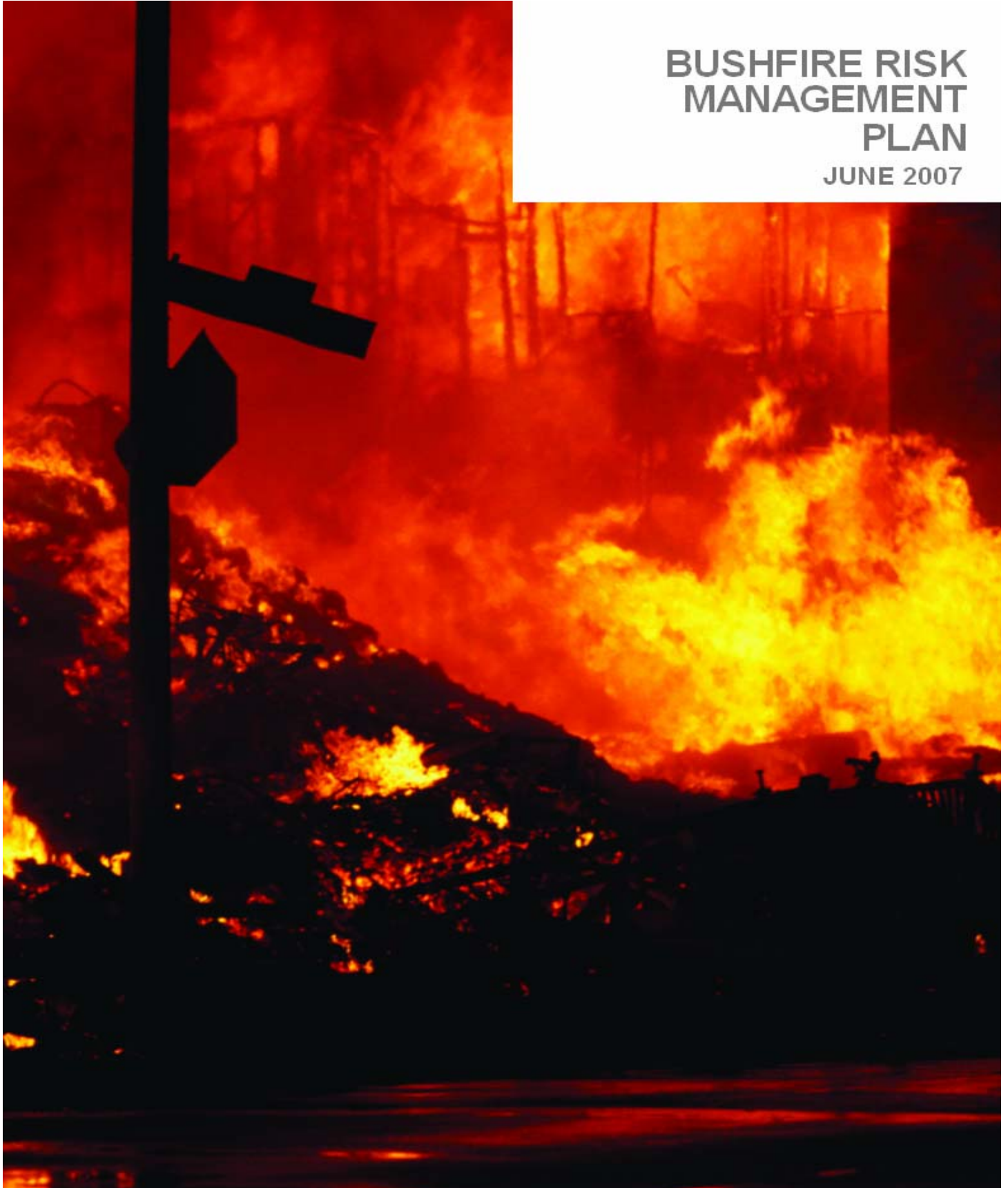


EnergyAustralia™

**BUSHFIRE RISK
MANAGEMENT
PLAN**

JUNE 2007



SCOPE

This publication is EnergyAustralia's Bushfire Risk Management Plan, required by legislation – the Electricity Supply (Safety and Network Management) Regulation 2002 under the Electricity Supply Act 1995.

WARNING

It is illegal for persons other than licensed electricians, or persons authorised by legislation, to work on the fixed wiring of any electrical installation.

Penalties for conviction are severe.

It is the responsibility of the user of this document to ensure that only the current version is being used.

EnergyAustralia may amend this document at any time.

DOCUMENT AND AMENDMENT HISTORY

Issue No.	Date	Approved by	Summary of Changes
1	August 2003	GM – Network	This is the first edition.
2	February 2004	GM – Network	Amended following management review
3	March 2006	GM – Network	Amended following management review
4	June 2007	EGM – Network	Amended following management review

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All correspondence should be directed to:
Executive Manager, Asset and Investment Management
EnergyAustralia
GPO Box 4009
SYDNEY NSW 2001

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BUSHFIRE RISK MANAGEMENT PLAN
June 2007

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1 Overview

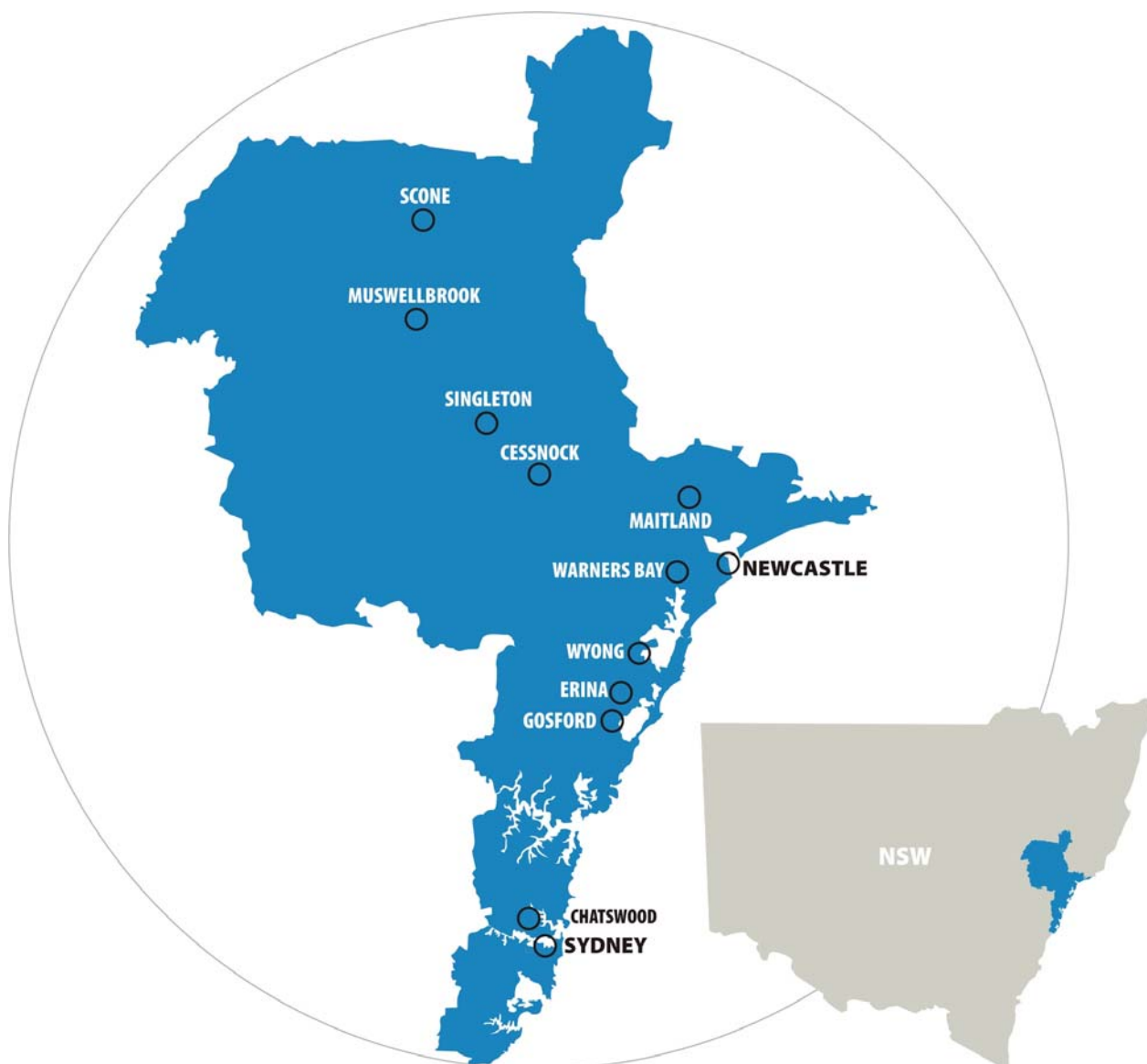
Bushfires pose an ever present risk to life, property and the environment throughout rural and urban areas in New South Wales.

Bushfires can be caused by a variety of factors, including lightning strikes, sparks from farm machinery and incinerators, vehicle crashes, and electrical incidents such as fallen powerlines.

EnergyAustralia has an obligation to manage bushfire risks as they relate to our network. We do this by ensuring that our assets and our customers' private powerlines are safe and are properly designed, constructed and maintained.

This Plan is a management plan and outlines the procedures, standards, codes and guidelines that EnergyAustralia applies to construction, operation and management of our network. The Plan also provides an overview of EnergyAustralia's bushfire risk management strategies in relation to key stakeholders including:

- Landowners and Occupiers;
- Local Government;
- Government Agencies; and
- Emergency Services.



The objective of EnergyAustralia's Bushfire Risk Management Plan is to describe a management framework that when used correctly will:

- ensure public safety;
- establish standards for vegetation management near electricity lines (particularly in bushfire prone areas);
- reduce interruptions to electricity supply that are related to vegetation; and
- minimise the possibility of fire ignition by electricity lines and associated equipment.

The Bushfire Risk Management Plan outlines how we inform our customers of their obligation to share bushfire prevention responsibilities with us to ensure that privately owned overhead powerlines are kept free of vegetation and are inspected, tested and maintained at regular intervals.

The Bushfire Risk Management Plan has been prepared in accordance with the Electricity Supply (Safety and Network Management) Regulation 2002, which requires EnergyAustralia to develop, publish, implement and report against our bushfire risk management strategy.

This Plan complements the other three plans required by the Department of Water and Energy (DWE) formerly Department of Energy, Utilities and Sustainability (DEUS):

- **Network Management Plan** – outlines how we operate our network and keep our assets safe;
- **Customer Installation Safety Plan** – outlines the measures in place to ensure our customers' homes and businesses are wired correctly; and
- **Public Electrical Safety Awareness Plan** – outlines how we communicate general safety awareness to the public regarding electricity and electrical assets.

The Executive Manager, Asset and Investment Management will revise this Plan annually in conjunction with the review of the Network Management Plan and the finalisation of our annual Electricity Network Performance Report in December. A master copy will be kept by the Executive Manager, Asset and Investment Management at our head office – 570 George Street, Sydney, NSW 2000.

Copies of this plan will be made available to all parties involved with its implementation. The Bushfire Risk Management Plan will also be published on our website www.energy.com.au

The content of this plan is authorised by the Executive General Manager – Network.

2 Our Commitment

EnergyAustralia is committed to managing bushfire risks associated with electrical assets to ensure the safety of our customers and the wider community.

EnergyAustralia aims to fulfil its responsibilities under the Bushfire Risk Management Plan by using the following strategies:

- identification of bushfire risks;
- improving standards for electricity assets;
- effective maintenance of our assets;
- management of safe vegetation clearances;
- communication of bushfire risks and shared responsibilities;

- effective management of enquiries and complaints relating to mitigation of bushfire risks; and
- working with other agencies to ensure a coordinated approach to bushfire risk management.

These strategies allow EnergyAustralia to fulfil its obligations under the Regulation as directed by the Department of Water and Energy.

3 Identifying Bushfire Risks

Our Bushfire Hazard Potential Maps and Asset Register help us identify bushfire prone areas and assets that may represent a bushfire risk

Bushfire hazards vary from season to season and are dependent on weather conditions and fuel loads. Our experience has shown that bushfires can start almost anywhere, even in areas classified as being of "negligible risk".

Recognising this, we have a process in place to identify bushfire prone areas and network assets capable of starting bushfires. We also have systems to ensure that this information is kept up-to-date.

3.1 IDENTIFYING BUSHFIRE PRONE AREAS

To identify the bushfire prone areas in our distribution area, we use the "bushfire prone" land maps prepared by local councils (in accordance with the requirements of the Rural Fires and Environmental Assessment Legislation Amendment Act 2002).

EnergyAustralia overlays the council maps with our own geographic asset information to identify assets located in bushfire prone areas. Since September 2005, EnergyAustralia has had access to a complete set of bushfire prone land maps from councils within our network area.

The maps prepared by local councils are reviewed by the Rural Fire Service prior to being formally certified by the Commissioner for the Rural Fire Service. EnergyAustralia has a formal agreement with the RFS regarding use of the certified maps for management of bushfire risks in our network area.

We encourage our customers to access these maps from their local council so that they can identify whether their assets lie within areas that are bushfire prone.

3.2 IDENTIFYING NETWORK ASSETS THAT COULD START BUSHFIRES

EnergyAustralia has conducted a review of the different classes of assets used in our network to ensure all classes of assets that are capable of initiating bushfires have been identified.

The review concluded that overhead powerlines, their supports and associated substation and control point equipment all have the potential to start bushfires.

In accordance with our Network Management Plan, we periodically review our Network Standards (where we specify the construction methods for building network assets) to ensure the standards comply with the NENS 01 National Electricity Network Safety Code. Section 5.2.2 of the Code is of particular relevance to this Plan as it specifically requires the design and construction of electrical apparatus to take account of issues such as bushfire mitigation.

Investigations of actionable incidents under the Significant Electricity Network Incidents scheme (as administered by DWE) are used by EnergyAustralia to review all significant incidents involving bushfires and network assets. We use this information to systematically update our identification of the types of network assets that are capable of initiating bushfires.

EnergyAustralia maintains an Asset Register which identifies the individual assets that are capable of initiating bushfires. Information on our poles and lines is kept in our Poles and Pillars Network Asset Management System, and substation equipment and control point information is stored in our Technical Information System.

When a new asset is installed, an asset is changed or replaced, or the risk status of an asset changes, the appropriate database is updated. The construction and maintenance procedures in our Network Management Plan are also updated to reflect new information.

4 Designing and Maintaining Electrical Assets

Our asset design and maintenance procedures help us minimise the risk of bushfires being started by powerlines and/or electrical equipment

EnergyAustralia manages bushfire risks by adopting a risk management approach to ensuring that our assets and our customers' private powerlines are properly designed, equipped and maintained.

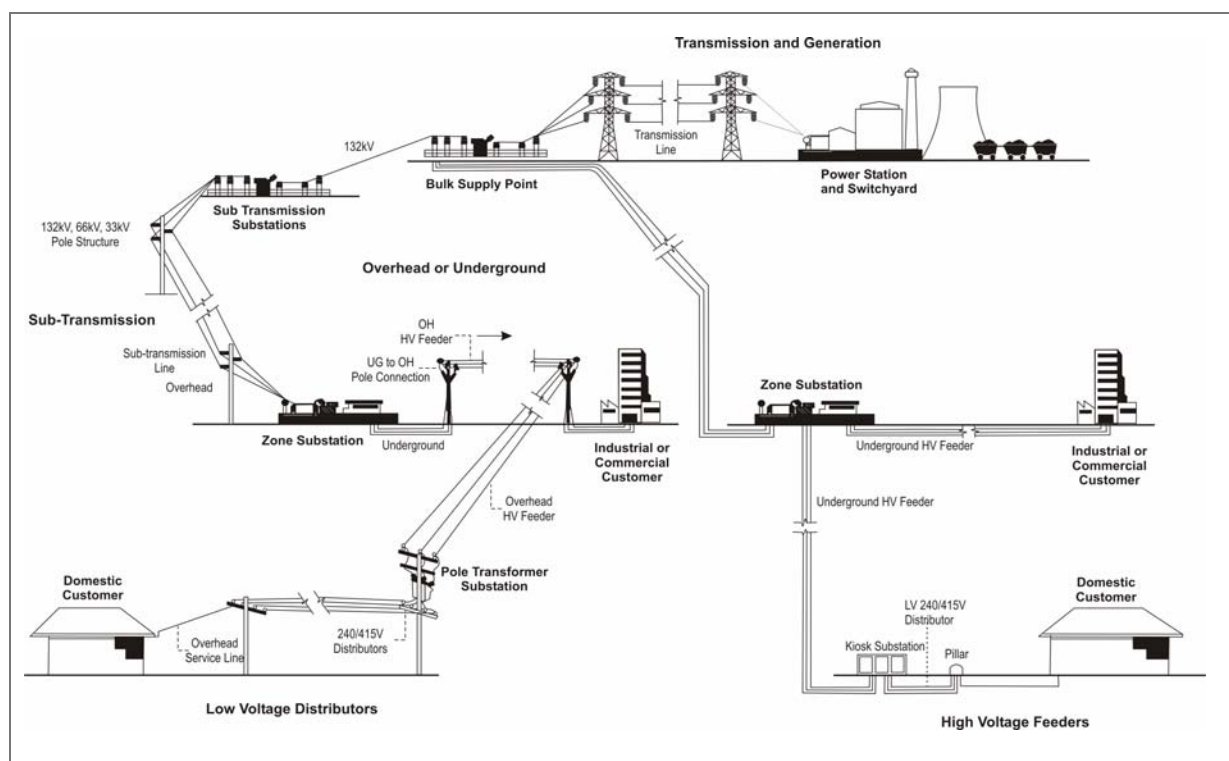
To meet our obligations we continually review our design, inspection, testing, maintenance and operational procedures (often in consultation with other New South Wales and Australian electricity distributors).

We also provide information to help our customers meet their obligations to maintain safe private powerlines. The information includes details on how best to keep private

overhead powerlines free of vegetation. It also outlines obligations customers have to inspect, test and maintain their private powerlines at regular intervals to ensure their safety.

4.1 OUR ASSETS

EnergyAustralia operates an extensive network of high voltage and low voltage electrical wires, poles and substations supplied from the TransGrid transmission network. Our network is further described in our Network Management Plan. We have an obligation to ensure our network is safe as far as reasonably practicable.



4.1.1 Design

The design of our network assets is critical to reducing the risk of bushfires. All new and replacement assets must feature appropriate technology in order to limit bushfire risks.

Our network assets are designed in accordance with the requirements of the design section of our Network Management Plan. New and revised design standards include a compliance check and signoff to ensure the design standard meets the objectives of our Bushfire Risk Management Plan.

Some recent initiatives include:

- the use of high voltage overhead covered conductors for all new or relocated overhead electrical assets;
- fitting low voltage spreaders to mitigate against potential deficiencies in existing low voltage bare overhead constructions in bushfire prone areas; and
- installation of high voltage substation/control point equipment designed to minimise emission of hot particles that could initiate a bushfire.

4.1.2 Inspection and Testing

Our inspection and testing program is ongoing and allows us to identify defects in our network assets that have the potential to start a bushfire and prioritise their repair.

Our inspection and testing regime is set out in our Network Management Plan and is based on analysis of maintenance requirements (including bushfire mitigation) for all our network asset classes. EnergyAustralia uses Reliability Centered Maintenance/Failure Mode Effect and Criticality Analysis processes.¹

Our inspection and testing activities are listed in the maintenance section of our Network Management Plan (which references our Technical Maintenance Plan). These activities include:

- Conducting periodic audits of as-built network infrastructure.
- Conducting annual pre-bushfire danger season patrols of assets in all areas we classify as 'bushfire prone'. This usually occurs in September but may be carried out earlier if advice is received from the RFS in a timely manner.
- Conducting detailed overhead powerline inspections every four years (followed two years later by ground line pole inspection and treatment) to identify any defects that could affect our network and to prioritise their repair.
- Recording network pole and line inspections and corrective work in our Poles and Pillars Network Asset Management System (NAMS) database.
- Recording substation equipment inspections and corrective maintenance in our Technical Information System (TIS) database.

In 2003/04 EnergyAustralia implemented a process in NAMS to enable tracking and management of corrective action for all poles in bushfire prone areas that have high bushfire risk defects which are identified during the pre-bushfire danger season patrols.

RESPONSIBILITY Executive Manager – Operations North, Executive Manager – Operations South, Executive Manager – Hunter
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4.1.3 Operation

EnergyAustralia has several operational procedures in place that effectively reduce the risk of a bushfire starting during the normal operation of our network or when work is taking place.

These include:

- Our staff and contractors adopt special work procedures and precautions during the bushfire danger season and total fire bans. Risk mitigation procedures are used during construction and maintenance activities to ensure we do not start a bushfire (per Network Standard *NUS103 Fire Bans*).
- We also have procedures in place to respond effectively when the supply system is disrupted by bushfires.
- EnergyAustralia supports and assists other distributors (DNSPs) by sharing resources and equipment during emergencies, to ensure supply is restored safely and as quickly as possible.
- We participate in electricity industry debriefs following major bushfire incidents and implement improvements identified in these sessions.

EnergyAustralia's current policy with respect to the protection settings on our equipment during conditions of very high fire danger is to leave the reclose² function on automatic, unless there are extenuating circumstances.

An Industry Safety Steering Committee (ISSC) working group has found that the risks introduced by disabling reclosers generally outweigh the risks mitigated by disabling reclosers.

EnergyAustralia is currently working with the ISSC to develop an industry guideline for network configuration during high bushfire risk days.

¹ The Reliability Centered Maintenance approach forms part of an overall asset management framework that aims to minimise asset life cycle costs whilst maintaining acceptable reliability and risk levels. The Failure Mode Effect and Criticality Analysis approach proves a structured method for assessing the likely cause of an asset's failure and the consequences of these failures on safety, asset performance and economics.

² High voltage powerlines are protected by automatic equipment, which shuts down the power when a fault is detected. Because most faults on high voltage overhead powerlines are temporary (such as those caused by lightning strikes or tree branches falling on to powerlines) the power is usually turned back on automatically (reclosed) after a delay of a few seconds.

4.2 OUR CUSTOMER'S ASSETS

Bushfire risk management for electrical equipment is a shared responsibility between EnergyAustralia and all landowners/occupiers who are customers in our distribution area.

EnergyAustralia inspects, tests and maintains the assets we own. However, it is the responsibility of landowners/occupiers to ensure their electrical installations³ are free from defects that could cause fire or other hazards.

Customers are responsible for keeping private overhead powerlines free of vegetation, and must ensure appropriate trees are planted in areas that are close to powerlines. Customers are also responsible for inspecting, testing and maintaining their powerlines and poles at regular intervals – the same way we do.

To assist our customers to meet these requirements we aim to:

- clearly communicate to customers their obligations in our publications ES1 *Customer Supply Information and Local Service and Installation Rules*;
- provide customers with detailed safety information; and
- advise customers of any defects observed on their private powerlines and poles (by members of the public or our staff) by issuing notices and following up actions where appropriate.

In cases where private mains are not being used or customers have not rectified safety defects that have been identified, it may be necessary for us to disconnect these mains. This may include removing any overhead service line to the customer's installation.

Where a customer no longer requires supply and a final account is issued, and assuming there are no defects, new customers have six months to request supply before any disconnections occur.

Even when a service has been disconnected, the landowner/occupier remains responsible for maintaining the customer installation in a safe condition.

During 2003/2004, EnergyAustralia established a review process consistent with the Network Operator Review outlined in the Industry Safety Steering Committee ISSC 31 document (*Management of Private Overhead Lines: NSW Guideline*).

We also established a process for the disconnection of unused private mains in rural bushfire prone areas.

We improved our communications with our customers regarding obligations to safely manage privately owned electrical installations. This information has also been incorporated in our standard form Customer Connection Contract.

RESPONSIBILITY

Executive Manager – Network Customer Operations (Review Process, Disconnection Process)

Executive Manager – Network Connections and Metering (Customer Connection Contracts)

³ EnergyAustralia uses the NSW Service & Installation Rules to determine the delineation of private electrical installations from network assets. Our requirements for the inspection and maintenance of private aerial mains are detailed in our publication ES1 Customer Supply Information and Local Service and Installation Rules, and the Network Standards referenced in ES1. Under the Electricity Supply (Safety and Network Management) Regulation 2002, we have taken into account the Electricity Association of NSW Code of Practice – Service & Installation Rules, December 1997. The NSW Service and Installation Rules are prepared in accordance with the Code of Practice.

5 Managing Vegetation

Our Vegetation Management Program helps to prevent bushfires and reduce supply interruptions caused by vegetation

Trees near powerlines can start bushfires. Falling branches can bring live wires to the ground. Swaying branches can push overhead lines together, causing the wires to short out, burn through and fall to the ground. Shorted wires can start bushfires, even if the wires don't fall down.

Guidelines on vegetation safety management issues are given in our *Tree Safety Management Plan*. This plan was developed after an extensive public consultation process involving the community, local councils and organisations such as the NSW National Parks and Wildlife Service. The *Tree Safety Management Plan* aims to:

- reduce the risk of fires and power interruptions caused by branches touching overhead wires;
- minimise the possibility of electrocution; and
- ensure safe clearances are achieved and maintained while protecting the health of each tree.

The *Tree Safety Management Plan* also provides advice on the most appropriate trees to plant near powerlines and highlights the importance of engaging only qualified tree trimmers to conduct any trimming work required.

5.1 SAFE CLEARANCES

To help prevent the possibility of trees causing bushfires or outages, we manage vegetation safety clearances on or near our network using the Tree Safety Management Plan and Network Standard NS 179 *Vegetation Safety Clearances*. We provide for additional vegetation safety clearances in bushfire prone areas.

Our document ES1 – *Customer Supply Information*, sets out similar requirements for our customers who must maintain the safety clearances between trees and their private overhead powerlines in a manner consistent with the NS 179. The standard sets out minimum clearance distances and specifies that vegetation management work must only be performed by qualified and authorised persons working in accordance with EnergyAustralia's Electrical Safety Rules when vegetation is being trimmed near energised powerlines. It should be noted that NS 179 requires larger safety clearances to be established and maintained in bushfire prone areas.

6 Communicating Risks and Responsibilities

Our Communications Program informs our customers of their obligations in bushfire risk mitigation

We communicate bushfire and other safety messages to our customers and the wider community in the following ways:

- We provide detailed information on customer obligations relating to private powerlines and poles, as well as information about bushfire risks using print media and our website www.energy.com.au.
 - We provide general information on the dangers of bushfires including links to the NSW Rural Fire Service website www.rfs.nsw.gov.au.
 - We issue Customer Installation Advices (CIAs) and Network Standards Advices (NSAs) to ensure current design standards are communicated to all staff, contractors and Accredited Service Providers. These are published on our website along with Electricity Supply Standards and Network Standards.
- We provide specific information to customers about private overhead lines advising them of the hazards and the safety precautions to be followed.
 - We use media releases to provide information to the general public about the fire hazards associated with overhead powerlines and vegetation.
 - We use radio ads and other mediums to provide information to the general public about the fire hazards associated with overhead powerlines and vegetation, particularly during the bushfire season.

RESPONSIBILITY Executive Manager – Network Customer Operations Manager – Network Marketing
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7 Handling Inquiries and Complaints

Our Customer Care System helps us effectively manage all inquiries and complaints

EnergyAustralia strives to respond to customer inquiries and complaints in a timely and efficient manner.

Phone calls to our 13 15 35 inquiry line and emails to our website are managed by our Contact Centre and are referred to specific business areas when appropriate.

Complaints relating to safety issues including bushfire risks always receive priority.

EnergyAustralia uses an Outage Management System (OMS) to record and track outages on its electrical network. This includes reports of hazards such as 'wires down' or 'wires arcing' and other safety related incidents, as well as general 'no supply' issues.

EnergyAustralia uses OMS in identifying network issues, classifying jobs, managing its response and recording job completions. Calls received via OMS can be tagged as bushfire related and this information is considered when assessing jobs and setting priorities.

8 Building Relationships with Relevant Agencies

We are committed to building and maintaining relationships with all agencies involved in bushfire risk mitigation

In addition to maintaining ongoing communication with our customers, staff and contractors, EnergyAustralia also spends time building relationships with emergency services, government agencies and the industry as a whole.

We have developed strong associations with the NSW Rural Fire Service, the New South Wales Fire Brigade, local councils and the State Government. We also work alongside other electricity distributors and industry colleagues to effectively manage bushfire mitigation at a state-wide level.

These liaisons include:

- participation in industry debriefs following bushfires;

- providing 'hands-on' assistance during bushfires (eg assisting ActewAGL to restore power during the January 2003 bushfires in Canberra);
- information sharing with the NSW Rural Fire Service to ensure accurate bushfire prone land maps are used and RFS staff have sufficient training when fighting fires around network assets; and
- working with the other electricity distributors, the Department of Water and Energy, and the Office of Fair Trading, to develop Industry Safety Steering Committee (ISSC) and other relevant Guidelines.

9 Management and Reporting

Our management and reporting framework helps us comply with the requirements of the Regulation and the Department of Water and Energy

EnergyAustralia operates under a due diligence framework which ensures that all risks are identified and that an appropriate system of compliance is in place.

This *Bushfire Risk Management Plan* and our Network Management Plan together with supporting documents, policies and procedures are managed in accordance with EnergyAustralia's quality management system (certified to AS/NZS ISO 9000:2000).

This Plan incorporates management of inspection, preventative and corrective maintenance of our network assets under the provisions of our Network Management Plan.

- We record all network pole and line inspections and corrective work in our Poles and Pillars Network Asset Management System (NAMS) database. Post fault patrols are conducted on a high voltage feeder or low voltage distributor basis, with all known causes documented in our Technical Information System, and

any required corrective work recorded in our NAMS database.

- We track and analyse inspection and corrective work records in our databases.

9.1 SCHEDULE OF REPORTS TO THE DEPARTMENT OF WATER AND ENERGY

We will monitor our performance against this Plan and report to the Department of Water and Energy annually in our *Electricity Network Performance Report* (available on our website www.energy.com.au)

We shall advise the Department of Water and Energy of any serious electricity network accidents or actionable incidents relating to bushfire risk management (under the Significant Electricity Network Incidents reporting framework contained in our Network Management Plan).

10 Reference Documents

- Your Powerlines: Safety and Bushfire Prevention (Customer Information Brochure)
- Network Management Plan
- Tree Safety Management Plan
- ES1 Customer Connection Information
- ES10 Requirements for Electricity Connection to Developments
- Network Standards:
 - NS 145 Pole Inspection and Treatment Procedures
 - NS 179 Vegetation Safety Clearances
- Industry Safety Steering Committee publication ISSC 31 Management of Private Overhead Lines: NSW Guideline (published in July 2004)
- Electricity Council of NSW guide EC2 Guide to the Manual Reclosing of Overhead Lines (available from the Department of Water and Energy).
- ESAA NENS 01 National Electricity Network Safety Code (available from the Energy Supply Association of Australia).
- ESAA NENS 07 National Guidelines for Manual Reclosing of High Voltage Electrical Apparatus Following a Fault Operation (available from the Energy Supply Association of Australia).

The documents listed above are available on EnergyAustralia's website www.energy.com.au