

Engineering System Integrity
Engineering Instruction
Electrical Distribution Unit

EI D 23-06

Bushfire Danger Period

This Engineering Instruction includes urgent engineering information. Adherence to the information in this Instruction is **MANDATORY**.

Date in Force: 28 September 2023

Date of Review: 1 September 2024

Approved by:

Sean Budge
A/Associate Director
Electrical Distribution Unit

Authorised by:

Aaron Manvell
A/Engineering Technical
Publications Manager

Audience:

- Train Crews
- Network Maintenance Division (NMD)
- ICON Electrical
- Network Maintenance –Electrical
- Major Works Division
- Maintenance Operations Managers
- Infrastructure Operations
- Technically Assured Organisations.

Main Points:

- Pro-actively identify fire hazards and remove/report them
- Bushfire season has started and runs to 30th March 2024
- Auto reclose to be disabled during high fire risk days
- De-energise feeders, if requested by RFS
- Smoking is prohibited in the rail corridor.

Primary Affected Document: SP D 79036 Sydney Trains Electricity Distribution Network Bushfire Risk Management Plan

Scope

The bushfire season for the Greater Sydney Metropolitan area has commenced early, with the advent of a heat wave and bushfires in September, and the risk is considered extreme this year. All personnel working in the field are requested to proactively look for fire hazards and remove or report them immediately.

OFFICIAL

Disclaimer

This document was prepared for use by Sydney Trains and its intended recipient. The information in this document is protected by copyright and no part of this document may be reproduced, altered, stored or transmitted by any person without the prior consent of Sydney Trains. Errors or omissions in this document should be reported to sydneytrainsstandards@transport.nsw.gov.au. Sydney Trains makes no warranties, express or implied, that compliance with the contents of this document shall be sufficient to ensure safe systems or work or operation.

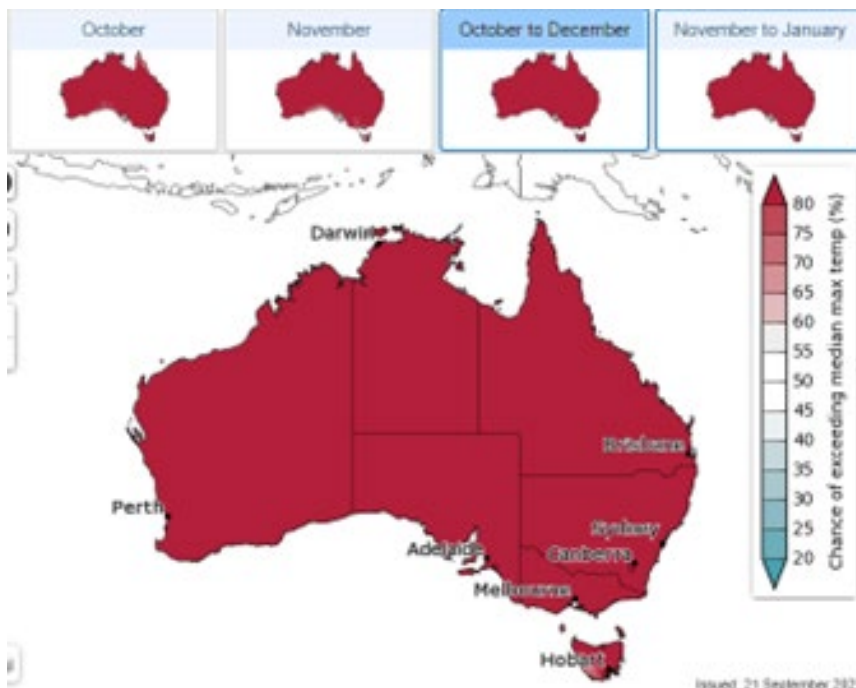
Background

The state fire authorities and Bureau of Meteorology have warned the coming bushfire season is considered extreme:

- Throughout 2023 the mean temperatures have been consistently above average – to the extent 2023 is already the hottest year on record.
- The weather pattern has switched to el-Nino, i.e. the coming season will be hot and dry, and with sustained high temperatures the risk of bushfire is considered extreme.
- 2 wet years have resulted in extensive vegetation growth throughout the region – grass, forests and understory alike.
- Fuel loads on the ground in forested areas remain very high, despite efforts to reduce these.
- Areas burnt in the 2019-2020 fire – notably the upper Blue Mountains – have seen extensive re-growth, to such an extent the risk of fire in these areas is again high.
- Areas of grassland that appear lush and green will dry out and become high-risk with the advent of hot weather. This includes hanging swamps common throughout the upper mountains.
- In addition, locations with poor drainage remain soft or water-logged to the extent that vehicles and heavy machinery may become bogged.

Fire ignition hazards in and around the rail corridor include:

- Vegetation in a state or position that does not look safe – within 8m horizontally of aerial lines, or above aerial lines, such that a branch falling is likely to make contact with the aerial lines; sick, split, broken or damaged trees with the potential to fall into aerial lines.
- Stockpiles of flammable materials such as timber, wooden panels or items to be disposed (e.g. wooden sleepers) in the vicinity of aerial lines.
- Tall grass or thick vegetation at ground level capable of sustaining a fire.
- Rubbish, debris, branches or leaves accumulating on the ground, notably in low-lying areas, valleys or gullies.
- Persons smoking on railway land – including workers, passengers or public. Smoking is prohibited at all times in the rail corridor and it is a reportable offence on total fireban days.



The chance of above median max temperature for October to December
[Climate outlook Bureau of Meteorology](#)

OFFICIAL

Action required

If you work or live in a bushfire prone areas, download the Hazards Near Me app from your Appstore, this is a NSW Rural Fire Service Application and has current information about local emergencies, including flood, bushfire, and advice on what to do to stay safe.

Apple: <https://apps.apple.com/au/app/hazards-near-me-nsw/id370891827>

Android: https://play.google.com/store/apps/details?id=au.gov.nsw.rfs.firesnearme.nsw&hl=en_AU

Network Maintenance Electrical Teams shall undertake functions detailed in Appendix A: Summer Preparation of [NMD-ME-GUI-500 Guide to Electrical Networks Extreme Weather Environmental Hazards.pdf](#)

Report/remove fire hazards

All persons working in the field are requested to look for hazards (per above) and either remove or report them immediately to ICON on 1800 060 015. Please take a photograph should this be needed to confirm the hazard.

High-Risk Conditions

High risk conditions include extremes of temperature and/or high-wind. In the conditions fire will ignite easily and will travel quickly – you cannot outrun a fire.

- Electrical field personnel should not work alone in high-risk locations on total fire-ban days. If working in these conditions make sure your line manager or ICON know where you are.
- If you are in smoke or downwind of a fire advancing in your direction, identify the safest route to escape, and evacuate. Do not attempt to fight the fire.
- On days of high fire danger or total fire ban Sydney Trains ICON will disable the auto reclose function on 33kV and 66kV feeders in bushfire prone areas.
- If a feeder trip occurs the feeder must be patrolled to confirm it is safe before re-energising.
- High voltage feeders may be de-energised when requested by the Rural Fire Service (RFS). This may affect rail services in some locations.

Report fires, and hazards

- Notify the regional territory engineer of fire hazards needing inspection or removal.
- If you see aerial lines on the ground or in contact with trees or structures stay well clear and keep others away until Authorised Electrical Staff are on site – at least 8m – and call ICON immediately.
- If you see unexpected smoke or fire in your vicinity, please report it to ICON immediately on on 93794911 or 1800 060 015.
- If you see fire ignition and no fire services personnel in attendance, report it to 000 immediately.

Contact

Sean Budge – A/Associate Director Electrical Distribution Unit

Mobile: 0412 521 544

OFFICIAL

Engineering System Integrity

Engineering Specification
Electrical Distribution Unit

SP D 79036

**Sydney Trains Electricity
Distribution Network Bushfire Risk
Management Plan**

Version 1.1

Date in Force: 1 February 2022

Approved by: Associate Director
 Electrical Distribution Unit
 Engineering System Integrity

Authorised by: Engineering Technical
 Publications Manager
 System Integrity

Disclaimer

This document was prepared for use by persons in connection with works on or near the rail network electricity system operated by Sydney Trains. Sydney Trains makes no warranties, express or implied, that compliance with the contents of this document shall be sufficient to ensure safe systems or work or operation. It is the document user's sole responsibility to ensure that the copy of the document it is viewing is the current version of the document as in use by Sydney Trains. To the extent permitted by law, Sydney Trains excludes any and all liability for any loss or damage, however caused (including through negligence), which may be directly or indirectly suffered in connection with the use of this document.

Copyright

The information in this document is protected by copyright and no part of this document may be reproduced, altered, stored or transmitted by any person without the prior consent of Sydney Trains.

Document control

| Version | Date | Author/ Prin. Eng. | Summary of change |
|---------|-----------------|--------------------|--|
| 1.0 | 5 June 2019 | | Previously assigned to Electrical discipline; moved to EDU discipline. |
| 1.1 | 1 February 2022 | ENSR Project Team | Reviewed as part of the ENSR Project. |

Summary of changes from previous version

| Summary of change | Section |
|-----------------------------|---------|
| Minor grammatical updates | All |
| Updated reference documents | All |

Document history (previously SP E 70956)

| Version | Date | Author/ Prin. Eng. | Summary of change |
|---------|----------------|--------------------|--|
| 1.0 | 27 April 2015 | A Kennedy | Creation of first issue as Sydney Trains document in accordance with organisational change, and implementation of the requirements of AS5577-2013. |
| 2.0 | 11 August 2017 | Nick Loveday | This plan supersedes SP E 70956 Sydney Trains Network Management Plan Chapter 4 - Bush Fire Risk Management Version 1.0 and is integrated with SP E 70953. |
| 2.1 | 1 March 2019 | Nick Loveday | Updated to reflect organisational changes Replaced ICON, RMS with ROC Inserted new sections 8, 12. Updated references to SP E 70953 v2.2, Sydney Trains Bushfire Safety Risk Assessment Report 30 June 2017, and risk assessment by CSIRO/Data61. |

Table of Contents

| | | |
|-----------|---|-----------|
| 1 | Introduction | 5 |
| 1.1 | Objective | 5 |
| 1.2 | Intended Audience | 6 |
| 1.3 | Terms and Definitions | 6 |
| 1.4 | Bushfire Risks | 7 |
| 2 | Electricity Network Safety Management System | 9 |
| 3 | Managing Bushfire Risk | 10 |
| 3.1 | Assess the Risk Posed at Asset Locations | 10 |
| 3.2 | Maintenance – Annual Survey of Network Assets | 10 |
| 3.3 | Assess Defects | 10 |
| 3.4 | Prioritise Maintenance Tasks | 10 |
| 3.5 | Extreme Weather | 11 |
| 3.6 | Conduct Follow-up Survey | 11 |
| 3.7 | Verification by Foot Patrols | 11 |
| 3.8 | Final Defect Rectification | 11 |
| 3.9 | Performance Targets | 11 |
| 4 | Bush Fire Prone Areas | 12 |
| 5 | Design of Network Assets in Bush Fire Prone Areas | 12 |
| 6 | Formal Safety Assessments | 13 |
| 7 | Maintenance Standards | 14 |
| 8 | Hazardous Trees | 14 |
| 9 | Vegetation Clearance | 15 |
| 10 | Vegetation and Easements | 16 |
| 11 | Special Procedures – Very High Fire Danger | 16 |
| 12 | Tree Trimming | 17 |
| 13 | Bushfire Training | 17 |
| 14 | Information for Customers with Private Overhead Lines | 17 |
| 15 | Maintenance of Private Overhead Lines | 17 |
| 16 | Complaints in Relation to Bush Fire Risk Management | 17 |
| 17 | Advice to Workers, Passengers and Public | 18 |
| 18 | Liaison with Electricity Suppliers, Emergency Services and RFS | 18 |
| 19 | Hardship | 19 |
| 20 | Bushfire Risk Management Reporting | 19 |
| 21 | Referenced Documents | 19 |
| 21.1 | Versions | 19 |
| 21.2 | Standards, Industry Codes and Guides | 19 |
| 21.3 | Sydney Trains | 19 |
| 21.4 | TfNSW | 20 |

21.5 Other20

Appendix A Feeders in Bushfire Prone Areas21

1 Introduction

This document was prepared for use by persons in connection with works on or near the rail network electricity distribution network operated by Sydney Trains. Sydney Trains makes no warranties, express or implied, that compliance with the contents of this document shall be sufficient to ensure safe systems or work or operation. It is the document user's sole responsibility to ensure that the copy of the document they are viewing is the current version of the document as in use by Sydney Trains. To the extent permitted by law, Sydney Trains excludes any and all liability for any loss or damage, however caused (including through negligence), which may be directly or indirectly suffered in connection with the use of this document.

1.1 Objective

Sydney Trains operates and maintains an electricity distribution network to provide an adequate, safe, and reliable supply of electricity to fulfil the operational needs of both Sydney Trains and NSW Trains. The railway infrastructure (including the electricity distribution network) is regulated by state and federal legislation, as well as a range of standards and codes of practice for which compliance is strongly recommended.

This bushfire risk management plan presents Sydney Trains approach to managing the risks of bushfire, in the context of the electricity distribution network with respect to the design, construction, commissioning, operation and decommissioning of the electricity distribution network (or any part of its network).

This plan:

- a. Presents Sydney Trains' approach to ensuring:
 - the safety of members of the public
 - the safety of persons working on networks
 - the protection of property (whether or not belonging to a network operator)
 - the management of safety risks arising from the protection of the environment (for example, preventing bush fires that may be ignited by electrical network assets)
 - the management of safety risks arising from loss of electricity supply.
- b. Presents Sydney Trains' Electrical Network Safety Management System (ENSMS) as the means to accomplish the above.
- c. Provides guidance to the electricity supply industry regulator, electricity distribution network employees within Sydney Trains, TfNSW and Technically Assured Organisations (TAOs) engaged by agencies within the NSW Transport "cluster" of the manner in which the safety of the rail electricity distribution network is achieved.

References are included throughout to relevant documentation including publicly available documents as well as resources within Sydney Trains intranet. Links may change without notice after publication of this plan.

Compliance and implementation of this plan (as required by clause 8 of the regulation) is verified by formal audit as described in *SP D 79035 Sydney Trains Electricity Distribution Network Management Plan*.

1.2 Intended Audience

The relevant stakeholders for whom this plan applies include, but are not limited to all organisations working on or near high-voltage electricity network assets. These include TfNSW, Sydney Trains, TAO and contractors engaged by a TAO.

1.3 Terms and Definitions

For the purposes of this plan the definitions given in the Act, Electricity Supply (Safety and Network Management) Regulation 2014, Rail Safety National Law (NSW) 2012, and **Electrical Safety Definitions** page available on the **RailSafe** site apply. In addition, the following definitions used:

| | |
|-----------------|--|
| AMB | Asset Management Branch, a division of TfNSW |
| ENA NENS | Electricity Networks Association National Electricity Network Safety (code) |
| ENSMS | Electrical Network Safety Management System, comprises components of the Sydney Trains Safety Management System that are relevant and necessary to meet electrical regulatory requirements. |
| HV | High Voltage |
| ISSC | Industry Safety Steering Committee |
| NSW | New South Wales |
| OHW | Overhead Wire |
| REF | Review of Environmental Factors |
| RFS | Rural Fire Service of NSW |
| ROC | Sydney Trains Rail Operations Centre, responsible for monitoring the status of rail operations and responsible for monitoring the status of the electrical distribution network and carrying out de-energisation/re-energisation of the electrical distribution network. |
| SFAIRP | So Far As Is Reasonably Practicable |
| TAO | Technically Assured Organisation |
| TfNSW | Transport for NSW |

1.4 Bushfire Risks

Fire (including bushfire) is considered a risk with the potential to affect or be caused by all aspects of the Sydney Trains enterprise. The electricity distribution network contributes a small portion of the total fire risk, as shown in Figure 1.

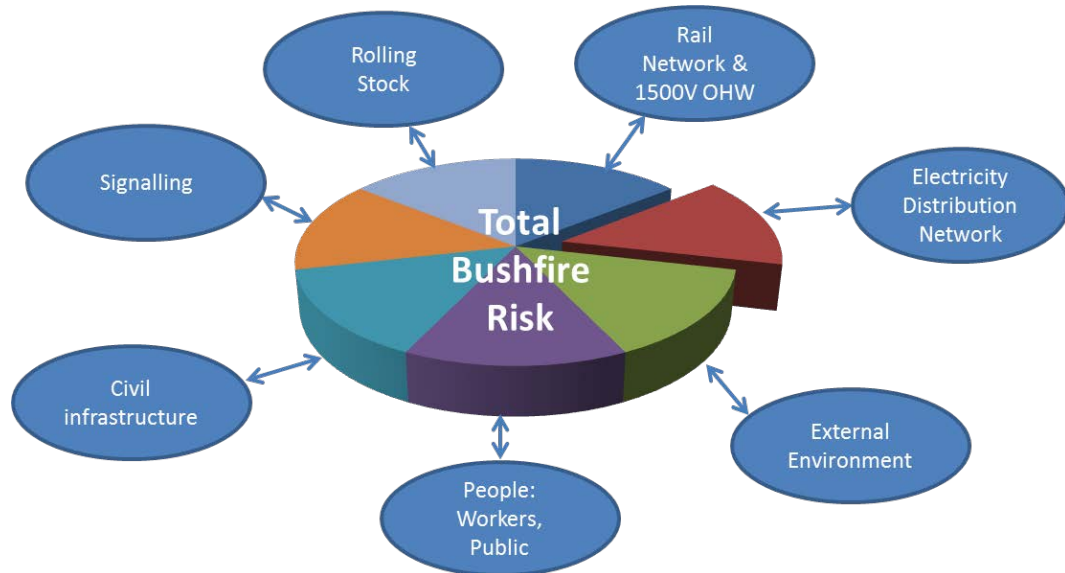


Figure 1: Contributors to/affected by bushfire

Sydney Trains has a holistic approach¹ encompassing all sources of fire and assets at risk from fire. This includes the electrical distribution network, the rail and 1500V OHW, rolling stock, signalling, civil infrastructure and facilities, as well as workers, passengers and public, and integrates competency, design, operational and maintenance considerations. The plan presents the approach to:

- a. Manage bush fire risks arising from the operation and maintenance of the railway and the actions of persons.
- b. Manage the risks to the railway and persons from bush fires within or external to the railway.
- c. Liaise with external agencies (NSW RFS, fire brigade, emergency services) in the event of fire.
- d. Providing advice to staff and passengers of bushfire activity².

¹ Refer MN C 10501 Bushfire Hazard Management

² Refer http://intranet.sydneytrains.nsw.gov.au/__data/assets/pdf_file/0003/113394/Standard-Operating-Instruction-Providing-advice-to-staff-of-bushfire-activity-v1.3-2018.pdf

This includes:

- a. Ensuring the safety of persons, including workers and the public.
- b. Risk controls to be applied in hot weather.
- c. Establishing requirements that must be observed with respect to clearing vegetation near electricity network assets.
- d. Minimising interruptions to electricity supply related to bush fire and vegetation.
- e. Minimising the possibility of fire ignition by electricity lines.
- f. Liaison with landowners, RFS and other external stakeholders.

Sydney Trains applies the following codes of practice:

- a. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*
- b. *ISSC 33 Guideline for Network Configuration during High Bushfire Risk days.*

Additional references to Australian Standards and other Sydney Trains documents are listed within the various sections of this document.

2 Electricity Network Safety Management System

The *Electricity Supply (Safety and Network Management) Regulation 2014* (referred to as "the regulation")³, Regulation 7 requires Sydney Trains establish and implement an Electricity Network Safety Management System which complies with AS 5577. Sydney Trains Electricity Network Safety Management System is presented in the SP E 79035, and the following aspects must be observed in respect of bushfire risk management:

- a. Corporate policy, control of the ENSMS, review and modifications.
- b. Regulatory requirements, including the various Acts and regulations, standards and codes of practice.
- c. Safety management, ensuring the controls identified in Formal Safety Assessments are implemented and effective, assurance, risk identification, risk register, specific hazards, risk causes, consequences and controls; risk treatments (SFAIRP), communication and consultation and periodic review.
- d. Incident management, including safety incident action management, electrical safety incident investigations and reporting.
- e. Audits and reporting, including regulatory reports, internal reports, internal and external audits, corrective action.
- f. Organisation and accountabilities, including the transport cluster, Sydney Trains role as a TAO, and external TAO's training, communications, resourcing and competency.
- g. Safety performance measurement and reporting.
- h. Asset management, including system integrity, capacity, performance, configuration management, maintenance and renewals, safety, security and environmental programs; customer connections; and public safety awareness.

³ http://www5.austlii.edu.au/au/legis/nsw/consol_reg/esanmr2014601/

3 Managing Bushfire Risk

The strategy to manage bushfire risk is comprised of the following elements.

3.1 Assess the Risk Posed at Asset Locations

The network assets are assigned a bushfire risk priority (1=worst, 5=least) based on their location (i.e. the individual poles). This is based on the location, terrain, vegetation in the vicinity and proximity to urbanisation (i.e. people and property downwind). This risk assessment is reviewed and updated every 5 years to reflect changes in the network, asset condition, changes in land use (e.g. rezoning) and developments near the network that may affect its risk assessment. A priority is assigned to each HV asset in Sydney Trains enterprise asset management system.

Where a change occurs an environmental study is initiated to assess the impact of the change i.e. assess the risks arising at those locations and update the asset data accordingly.

See for example:

| |
|--|
| Electricity Network Fire Risk — An Analysis for Sydney Trains, CSIRO/Data61, 4 December 2018 |
| DSYD2017/148710 Sydney Trains Bushfire Safety Risk Assessment Report 30 June 2017 |
| Northern Sydney Electricity feeder REFS – Bushfire Risk Assessment", Ecological Australia, 24th January 2013 |
| Bushfire Risk Assessment - City West Feeder Lines", Aurecon, 5 January 2016 |
| Bushfire Risk Assessment – West and Illawarra Region Electrical Feeders, Ecological Australia, July 2015. |

3.2 Maintenance – Annual Survey of Network Assets

A survey of the assets is conducted to find defects (vegetation as well as asset defects). This includes a helicopter + LIDAR patrol of the whole network over summer (January).

Defects may also be reported from foot patrols and inspections.

3.3 Assess Defects

Defects will be associated with the nearest pole (not the feeder).

All defects (both vegetation and asset defects) must be assessed in respect of whether they pose a fire risk using a documented rule.

3.4 Prioritise Maintenance Tasks

The combination of bushfire risk priority and the defect assessment are then used to prioritise work orders for maintenance to clear the defect within a defined timeframe (the due date).

There are other factors constraining the scheduling of work such as:

- The need for an electrical isolation.
- The available dates for isolations and possessions, particularly those that affect rail operations.
- Constraints from other electricity distributors, notably the Blue Mountains (where the railway feeder is the backup for Endeavour Energy at Lawson and Blackheath).
- Constraints from other organisations (e.g. TfNSW permission to block a road);
- Constraints from landowners concerning access.
- Community-related where rail services cannot be restricted or halted (e.g. Easter, Yulefest, major sporting events).

Ideally the work is done by the planned date. If it can't be, the REVCOM process may be invoked in which an engineer assesses the risk of the asset remaining in its current state and a new due date set.

3.5 Extreme Weather

Maintenance tasks may be postponed due to extreme weather posing safety risks. The ROC routinely monitors weather conditions and may initiate responses accordingly as described in *NMD-ICON-GD-425 Extreme Weather Preparedness Procedure*. In this event the REVCOM process may be applied to re-plan the work.

3.6 Conduct Follow-up Survey

A helicopter survey is carried out for priority 1 or 2 locations by helicopter + LIDAR in August. Outstanding defects identified in the survey are rectified in September.

3.7 Verification by Foot Patrols

Foot patrols of the feeders are carried out in September-October to confirm defects have been cleared.

3.8 Final Defect Rectification

Defects identified from foot patrols are rectified during October-December.

3.9 Performance Targets

Target: Zero defects outstanding in priority 1 or 2 locations by 1 September.

Target: Zero defects outstanding by 15 December.

Note: Regulatory reporting is based on the year ending 30 June, consequently it is expected that there will be defects reported outstanding. Secondly, data from the Follow-up survey in August is expected to identify additional defects which will be cleared subsequently.

4 Bush Fire Prone Areas

The feeders with poles in high risk areas are listed at Appendix A. The risk assessed for each pole is identified in Sydney Trains enterprise asset management system.

5 Design of Network Assets in Bush Fire Prone Areas

The design of HV assets is required to consider bushfire risk in accordance with TfNSW Standard *T HR EL 10001 ST HV Aerial Line Standards for Design and Construction* Section 8.6. This standard requires no new feeders to be constructed in bushfire prone areas.

TfNSW and Sydney Trains engineering procedures require safety assurance, including formal safety assessments demonstrating risk is reduced SFAIRP for new or significantly modified assets.

6 Formal Safety Assessments

Formal Safety Assessments are required for all **new or significantly modified** electricity network assets as described in SP D 79035. With respect to assets located in bushfire-prone locations these assessments shall be based on the following strategy.

The risk-based strategy must consider:

- a. Bushfire started by electricity network assets.
- b. Bushfire started by human activities and other electrical causes.
- c. Bushfire risk to personnel and public, including passengers.

The strategy is:

- a. Determine the bushfire risk priority for the asset, by location (i.e. at poles), this includes the risk of fire caused by the network as well as the risk to the network from an external fire.
- b. The consequences are assumed to be potentially equal (the worst-case being C6).
- c. The likelihood is determined from bushfire risk surveys⁴ conducted from time to time; this identifies the risk present at specific locations and takes into account effects such as the local topography, fire behaviour and local wind patterns.
- d. Defects are identified by periodic inspections of the assets in the bushfire-prone areas.
- e. Defects are prioritised for corrective action according to their severity and bushfire risk.

The assessment must include a SFAIRP determination (bowtie diagram) which clearly identifies:

- a. The potential causes identified.
- b. The potential impacts identified.
- c. The preventive controls that are implemented, linked to the causes controlled.
- d. The mitigating controls that are implemented, linked to the impacts mitigated.
- e. The controls rejected, and the rationale for that rejection.
- f. Possible controls recommended for implementation, further analysis or consideration.

The above must identify the sources used to identify the causes and controls, and the evidence of the implementation of the controls (e.g. referenced documents or procedures).

The assessment must include acceptance of the respective control owners.

Examples are available from Sydney Trains Electricity Distribution Unit and the bowtie template is available from the Safety Environment and Risk division.

⁴ See for example:

- Eco Logical Bushfire Risk Assessment (West & Illawarra Electrical Feeders)
- Eco Logical Bushfire Risk Assessment (Northern Sydney Electrical Feeders)
- Ausgrid/Endeavour/Essential Energy Vegetation Management Plan.

7 Maintenance Standards

The electricity distribution network is maintained in accordance with Sydney Trains' Engineering Standards and Technical Maintenance Plans. The documents are also published on the Sydney Trains Engineering Information intranet page.

For each asset category the minimum serviceable conditions and key defects are defined in technical standards and Technical Maintenance Plans. Patrols are also carried out immediately after feeder trip, bush fire, or flood. Pole top examinations (with power off) and pole base inspections are carried out at regular intervals in accordance with the Technical Maintenance Plan.

Vegetation clearances to aerial lines are maintained in accordance with the following Standards:

- a. T HR EL 10006 ST HV Aerial Line Maintenance Standard.
- b. EP 10 00 00 00 MP – Technical Maintenance Plan – Aerial Transmission Lines.

The vegetation clearances stipulated in TfNSW Standards comply with those of *ISSC 3 Guideline For Managing Vegetation Near Power Lines*, and include allowance for fire hazard areas.

Vegetation clearance to HV aerial lines are monitored through regular and post feeder trip patrols in accordance with the Technical Maintenance Plan.

Maintenance of vegetation clearances to power lines is done in consultation with local councils and landowners.

8 Hazardous Trees

Large trees near overhead lines may pose risks to overhead lines, e.g. branches or the tree may fall onto overhead lines, and/or the railway. In addition to the risk to overhead power lines there is also comparable risk to trains and in this respect Sydney Trains applies the same procedures to identify and manage hazardous trees in the vicinity of the HV distribution network as well as the rail corridor. For further details refer *EMS-06-ES-0176 Hazard Tree Program – Risk Assessment Environmental*.

9 Vegetation Clearance

Sydney Trains recognises the risks associated with the presence of bare aerial conductors in bush fire prone areas. There are other risks:

- Hazardous trees may fall onto the railway, possibly striking trains.
- Vegetation management activities may destabilise embankments and cuttings, resulting in rockfalls or landslips onto the tracks and potentially being struck by a train, or weakening the formation supporting the track.

These safety risks are considered the greater risk and consequently vegetation is managed under the civil engineering discipline.

These risks are controlled by maintaining adequate vegetation clearances in accordance with the following:

- ISSC 3 Guideline for Managing Vegetation Near Power Lines*
- ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Electricity Infrastructure*
- ENA DOC 023-2009 ENA Guidelines for Safe Vegetation Management*
- Code of Practice Electricity Transmission and Distribution asset management*
- T HR EL 10001 ST HV Aerial Line Standard for Design and Construction (Section 5.2 Vegetation Clearance)*
- T HR EL 00007 ST Management of Activities Within RailCorp Easements and Close to the RailCorp HV Distribution System*
- T HR EL 08011 ST Overhead Wiring Maintenance Standards*
- T HR CI 12105 ST Vegetation Hazard Management in the Corridor*
- EMS-06-GD-0067 Guide to Vegetation Management in the Rail Corridor*
- 50707-JB1162 Vegetation Manual*
- EMS-06-TP-0152 Vegetation Management Scope of Work Template*
- EMS-06-WI-0071 Bush Fire Hazard Reduction*
- NMD-SER-GUI-182 Environmental Planning – Electrical Routine Maintenance*
- EMS-06-WI-0178, Fauna Impact Mitigation when Clearing Vegetation.*

In determining the vegetation clearances to be applied Sydney Trains takes a worst-case view and does not vary the clearances according to the location, terrain, bushfire behaviour or the season in which vegetation clearance is carried out.

The whole network is patrolled twice each year to identify defects requiring maintenance, including vegetation clearance, defective poles, aerial lines and equipment.

EP 10 01 00 E, Transmission Line Equipment Manual, table 4-10A provides explicit guidance as to the minimum clearance required from conductors.

Problem network constructions are also identified during patrols and recorded for later analysis and monitoring. These are referred to the relevant network base for corrective action.

All current design, construction and maintenance standards for network assets are published on the Sydney Trains Engineering intranet or the Transport for NSW Asset Standards Authority website. Network bases are notified of any changes in the status of any of the standards.

10 Vegetation and Easements

The management of vegetation and hazards within Sydney Trains easements are managed in accordance with:

- a. *MN C 10501 Bush Fire Hazard Management*
- b. *T HR EL 00007 ST Management of Activities Within RailCorp Easements and Close to the RailCorp HV Distribution System.*

These documents are published on the Sydney Trains and TfNSW AMB intranet/internet pages respectively.

11 Special Procedures – Very High Fire Danger

MN C 10501 details the activities that are prohibited during a total fire ban, and the control measures required for any exemption.

During days of high fire danger or total fire ban the automatic reclose function is disabled on 33kV and 66kV feeders.

As standard practice, when a high voltage feeder trips out on fault, the feeder must be patrolled whether or not it has reclosed successfully and irrespective of the time of day.

Special procedures (Trouble Instruction No. 2011) are also in place at ICON controlling the operation of the electricity distribution network to reduce the risk of starting a bush fire during periods of high fire danger. During a total fire ban, the auto reclosing feature on circuit breakers controlling high voltage feeders in identified high bush fire risk areas are inhibited. Where pilot wire protection is provided for such feeders, the feeder is to be left de-energised after a trip until the feeder has been patrolled and conditions are satisfactory for the feeder to be returned to service.

The automatic reclose function is not disabled on 11kV feeders:

- a. The fault levels on the 11kV feeders are lower than the fault levels on the 33kV and 66kV feeders, to the extent it is considered unlikely (though not impossible) that the 11kV feeders could start a bushfire.
- b. The 11kV feeders provide power to the signalling. In the event these trip the signalling is disabled trains in that section may be stranded.
- c. The need to evacuate a train possibly carrying 2000 passengers from the path of a fire is considered a higher priority than the likely consequences of the fire.

12 Tree Trimming

Tree-trimming is part of the vegetation control activities conducted near high-voltage aerial lines as part of planned maintenance of the electrical assets. This task is one of the safety controls applied by Sydney Trains to mitigate the risk of bushfires caused by vegetation coming into contact with the electrical infrastructure.

A safety accreditation has been introduced for an Accredited Tree Trimmer, for workers employed or contracted by Sydney Trains to control vegetation near high-voltage aerial lines. This allows tree trimmers to work to the safe approach distance for an accredited person, rather than the safe approach distance an ordinary person.

The approach is aligned with the practices recognised by AusGrid and Endeavour Energy, in which tree trimming is permitted near live exposed electrical equipment at a reduced SAD by accredited persons with recognised national competencies. While reducing the SAD increases the risk of contact with electricity, there are specific controls which must be implemented to offset the increased risk of contact with energised equipment.

13 Bushfire Training

Bush fire training is provided for field maintenance personnel with regular refreshers. These activities are recorded in a training register. Skills needs are identified as described in *NMD-NOM-PR-227 Network Bases Operations Maintenance Skills & Versatility Procedure*.

14 Information for Customers with Private Overhead Lines

There are no private overhead lines attached to the electricity distribution network utilised by Sydney Trains.

15 Maintenance of Private Overhead Lines

There are no private overhead lines attached to the electricity distribution network maintained and operated by Sydney Trains.

16 Complaints in Relation to Bush Fire Risk Management

External parties can provide feedback or make complaints via the Transport Infoline (131500), by email or online via the Transport website at <https://www.transport.nsw.gov.au/about-us/contact-us>.

All complaints in relation to the electricity distribution network are recorded for subsequent analysis and action. Procedures (Trouble Instruction No. 1001) are in place to ensure that a high priority is given to any requests, reports or complaints regarding the risks of bush fires being caused by equipment faults, the activities of rail staff or for the removal of supply for firefighting and/or safety.

17 Advice to Workers, Passengers and Public

In the event advice of an emergency or bushfire is received from the RFS or other emergency services Sydney Trains will advise Sydney Trains staff in accordance with Standard Operating Instruction OI-1343⁵. The possible responses may include the closure of rail lines in accordance with Standard Operating Instruction OI-887⁶. Advice to passengers may include:

- a. Advice from guards to passengers on-board trains.
- b. Signage at stations.
- c. Public alerts on the Sydney Trains' website concerning the operational status of lines.

The Sydney Trains policy on bushfire risk management is set out in MN C 10501. This document is published on the Sydney Trains Engineering Information intranet page. Under this manual, action plans to manage fire hazards are developed and implemented in consultation with District Bush Fire Management Committees. Liaison with landowners, Bushfire Brigades, Councils, Emergency Services, NPWS and other relevant organisations are part of the procedures of such action plans.

The Incident and Emergency Response Unit co-ordinates joint exercises involving Bushfire Brigades, Councils, Emergency Services, and other relevant organisations to assist in the co-ordination of the various parties in the event of major incidents.

18 Liaison with Electricity Suppliers, Emergency Services and RFS

Sydney Trains has a standard operating instruction for liaison with external agencies including the RFS, emergency services and high voltage electricity suppliers, particularly when the fire danger is high. This liaison is handled by the ROC. Examples include:

- a. Requests to evacuate and isolate sections of the rail corridor and/or electricity network – including 11kV and 1500VDC and substations – while back burning close to the rail corridor.
- b. Requests to evacuate and isolate sections of the rail corridor and/or electricity network – including 11kV and 1500VDC - due to approaching fire.
- c. Liaison with RFS and emergency services as to the location and status of fires in proximity to the rail corridor and electricity feeders.
- d. Advice that the external supply to a high voltage feeder may be isolated, for any reason.
- e. Requests from Sydney Trains to a supplier to de-energise the external supply a feeder.

The ROC is responsible for managing the operational impact (train services, train crews, station staff and passengers) while ICON Electrical is responsible for advising electrical personnel in the area.

⁵ http://intranet.sydneytrains.nsw.gov.au/__data/assets/pdf_file/0003/113394/Standard-Operating-Instruction-Providing-advice-to-staff-of-bushfire-activity-v1.3-2018.pdf

⁶ http://intranet.sydneytrains.nsw.gov.au/__data/assets/pdf_file/0004/113395/SOI-Closure-of-rail-lines-during-emergency-situations-Version-1.5-21-10-2019.pdf

19 Hardship

Sydney Trains hardship policy is published and publicly accessible⁷.

20 Bushfire Risk Management Reporting

Sydney Trains' produces an annual report to the regulator (IPART) including data on bush fire risk management, and the following performance indicators:

- a. Percentage of network assets inspected in bush fire prone areas.
- b. Outstanding network risk defects in bush fire prone areas.
- c. Number of fires (where it appears ignition may have caused by electricity network assets).

21 Referenced Documents

21.1 Versions

The following sections lists the documents referenced in this plan at the date of issue. All users of this plan are reminded to obtain current copies of referenced documents from the publisher of the document (e.g. Sydney Trains intranet, TfNSW or SAI Global); it is not acceptable to rely on uncontrolled local or printed copies.

21.2 Standards, Industry Codes and Guides

AS/NZS 5577 2013 Electricity network safety management systems

Code of Practice Electricity transmission and distribution asset management

ENA DOC 023-2009 ENA Guidelines for Safe Vegetation Management

ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Electricity Infrastructure

ISSC 3 Guideline for Managing Vegetation Near Power Lines

ISSC 33 Guideline for Network Configuration during High Bushfire Risk Days

21.3 Sydney Trains

50707-JB1162 Vegetation Manual

DSYD2017/148710 Sydney Trains Bushfire Safety Risk Assessment Report 20 June 2017

EMS-06-ES-0176 Hazard Tree Program – Risk Assessment Environmental

EMS-06-GD-0067 Vegetation Management in the Corridor

EMS-06-TP-0152 Vegetation Management Scope of Work

⁷ <https://www.transport.nsw.gov.au/system/files/media/documents/2019/Sydney%20Trains%20Hardship%20Policy-Sept%202019.pdf>

EMS-06-WI-0071 Bush Fire Hazard Reduction

EMS-06-WI-0178 Fauna Impact Mitigation when Clearing Vegetation

MN C 10501 Bush Fire Hazard Management

NMD-ICON-GD-425 Extreme Weather Preparedness Procedure

NMD-NOM-PR-227 Network Bases Operations Maintenance Skills & Versatility Procedure

NMD-SER-GUI-182 Environmental Planning – Electrical Routine Maintenance

SP E 79035 Sydney Trains Electricity Distribution Network Management Plan

21.4 TfNSW

EL 10 00 00 00 MP Technical Maintenance Plan – Aerial Transmission Lines

EP 10 01 00 E Transmission Line Equipment Manual

T HR CI 12105 ST Vegetation Hazard Management in the Rail Corridor

T HR EL 00007 ST Management of Activities Within RailCorp Easements and Close to the RailCorp HV Distribution System

T HR EL 08011 ST Overhead Wiring Maintenance Standards

T HR EL 10001 ST HV Aerial Line Standard for Design and Construction

T HR EL 10006 ST HV Aerial Line Maintenance Standard

21.5 Other

Electricity Network Fire Risk – An Analysis for Sydney Trains, CSIRO/Data61, 4 December 2018

IPART Electricity Network Reporting Manual, ISBN 978-1-925340-54-9

Northern Sydney Electricity feeder REFS – Bushfire Risk Assessment, Ecological Australia, 24th January 2013

Bushfire Risk Assessment – City West Feeder Lines, Aurecon, 5 January 2016

Bushfire Risk Assessment – West and Illawarra Region Electrical Feeders, Ecological Australia, July 2015.

Appendix A Feeders in Bushfire Prone Areas

The following table indicates whether each feeder poses a bushfire risk, i.e. 2 or more poles assessed as category 1, 2 or 3 ("yes") vs those that do not ("no"). The risk assessed for each pole is identified in the Enterprise Asset Management system.

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|------------|----------------------------|----------------------------|----------------|
| 286 | 132 | City South | HEATHCOTE | ENGADINE ZONE (AUSGRID) | YES |
| 512 | 11 | City South | SYD SIGNAL BOX 2 SS | ERSKINEVILLE SS | NO |
| 513 | 11 | City South | ERSKINEVILLE SS | NORTH EVELEIGH SS | NO |
| 514 | 11 | City West | NORTH EVELEIGH SS | LEWISHAM SS | NO |
| 515 | 11 | City South | EVELEIGH LOCO SS | NORTH EVELEIGH SS | NO |
| 516 | 11 | City South | REDFERN 2 SS | SYD SIGNAL BOX 2 SS | NO |
| 524 | 11 | City North | CHATSWOOD STN 1 TX RM | CHATSWOOD STN 2 TX RM | NO |
| 526 | 11 | City North | CHATSWOOD STN 2 TX RM | CHATSWOOD NORTH SS | NO |
| 527 | 11 | City North | ST LEONARDS SS | CHATSWOOD STN 1 TX RM | NO |
| 528 | 11 | City North | CHATSWOOD STN 1 TX RM | CHATSWOOD NORTH SS | NO |
| 531 | 11 | City North | HORNSBY SS | PENNANT HILLS DISTRIBUTION | NO |
| 532 | 11 | City North | STRATHFIELD SS | DEVLINS CREEK SH | NO |
| 534 | 11 | City West | STRATHFIELD SS | STRATHFIELD SIG BOX 1 SS | NO |
| 535 | 11 | City West | STRATHFIELD SIG BOX 1 SS | STRATHFIELD SIG BOX 2 SS | NO |
| 537 | 11 | Western | GRANVILLE SS | PARRAMATTA STATION SS | NO |
| 538 | 11 | City South | SYD SIGNAL BOX 1 SS | SYD SIGNAL BOX 2 SS | NO |
| 539 | 11 | City South | SYD SIGNAL BOX 1 SS | REDFERN 1 SS | NO |
| 545 | 11 | City South | NORTH SYDNEY 1 | NORTH SYDNEY 2 | NO |
| 546 | 11 | City North | NORTH SYDNEY 2 | ST LEONARDS SS | NO |
| 551 | 11 | City North | CHATSWOOD NORTH SS | LADY GAME DRIVE SS | NO |
| 552 | 11 | City North | CHATSWOOD NORTH SS | LADY GAME DRIVE SS | NO |
| 553 | 11 | City North | LADY GAME DRIVE SS | LADY GAME DRIVE SERVICE SS | NO |
| 554 | 11 | City North | LADY GAME DRIVE SS | LADY GAME DRIVE SERVICE SS | NO |
| 555 | 11 | City North | LADY GAME DRIVE SERVICE SS | DELHI ROAD STN EAST SS | NO |
| 556 | 11 | City North | LADY GAME DRIVE SERVICE SS | DELHI ROAD STN WEST SS | NO |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|----------------------------|----------------------------|----------------|
| 557 | 11 | City North | DELHI ROAD STN EAST SS | MACQUARIE PARK STN EAST SS | NO |
| 558 | 11 | City North | DELHI ROAD STN WEST SS | MACQUARIE PARK STN WEST SS | NO |
| 559 | 11 | City North | MACQUARIE PARK STN EAST SS | MACQUARIE UNI STN EAST SS | NO |
| 560 | 11 | City North | MACQUARIE PART STN WEST SS | MACQUARIE UNI STN WEST SS | NO |
| 561 | 11 | City North | MACQUARIE UNI STN EAST SS | EPPING STATION STH SS | NO |
| 562 | 11 | City North | MACQUARIE UNI STN WEST SS | EPPING STATION NTH SS | NO |
| 563 | 11 | City North | EPPING STATION STH SS | DEVLINS CREEK SH | NO |
| 564 | 11 | City North | EPPING STATION NTH SS | DEVLINS CREEK SH | NO |
| 581 | 11 | South West | GLENFIELD SOUTH SS | LEPPINGTON SS | NO |
| 588 | 11 | City West | BELMORE SWITCHING STATION | SEFTON SS | NO |
| 597 | 11 | Central Coast | A.G 11KV BROOKLYN FEEDER | SIG. LOC HR164 | YES |
| 598 | 11 | Central Coast | A.G 11KV BROOKLYN FEEDER | SIG. LOC HR113AT | YES |
| 599 | 11 | Central Coast | A.G 11KV BROOKLYN FEEDER | SIG. LOC HR107 | YES |
| 600 | 11 | City South | PRINCE ALFRED SS | STR 2 | NO |
| 602 | 11 | City West | CHULLORA SS | CHULLORA WORKSHOPS | NO |
| 603 | 11 | City South | NORTH EVELEIGH SS | MEEKS RD SS | NO |
| 604 | 11 | City South | NORTH EVELEIGH SS | MEEKS RD SS | NO |
| 605 | 11 | South West | SEFTON SS | CABRAMATTA SS | NO |
| 606 | 11 | City West | SEFTON SS | SEFTON DEPOT SS | NO |
| 608 | 11 | City South | ERSKINEVILLE SS | MEEKS RD SS | NO |
| 609 | 11 | City West | LEWISHAM SS | STRATHFIELD SS | NO |
| 614 | 11 | City West | STRATHFIELD SIG BOX 1 SS | FLEMINGTON SS | NO |
| 615 | 11 | City South | SYDENHAM PLAN DEPOT SS | MEEKS RD SS | NO |
| 616 | 11 | City South | PRINCE ALFRED SS | WYNYARD STATION 1 SS | NO |
| 617 | 11 | City South | PRINCE ALFRED SS | EDGECLIFF SS | NO |
| 618 | 11 | City South | PRINCE ALFRED SS | EDGECLIFF SS | NO |
| 619 | 11 | City South | PRINCE ALFRED SS | REDFERN 1 SS | NO |
| 620 | 11 | City South | PRINCE ALFRED SS | REDFERN 2 SS | NO |
| 621 | 11 | City West | STRATHFIELD SS | STRATHFIELD SIG BOX 2 SS | NO |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|-----------------------|---------------------------|----------------|
| 622 | 11 | City West | LEWISHAM SS | STRATHFIELD SS | NO |
| 623 | 11 | City West | CLYDE SS | GRANVILLE SS | NO |
| 624 | 11 | City West | CHULLORA SS | ENFIELD MARSHALLING YARD | NO |
| 625 | 11 | South West | KINGSGROVE SS | REVESBY SS | NO |
| 627 | 11 | City South | EDGECLIFF SS | BONDI JUNCTION 2 | NO |
| 628 | 11 | City South | EDGECLIFF SS | BONDI JUNCTION 2 | NO |
| 629 | 11 | City North | CHATSWOOD NORTH SS | HORNSBY SS | NO |
| 630 | 11 | City North | HORNSBY SS | HORNSBY CAR SHED SS | NO |
| 631 | 11 | City South | PRINCE ALFRED SS | STR 1 | NO |
| 632 | 11 | City South | PRINCE ALFRED SS | STR 1 | NO |
| 633 | 11 | City South | PRINCE ALFRED SS | ARGYLE SS | NO |
| 634 | 11 | City South | PRINCE ALFRED SS | WYNYARD STATION 2 SS | NO |
| 635 | 11 | City South | TRANSPORT HOUSE SS | ARGYLE SS | NO |
| 636 | 11 | City South | TRANSPORT HOUSE SS | ARGYLE SS | NO |
| 637 | 11 | City South | PRINCE ALFRED SS | TRANSPORT HOUSE SS | NO |
| 638 | 11 | Western | PARRAMATTA STATION SS | BLACKTOWN NORTH SS | NO |
| 639 | 11 | City West | STR 2 | LEWISHAM SS | NO |
| 640 | 11 | City South | PRINCE ALFRED SS | SYD SIGNAL BOX 1 SS | NO |
| 641 | 11 | South West | GRANVILLE SS | CABRAMATTA SS | NO |
| 642 | 11 | City South | TRANSPORT HOUSE SS | WYNYARD STATION 1 SS | NO |
| 643 | 11 | South West | GLENFIELD SOUTH SS | GLENFIELD STATION 1 SS | NO |
| 644 | 11 | City South | ARGYLE SS | NORTH SYDNEY 1 | NO |
| 645 | 11 | City West | CLYDE SS | COMPONENT SHOP SS | NO |
| 646 | 11 | City West | CLYDE SS | COMPONENT SHOP SS | NO |
| 647 | 11 | City South | WYNYARD STATION 2 SS | ARGYLE SS | NO |
| 648 | 11 | City North | HORNSBY SS | HORNSBY CONTROL CENTRE SS | NO |
| 649 | 11 | City North | HORNSBY SS | COWAN | YES |
| 650 | 11 | Central Coast | COWAN | HAWKESBURY | YES |
| 651 | 11 | Central Coast | HAMILTON | WTI SWITCHING STATION | NO |
| 652 | 11 | Central Coast | HAMILTON | WTI SWITCHING STATION | NO |
| 653 | 11 | Central Coast | ADAMSTOWN SH | HAMILTON | NO |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|-------------------------|------------------------|----------------|
| 654 | 11 | Central Coast | ADAMSTWON SH | HAMILTON | NO |
| 655 | 11 | Western | BLACKTOWN NORTH SS | ST MARYS | NO |
| 656 | 11 | Western | ST MARYS | EMU PLAINS | NO |
| 657 | 11 | Western | EMU PLAINS | BLAXLAND | YES |
| 658 | 11 | Western | BLAXLAND | FAULCONBRIDGE | YES |
| 659 | 11 | Western | FAULCONBRIDGE | LAWSON | YES |
| 660 | 11 | South Coast | PORT KEMBLA WAGON MAINT | I.E FEEDER PCA2 | NO |
| 661 | 11 | City South | SUTHERLAND SS | SIG LOCATION 20.7 | YES |
| 662 | 11 | Airport | UNDERCLIFFE SS | GREEN SQUARE SS | NO |
| 663 | 11 | City South | HURSTVILLE SS | SUTHERLAND SS | NO |
| 664 | 11 | South Coast | WOLLONGONG STN | WOLLONGONG CONTROL CTR | NO |
| 665 | 11 | South Coast | I.E FEEDER SWH2 | WOLLONGONG CONTROL CTR | NO |
| 666 | 11 | South Coast | CONISTON | INNER HARBOUR | NO |
| 667 | 11 | South Coast | WOLLONGONG CONTROL CTR | CONISTON | NO |
| 668 | 11 | South Coast | BOMBO QUARRY | I.E FEEDER KMC2 | NO |
| 669 | 11 | South Coast | WOLLONGONG CONTROL CTR | INNER HARBOUR | NO |
| 670 | 11 | Central Coast | HAWKESBURY | WOY WOY | YES |
| 671 | 11 | Central Coast | WOY WOY | GOSFORD | YES |
| 672 | 11 | Central Coast | GOSFORD | OURIMBAH | YES |
| 673 | 11 | Central Coast | OURIMBAH | WALLAHRAH CREEK | YES |
| 674 | 11 | Central Coast | WALLAHRAH CREEK | MORISSET | YES |
| 675 | 11 | Central Coast | MORISSET | AWABA | YES |
| 676 | 11 | Central Coast | AWABA | COCKLE CREEK | YES |
| 677 | 11 | Central Coast | COCKLE CREEK | ADAMSTOWN SH | YES |
| 680 | 11 | Western | LAWSON | KATOOMBA | YES |
| 681 | 11 | Western | KATOOMBA | MT VICTORIA | YES |
| 682 | 11 | Western | MT VICTORIA | NEWNES JUNCTION | YES |
| 683 | 11 | Western | NEWNES JUNCTION | OAKLEY PARK | YES |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|-------------------|---------------------------|----------------|
| 684 | 11 | Western | Oakey Park | Bowenfels HV Area | YES |
| 685 | 11 | Western | Bowenfels HV Area | Wallerawang T.G | YES |
| 686 | 11 | City South | Redfern 1 SS | MEEKS RD SS | NO |
| 687 | 11 | City West | MEEKS RD SS | Belmore Switching Station | NO |
| 688 | 11 | City South | MEEKS RD SS | WOLLI CREEK SH | NO |
| 689 | 11 | City South | WOLLI CREEK SH | KINGSGROVE SS | NO |
| 690 | 11 | City South | WOLLI CREEK SS | HURSTVILLE SS | NO |
| 693 | 11 | City West | SEFTON SS | LC 11.5 SIG LOC SS | NO |
| 694 | 11 | City West | GRANVILLE SS | GRANVILLE SIGNALLING SS | NO |
| 695 | 11 | City West | FLEMINGTON SS | CLYDE SS | NO |
| 696 | 11 | Central Coast | MT SUGARLOAF | MT SUGARLOAF | YES |
| 699 | 11 | Western | EDGECOMBE | 11KV FEEDER I.E | YES |
| 700 | 33 | City South | COMO | SUTHERLAND | YES |
| 702 | 33 | City South | UNDERCLIFFE | HURSTVILLE | NO |
| 703 | 33 | City West | MEEKS RD | CANTERBURY A.G | NO |
| 704 | 33 | City West | CANTERBURY A.G | BELMORE | NO |
| 705 | 33 | South West | UNDERCLIFFE | EARLWOOD | NO |
| 706 | 33 | City South | SUTHERLAND | LOFTUS | YES |
| 707 | 33 | South West | EARLWOOD | CANTERBURY A.G | NO |
| 708 | 33 | South West | EARLWOOD | KINGSGROVE | NO |
| 709 | 33 | City West | BELMORE | CHULLORA | NO |
| 710 | 33 | City North | WAVERTON | ST LEONARDS | NO |
| 711 | 33 | City North | ST LEONARDS | WILLOUGHBY A.G | NO |
| 712 | 33 | City North | ST LEONARDS | WILLOUGHBY A.G | NO |
| 713 | 33 | City West | REVESBY | YAGOONA | NO |
| 714 | 33 | City South | SUTHERLAND | PORT HACKING A.G | NO |
| 715 | 33 | City West | STRATHFIELD | FLEMINGTON | NO |
| 716 | 33 | City West | FLEMINGTON | SEFTON | NO |
| 717 | 33 | South West | SEFTON | CABRAMATTA | NO |
| 718 | 33 | City West | AUBURN | GRANVILLE | NO |
| 719 | 33 | Western | GRANVILLE | YENNORA | NO |
| 720 | 33 | Central Coast | HAMILTON | WARATAH E.A | NO |
| 721 | 33 | City West | STRATHFIELD | GRANVILLE | NO |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|-------------------|-----------------|----------------|
| 722 | 33 | City West | GRANVILLE | CLYDE | NO |
| 723 | 33 | City South | GYMEA | SUTHERLAND | NO |
| 724 | 33 | South Coast | CROOM | CROOM I.E | NO |
| 725 | 33 | City North | WEST RYDE | EPPING | NO |
| 726 | 33 | City North | BEECROFT | HORNSBY | NO |
| 727 | 33 | City North | LINDFIELD | GORDON | NO |
| 728 | 33 | City North | WARRAWEE | HORNSBY | NO |
| 729 | 33 | City South | HURSTVILLE | CARINGBAH | NO |
| 730 | 33 | South Coast | BOMBO | KIAMA I.E | NO |
| 732 | 33 | City South | ARGYLE | WAVERTON | NO |
| 733 | 33 | South West | PLEASURE POINT | GLENFIELD SOUTH | YES |
| 734 | 33 | South West | REVESBY | PLEASURE POINT | NO |
| 735 | 33 | South West | WARWICK FARM | GLENFIELD | NO |
| 736 | 33 | City West | STRATHFIELD | STRATHFIELD A.G | NO |
| 737 | 33 | City West | STRATHFIELD | STRATHFIELD A.G | NO |
| 738 | 33 | City West | ASHFIELD | STRATHFIELD | NO |
| 739 | 33 | City South | KINGSGROVE | HURSTVILLE | NO |
| 740 | 33 | South West | GLENLEE | NEPEAN E.E | YES |
| 741 | 33 | South West | KINGSGROVE | NARWEE | NO |
| 742 | 33 | South West | NARWEE | REVESBY | NO |
| 743 | 33 | City West | CHULLORA | SEFTON | NO |
| 744 | 33 | City West | STRATHFIELD | CHULLORA | NO |
| 745 | 33 | City South | ARGYLE | PYRMONT A.G | NO |
| 746 | 33 | City South | PRINCE ALFRED | ARGYLE | NO |
| 747 | 33 | City South | PRINCE ALFRED | PYRMONT A.G | NO |
| 748 | 33 | City South | PRINCE ALFRED | PYRMONT A.G | NO |
| 749 | 33 | Western | GRANVILLE | WESTMEAD | NO |
| 750 | 33 | Central Coast | CARDIFF | HAMILTON | YES |
| 751 | 33 | Central Coast | SULPHIDE JUNCTION | CARDIFF | YES |
| 752 | 33 | Central Coast | AWABA | AWABA E.A | YES |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|---------------------------|----------------------------|----------------|
| 753 | 33 | Central Coast | HAMILTON | WARATAH E.A | NO |
| 754 | 33 | City South | EDGECLIFF | SURRY HILLS A.G | NO |
| 755 | 33 | City South | PRINCE ALFRED | EDGECLIFF | NO |
| 756 | 33 | City South | EDGECLIFF | SURRY HILLS A.G | NO |
| 757 | 33 | City North | EPPING | DEVLINS CREEK SH | NO |
| 758 | 33 | Central Coast | SULPHIDE JUNCTION | CARDIFF MAINTENANCE CENTRE | NO |
| 759 | 33 | City West | ROZELLE SWITCHING STATION | ROZELLE SS A.G | NO |
| 761 | 33 | City West | MEEKS RD | LEWISHAM | NO |
| 762 | 33 | City West | ERSKINEVILLE | NEWTOWN | NO |
| 763 | 33 | City West | NEWTOWN | LEWISHAM | NO |
| 764 | 33 | City West | LEWISHAM | ASHFIELD | NO |
| 765 | 33 | City South | MEEKS RD | UNDERCLIFFE | NO |
| 766 | 33 | City South | PYRMONT A.G | ROZELLE SWITCHING STATION | NO |
| 768 | 33 | City North | ST LEONARDS | CHATSWOOD NORTH | NO |
| 769 | 33 | City North | CHATSWOOD NORTH | LADY GAME DRIVE | NO |
| 770 | 33 | City North | LADY GAME DRIVE | DELHI ROAD | NO |
| 771 | 33 | City North | DELHI ROAD | MACQUARIE UNI | NO |
| 772 | 33 | City North | MACQUARIE UNI | DEVLINS CREEK SH | NO |
| 773 | 33 | City North | DEVLINS CREEK SH | BEECROFT | NO |
| 774 | 33 | South Coast | DUNMORE | BOMBO | NO |
| 775 | 33 | South Coast | CROOM | DUNMORE | YES |
| 776 | 33 | South Coast | ALBION PARK | CROOM | NO |
| 777 | 33 | South Coast | DAPTO | ALBION PARK | YES |
| 778 | 33 | South Coast | KEMBLA GRANGE | DAPTO | NO |
| 779 | 33 | South Coast | CONISTON | KEMBLA GRANGE | NO |
| 780 | 33 | City South | LOFTUS | HEATHCOTE | YES |
| 781 | 33 | City South | HEATHCOTE | CAWLEY | YES |
| 782 | 33 | South Coast | CAWLEY | LILYVALE | YES |
| 783 | 33 | South Coast | LILYVALE | STANWELL PARK | YES |
| 784 | 33 | South Coast | STANWELL PARK | CLIFTON | YES |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|---------------------------------|---------------------------|----------------|
| 785 | 33 | South Coast | CLIFTON | AUSTINMER | YES |
| 786 | 33 | South Coast | AUSTINMER | CORRIMAL | NO |
| 787 | 33 | South Coast | CORRIMAL | CONISTON | NO |
| 788 | 33 | South Coast | CONISTON | PORT KEMBLA NORTH | NO |
| 789 | 33 | South Coast | PORT KEMBLA NORTH | OUTER HARBOUR I.E | NO |
| 790 | 33 | South Coast | PORT KEMBLA NORTH | OUTER HARBOUR I.E | NO |
| 791 | 33 | Western | BLACKTOWN E.E | BLACKTOWN NORTH | NO |
| 792 | 33 | Western | BLACKTOWN NORTH | SCHOFIELDS | NO |
| 793 | 33 | Western | SEVEN HILLS | BLACKTOWN NORTH | NO |
| 794 | 33 | Western | SCHOFIELDS | VINEYARD | YES |
| 795 | 33 | Western | VINEYARD | CLARENDON | NO |
| 796 | 33 | Western | CLARENDON | HAWKESBURY E.E | NO |
| 797 | 33 | City South | PRINCE ALFRED | ROZELLE SWITCHING STATION | NO |
| 798 | 33 | City South | PRINCE ALFRED | ERSKINEVILLE | NO |
| 799 | 33 | City South | ERSKINEVILLE | MEEKS RD | NO |
| 800 | 66 | Western | WALLERWANG SUBSTATION TRANSGRID | WALLERWANG | YES |
| 821 | 66 | Western | BLACKTOWN NORTH | ROOTY HILL | NO |
| 822 | 66 | Western | ROOTY HILL | ST MARYS | NO |
| 829 | 66 | City North | HORNSBY | BEROWRA | YES |
| 830 | 66 | City North | BEROWRA | COWAN | YES |
| 831 | 66 | Central Coast | COWAN | HAWKESBURY RIVER | YES |
| 832 | 66 | Central Coast | HAWKESBURY RIVER | WOY WOY | YES |
| 833 | 66 | Central Coast | WOY WOY | GOSFORD | YES |
| 849 | 66 | City North | BEROWRA | BEROWRA E.A | NO |
| 850 | 66 | Central Coast | GOSFORD | OURIMBAH | YES |
| 851 | 66 | Central Coast | OURIMBAH | OURIMBAH E.A | NO |
| 852 | 66 | Central Coast | OURIMBAH | WYONG | YES |
| 853 | 66 | Central Coast | WYONG | WALLAHLRAH CREEK | YES |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|---------------|---------------------------|---------------------------------|----------------|
| 854 | 66 | Central Coast | WALLAHRAH | WYEE | YES |
| 855 | 66 | Central Coast | WYEE | MORISSET | YES |
| 856 | 66 | Central Coast | MORISSETT | ERARING | YES |
| 857 | 66 | Central Coast | ERARING | AWABA | YES |
| 858 | 66 | Central Coast | AWABA | BOORAGUL | YES |
| 859 | 66 | Central Coast | BOORAGUL | SULPHIDE JUNCTION | YES |
| 861 | 66 | Western | ST MARYS | PENRITH | NO |
| 862 | 66 | Western | PENRITH | EMU PLAINS | NO |
| 863 | 66 | Western | EMU PLAINS | BLAXLAND | YES |
| 864 | 66 | Western | BLAXLAND | FAULCONBRIDGE | YES |
| 865 | 66 | Western | FAULCONBRIDGE | LAWSON | YES |
| 871 | 66 | Western | LAWSON | KATOOMBA | YES |
| 872 | 66 | Western | KATOOMBA | MT VICTORIA | YES |
| 873 | 66 | Western | MT VICTORIA | NEWNES JUNCTION | YES |
| 874 | 66 | Western | NEWNES JUNCTION | OAKEY PARK | YES |
| 875 | 66 | Western | OAKEY PARK | WALLERWANG SUBSTATION TRANSGRID | YES |
| 877 | 66 | Western | LAWSON | LAWSON E.E | NO |
| 878 | 66 | Western | LAWSON | LAWSON E.E | NO |
| 533A&B | 11 | City West | LEWISHAM SS | STRATHFIELD SS | NO |
| 701/1 | 33 | City South | MORTDALE C.S | COMO | YES |
| 701/2 | 33 | City South | HURSTVILLE | MORTDALE C.S | NO |
| 731/1 | 33 | South West | LEUMEAH | CAMPBELLTOWN | NO |
| 731/3 | 33 | South West | MACQUARIE FIELDS | LEUMEAH | NO |
| 731/4 | 33 | South West | GLENFIELD SOUTH | MACQUARIE FIELDS | NO |
| 760/1 | 33 | City West | ROZELLE SWITCHING STATION | 13B | NO |
| 760/2 | 33 | City West | 13B | LEWISHAM | NO |
| 7A4 | 33 | City North | STRATHFIELD | WEST RYDE | NO |
| 7A6 | 33 | City West | FLEMINGTON | AUBURN | NO |
| 7H9 | 33 | City North | GORDON | WARRAWEE | NO |
| 7M1 | 33 | South West | GLENFIELD | GLENFIELD SOUTH | NO |

| Feeder # | Voltage | Territory | Starting SS | Ending SS | Bushfire risk? |
|----------|---------|------------|-----------------|------------------|----------------|
| 7M5 | 33 | South West | CAMPBELLTOWN | GLENLEE | NO |
| 7S1 | 33 | South West | EDMONDSON PARK | DENHAM COURT E.E | NO |
| 7S2 | 33 | South West | EDMONDSON PARK | LEPPINGTON | NO |
| 7S3 | 33 | South West | EDMONDSON PARK | LEPPINGTON | NO |
| 7S4 | 33 | South West | GLENFIELD SOUTH | EDMONDSON PARK | NO |
| 7S5 | 33 | South West | GLENFIELD SOUTH | EDMONDSON PARK | NO |
| 7T8 | 33 | City North | CHATSWOOD NORTH | LINDFIELD | NO |
| 7U3 | 33 | City South | ART GALLERY | EDGECLIFF | NO |
| 7U4 | 33 | City South | ARGYLE | ART GALLERY | NO |
| 7W1 | 33 | Western | WESTMEAD | TOONGABBIE | NO |
| 7W2 | 33 | Western | TOONGABBIE | SEVEN HILLS | NO |
| 7W3 | 33 | Western | TOONGABBIE | BLACKTOWN E.E | NO |
| 7W4 | 33 | South West | CABRAMATTA | WARWICK FARM | NO |
| 7Y1 | 33 | South West | CABRAMATTA | YENNORA | NO |
| 7Y2 | 33 | City West | YAGOONA | SEFTON | NO |
| 7Y4 | 33 | City South | CARINGBAH | GYMEA | NO |
| EA653 | 33 | South West | REVESBY | BANKSTOWN A.G | NO |