



Bushfire Risk Management Plan

2020-21

9 September 2020



Part of the Energy Queensland Group

Bushfire Risk Management Plan

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Availability of the Bushfire Risk Management Plan

This plan is available on the Energex and Ergon Energy websites www.energex.com.au and www.ergon.com.au

Version	Date	Description
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1.1	October 19	Updated with 2019-20 information
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1 PURPOSE AND SCOPE

1.1 Purpose

Bushfires are an inherent part of the Queensland landscape and environment. The vastness of the land, community footprints and the electricity network servicing that community increases the risk of potential impact to the network.

Failure of components of an overhead electricity reticulation system may also present a potential source of ignition and combined with unfavourable environmental conditions may increase the risk of a bushfire.

Energy Queensland applies best practice asset management strategies to ensure the safe and reliable operation of its network. This includes development and application of this Bushfire Risk Management Plan.

This Bushfire Risk Management Plan is a subset of the Natural Hazards Management Plan and targets issues and initiatives relating specifically to bushfires.

A key component of this plan is to outline how assets are managed to minimise the risk of bushfires to the network, maintain customer supply reliability and ensure a high level of safety for the community during times of bushfire.



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1.2 Scope

Energy Queensland will fulfil its responsibilities in network areas of Queensland and New South Wales under the Bushfire Risk Management Plan by addressing the following major areas:

- Identification of areas prone to high bushfire hazard and the location of all electricity assets within those areas
- Asset maintenance procedures including identification and rectification of asset defects
- Vegetation management strategies and procedures
- Equipment and construction standards as related to bushfire mitigation
- Providing information to field employees relating to bushfires and public safety
- Liaison with other organisations regarding bushfire related issues
- Public awareness and the responsibilities of owners of private overhead electric lines
- Bushfire emergency response and management capability
- Operating procedures during times of high fire danger and total fire ban days
- Investigation of bushfire related incidents and monitoring of trends
- Continued partnership with Queensland Fire and Emergency Service (QFES) on mitigation activities, communication protocols and sharing of information.

2 OUR ASSETS

Energex and Ergon Energy Network operate in a vast area with its distribution network covering an area of 1.7 million sq km. This consists of approximately 207,000 km of overhead and underground high voltage and low voltage distribution power lines and 1.7 million poles.

The high voltage network operates at a variety of voltages ranging from 220kV, 132kV, 110kV, 66kV, 33kV, 22kV, 19.1kV, 12.7kV, and 11kV. The low voltage network is reticulated at 415/240/230 Volts.

The network also includes 33 isolated power stations, 72 bulk supply points and 571 zone substations.

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3 A CHANGING ENVIRONMENT

Our environment and climate is changing, and we are experiencing a shift in the seasons, severity of hazards and subsequent impacts of bushfires. EQL acknowledges and aligns with the Queensland State Government *Pathways to a climate resilient Queensland, Queensland Climate Adaption Strategy 2017-2030* and now has a *Low Carbon Future Statement* and an *Environmental Sustainability and Cultural Heritage Policy*. Queensland Fire and Emergency Services have recently released the *Queensland Bushfire Plan* outlining the arrangements to enable Queensland's management of bushfire hazard.

These documents will guide our development and future focus on climate change, network resilience and reducing the impact of natural hazards.

4 IDENTIFYING BUSHFIRE RISK AREAS

4.1 Fire Seasons

The fire season in Queensland normally commences in the Gulf Country and Cape York Peninsula during July. It progresses south into the central inland and coastal areas during spring and south to the NSW border in early Summer. The season extends into February for the southern and south west regions of Queensland.

These timeframes can vary significantly from year to year due to fuel availability and condition, soil moisture, long term climate conditions and variations on short-term weather conditions in each area. Recent seasons have indicated that the fire season is actually starting earlier and is more prolonged, particularly in the southern regions.

The Bureau of Meteorology (BOM) and the Bushfire and Natural Hazards Co-operative Research Centre (CRC) provide specific seasonal outlooks, fire weather predictions and weather warnings in the lead up to and during the fire season.

Dependant on seasonal predictions and local weather forecasts, Queensland Fire and Emergency Services (QFES) may declare a fire danger period or declare local fire ban or state of fire emergency.

To assist in the identification of high bushfire risk areas, Energex and Ergon Energy Network utilise several resources to allow planning and mitigation activities.

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4.2 Mapping

4.2.1 Bushfire Hazard Area (Bushfire Prone Area) Mapping

Under the state planning policy, QFES identifies bushfire hazard areas or land that is likely to support a significant bushfire and could be subject to resulting damage.

These bushfire risk areas periodically change and require regular review. It is essential that the information can be shared and utilised within the business to assist in the planning, preparation response and recovery to events.

Energex and Ergon Energy include this information annually in our Geographical Information Systems (GIS) to allow the production of risk maps identifying network assets in the high bushfire risk areas.

4.2.2 Current Bushfire Incident Mapping

Aside from the impact of bushfires, many areas of Queensland are subject to land management activities including the use of fire to reduce fuel load to mitigate the impact of significant bushfires, to manage primary production systems or to maintain or restore ecological process for conservation. QFES coordinates an annual bushfire mitigation period designated 'Operation Cool Burn' during which landholders, land management agencies and the Rural Fire Service (RFS) plan and conduct a range of prescribed burning activities across the state.

All bushfires and prescribed burning activities can potentially impact on Energex or Ergon Energy Network assets. Real time spatial information about the extent of these landscape fires is available through satellite data obtained from a network of geostationary and non-stationary satellites and displayed through mapping applications.

These services provide up to date information on current fires, their location and depending on service provider include additional data such as fire tracking and burnt area mapping. This information is utilised to assist in identifying electrical assets in the fire path and allows restoration planning to be conducted proactively for when the fire areas are safe to access. The following are available:

- QFES data feed detailing current incidents, line scans and air operations information including burn scars and fire fronts for display on Geospatial systems
- Sentinel Hotspot Fire Detection provided by Geoscience Australia
- Mapping of fires and provision of fire information through Landgate Satellite Remote Sensing Service
- Mapping of current bushfire incidents including permit burns from the Rural Fire Service website.

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4.3 Weather Services Advice

The BOM issue fire weather warnings when weather conditions are conducive to the spread of dangerous bushfires. Warnings are generally issued within 24 hours of the potential onset of hazardous conditions and are broadcast on radio and television. Emergency teams and network control centres monitor these warnings and weather updates and if required, advise operational response teams to prepare or enact response arrangements.

Energex and Ergon Energy Network have engaged a dedicated weather service provider to provide specialist weather advice on forecast weather patterns including heatwaves, storms and lightning levels. A component of the advice is an interface with integrated Sentinel satellite fire detection and layers for substations and feeders and is available for key employees through an external internet site.

4.4 Emergency Services Advice

QFES and RFS provide an automated email system to communicate the declaration of fire bans or fire weather warnings during high bushfire danger conditions. As part of the Bushfire Risk Management Plan, the Rural Fire Service in each region are contacted by key Energex and Ergon Energy Network operational employees to update contact details.

This contact list is updated annually prior to the commencement of the fire season to ensure that the appropriate people receive fire weather information in time to make any necessary operational arrangements or responses.

Energex and Ergon Energy's Local Area Managers are also registered to receive automated bushfire update emails, warnings and alerts.

4.5 Local Advice

Information provided by local and area based employees and contractors is considered and assessed to identify high fuel loads or previously impacted areas of the network. This will inform any required changes to maintenance practices to minimise and mitigate future asset damage.

5 ASSET MANAGEMENT

In order to maintain an up-to-date record of our asset information and characteristics, Energex and Ergon Energy Network have the following management tools:

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5.1 Asset Register

Both Energex and Ergon Energy Network maintain an equipment register in 'Ellipse', an enterprise computer system. The equipment register stores technical information and maintenance history of power assets and allows asset lifecycle tracking.

This register also supports planned work to be programmed to assess asset condition, instigate repairs and record completion. This includes fixed assets and vegetation management.

5.2 Geographical Information System

Energex and Ergon Energy Network use GIS which utilise the Ellipse data and enable the retrieval of relevant information about our electricity assets. This includes the physical location, layout of the assets, specification on equipment and the types and lengths of overhead lines. The GIS system includes visual layers that provides the high bushfire risk areas in South East Queensland, Regional Queensland and current QFES known fires.

5.3 Field Mobile Computing Inspection Systems

Energex and Ergon Energy Network have field mobile computing systems that are used in the routine inspection of vegetation, poles and line components. The system enables asset inspectors to issue work, locate poles, validate the pole details, record any inspection measurements or data required, confirm asset defect work orders and raise new defect work orders. This information is retrieved and integrated into the Ellipse and GIS systems.

5.4 Asset Maintenance and Programs

5.4.1 Periodic Asset Inspections

Energex and Ergon Energy Network operate an ongoing asset inspection and maintenance program on the overhead network which is compliant with The Electrical Safety Act and the Code of Practice - Works. These inspections include checks on the condition of and encroachment of vegetation or other assets on electrical equipment, plant, poles and wires.

Energex and Ergon Energy Network conduct periodic Light Detection and Ranging (LiDAR) inspections on every feeder in accordance with our inspection programming to identify vegetation and conductor clearance issues. Issues are then prioritised to ensure immediate actions where required or are programmed into our regular maintenance programs.

5.4.2 Vegetation Maintenance Management

Energex and Ergon Energy Network actively seeks to minimise the risk of vegetation encroachment on overhead assets, and includes consideration of public safety, network reliability,

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quality of supply, customer service and network operating costs. Energex and Ergon Energy Network are legally obliged under the Electrical Safety Act and associated Regulations to maintain a safe and reliable supply of electricity to customers.

This includes the trimming/treatment or removal of trees to ensure the maintenance of clearance zones of overhead electric lines over the inspection period, maintaining clearance of exposed conductive parts and separation of conductors. Approaches used to manage vegetation include:

- A cyclic program, to treat or cut vegetation on all overhead line and high risk close proximity trees routes with cycle times dependent upon local conditions, urban density and growth rates. A warranty period after cycle cut during which time all zones are assessed to ensure that vegetation will remain typically clear for the whole of the assigned treatment cycle.
- Reactive treatment activities to address localised instances where vegetation is found to be within clearance requirements. If a member of the public or employee identifies individual vegetation sites which are close to or make contact with the mains, Energex and Ergon Energy Network will assess and if necessary, deploy a crew to re-establish safe clearances.
- Regular audits of activities for completion and quality of works providing recommendations and actions for rectification.
- Working cooperatively with local councils and landowners to reduce future conflict between trees and powerlines.

5.5 Asset Improvement Initiatives

Energex and Ergon Energy Network have a range of asset refurbishment programs focussed on maintaining the safety, reliability and resilience of the network. These programs are aimed at achieving the optimal service life from assets, whilst planning replacement of the assets prior to their “end of life”. Furthermore, ongoing alignment and updating of equipment/network standards for Energex and Ergon provides additional improvements in network resilience as equipment is replaced.

These initiatives assist to reduce the likelihood of fire starts from electrical assets and some also help to reduce the risk of network asset damage from external fires. Examples of the range of initiatives undertaken by Energex and Ergon Energy Network include, but are not limited to:

- Line refurbishment programs– such as replacement of aged (or corroded) conductor, installation of insulated/covered conductors.
- Lines defect remediation – repair and remediation of defects identified through asset inspection, such as cross-arms, insulators tie wires etc
- Programs of condemned pole replacement
- Customer Service line replacement programs

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- The transition to range of updated equipment standards as new equipment is installed including:
 - Distribution Surge Arrestors to conform to AS1307.2 Spark Production Class A (spark free) to reduce the chance of sparks igniting a bushfire during operation
 - Low Voltage fusing of all new distribution transformers, as recommended under Energy Network Association (ENA) guidelines.
 - Use of Arc-suppressors on air-break switches
 - Use of remote-controlled pole mounted reclosers, sectionalisers and load-break switches on long feeders
 - Use of 11kV enclosed gas insulated switches in lieu of open air-break switches, and/or spark-less high-voltage fuses on pole transformers, in some identified bushfire prone areas.
- Trialling and development of a range of pole materials/technologies (such as composite fibre) along with the ongoing use of concrete and steel rebuffed poles where appropriate
- Ongoing research and development and trials of fire-resistant coatings (fireproof paint and fireproof wraps) for wood poles in fire prone areas.

5.6 Asset Policies and Procedures

Relevant policies and procedures utilised to assist with bushfire mitigation are included in Appendix A.

6 ASSET DESIGN

Energex and Ergon Energy Network design our electrical network to maximise reliability, safety, performance and optimise network investment over the long term (commensurate with the life expectancy of network assets) whilst meeting community expectations for environmental impact and regulatory expectations.

6.1 Design Standards

Standards have been developed in line with Industry Standards to ensure appropriate design, asset quality, configuration and construction quality across the network. Bushfire risk management has been embedded into the overall asset design standards and to ensure compliance with relevant legislation and regulatory requirements. Design processes and polices are listed at Appendix B.

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7 SEASON PREPAREDNESS

7.1 Risk Management

Management of risk is a crucial foundation for effective asset management and an integral part of ISO 55000 Asset Management suite of standards. Energy Queensland's Network Risk Management Framework (which is a subset of Energy Queensland's enterprise risk approach) ensures we apply a consistent approach to the assessment of network risks. It aligns with AS/NZS ISO 31000:2018 Risk Management - Principles & Guidelines and with Energy Queensland's Risk Management and Resilience Policy and Risk Management Guide. Energy Queensland regularly reviews inherent and emerging network risks to ensure optimisation of our projects and programs, and regularly reviews the level of risk exposure including a "Significant Bushfire" event.

Risk is assessed applying Energy Queensland's Risk Evaluation Matrix (for both impact and likelihood) across applicable risk categories including:

- Health and Safety
- Environment / Cultural Heritage
- Stakeholder and Reputation
- Customers and Community
- Commercial
- Compliance, Legal and Regulatory
- Information and Digital Security

Network Security and Capability Risk assessment involves development of credible scenarios that may lead to a specific risk consequence. This is followed by estimation of the likelihood of occurrence and subsequent development of a risk rating for each scenario. Projects and programs of work are then considered for inclusion in the program of work on a priority basis to deliver appropriate network-wide risk mitigation. The Network Risk Framework also applies a granular asset specific assessment and scenario methodology.

7.2 Bushfire Risk Management Committee

A bushfire risk management committee has been established to ensure that adequate risk mitigation strategies and practices are in place for the network.

7.3 Annual Review

A review and update of this Bushfire Risk Management Plan and Bushfire Preparation Plan occurs annually.

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7.4 Asset Management Programs

Energex and Ergon Energy Network have robust and comprehensive asset management plans which are applied across their entire network. Programs within these plans such as vegetation management, routine equipment inspections, as well as routine and responsive maintenance all contribute to maintaining network safety and reliability. In addition to these maintenance activities, Energex and Ergon Energy also employ an extensive refurbishment, replacement and augmentation program. These programs:

- Provide assurance that the Energex and Ergon Energy Network are disaster ready including for natural hazards including storms and bushfires; and
- Identify network defects or issues that present a hazard or are likely to cause a network outage.

7.5 Internal Communication and Training

Energex and Ergon Energy Network provide annual communications and awareness sessions to field employees including appropriate work practices and vehicle use during the bushfire season.

Training materials specific to bushfire safety are delivered at field team briefings. Awareness material is primarily focussed on personal protection, as their main obligation in times of bushfire emergency is safe isolation and subsequent maintenance of electricity supply. Employees are not expected to participate in firefighting activities however an awareness of safety precautions are essential if responding to events.

- A Bushfire Awareness & Safety Presentation can be found in the Emergency Management Plan. Safety equipment checks will be conducted in addition to this awareness
- An Energy Queensland Bushfire Smoke Fact Sheet has been developed to assist employees in their awareness of the hazards and risks associated with bushfires and bushfire smoke
- Further safe vehicle operation advice is available through government organisations.

In the event of total fire ban days or prior to the start of a high bushfire risk season, in which the QLD Rural Fire Service declares a 'Fire Danger Period', Energex and Ergon Energy Network will be informed via mobile phone SMS or through Field Force Automation (FFA) devices.

7.6 External Organisation Liaison and Consultation

7.6.1 Emergency Services Liaison

Energex and Ergon Energy Network have responsibilities under the Disaster Management Act to ensure adequate liaison occurs with emergency services.

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To ensure effective consultation and coordination in relation to bushfire prevention, preparedness, response and recovery, Energex and Ergon Energy Network provide representation on the following committees:

- State Disaster Coordination Group (SDCG) or State Incident Management Team (SIMT)
- District Disaster Management Groups (DDMG)
- Local Disaster Management Groups (LDMG)
- Interdepartmental Committee on Bushfires (IDC)

It is vital during a major event that close contact be maintained with all emergency services, in particular QFES, Queensland Police Service (QPS), the State Emergency Service (SES) and local disaster management groups.

When a significant bushfire occurs involving substantial property or environmental loss, a Level 3 incident may be declared by the Queensland Fire and Emergency Service (QFES). When this occurs, a State Incident Management Team (SIMT) may be established at the headquarters of the Fire Service. If requested, a representative will be nominated to act as a Liaison Officer to report to the SIMT. Similarly, if the State Disaster Coordination Centre activates, a Liaison Officer and SDCG Representative will be provided in accordance with Energy Queensland Emergency Management Framework.

Powerline corridors and powerline access tracks are often utilised by Rural Fire Brigades and land management agencies as breaks or control lines during hazard reduction burning. Identification of tracks that have a strategic function in community fire protection and liaison with local fire management committees maximises community benefit.

Queensland Government land management agencies coordinate bushfire control, management and policy formulation through interdepartmental committees, chaired by the Assistant Commissioner, Rural Fire Service.

With a significant interest in the land management of powerline corridors throughout the state, there are advantages in having representation on these committees, and to stay current with policy developments. Liaison with the RFS, land management and local government organisations through participation in local fire management committees or other community forums occurs across the state.

Liaison officers (primary and backup) nominated for the disaster management organisations are located on the Emergency Planning and Response intranet collaboration site and receive regular training and briefing sessions on relevant network risks and responses.

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7.6.2 Other Network Service Providers

Other electrical Distribution Network Service Providers (DNSP) and Transmission Network Service Providers (TNSP), including Essential Energy and Powerlink, adjoining the area serviced by Energex and Ergon Energy Network have processes in place to address Bushfire Mitigation. Liaison and continued communication about bushfire mitigation strategies and plans provides consistency in approach and potential for sharing of information and resources in times of emergency. Individual Memoranda of Understanding (MoU) are in place between EQL and other DNSP including Essential Energy, AUSGRID and Power and Water Corporation detailing arrangements to share resources for emergency events.

Discussions also occur as required with owners of privately owned distribution networks and assets.

7.6.3 Memorandum of Understanding

A MoU has been established between EQL, Powerlink and QFES to ensure appropriate arrangements and communication channels are in place in the event of a bushfire. This MoU will ensure network configuration and additional safety measures can be enacted.

A separate MoU has been established between EQL and QFES detailing opportunities to share critical data information and to improve situational awareness, planning and response to bushfires. This data sharing significantly improves EQL's capability and ability to respond and proactively manage impacts to the network.

7.6.4 Energy Networks Association

The Energy Networks Association has produced National Guidelines on Electrical Safety for Emergency Service Personnel (ENA 008-2006) to assist in increasing the awareness required. Ergon Energy Network or Energex employees provide advice for emergency service personnel attending fires in the vicinity of electricity infrastructure such as being aware of the hazards created by smoke and flames close to bare live conductors. Agencies such as the Queensland Parks and Wildlife Service have also developed their own procedures for employees working around electrical assets during hazard reduction and firefighting activities, based on the ENA guideline.

7.7 Private Asset Ownership

The owners of Private Overhead Electric Lines and poles are obliged to maintain them in a safe condition. Poorly maintained private lines and poles have the potential to start bushfires. Energex and Ergon Energy Network are not responsible for the condition, inspection or maintenance of privately owned Electric lines. Energex, Ergon Energy Network and the Electrical Safety Office provide safety and maintenance advice on privately owned electric lines. Key references for privately owned powerlines and poles are included at Appendix C.

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The owners of private overhead electric lines are responsible for keeping their asset free from obstruction of vegetation and should ensure that trees planted in the vicinity of powerlines are appropriate low growing species.

7.8 Community Safety Awareness and Media Engagement

In the lead up to the fire season, Energex and Ergon Energy Network conduct a program of public awareness campaigns outlining bushfire mitigation measures. This is enhanced through online media, traditional media and other forms of mass media.

A Community Powerline Safety Plan has been developed to raise public awareness of electrical hazards, our approach to safety and potential hazards, and provide precautions to avoid electricity incidents.

The Community Powerline Safety Plan details the strategic projects that have been designed to create greater awareness in response to an analysis of risk and incident reports. These projects target the public to help raise their awareness of the hazards they face through their interaction with the Energex and Ergon Energy networks.

The Network Operational Control Centres and or Contact Centre are the central points for receiving reports of incidents or faults and the dissemination of information to the responsible regions.

8 EMERGENCY MANAGEMENT PROCEDURES

8.1 Emergency Response During A Bushfire

8.1.1 Safety

The safety of personnel and the community is paramount. Energex and Ergon Energy Network have health and safety systems and processes in place to support the health and safety of employees when working around fire areas. Our teams seek advice and direction from Emergency Services personnel before moving into an area subject to a current fire or immediately following a fire.

8.1.2 Process

Energex and Ergon Energy Network will initially respond to various levels of incidents, including bushfires that affect its operations, through a standard fault response escalation framework. This initial assessment of damage will determine whether the response is managed operationally or escalated to a Level 2 or Level 3 Emergency Management process.

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8.1.3 Emergency Management Plan

The Emergency Management Plan (EMP) details the framework and processes to be applied by Energex and Ergon Energy Network when preparing for and responding to an Emergency event which disrupts or has the potential to disrupt the supply and distribution of electricity or the provision of related services to customers and communities. The EMP details additional information to assist in a large scale response to a significant bushfire.

The response is managed within an escalation process that increases resource capabilities and coordination, drawing across regions as required to meet the requirements in the impacted area.

8.2 Additional Operational Considerations

Additional operational considerations will be discussed in response to deteriorating weather conditions or the Fire Danger Index increasing into the range of Severe to Catastrophic. There are three levels of fire activity that may trigger the additional considerations:

- **High Fire Danger Periods (Regional/Area) or Heatwave.** These conditions are monitored by regional and local operational employees using publicly available weather information. The BOM will issue Fire Weather Warnings.
- **Rural Fire Service declaration of Local Fire Ban or State of Fire Emergency.** The Rural Fire Service (RFS) has an automatic email notification process for fire ban declarations, posted out when a decision is made to invoke a total ban on the lighting of fires in the open. The RFS have been provided with email contact details of key Energex and Ergon Energy employees. For local fire bans this can be part of or an entire local government area. For a state of fire emergency this can be part of the state or the whole of Queensland.
- **Fire Outbreaks.** This may require isolated network shutdowns to ensure public safety during the fire, safe damage assessment after the fire has passed or arrangements made to carry out urgent repairs.

8.2.1 Restrictions

A communications advice will be distributed to Operational Managers during a High Fire Danger period, a Local Fire Ban or State of Fire Emergency declaration or to advise of any restrictions to process and practices that must be adopted during the gazetted fire danger period. The communications notice may also outline precautions to take while performing field work activities deemed to have high potential to start fires.

8.2.2 Network Protection Settings

Energex and Ergon Energy Network have automated fault protection systems installed to minimise the effects of different types of faults. The protection systems are designed to isolate electricity supply when the network is damaged and potentially unsafe.

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The “sensitive earth fault protection” is set to operate when very low levels of fault current are identified as a result of minor contact with conductors such as tree branches or debris. Hence sensitive earth protection helps to reduce the risk of fires being initiated from vegetation or line defects.

In addition, reclosing devices have been installed in many areas and are designed to automatically isolate supply temporarily in the event of a minor fault, and then where enabled, attempt to automatically restore supply a short period later. If the fault is persistent, supply is totally isolated (lock-out) until the line can be inspected by field employees and if necessary, repairs carried out. The recloser can then be re-set and power restored.

8.2.3 Network Recloser Settings

During periods when weather conditions justify total fire bans there is potential for ignition if the recloser is automatically reclosed and supply is restored to an existing fault.

To minimise this risk, so far as is reasonably practicable, the automatic reclose function can be disabled on lines in areas determined to be of a high bushfire hazard during total fire bans, State of Fire Emergency declaration or Extreme to Catastrophic Fire Danger.

As most faults on high voltage overhead powerlines are temporary (usually attributable lightning strikes or vegetation) supply is restored automatically (reclosed) after a few seconds delay.

Energex and Ergon Energy Network do not suppress automatic reclose functionality on its feeders unless specifically requested by QFES during high risk conditions. This approach considers the adverse impacts of loss of electricity supply will have on equipment such as water pump motors to assist in fire control activities, the need for electricity to power vital telecommunications facilities in managing fire response activities and the health impacts of the loss of air-conditioning for at risk customers (life support or the elderly).

8.2.4 Confirming Critical Infrastructure

There are a number of locations throughout the network where continual electricity supply is considered critical to the health and wellbeing of the general community. These installations include hospitals, life support systems, water supply pumping stations, sewerage pumping stations and communications infrastructure.

Energex and Ergon Energy Network representatives work collaboratively with local councils and customers to ensure that these locations are known, prioritised and incorporated into restoration plans. Listings of these installations are kept with the Energex and Ergon Energy Network Control Centres and are updated from time to time as information is made available. Restoration of supply to these locations is given highest priority.

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8.2.5 Emergency Restoration and Isolation

During a bushfire event, Energex or Ergon Energy Network may be requested to isolate sections of the network in the immediate area of the fire. These requests are received from appropriately authorised Officers of the QFES. There may be instances when sections of the network will be isolated in the interests of public safety and protection of its equipment and private property.

During bushfire events or on days where total fire bans have been declared, Energex and Ergon Energy Network will, where practical and within the best interests of the community, conduct a patrol of any isolated overhead mains in high bushfire risk areas before re-energising this equipment. This practice is to ensure that lines have not sustained damage from the bushfires, all faults have been repaired and the network is safe to re-energise.

On completion of the patrol, clearance will be given by the field team who completed the patrol to allow the line to be re-energised once any identified faults have been addressed.

8.3 Field Work Practices

8.3.1 Work Practices

The response to fires on Energex or Ergon Energy Network assets is governed by the requirements of the Health, Safety and Environment (HSE) Integrated Management System.

Safe work practices for the response and restoration of the network during high bushfire danger period and total fire bans remain consistent with business as usual practice.

Any damage to the network due to the impact of bushfire is to be reported and entered into the corporate safety database (SAP Fiori) for later analysis of cause and effect, and inclusion where appropriate into network planning, risk mitigation and vegetation management cycles.

8.3.2 Fatigue and Heat stress

The safety and wellbeing of our response teams are critical considerations in bushfire responses. Fatigue management and heat stress management are regularly reinforced during responses and consider the effect of extreme heat and smoke, regular hydration, rotation of tasks, personal and protective equipment and additional rest.

8.3.3 Motor Vehicle / Machinery Use

Operating vehicles and trucks in off-road environments is a potential fuel hazard due to the high operating temperatures, auto burn functions or catalytic converters igniting dry grass fuel.

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Specific advice is given to field employees on the use of light patrol vehicles, medium and heavy trucks used for construction activities and the operation of earth moving machinery in rock terrain.

Employees are instructed to conduct a formal hazard assessment, including relating to starting fires before operating vehicles off formed roads.

8.3.4 Small Engines and Hot Equipment

In areas where there is a high fire risk or there are work activities with potential to start fires with equipment such as generators, chainsaws, brush cutters, metal cutting or welding, precautions must be taken to isolate fuel from the possible ignition source.

The potential for “hot work” and other activities to ignite fires, particularly during a Local Fire Ban or State of Fire Emergency periods is to be considered in risk assessments conducted as part of a formal risk assessment.

During State of Fire Emergency declarations certain activities such as hot work and other activities may be prohibited or restricted. These restrictions will be listed in the declaration.

8.3.5 Copper Chrome Arsenate (CCA) Burnt Poles

Energy Network Australia (ENA) provide guidance in ENA Doc 026-2010 ENA Guideline for the Management of Burning and Fire-damaged CCA Impregnated Poles and Cross arms.

Energex and Ergon Energy Network have processes that outline the requirement for inspection and management of fire damaged or burning copper chrome arsenate (CCA) burnt poles, based on the ENA guidelines.

9 INVESTIGATIONS AND REPORTING

Energex and Ergon Energy Network will undertake investigations and report on the status of the following areas:

- Monitoring and rectification of high priority defects on owned assets identified
- Investigations into suspected asset related bushfires
- Details of the maintenance, reliability and safety aspects of the electricity network are also reported in the Distribution Annual Planning Report (DAPR).

The reporting or recording of incidents of fire starts that have been caused directly or indirectly by Energex or Ergon Energy Network assets is included in its corporate systems (DMS, FdrSTAT and SAP Fiori). This includes incidents associated with motor vehicle accident, equipment failure, vegetation or third party contact.

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This information is analysed to determine trends and investigate specific causes where equipment failure is possible. Analysis of equipment types with potential to cause fires will enable development of strategies for replacement or redesign to minimise asset initiated fires.

Further analysis of the location of rural fires that cause damage to Energex and Ergon Energy Network assets assists in reviewing bushfire risks and possible implementation of preventive measures, such as modified vegetation management or use of fire resistant materials.

Consideration of incident investigations and findings as well as any feedback received from stakeholders will be integrated into future reviews of the Bushfire Risk Management Plan.

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Appendix A - Asset Policies and Procedures

The following documentation (and supporting information) has been developed or reviewed to further mitigate bushfire risks. Note these documents are subject to change throughout the year as processes are aligned between Energex and Ergon Energy Network.

	Title	Overview
Procedures and Strategy	Protocols for Network Maintenance - Energex procedure 1056 / Ergon Energy Network Maintenance PRNF001	<p>The purpose of these documents include:</p> <ul style="list-style-type: none"> Define and communicate how the high level requirements and processes defined in the Network Asset Management Policy (NAMP) EPONW01 and are translated into network maintenance aspects. Develop protocols and objectives for carrying out maintenance of electrical network assets. Provide sufficient information for developing detailed maintenance standards and plans including Network Optimisation Management Plan for Overhead Feeder Circuit. Assist development of network maintenance programmes and budgets.
	Bushfire Mitigation Strategy	<p>The Bushfire Mitigation Strategy outlines the actions that Energy Queensland will take to manage its assets to maintain compliance with the Electrical Safety Regulation 2002 with regards to bushfire mitigation to:</p> <ul style="list-style-type: none"> Reduce the risk of personal injury arising from fire ignition from electrical assets; Reduce the risk of damage to network assets arising from fire ignition; Reduce the risk of damage to third party assets arising from fire ignition from electrical assets.
Maintenance Standards and Instructions	Vegetation Management Standard	The Energy Queensland Vegetation Management Standard sets objectives, purposes and minimum requirements for the clearing and removal of vegetation around powerlines in Queensland.
	Ergon Energy and Energex Standard for Network Assets Defect / Condition Prioritisation (STNW0330/00707)	<p>This defines defect and condition classifications and response times to facilitate remediation and applies to the classification of all defects and conditions identified either during routine inspections and maintenance or through non-routine activities.</p> <p>Energex and Ergon Energy Network apply the following defect priorities and timeframes: P1 – 30 days, P1 cross arms - 90 days, P2 Unserviceable Pole – 26 weeks, P2 – 39 weeks; C3/PM- minor deterioration which requires no specific action prior to the next routine inspection or programmed work.</p>
	Energex Reliability Assessment Defect Criteria – Maintenance Instruction 01	The intent of the Reliability Assessment program is to identify ways to improve the performance of a feeder where the level of reliability indicates major improvement is required. Generally, these feeders have consistently poor performance due to a variety of reasons including configuration, design characteristic, operating environment or other factors adversely impacting performance.
	STNW0011 Standard for Managing Private Overhead Electric Lines	This includes the process of identifying and observing assessing and issuing, reporting and analysing private electric line defects as identified by Asset Inspector while conducting inspections of Ergon Energy Network lines assets.

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	Title	Overview
Work Practice	Copper Chrome Arsenate (CCA Burnt Poles)	<p>Energex Work Practice 1334 and Ergon Energy Network processes outline the requirement for inspection and management of fire damaged or burning copper chrome arsenate (CCA) burnt poles.</p> <p>The Energy Network Australia (ENA) also provides guidance in ENA Doc 026-2010 ENA Guideline for the Management of Burning and Fire-damaged CCA Impregnated Poles and Cross arms.</p>

Table 1: Asset Policies and Procedures

Bushfire Risk Management Plan

Appendix B - Design Standards

Note these documents are subject to change throughout the year as processes are aligned between Energex and Ergon Energy Network.

	Title	Overview
Procedure	Energex Develop Standard Products and Services – Procedure 00904	This procedure sets out the design philosophies and process for the introduction of new products and services for Energex’s network. In particular, it sets the requirements to conduct risk assessments and evaluate the impact of the equipment on the environment.
	Energex Standard Network Building Block Feeders – Procedure 03929	This standard outlines the overhead assets that are approved for connection to the Energex network and sets out the performance requirements of these assets.
	Standard for the Management of New Network Equipment, Systems and Improvement Opportunities	This standard provides the steps required to initiate, scope, plan, design and implement new equipment, systems and improvement opportunities to business as usual in the field
Manuals	Energex Overhead Design Manual	Section 11 of the Overhead design manual contains information regarding Bushfire Zone Considerations to assist when designing new line corridors or making alterations to existing lines.
	Ergon Energy Standard for Distribution Design Overhead Manual (STNW3361)	The Ergon Energy Network environment and known exposure to bushfires and floods, engineering solutions have been incorporated into the design construction standards. These have been sourced from relevant Code of Practice, Australian Standards and Electrical Safety Regulations.
Instructions	Energex Line Constructions and Components for use in High Bushfire Areas – Technical Instruction 071b	This technical instruction outlines the line constructions and components most suitable for high bushfire areas to be considered as part of a range of design parameters. Guidelines are given for the planning of new routes, the most appropriate constructions for used and the retrofitting of existing line construction in the high bushfire risk areas.
	Standard for Managing Line Asset Defects (STNW0340/01821)	<p>This standard applies to all defects identified on line assets through preventive maintenance programs and ad-hoc activities and defines the requirements for:</p> <ul style="list-style-type: none"> managing line asset defects within the timeframes specified in Ergon Energy Network standard STNW0330 and ENERGEX standard 00707; managing the risks posed to the network and public safety when line asset defects are unable to be rectified within the timeframes specified in Ergon Energy Network standard STNW0330 and ENERGEX standard 00707 managing the incorrect classification of defects

Table 2: Design Standards

Bushfire Risk Management Plan

Appendix C – Privately Owned Powerlines Resources

Below are the key references for Privately Owned Powerlines and Poles:

- https://www.energex.com.au/__data/assets/pdf_file/0015/341034/Property-poles-and-privately-owned-powerlines-Form-8001.pdf
- <https://www.ergon.com.au/network/safety/home-safety/property-poles-and-privately-owned-powerlines>
- <https://www.worksafe.qld.gov.au/injury-prevention-safety/electricity/homeowners-and-consumers/private-power-poles>