

Victorian Hydro Power Stations

Bushfire Mitigation Plan

Pacific Hydro

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1. Overview

The Victorian Hydro-Electric Power Stations Bushfire Mitigation Plan has been developed with the objective to identify possible electrical causes of fire and to reduce the likelihood and consequences of these through the implementation of various preventative measures.

The Plan has been produced to fulfil the requirements of the Electricity Safety (Bushfire Mitigation) Regulations 2003 (Version 003) whereby a new plan must be prepared and submitted to Energy Safe Victoria before the 1st July of each year.

The Victoria Hydro-Electric Power Stations refers to the three (3) Pacific Hydro sites known as Glen Maggie, Eildon and William Hovel. These assets are in open areas on the dam walls (refer to figures 1, 2, 3) however heavily wooded areas are, at times, in close proximity of the substations/switchyards.

Pacific Hydro recognises that there are multiple 'at-risk' electrical assets located at the Victorian Hydro Power Stations where a fire could originate from, including;

- The substation which also houses the generators
- The switch yard adjacent to the substation

There is no overhead line under the control of Pacific Hydro Ltd at these sites. All cables are buried underground.

Further description of these assets and their management can be found in Section 3 & 4.

2. Contact Information

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

Pacific Hydro Pty Ltd
Level 11, 474 Flinders Street
Melbourne, Victoria, 3000

(03) 8621 6000

(b) The person responsible for the preparation of this plan is:

Mr. Duncan Alexander
Operations Engineer
Pacific Hydro Pty Ltd
Level 11, 474 Flinders Street
Melbourne, Victoria, 3000

Phone: (03) 8621 6322
Mobile: 0433 124 949

(c) The person responsible for carrying out the plan is:

Mrs. Caitlin Wilson
Operations Engineer,
Pacific Hydro Pty Ltd
Level 11, 474 Flinders Street

Melbourne, Victoria, 3000
Phone: (03) 8621 6000
Mobile 0434 927 340

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(d) In case of an emergency contact should be made with:

Duty Controller
 Pacific Hydro Control
 Pacific Hydro Pty Ltd
 Level 11, 474 Flinders Street
 Melbourne, Victoria, 3000

Mobile: 0434 927 340

3. Description of Assets

3.1 Glenmaggie



Figure 1

The Glenmaggie station is located at the foot of the dam wall, between the irrigation channel and the river.

The substation is contained within a fenced enclosure, which is largely isolated from surrounding areas by the river, the dam wall, and an irrigation channel. The substation has a bluemetal base to prevent the ingress of weeds. The substation contains a 22kv/6.6kv transformer, vacuum switchgear connected to a pole top transformer owned by the Network Operator located within the switchyard. The 22kv/6.6kv transformer is fully banded to prevent the spread of oil or fire.

The generator is 10m below ground level in a concrete bunker. If a fire was to be initiated within the generator area it should remain contained within the building.

The other components inside the substation buildings such as control components, batteries and battery

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chargers are fully enclosed and the likelihood of fire is minimal.

There are no trees in the immediate vicinity of the substation. Around the station vegetation is limited to wild grasses at the edge of roadways and around the penstocks.

There are no overhead lines that are part of the Pacific Hydro Ltd infrastructure.

3.2 Eildon



Figure 2

The Eildon Pondage station is contained within a fenced area, which is largely isolated from surrounding areas by the pondage, the pondage dam wall, the Goulbourn River and the Eildon Back Rd. The area behind the substation is an open grassed area that is routinely slashed. On the opposite side of the road is farm land that is lightly wooded.

The generator is 5m below ground level in a concrete bunker. If a fire was to be initiated within the generator area it should remain contained within the building.

The HV switchgear is vacuum insulated and located in a separate room isolated from other areas of the substation by concrete and besser brick walls.

The other control components inside the substation buildings are contained in the control room, which is a concrete and besser brick walled room. The control components, batteries and battery chargers, are fully enclosed and the likelihood of fire is minimal.

HV cables belonging to Pacific Hydro Ltd are buried, and the connection point to the distribution network is within the HV switch room.

The transformer compound is located adjacent to the substation within a fenced enclosure, which is fully bunded to prevent the spread of oil or fire.

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There are no overhead lines that are part of the Pacific Hydro Ltd infrastructure.

3.3 William Hovell Substation



Figure 3

The William Hovell station is located at the foot of the Lake William Hovell dam wall at the head of the King River. The area surrounding the dam is heavily wooded although the station itself relatively open, surrounded by the dam wall, road structure, and the King River, with only one large tree adjacent to the station.

The generator is 10m below ground level in a concrete bunker. If a fire was to be initiated within the generator area it should remain contained within the building.

The substation contains a control room at ground level containing the 6.6 kV HV switch gear which is vacuum insulated.

The other components inside the substation buildings such as control components, batteries and battery chargers are fully enclosed and the likelihood of fire is minimal.

The switchyard is located near the substation within a fenced enclosure, which has a bluemetal base to prevent the ingress of weeds.

The switchyard contains a 22kv/6.6kv transformer, vacuum insulated switchgear connected to a pole top transformer owned by the Network Operator. The 22kv/6.6kv transformer is fully banded to prevent the spread of oil or fire.

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There are no overhead lines that are part of the Pacific Hydro Ltd infrastructure.

4. Preventative Strategies

In accordance with Regulation 5, Section (h) and in line with Pacific Hydro's plan objectives the strategies to be adopted for the prevention of fire ignition from substations are detailed in this section.

4.1 Substations/Switchyards

Quarterly housekeeping inspections are performed by Pacific Hydro personnel of substations and transformers to ensure they are clear of vegetation. Weed spraying is undertaken as required to control the vegetation. In addition prior to the Declaration of the Fire Danger Period (DFDP) action shall be undertaken to ensure that:

- There is no vegetation growing within the switchyards, and transformer compounds,
- The Substation guttering will be checked and cleared of all debris, and
- The area around the substations shall be slashed, where required, to minimize the amount of flammable material within vicinity of the substations.

As soon as practicable after the declaration of the fire danger period an audit shall be undertaken to ensure the substations are clear of any vegetation and that the surrounds of all substations remain clear of any significant vegetation for a distance of 5 metres from the structures.

The substation equipment has additional routine maintenance performed in accordance with the sites Maintenance Plan which has activities such as inspection, thermal imaging, service and refurbishment that vary from monthly to 25 yearly intervals.

5. Works Program

In accordance with Regulation 5, Section (i) the routine preventative strategies previously mentioned for the Substations/Switchyards are recorded as individual works in the Maintenance Plan and tracked through the use of Pacific Hydro's computerised maintenance management system WTG Service.

There is no overhead line at any of these Victorian sites.

6. Operations at High Risk Times

6.1 In the event of fire

In the event of fire which prevents the safe operation of one the hydro power stations, the station will be shutdown.

Where the fire is in the area but presents no risk to the safe operation of one of the hydro power stations, the station's continued operation will be reviewed. The decision to isolate a station from the network during a time of fire will be made by the owner/operator of the distribution network, SP-AusNet.

6.2 During a Total Fire Ban

During a time of total fire ban the hydro power stations will be operated in accordance with normal operating practices.

6.3 During the Fire Danger Period

The hydro power stations will be operated in accordance with normal operating practices.

Early in December or before the DBFP the bushfire mitigation actions will be audited by the Pacific Hydro

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member, referred to in section 2 (c) of this document, to ensure that they have been carried out in accordance with this plan.

7. Investigations

Electrical faults are recorded on Pacific Hydro's Field Incident Report. For faults or incidents requiring investigation, Pacific Hydro's Defect Reporting and Root Cause Analysis processes are utilised. These processes ensure that incidents are properly investigated and actions taken to reduce their likelihood of re-occurring.

8. Public Awareness of the Plan

Pacific Hydro is responsible for processes and procedures for enhancing public awareness in relation to mitigation of bushfire danger.

The approved Bushfire Mitigation Plan is available at Pacific Hydro's Website for the general public. They can also get a copy of Bushfire Mitigation Plan at the responsible person's office.

9. Performance Measures

The works shall be reviewed annually as initiated by the computerised maintenance management system WTG Service. Performance is monitored by the closure of maintenance work orders related to bushfire mitigation by the 1st December each year or before the DBFP each year, whichever is earlier.

The Pacific Hydro Bushfire Index is calculated as follows:

$$\text{Bushfire Index} = \text{Number of outstanding works} \div \text{Total works required}$$

Works include all routine asset maintenance and vegetation clearance scheduled and remedial works.

The bushfire index for all Pacific Hydro sites is sent to Energy Safe Victoria before the 1 December each year.

The current 'outstanding works' for these stations is as follows:

- There are no outstanding/overdue works for this site.

The 'works required' include:

- Assess William Hovell site for ember attack.
- Review shutdown requirements for William Hovell in the instance of bushfire threat.
- Assess transformer CB isolation.

Therefore:

$$\text{Bushfire Index} = 0 \div 3 = 0$$

10. Prescribed Times of Inspection

There are no overhead lines that are part of the Pacific Hydro Ltd infrastructure.

11. Prescribed Form of Notice of Inspection

There are no overhead lines that are part of the Pacific Hydro Ltd infrastructure.

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All assets described within this plan are on land leased by Pacific Hydro Ltd.

12. Pacific Hydro Policy on Assistance Provided to Fire Control Authorities

Pacific Hydro will allow access to and assist fire control authorities in the investigation of fires at or near our electrical assets.

13. Management of this Plan

In accordance with Regulation 5, Section (n) there are a number of processes and procedures used by Pacific Hydro to manage this plan including:

- Monitoring the implementation of the plan is performed by the computerised maintenance management system “WTG Service” which records the requirement for inspection and vegetation clearing listed in this plan.
- Auditing of this plan is performed at a maximum of 2 yearly intervals as part of Pacific Hydro’s Health, Safety and Environment audit program.
- Identification of any deficiencies in the plan or the plan’s implementation relies on the person’s carrying out this plan to provide feedback to Pacific Hydro management.
- Monitoring and auditing the effectiveness of inspections carried out under the plan is performed by the “Maintenance Quality Assurance” procedure. Asset performance and condition audits are performed every 3 years by Pacific Hydro’s corporate operations team as part of the company’s asset management framework.
- Improvement to the plan and the plan’s implementation if any deficiencies are identified is performed via the “Change Management” procedure and annual reviews of this plan.
- Training necessary for persons assigned to perform functions under the plan is provided internally by Pacific Hydro and under the O&M agreement between Pacific Hydro and John Horn and Sons Pty Ltd.
- Monitor and audit the competence of the persons assigned to carry out inspections under the plan is performed by the “Maintenance Quality Assurance” procedure and requirements under the contracted services.
- Outcomes from Defect Reporting/Root Cause Analysis investigations are reviewed as part of the annual review of this plan and any learning’s are fed into this plan.

14. Appendices

In accordance with Regulation 5, Section (g).

Appendix A: Location of the Victorian Hydro Power Stations

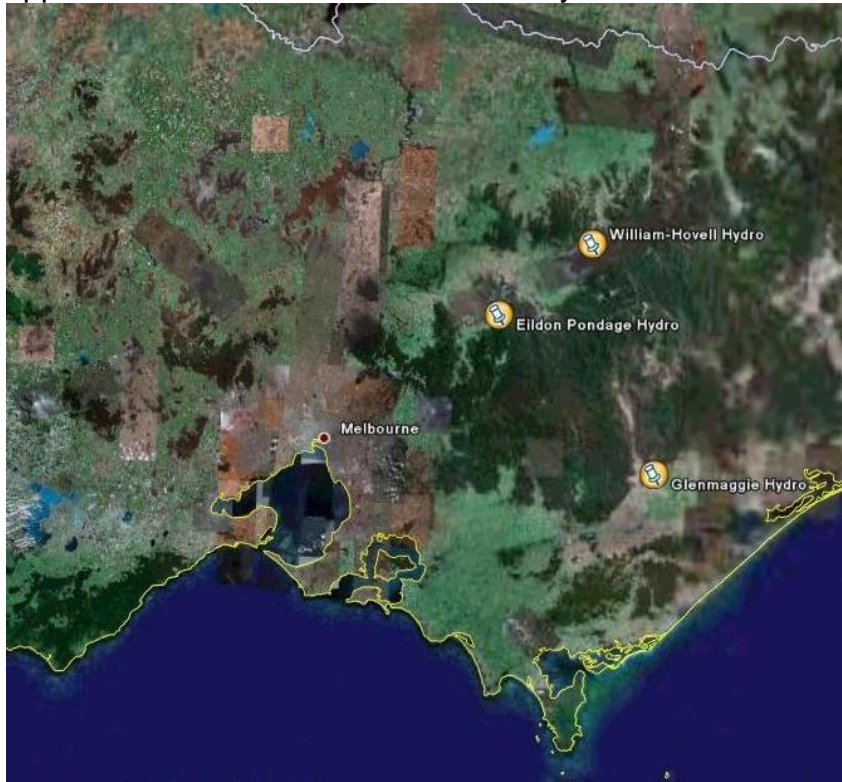
Appendix B: Maps of Glenmaggie Hydro Power Station

Appendix C: Map of Eildon Hydro Power Station

Appendix D: Map of Lake William Hovell Hydro Power Station

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Appendix A: Location of the Victorian Hydro Power Stations



Eildon Pondage Hydro Power Station - 1100 Back Eildon Road, Eildon 3713, VIC (Murrundindi Shire Council)

William Hovell Hydro Power Station - Lake William-Hovell, Upper King River Road, Cheshunt South 3678, VIC

Glenmaggie Hydro Power Station - Lake Glenmaggie Weir, Weir Road, Heyfield 3858, VIC

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Appendix B: Maps of Glenmaggie Hydro Power Station

Figure 1 Location of station

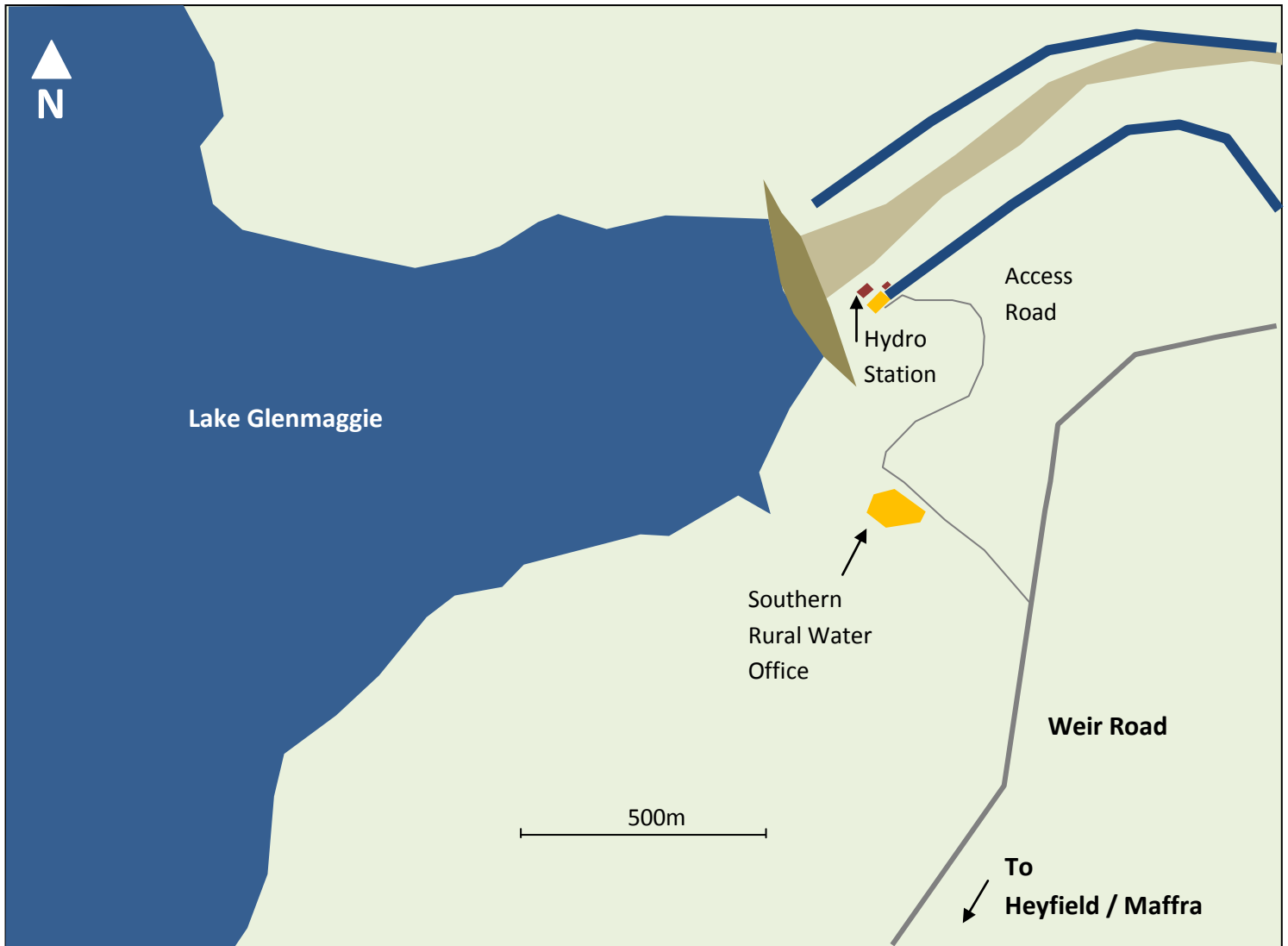
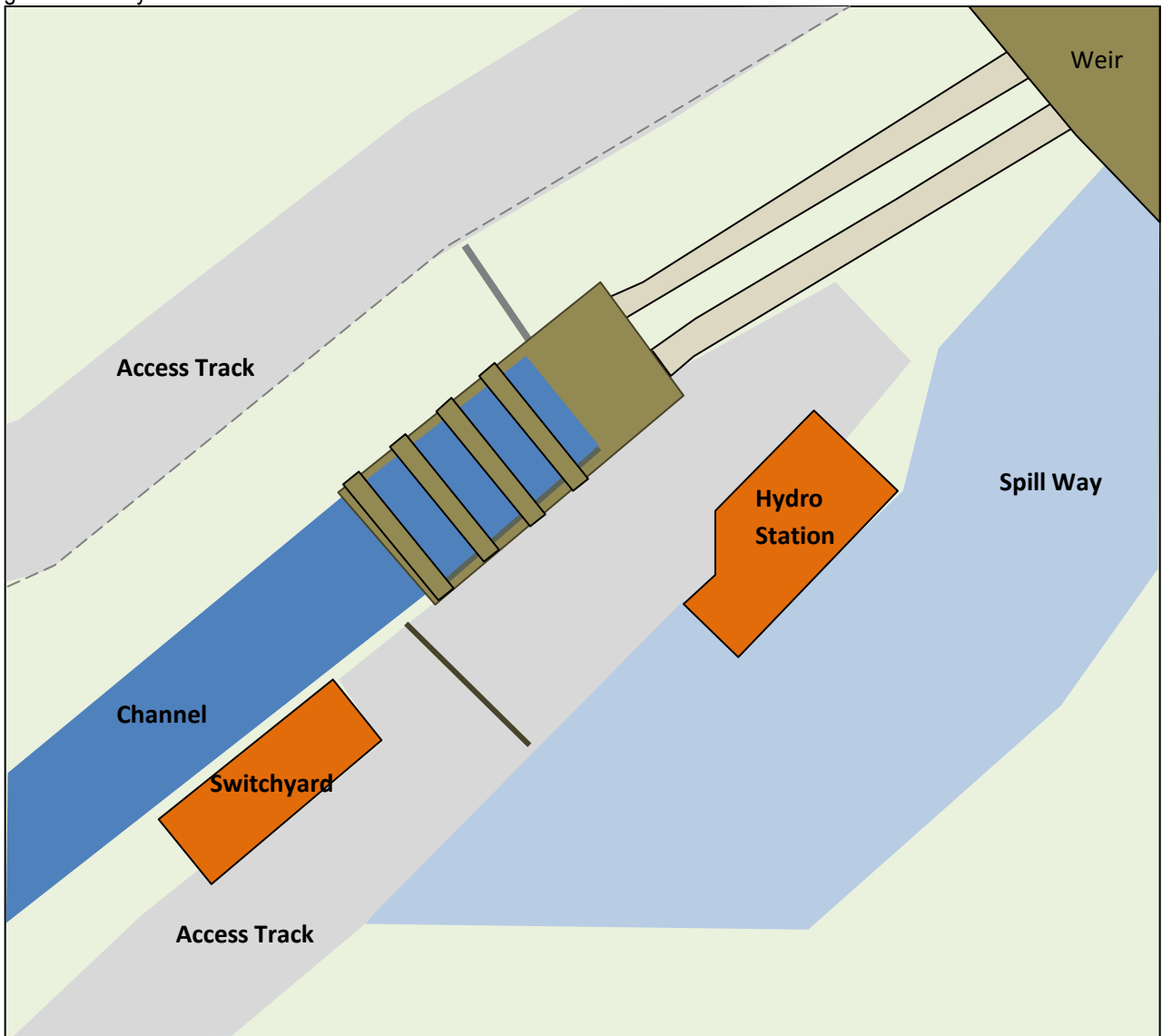


Figure 2 Switchyard location



Appendix C: Map of Eildon Hydro Power Station



Appendix D: Map of Lake William Hovell Hydro Power Station

