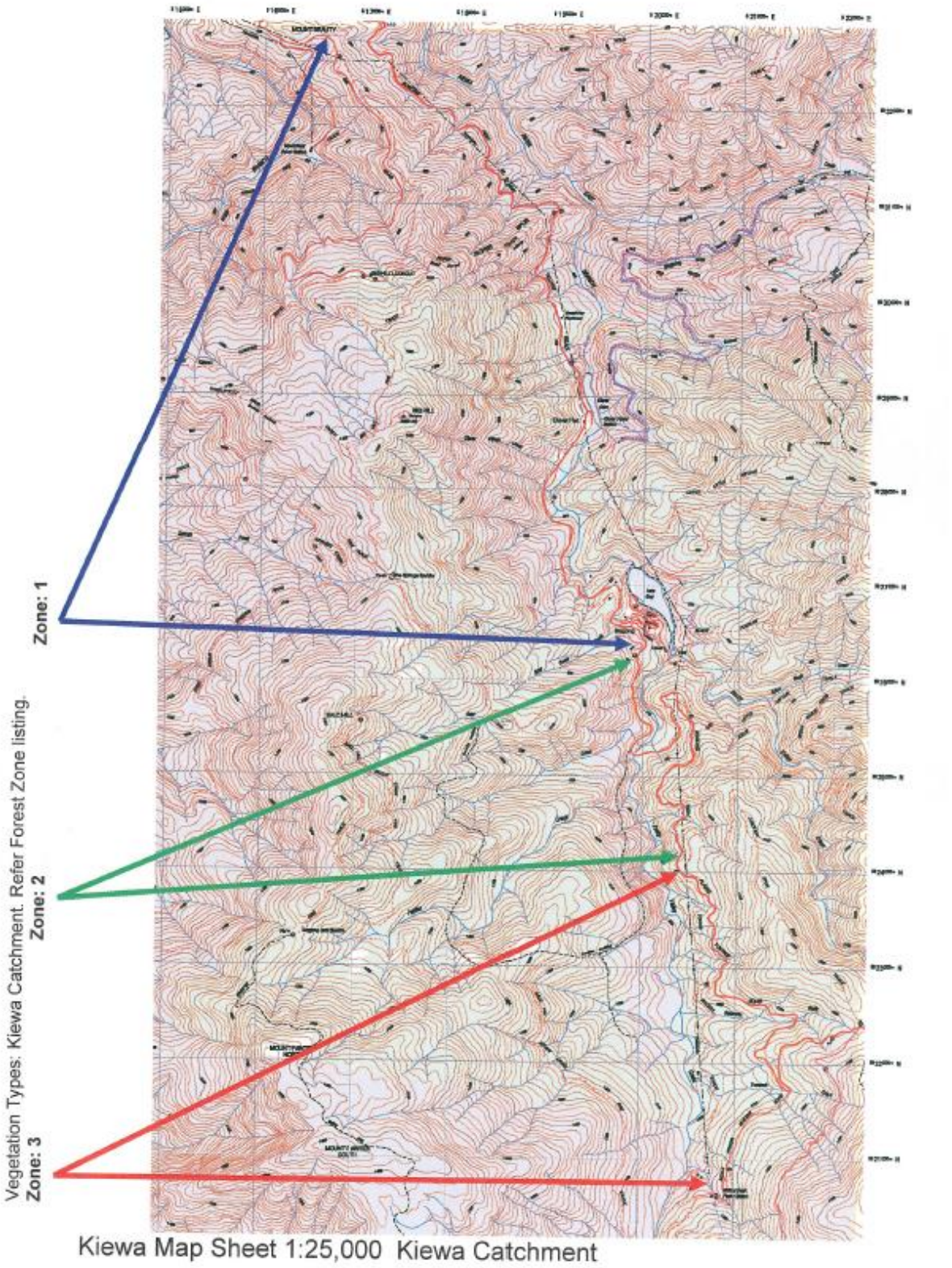
ML AL FI 01 - Bush Fire Mitigation Plan

17.9. AGL Hydro Vegetation Types

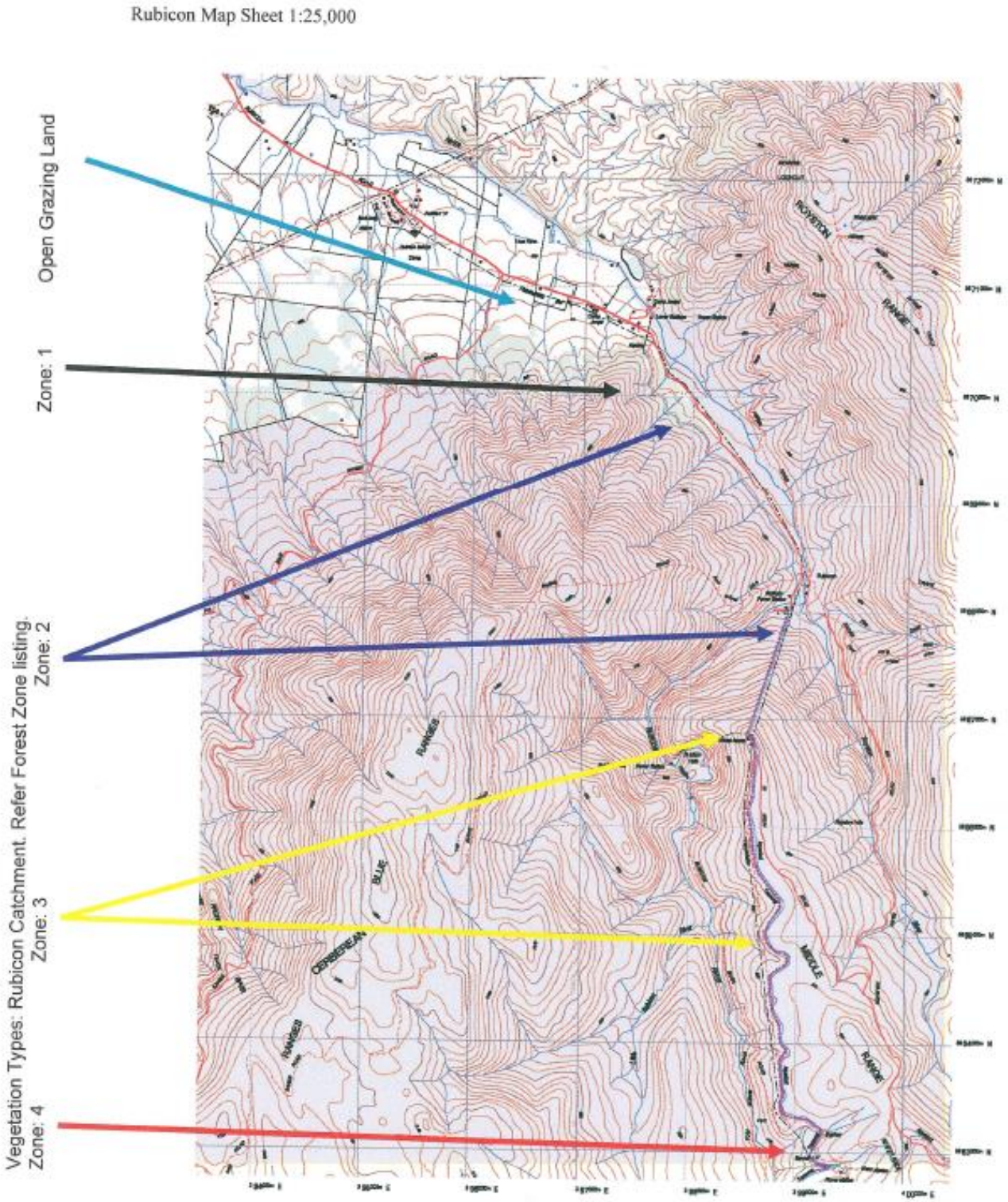
17.9.1. Mt Beauty



17.9.2. Kiewa Scheme



17.9.3. Rubicon Scheme



17.10. Works and Verification Schedule

The table below details all AGL Hydro assurance activities managed, scheduled, and tracked in SAP.

Activity	*Frequency*	*Timing*
Overhead Powerline Asset Inspections (Rubicon)	Weekly	N/A
Overhead Powerline Asset Inspections (Kiewa)	Monthly	N/A
Switchyard Inspections (Asset and Vegetation)	Monthly	N/A
Access Track Inspections, Clearance and Maintenance	Monthly	N/A
Overhead Powerline Vegetation Inspections	Monthly	N/A
Bushfire Risk Index (During peak season)	Monthly	N/A
Fire Appliance Testing (Chubb)	Bi-Annual	N/A
Fixed Fire Systems Testing (Deluges and Monitoring Systems)	Bi-Annual	N/A
Vegetation Line Clearance Verification Competency Review	Annually	April
Vegetation Line Clearance Verifications	Annually	April
Bushfire Mitigation Plan Review	Annually	June
Line Clearance Plan Review	Annually	June
Fire Fighting Capability Statement Review	Annually	June
Annual Switchyard Inspections (Asset)	Annually	N/A
Fire Fighting Equipment Inspections (Portable)	Annually	September
Fire Training (Employees)	3-yearly	October
Pole and Pole Top Verification Competency Review	3-yearly	April
Pole and Pole Top Inspections (Cycled over 3 years)	3-yearly	April

17.10.1. Kiewa Scheme (SAP Extract)

Maintenance plan: 2002211 HYV B00 3Y POLE AUDIT INSP

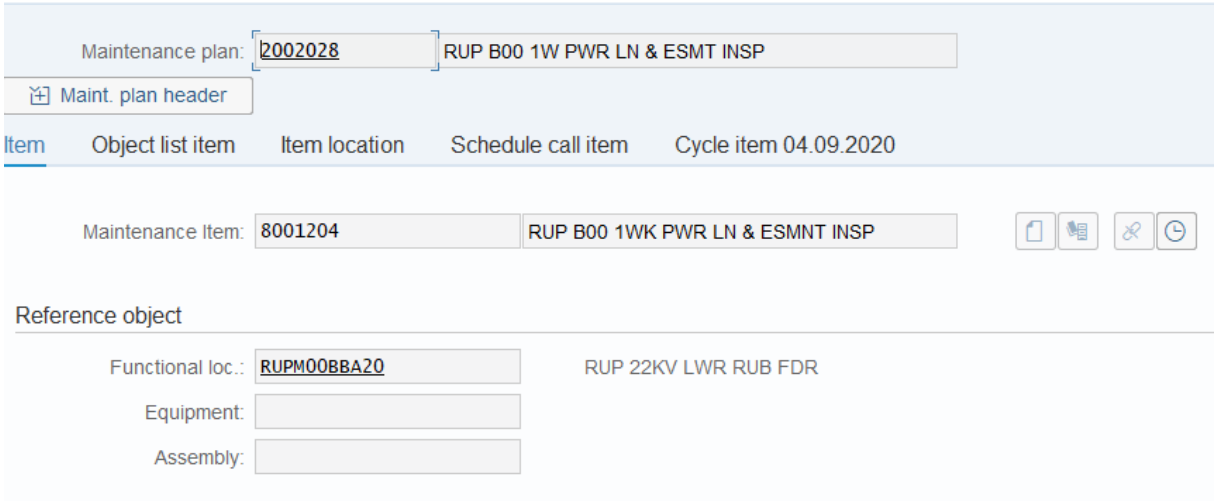
Maint. plan header

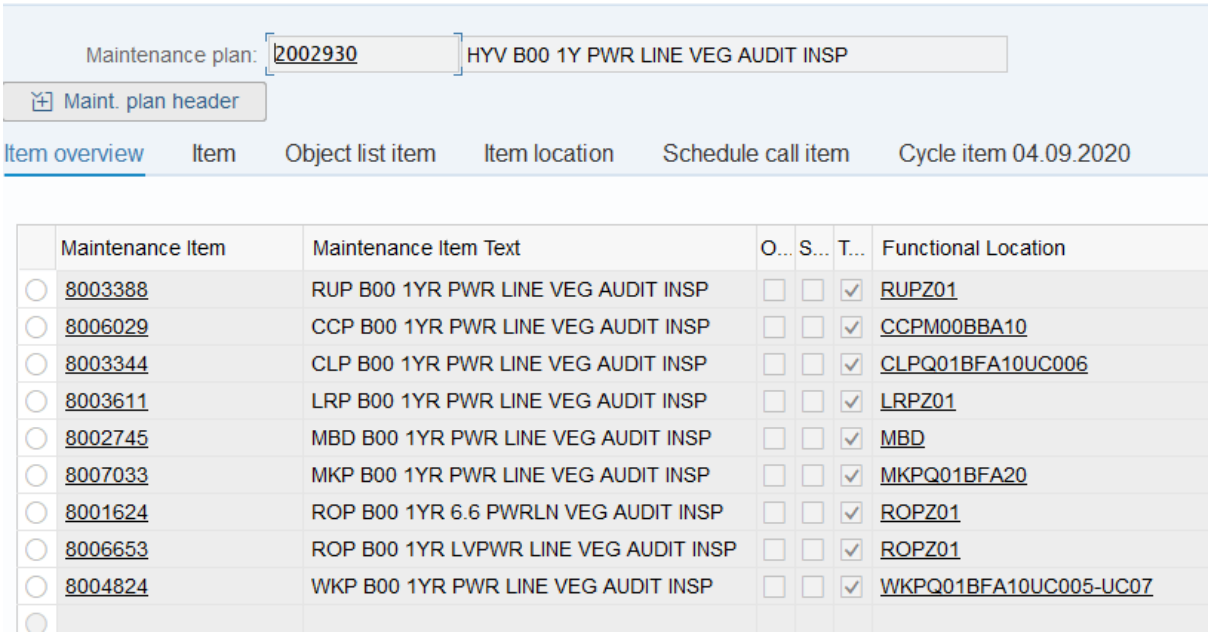
Item | Object list item | Item location | Schedule call item | Cycle item 04.09.2020

Maintenance Item: 8006188 HYV B00 3YR POLE AUDIT INSP

Sort	Functional loc.	FunctLocDescrip.	Assembly
	CCPM00BBA10	CCP 22KV PWR LINES	
	CLPQ01BFA10	CLP 415/240VAC SYS	
	MBDQ01BBA10	MBD POWERLINES	
	MKPQ01BFA20	MKP PWR STN LV PWR LINE	
	MKPZ01ZZA10	MKP ACC TRACKS & ROADS	
	RFPM00BBA10	RFP RUP/ROP 6.6 PWR LINE	
	ROPM00BBA10	ROP RFP 6.6KV PWR LINE	
	RUPM00BBA20	RUP 22KV LWR RUB FDR	
	WKPQ01BFA10UC005-UC07	WKP LV PWR LINE FDR	

17.10.2. Rubicon Scheme (SAP Extract)





Maintenance Item	Maintenance Item Text	O...	S...	T...	Functional Location
8003388	RUP B00 1YR PWR LINE VEG AUDIT INSP			✓	RUPZ01
8006029	CCP B00 1YR PWR LINE VEG AUDIT INSP			✓	CCPM00BBA10
8003344	CLP B00 1YR PWR LINE VEG AUDIT INSP			✓	CLPQ01BFA10UC006
8003611	LRP B00 1YR PWR LINE VEG AUDIT INSP			✓	LRPZ01
8002745	MBD B00 1YR PWR LINE VEG AUDIT INSP			✓	MBD
8007033	MKP B00 1YR PWR LINE VEG AUDIT INSP			✓	MKPQ01BFA20
8001624	ROP B00 1YR 6.6 PWRLN VEG AUDIT INSP			✓	ROPZ01
8006653	ROP B00 1YR LVPWR LINE VEG AUDIT INSP			✓	ROPZ01
8004824	WKP B00 1YR PWR LINE VEG AUDIT INSP			✓	WKPQ01BFA10UC005-UC07

18. Referenced Documents / Procedures

Document Number	Document Title
AP MO AD 032	Controlled Document Update Procedure
CF MO AD 01	Maintenance Notification - Corrective Action Request
HI AL SF 02	Emergency Management Plan
HP AL AD 01	Consultation, communication, and dispute resolution
HP AL SF 08	Contractors - Selection, Pre-Qualification and Management
HQ AL SF 09	Use of Personal Protective Equipment (PPE)
HP AL SF 11	Excavations Earthworks and Intrusion
HP AL SF 35	HSE Risk Management Procedure
ML AL AD 00	AGL Hydro Asset Management Plan
SP AL SF 01	Electrical Safety Manual – Hydro
SP AL PE 02	HSE Induction and Authorisation
SP AL RI 01	Electrical Risk Register Procedure
SP AL SA 50	Safe Access Procedures
TP AL HV 01	HV Apparatus Energisation Testing Procedure
AGL-HSE-STD-004.1	AGL HSE Risk Management Standard
AGL-HSE-SDM-004.1	AGL HSE Risk Management Standard Methodologies
AGL-HSE-TMP-004.1	AGL HSE Risk Management Standard Procedure Template
AGL-HSE-GUI-012.1	AGL Obligations to Notify Regulatory Authorities - Guideline
AGL-HSE-PRO-012.1	AGL HSE Incident, Near Miss and Hazard Management Procedure
AGL-HSE-PRO-012.3	AGL HSE Corporate Reporting Procedure
AGL-HSE-STD-012	AGL HSE Incident, Near Miss and Hazard Management Standard