Bushfire Risk Management Plan

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<th>Version</th>
<th>Date</th>
<th>Description</th>
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<tr>
<td>1.0</td>
<td>May 18</td>
<td>Initial combined Ergon Energy Network / Energex plan</td>
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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 centres and the resulting electricity network 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 is committed to the achievement of 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 Summer Preparedness 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.

PETER PRICE
Executive General Manager
Strategy, Asset Safety & Performance

PAUL JORDON
Executive General Manager
Distribution
1.2 Scope

Energy Queensland aims to fulfil its responsibilities under the Bushfire Risk Management Plan by addressing the following major areas:

- Identification of all areas prone to high bushfire hazard and the location of all electricity assets within those areas
- Adoption of significant bushfire risk mitigation strategies and practices
- Asset maintenance procedures including identification and rectification of asset defects, particularly in high bushfire risk areas
- Vegetation management strategies and procedures
- Equipment and construction standards as related to bushfire mitigation
- Information to be provided to field staff related 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 and communication protocols.

1.3 Bushfire Planning Committee

A bushfire planning committee has been established to ensure adequate preparations and a review of this plan is conducted annually in the lead up to the traditional bushfire risk 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 part and for south west Queensland.

These timeframes can vary significantly from year to year due to fuel availability and condition, long term climate conditions and variations on short-term weather conditions in each area.

Dependant on seasonal predictions and local weather forecasts, QFES may declare a fire danger period or declare local fire ban or state of fire emergency.
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 247,293 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.

3 IDENTIFYING BUSHFIRE RISK AREAS

To assist in the identification of high bushfire risk areas, Energex and Ergon Energy Network utilise the following resources:

3.1 Mapping

3.1.1 Bushfire Hazard Area (Bushfire Prone Area) Mapping

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

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 and subsequent response to events. Energex and Ergon Energy annually place this information into their Geographical Information Systems (Energise and Smallworld) to allow risk maps to be produced identifying network assets in the high bushfire risk areas. These zone changes are considered against the existing network programs including existing bushfire risk mitigation initiatives.

3.1.2 Current Bushfire Incident Mapping

Aside from the impact of wildfires, many areas of Queensland are subject to land management activities including the use of fire to reduce fuel to mitigate the impact of 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 plan and conduct a range of prescribed burning activities across the state.
All wildfires and prescribed burning activities can potentially impact on Energex or Ergon Energy Network assets. Real time information about the spatial 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 can 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. The following are available:

- Sentinel Hotspot Fire Detection provided by Geoscience Australia at https://sentinel.ga.gov.au/#/.
- A map of current bushfire incidents including a separate map showing permit burns can be found at the Rural Fire Service website at https://ruralfire.qld.gov.au/map/Pages/mapfeeds.aspx.
- Real time ‘Hot Spot’ information and fire scar data can be viewed in Google Earth through the North Australia Fire Information website http://www.firenorth.org.au/nafi2/.

### 3.2 Weather Services

The Bureau of Meteorology (BOM) provides specific seasonal outlooks, fire weather predictions and weather warnings at http://www.bom.gov.au/qld/forecasts/fire-forecasts.shtml#. The BOM issue fire weather warnings when weather conditions are conducive to the spread of dangerous bushfires. Warnings are generally issues within 24 hours of the potential onset of hazardous conditions and are also broadcast on radio and television.

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 staff through an external internet site.

### 3.3 Emergency Services advice

The Rural Fire Service provides an automated email system to communicate the declaration of fire bans or fire weather warnings during high bushfire danger conditions. As part of the Ergon Energy Network Bushfire Mitigation strategy, the Rural Fire Service in each Region have been advised of the key Ergon Energy Network operational staff to be placed on the contact list. 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. Local managers have also registered to receive bushfire update emails.
3.4 Local advice

Information from area based staff and contractors regarding areas that have been impacted frequently in the past and/or may have high fuel loads may be considered to determine if changes to maintenance practices are warranted to minimise future asset damage by fire.

4 ASSET MANAGEMENT

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

4.1.1 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 tracking of its life cycle.

This register also allows planned work to be programmed to check conditions, instigate repairs and record completion. This includes fixed assets and vegetation management.

4.1.2 Geographical Information System

Energex and Ergon Energy Network use Geographical Information Systems (GIS) which utilise the Ellipse data and enable the retrieval of relevant information about its 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 also has the ability to include a visual layer that provides the high bushfire risk areas in South East Queensland, Regional Queensland and current QFES known fires.

4.1.3 Field Mobile Computing Inspection Systems

Energex and Ergon Energy Network have field mobile computing systems that are used in the routine inspection of 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.
4.2 Asset Maintenance and Programs

4.2.1 Periodic Asset Inspections

Energex and Ergon Energy Network operate an ongoing asset inspection and maintenance program to comply with The Electrical Safety Act and the Code of Practice - Works. Energex operates a five year System Based Approach to the Maintenance (SBM) cycle while Ergon Energy Network operates either four, six or eight year cycles for different asset types. These inspections include electrical equipment, plant, poles and wires.

In addition to the asset inspection program, Energex and Ergon Energy operate annual, pre-summer patrols of selected feeders to identify high risk defects including equipment/wire damage or faults and close proximity vegetation. These are conducted by helicopter, motor vehicle or foot patrols. Ergon Energy Network conducts annual aerial LiDAR inspections on every feeder from February to October to identify vegetation issues and rectification before summer.

4.2.2 Vegetation Maintenance Management

Energex and Ergon Energy Network actively seeks to minimise the risk of vegetation around the overhead assets, and includes consideration of public safety, network reliability, 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 within the clearance zones of overhead electric lines, maintaining clearance of exposed conductive parts and separation of conductors. Approaches used to manage vegetation include:

- Annual, pre-summer feeder patrols of rural feeders to identify ‘high priority’ (safety and reliability) situations requiring rectification which may include vegetation conflicts and bushfire ignition sources (includes aerial LiDAR inspection and 3D modelling of Ergon Energy Network overhead assets)
- 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 spot activities to address localised instances where vegetation is found to be within clearance requirements. If a member of the public or staff identifies individual vegetation sites which are close or make contact with the mains, Energex and Ergon Energy Network will assess and if necessary rapidly deploy a crew to re-establish safe clearances
- Regular audits of activities for completion and quality of works providing recommendations and actions for rectification
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- Working cooperatively with local Councils and landowners to reduce future conflict between trees and powerlines.

4.3 Asset Improvement Initiatives

Energex and Ergon Energy Network have an annual program of assessing low performing feeders, aimed at driving reliability improvements for the customer in safety and minimising supply impact.

In addition to the feeder specific initiatives, Energex and Ergon Energy Network adopt a policy of continuous network improvement and is pro-active in identifying emerging equipment and hardware risks that impact on safety and reliability. This can assist to reduce the risk and likelihood of fire starts from electrical assets or protect the asset from fire damage from other sources:

- Replacement of ageing conductor - aimed at replacing conductor types identified as end of life through ageing or corrosion (eg 7/.064 Hard Drawn Bare Copper or 3/12 steel)
- Replacement of pole top constructions with sub-optimal conductor clearances – eg narrow trident construction. Replacement generally with extended trident
- Feeder refurbishment projects – aimed at repairing defects identified through asset inspection, remediating clearance defects
- Customer Service line replacement programs
- Targeted installation of insulated conductors (LVABC, CCT and 11kVABC) in bushfire prone areas
- Installation of High and Low Voltage spacers in spans at risk of clashing
- Retrofit all pole transformers with Low Voltage fuses as recommended under Energy Network Association (ENA) guidelines
- Use of 11kV enclosed gas insulated switches in lieu of open air break switches in bushfire prone areas
- Installation of Arc-chutes for manually operated Air Break Switches where appropriate
- Completed program to install remote controlled pole mounted reclosers, sectionalisers and load break switches along urban and rural feeders, to ensure that wire down type faults are detected and cleared appropriately by the protection
- Use of sparkless high voltage fuses on pole transformers in high bushfire risk areas. These fuses do not vent hot plasma during their normal operation, and as a sealed unit they present far less risk of fuse “hang up”
- Installation of the FuseSaver device on selected sections of HV feeders to reduce the number of fuse operations and improve protection clearing times
- Use of steel rebutto poles in fire prone areas
- Research and development and trials of fire resistant coatings (FIRE SHIELD™ protective paint) for wood poles in fire prone areas.

## 4.4 Asset Policies and Procedures

The following documentation (and supporting information) has been developed or reviewed to further mitigate bushfire risks.

<table>
<thead>
<tr>
<th>Title</th>
<th>Overview</th>
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<tr>
<td>Protocols for Network Maintenance - Energex procedure 1056 / Energex Network Maintenance PRNF001</td>
<td>The purpose of these documents include to:</td>
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<tr>
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<td>- 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.</td>
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<td></td>
<td>- Develop protocols and objectives for carrying out maintenance of electrical network assets.</td>
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<td></td>
<td>- Provide sufficient information for developing detailed maintenance standards and plans including Network Optimisation Management Plan for Overhead Feeder Circuit.</td>
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<td>- Assist development of network maintenance programmes and budgets.</td>
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<tr>
<td>Ergon Energy - Bushfire Mitigation Strategy (SGNW0003)</td>
<td>The Bushfire Mitigation Action Plan is the annual implementation plan and includes specific actions to be completed prior to the onset of traditional bushfire risk periods.</td>
</tr>
<tr>
<td>Vegetation Management Standards</td>
<td>The Energy Queensland Vegetation Management Standard sets objectives, purposes and minimum requirements for the clearing and removal of vegetation around powerlines in Queensland.</td>
</tr>
<tr>
<td>Ergon Energy Network Standard for Preventative Maintenance (STNW0717)</td>
<td>The current Network Preventative Maintenance Program requires that all Ergon Energy line assets are inspected to a defined program currently with, four, six or eight year cycles based on a risk assessment of maintenance zones as detailed in this document.</td>
</tr>
<tr>
<td>Standard for Network Assets Defect / Condition Prioritisation (STNW0330)</td>
<td>Defects identified during asset inspections are immediately assessed and prioritised according to this standard.</td>
</tr>
<tr>
<td>Energex Network Assets Defect / Condition</td>
<td>Energex applies a systems based approach for distribution assets. When defects are found, rectification is scheduled appropriate to the priority for the defect and type of equipment. Energex uses the following defect priorities: P1 – 30 days, P2 – 6 months; C3/PM- minor deterioration which requires no specific action prior to the next routine inspection.</td>
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<tr>
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<tr>
<td>Prioritisation Standard – Procedure 00707</td>
<td>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.</td>
</tr>
<tr>
<td>Energex Reliability Assessment Defect Criteria – Maintenance Instruction 01</td>
<td></td>
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<tr>
<td>Manage Private Electric Lines standard (NA000403R199).</td>
<td>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.</td>
</tr>
<tr>
<td>Copper Chrome Arsenate (CCA Burnt Poles)</td>
<td>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. 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.</td>
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### Table 1: Asset Policies and Procedures

## 5 ASSET DESIGN

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

The design and construction of new power lines considers bushfire risk mitigation opportunities. Identification of high bushfire risk areas using Energize or Small World assists better planning and a capacity to avoid areas of high bushfire risk or reduce the risk to assets through improved route and placement.

### 5.1 Design Standards

Standards have been developed to ensure acceptable design, asset quality, configuration and construction quality across the network.
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<tr>
<td><strong>Procedure</strong></td>
<td><strong>Energex Develop Standard Products and Services – Procedure 00904</strong></td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td></td>
<td><strong>Energex Standard Network Building Block Feeders – Procedure 03929</strong></td>
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<tr>
<td></td>
<td>This standard outlines the overhead assets that are approved for connection to the Energex network and sets out the performance requirements of these assets.</td>
</tr>
<tr>
<td></td>
<td><strong>Standard for the Management of New Network Equipment, Systems and Improvement Opportunities</strong></td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Manuals</strong></td>
<td><strong>Energex Overhead Design Manual</strong></td>
</tr>
<tr>
<td></td>
<td>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.</td>
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<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td><strong>Instructions</strong></td>
<td><strong>Energex Line Constructions and Components for use in High Bushfire Areas – Technical Instruction 071b</strong></td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td><strong>Manage Priority 1 (P1) Line Asset Defects Reference Standard (NA000403R218)</strong></td>
</tr>
<tr>
<td></td>
<td>This document outlines the processes to be followed for Priority 1 defects identified on the network.</td>
</tr>
<tr>
<td></td>
<td><strong>Manage Priority 2 Defects Reference Standard - NA000403R219</strong></td>
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<tr>
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<td>This document outlines the processes to be followed for Priority 2 defects identified on the network.</td>
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Table 2: Design Standards
6 SEASON PREPAREDNESS

6.1 Risk management

The Distribution Risk Register is the primary document that provides the framework for reviewing the level of risk exposure including a ‘Significant Bushfire’ event. This risk register is reviewed annually in conjunction with relevant authorities’ advice and notices. 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 ensures we apply a consistent approach to the assessment of network risks. It aligns with AS/NZS ISO 31000:2009 Risk Management - Principles & Guidelines and with Energy Queensland’s Portfolio Risk Management Framework. Energy Queensland continuously reviews inherent and emerging network risks to ensure optimisation of our projects and programs.

Figure 1: Risk Management Overview

Risk is assessed according to the following five risk categories:
- Safety
- Environment
- Legislated Requirements
- Customer Impacts and
- Business Impacts.
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.

### 6.2 Annual review

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


### 6.3 Pre-Storm Season Patrol of Feeders

Energex and Ergon Energy Network conduct pre-storm season feeder patrols as part of the Summer Preparedness planning. Ergon Energy Network also carries out an annual aerial inspection of its entire overhead network to acquire 3D geo-spatial representations of network assets. These are displayed in a geo-spatial visualisation application to assist with vegetation management and asset maintenance.

These patrols provide vegetation intrusions and information to assist in annual review of future maintenance plans. Close proximity trees presenting a high risk and any network faults are identified for rectification within shorter timeframes. These programs are able to:

- Provide assurance that the Energex and Ergon Energy Network high voltage overhead networks are storm and bushfire ready; and
- Identify network defects or issues that present a safety hazard or are likely to cause a network outage.

### 6.4 Internal Communication and Training

Energex and Ergon Energy Network provide annual communications and awareness sessions to field staff including appropriate work practices and vehicle use during the bushfire season in South East and Regional Queensland.

Training materials specific to bushfire safety are delivered at field team briefings. Awareness material is primarily focused 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 Response Plan. Safety equipment checks will be conducted in addition to this awareness.
- An Energy Queensland Bushfire Smoke Fact Sheet has been developed to assist staff in their awareness of the hazards and risks associated with bushfires and bushfire smoke.

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’, Ergon Energy Network and Energex will be informed via mobile phone SMS or through Field Force Automation (FFA) devices.

### 6.5 External Organisation Liaison and Consultation

#### 6.5.1 Emergency Services Organisational Liaison

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

In South East Queensland when a significant bushfire occurs involving significant 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, Energex will nominate a representative to act as a Liaison Officer to report to the SIMT.

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.
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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 current policy developments. Liaison with the Rural Fire Service, land management agency and local government organisations through participation in local fire management committees or other community forums is encouraged. The following committees are represented:

- Northern Coast (Sunshine Coast) Region Inter-Departmental Committee (IDC)
- Brisbane IDC
- South East IDC.

Liaison officers (primary and backup) nominated for the disaster management organisations are located on the Emergency Planning and Response intranet collaboration site.

6.5.2 Other Network Service Providers

Other electrical Distribution Network Service Providers (DNSP) and Transmission providers, 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 continuing communication about bushfire mitigation strategies and plans provides consistency in approach and potential for sharing of information and resources in times of emergency.

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

6.5.3 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 staff can provide further 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 staff working around electrical assets during hazard reduction and firefighting activities, based on the ENA guideline.

6.6 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
Bushfire Risk Management Plan

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 at the following links:


Ergon Energy Network does conduct a partial observation of the point of attachment and first pole of private lines during routine inspections of the network. Only the first private electric line pole away from the Ergon Energy Network line is visually observed and any defects recorded. This inspection is not comprehensive and should not be relied upon.

The Ergon Energy Network procedure for visual inspection of private overhead electric lines is specified in the maintenance reference standard NA000403R199 (Manage Private Electric Lines). The standard describes “the process of identifying and inspecting, assessing and issuing, reporting and analysing private electric lines defects as identified by Asset Inspector while conducting inspections of Ergon Energy Network lines assets”. The maintenance reference standard applies to all private electric lines that may have an immediate fire and/or safety risk.

Following the visual inspection, if in the inspector’s opinion “there is a reasonable likelihood that immediate disconnection is required to ensure safety of people and property” the inspector is to telephone the Ergon Energy Network Fault Line to log the fault, and the owner is advised.

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. Greening Australia Queensland can assist landowners in selecting the right species, which are suitable for their local area, for planting near powerlines.

To assist the owners of Private Overhead Electric Lines in the Ergon Energy Network area to maintain them in a safe condition Ergon Energy Network will:

- Advise customers by letter of any defects observed on their line during routine inspections;
- Provide customers with detailed safety information, and;
- Clearly communicate to customers their obligations in our publications and on the Ergon Energy Network website.
6.7 Community Safety Awareness and Media Engagement

It is critical to assist the community and increase awareness of the consequences of bushfire on the network. In the lead up to the fire season, Energex and Ergon Energy Network conduct a suite of public awareness campaigns outlining the bushfire mitigation measures. This is enhanced through online media, traditional media and other forms of mass media.

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.

7 EMERGENCY MANAGEMENT PROCEDURES

7.1 Emergency Response during a Bushfire

7.1.1 Safety

The safety of personnel and the community is paramount. Energex and Ergon Energy Network staff should not put themselves at risk either during or immediately following a bushfire. Staff are to follow the direction from Emergency Services personnel before moving into an area subject to a current fire or immediately following a fire.

7.1.2 Process

Energex and Ergon Energy Network will initially respond to various classes of incidents, including bushfires that affect its operations, through a standard fault response escalation framework. This includes an initial assessment of damage.

7.1.3 Energex Level 2 Severe Weather Guidelines

The Level 2 Severe Weather Emergency Guidelines details the Energex escalation, structure, framework and processes relevant for a Level 2 Large Scale Bushfire.

7.1.4 Ergon Energy Network Fault Response Escalation Framework

The Fault Response Escalation framework outlines the process for Ergon Energy Network Staff to respond to faults on the network and appropriate escalation for improved command and control.

7.1.5 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 a Level 3 Emergency
event which disrupts 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.

### 7.2 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 would be monitored by Regional and local operational staff 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 staff. 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.

#### 7.2.1 Restrictions

A communications advice will be sent to crews 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 work activities deemed to have high potential to start fires.

#### 7.2.2 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.

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. The
installation of sensitive earth protection in areas of high bushfire hazard is an effective way to minimise 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 staff and if necessary repairs carried out. The recloser can then be re-set and power restored.

7.2.3 Network Recloser settings during Total Fire Ban Days

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, the automatic reclose function can be disabled on lines in areas determined to be of a high bushfire hazard during Total Fire Bans or Extreme to Catastrophic Fire Danger.

Energex and Ergon Energy Network do not suppress automatic reclose functionality on its feeders unless specifically requested by QFES. 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). The benefit of mitigating potential fire starts was considered to be outweighed by this need.

Note: 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. However, during times when the conditions are especially risky, and at the request of the QFES, Energex and Ergon Energy Network will turn the automatic reclose function off.

7.2.4 Process for the disabling of auto reclose function and disconnection of electricity supply

Energex and QFES have developed a process under a Memorandum of Understanding (MOU) for the disabling of auto reclose function on selected parts of the network and the disconnection of electricity supply. The process involves communication between the QFES State Incident Management Team and the Energex Operations Shift Manager. The Energex and QFES MOU can be found on the Energex intranet site. Ergon Energy Network are currently developing an MOU.

7.2.5 Confirming critical installations

There are a number of locations throughout the network where ensuring that electricity supply is maintained 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.

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.

### 7.2.6 Emergency restoration or isolation of equipment

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 a Total Fire Ban has 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 supervisor who completed the patrol to allow the line to be re-energised once any identified faults have been addressed.

### 7.2.7 Fatigue and Heat stress

Consideration of the effect of extreme heat and smoke is essential in maintain the safety of staff. Regular hydration, rotation of tasks and additional rest are critical.

### 7.3 Field Work Practices

#### 7.3.1 Standard 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.

Field practices are governed by standard work procedures including communications, switching or specific repair activities. Work practices for the response and restoration on the network during high bushfire danger period and total fire bans remain consistent with business practice.

Any damage to the network due to the impact of bushfire is to be reported and entered into the corporate safety database (eSafe) for later analysis of cause and effect.
Bushfire Risk Management Plan

7.3.2 Motor Vehicle / Machinery Use

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

Specific advice is given to field staff on the use of patrol vehicles, heavy rigid EWP and operation of earth moving machinery in rock terrain.

Staff are instructed to conduct a formal risk assessment relating to starting fires before operating vehicles off formed roads. Further detail is included in Motor Vehicle Use Standard (MF000402R100).

7.3.3 Small engines or 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 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.

7.3.4 Copper Chrome Arsenate (CCA Burnt Poles)

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.

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.

8 EVENT REPORTING

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

- Pre-summer inspections including bushfire risk areas
- Monitoring and rectification of high priority defects on owned assets identified during pre-storm patrols
Bushfire Risk Management Plan

- 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 assets is included in its corporate systems (DMS, FdrSTAT and eSafe) including reporting of Dangerous Electrical Events. This includes incidents associated with accident, equipment failure, vegetation or third party contact. If an incident impacts on the network or public property and involves fire, the system requires automatic reporting to the Vegetation Policy Manager. 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 fire starts.

A formalised investigation and reporting process and further analysis of the location of rural fires that cause damage to Energex and Ergon Energy Network assets will enable review of bushfire risks and possible implementation of preventive measures, such as modified vegetation management or use of fire resistant materials.

Results from incident investigations and any feedback received from stakeholders will be integrated into future reviews of the Bushfire Mitigation Plan.