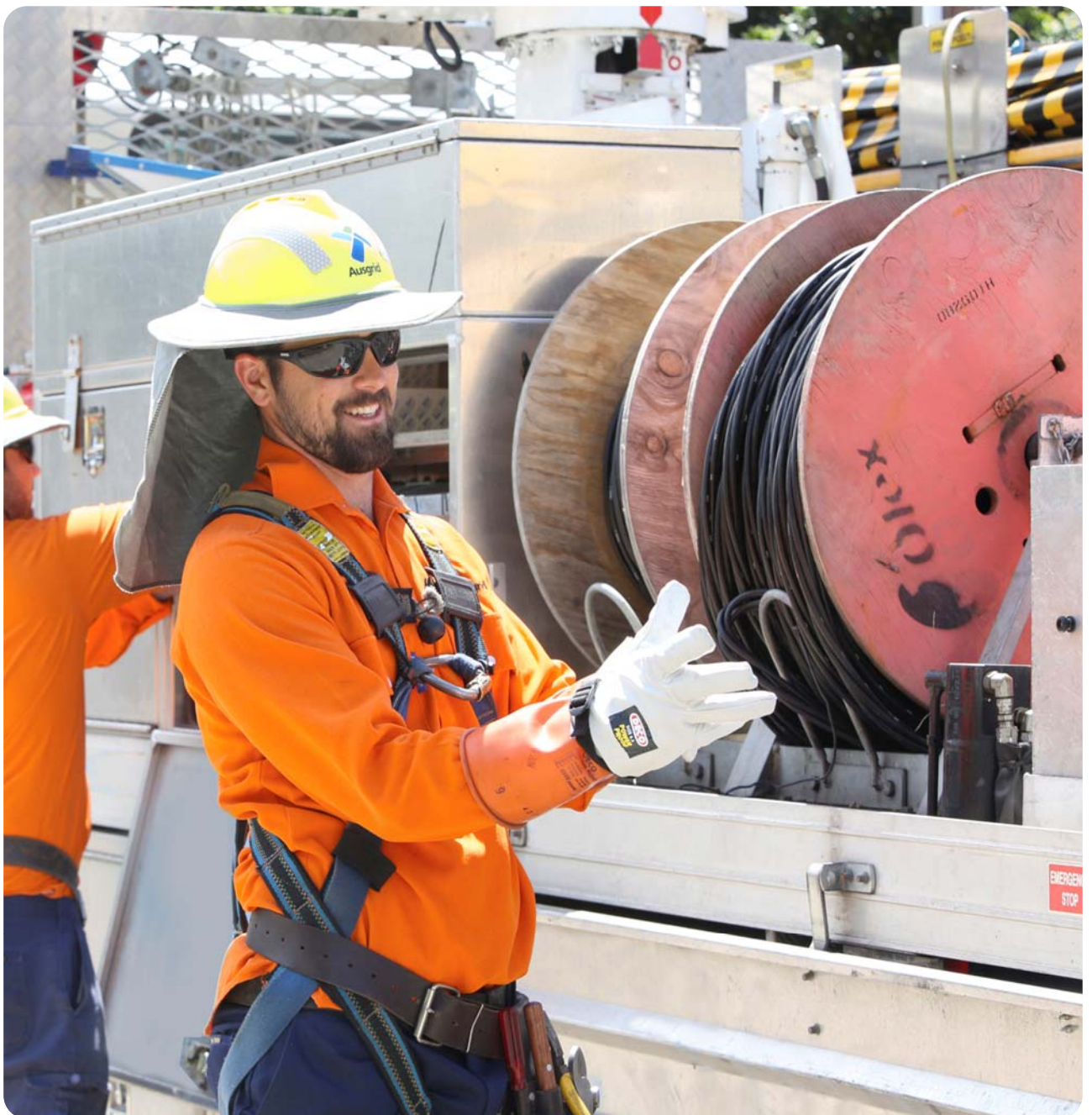


Customer Installation Safety Plan

March 2015



Document History

Issue No.	Date	Approved By	Summary of Changes
1	June 2014	Chief Engineer	Updated and revised in line with requirement for biennial review under Electricity Supply (Safety and Network Management) Regulation 2008
2*	March 2015	Chief Engineer	Publication as standalone document for compliance with the Electricity Supply (Safety and Network Management) Regulation 2014

* NOTE: Prior to March 2015 the Customer Installation Safety Plan was published as chapter 2 of Ausgrid's Network Management Plan as required by the Electricity Supply (Safety and Network Management) Regulation 2008. This regulation has been repealed and replaced with the Electricity Supply (Safety and Network Management) Regulation 2014 which specifies the adoption of AS5577-2013: Electricity Network Safety Management Systems. The Customer Installation Safety Plan has been republished as a standalone document to comply with the requirements of the Electricity Supply (Safety and Network Management) Regulation 2014.

Warning

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

Ausgrid may amend this document at any time. It is the responsibility of the user of this document to check that only the current version is being used.

Duration and availability of this Plan

This Plan has been introduced in 2015 and will continue to be in effect until it is removed from service. This plan will undergo regular review in accordance with the Electricity Supply (Safety and Network Management) Regulation 2014 and AS5577-2013. This plan will be systematically reviewed against legislation and regulation applicable to distribution and transmission network service providers, industry standards including AS5577, Ausgrid's strategic plans and relevant internal policies, procedures and standards and our regulatory determination. This plan will be updated as necessary in line with the outcome of these reviews.

In accordance with the NSW Electricity Supply (Safety and Network Management) Regulation 2014, this Plan will be made available to all stakeholders who are likely to be involved in its implementation.

This Customer Installation Safety Plan is available on Ausgrid's website (www.ausgrid.com.au). Printed copies of this Plan are available at Ausgrid's principal office – 570 George Street, Sydney NSW 2000.

All correspondence in relation to this document should be directed to:

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Introduction to Ausgrid's Customer Installation Safety Plan

Under the Electricity Supply (Safety and Network Management) Regulation 2014 (the Regulation) Ausgrid must, as part of its Electricity Network Safety Management System, address the safety impacts of a customer's installation on its network. Ausgrid has developed and published this Customer Installation Safety Plan to comply with this requirement.

Significant changes since the last Customer Installation Safety Plan

This document is a reformatted version of Chapter 2 of Ausgrid's now retired Network Management Plan , published as a standalone document. This has been undertaken to facilitate compliance with the Electricity Supply (Safety and Network Management) Regulation 2014. There have been no 'significant changes" made to the content of this document, as compared to Chapter 2 of the retired Network Management Plan, as a result of this reformatting.

Ausgrid's commitment to safety

Ausgrid is committed to ensuring the safe operation of its network and to providing a reliable and safe supply of electricity to all its customers. It gives the highest priority to safety issues, including network safety and security, environmental, workplace and public safety, bushfire risk and the safety of the customer installations connected to the Ausgrid network.

Subject always to its paramount commitment to safety, Ausgrid's network planning objective is to comply with the many legislative and regulatory obligations that apply to infrastructure development and maintenance while at the same time efficiently managing the financial performance of its business as a network operator.

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1 Overview

Each year work is undertaken on electrical installations at thousands of customer properties throughout the Ausgrid distribution area.

While it is our responsibility to maintain the electricity distribution network, including the poles and wires which are identified as our assets required for the connection of customer installations, all new and existing electrical work within a customer's electrical installation remains the responsibility of the customer and their electrical Contractor.

We aim to protect people in customers' premises by:

- supporting the scheme of licensing electrical contractors; and
- enforcing compliance with the relevant requirements, codes and regulations.

Customers are responsible for the maintenance of their installation including all private poles and wires, to ensure the safety of persons and property and the prevention of bushfires.

Customers are also responsible for ensuring that any contractor or trades person they engage are appropriately licensed.

Our Customer Installation Safety Plan addresses the management of safety from within a customer's premises to the customer's terminals (the connection point between the customer's electrical installation and the Ausgrid network). It only applies to installations operating below 132kV (including customer owned and operated substations and high voltage installations).

The Customer Installation Safety Plan draws on the vast experience of Ausgrid and the industry in managing the compliance and safety of our network customer's electrical installations.

In preparation we have taken into account the following NSW Codes of Practice:

- **NSW Code of Practice, Service and Installation Rules** – specifies the technical requirements necessary for electrical installations to be safely, reliably and efficiently connected to the electricity network and associated obligations and procedures for customers and network operators.
- **NSW Code of Practice, Installation Safety Management** – outlines the minimum practices required by electricity network operators in managing the safety of customers' electrical installations. The intent of the Code is that safety standards will be maintained or improved.

There are no departures from these Codes unless to adopt a higher safety standard. As required by the Code, we also advise that customers operating electrical installations (including those above 11kV) are also subject to the requirements of the Service and Installation Rules of NSW and Ausgrid's local requirements.

The installing electrical contractor (contractor) is responsible for testing and verifying that their work complies with all relevant requirements and standards and is safe. Ausgrid conducts a documented risk based inspection program to verify compliance by the contractor by selecting a sample of notified works once a suitable standard of compliance has been achieved.

The Customer Installation Safety Plan aims to ensure customers and Contractors are aware of their rights and responsibilities. It is up to customers and their electrical or installing Contractors to ensure that all work is performed safely and meets current industry Rules and Standards for installation.

Customers need to employ licensed Contractors for any new or modified electrical work. Contractors are required to meet industry Rules and Standards. Accredited Service Providers (ASP) connecting customer installations to our electricity network need to be authorised by Ausgrid.

Ausgrid undertakes to monitor and audit Contractor and ASP performance (using a qualified inspection team). If we identify any existing work as hazardous or unsafe we will ensure the problem is rectified and/or take appropriate action, such as disconnection and/or disciplinary measures.

We contribute to the development and maintenance of the various rules, codes and standards, further enabling us to promote safety as a priority.

2 Our approach to safety

The safety and well being of our staff, contractors and the community is promoted by having the appropriate procedures in place and by effectively communicating the important role safety plays in running our network.

While the potential hazards associated with electricity are widely known, we can never assume that everyone is aware of all the dangers.

Our safety message is targeted and ongoing, and supported by our staff, Contractors and industry colleagues.

It is part of our commitment to provide a safe and reliable electricity supply to all of our customers.

This Customer Installation Safety Plan addresses safe wiring installation and its safe connection to our electrical network. Our approach to the safety of new connections and electrical installation work includes:

- design, construction and maintenance standards (required by customers and Contractors)
- testing, connection and notification criteria (required by Contractors)
- inspection regime and procedures (to identify faulty work)
- corrective action procedures (to remedy faulty work and apply penalties or disciplinary action as appropriate)
- management and reporting (to manage and report plan outcomes)

Owners of electrical installations are required by law to maintain their installation to ensure it remains safe. Ausgrid encourages customers to arrange regular safety checks of their electrical installation. Of particular concern is old wiring that has deteriorated and become unsafe. We also recommend that customers purchasing new or existing premises request an electrical safety check to ensure that there is no faulty wiring due to deterioration or defective workmanship. Our Electricity Supply Document ES 1 - Premises Connection Requirements provides further information.

Ausgrid also designs and operates our electricity network to include a number of electrical protection systems to protect our customers, the community, their installations and our network assets to minimise and localise the impact of any unsafe or hazardous event.

3 Design, construction and maintenance standards

Under the NSW Codes of Practice, Ausgrid's installation work is required to comply with the appropriate Rules and Standards.

The Codes provide guidance, and establishes minimum requirements for the provision of customer connection services. The Codes, Rules and Standards also help enforce the Electricity Supply Act 1995 and associated regulations.

Ausgrid requires all electrical and installing Contractors in our network area to meet the Rules and Standards. Where permitted by the Rules and Standards, exceptions are considered, but only if the agreed alternative achieves an outcome which matches or exceeds the minimum standard.

The Electricity (Consumer Safety) Act requires customers to maintain their electrical installation ensuring the safe and satisfactory operation of the installation is not impaired by interference, damage, ageing or wear and the installation does not become a significant potential cause of fire for the environment surrounding the installation.

Electrical installation work must only be undertaken by a licensed electrical Contractor. Contractors must ensure that we are notified of certain types of work (including work which results in a change to the electricity service connection) as specified in the Electricity (Consumer Safety) Regulation. Customers are advised that contractors are required by law to provide you with a Certificate of Compliance (CCEW) for all work they carry out on your electrical installation. The certificate covers the work carried out, the tests performed, and certification that the work is compliant with the appropriate standards and rules (see Section 4 for further information). The CCEW form is also to be used by electrical contractors when they are required to notify Ausgrid of their work as stipulated in the Electricity (Consumer Safety) Regulation.

3.1 What we aim to achieve

Customers, electrical and installing contractors understand their rights and responsibilities in the provision of safe electrical customer installations (new and existing) for connection to Ausgrid's transmission and/or distribution system (our network).

3.2 How we plan to achieve it

- promoting the need to use appropriately licensed Contractors as required by law
- informing customers who may have special requirements for their electrical installation (e.g., the need for a safety management plan for high voltage installations, arc fault minimisation at large electrical load installations, equipment and maintenance dossiers at installations with hazardous zones, etc)
- maintaining systems to keep Contractors up to date with industry developments (to ensure their methods are current and effective)
- providing customers and contractors with reasonable access to our policies, rules, standards and procedures. This includes maintaining up to date publications on the Ausgrid website www.ausgrid.com.au and notification via Customer Installation Advices to registered Contractors. The Electricity Supply (ES) series and National Energy Customer Framework (NECF) publications assist customers and Contractors with this
- ensuring our inspection staff are promptly briefed on any changes to the standards and other documentation applicable
- promoting (wherever possible) uniform documentation across the industry

- participating in updating and/or development of appropriate Rules and Standards through representation on committees and working groups associated with NSW Trade and Investment, Standards Australia, NSW Fair Trading, Electricity Networks Association (ENA) and the National Electrical and Communications Association (NECA)
- continually undertaking and analysing investigation reports of electricity shock incidents to identify problems with assets, equipment, locations, installation work etc, and taking the appropriate action.

3.3 How we will communicate it

- providing customers, Contractors and other key stakeholders with general information to assist them in recognising, understanding and fulfilling their responsibilities, as well as outlining the penalties for non-compliance
- highlighting the necessity to employ only licensed electrical Contractors - to minimise the dangers inherent in electrical installations and the threat to life and property in unsafe situations (see chapter three - Public Electrical Safety Awareness)
- informing high voltage customers of the requirement to prepare an integrated Installation Safety Management Plan and lodge this with Ausgrid for acknowledgement. The Plan should be based on appropriate risk analysis techniques (and include non compliant equipment, upgrade and refurbishment programs, site hazards, etc)
- encouraging large non-domestic customers (i.e. with loads in excess of 1 MVA or with installations in hazardous locations) to produce and implement an integrated Installation Safety Management Plan (similar to that required by high voltage customers)
- alerting customers who live in bush fire prone areas of the need to minimise bush fire risks as part of their condition of supply (see chapter four - Bush Fire Risk Management).

3.4 How we will measure it

Effectiveness will be assessed by:

- shock rates and fatalities (shocks per thousand customers)
- categories of shocks analysed.

4 Testing, connection and notification criteria

Under the Rules and Standards, installation work by Contractors must be tested and verified that it is safe and it complies with AS/NZS 3000 – Wiring Rules and related Standards. A Certificate of Compliance for Electrical Work (CCEW) must be completed detailing the work.

Testing must be carried out by one or more of the following:

- the licensed electrical Contractor who completed the work
- another licensed electrical Contractor
- a person authorised for testing by the electricity network operator
- a suitably authorised Accredited Service Provider undertaking pre-energising checks (refer Ausgrid publication ES 4 Section 9).

The Electricity (Consumer Safety) Regulation requires Contractors to provide their customers with a Certificate of Compliance for Electrical Work (CCEW) covering their electrical work carried out on an installation. The Contractor is also required to notify Ausgrid of certain types of electrical work as detailed in the Regulation.

Contractors will be required to provide written notification and test reports in a format specified by Ausgrid and NSW Fair Trading. We use these reports to update our installation data system, verify new network connections and better plan system augmentation. These reports also are essential to the establishment of our audit responsibilities under this Plan.

4.1 What we aim to achieve

That all installations connected to our network are safe.

4.2 How we plan to achieve it

- Monitoring electrical installation work to ensure that it is only carried out by licensed and competent persons.
- Requiring tests to be performed that confirm work complies with the Rules and Standards (in particular Australian Standard AS/NZS 3000 Wiring Rules and the Service and Installation Rules of NSW).
- Managing a system for Contractors to notify us of the required types of installation work and tests using the Certificate of Compliance: Electrical Work (CCEW) form.
- Working with the NSW Fair Trading to enforce the requirements of the Electricity (Consumer Safety) Act
- Managing a system for all Accredited Service Providers, authorised by Ausgrid, to provide written notification and test reports in a specified format using a Notification of Service Work (NOSW) form.

4.3 How we will communicate it

- Highlighting to industry bodies such as the National Electrical and Communications Association (NECA), the importance of the notification and testing process (as specified by the Regulation) and the consequences if their members fail to undertake these.
- Providing information on the inherent dangers and consequences (e.g. reverse polarity connections, ineffective earthing).
- Targeting Contractors and Accredited Service Providers (Level 2) with information specific to their responsibilities.
- Providing information on industry guidelines and procedures relating to working safely with asbestos (a copy is published on WorkCover's website (www.workcover.nsw.gov.au)).
- Meeting with customers and Contractor representatives to discuss testing, connection and notification criteria.

4.4 How we will measure it

- Number of notifications received
- Certificate of Compliance: Electrical Work notifications
- Notification of Service Work (NOSW)
- Contractor compliance performance
- Defective work trends.

5 Inspection regime and procedures

Ausgrid operates an audit inspection regime aimed at securing compliance by both the individual Contractor and the contracting company with requirements to maintain an acceptable standard for each category and type of installation work.

Notified installation work by a particular Contractor will be inspected until an appropriate standard of work has been demonstrated. A sample of works of all Contractors will generally be inspected on a risk basis.

All inspections by Ausgrid are intended to verify aspects of the work to assist in its regulatory responsibilities.

It is the responsibility of the customer to employ a licensed Electrical Contractor. The Contractor must ensure that the completed work complies with the Rules and Standards and provide their customer with a certificate of compliance.

The number of notifications submitted will be considered when assessing the Contractor's overall performance. The sample of work inspected on an audit basis will be determined for each category of installation work (e.g. domestic, commercial and small scale embedded generation). All work notified as high voltage, hazardous area, large load, permanent un-metered supply and larger scale embedded generation will be inspected.

The audit program is reviewed regularly.

A similar program operates for contestable connection work performed by Accredited Service Providers who connect the installation to our electricity distribution network.

Unsafe or defective installations, identified during routine or emergency inspections or other work, will be notified to the customer and immediate action will be taken to make the installation safe including disconnection if necessary.

If major safety defects are detected on notified work (i.e. dangerous to life, health or property – refer to Ausgrid publication ES1 for more details) all future work by that Contractor is inspected until the required standard of work has once again been demonstrated.

Ausgrid may also disconnect customers' installations or parts of a installation for safety reasons as permitted under the Electricity Supply Act and in accordance with the Electricity Supply (Safety and Network Management) Regulation. Ausgrid Deemed Standard Connection Contract lists other reasons for disconnection such as; when a premise is vacated for a long period, or for non-payment of retail accounts. Ausgrid will aim to ensure those who carry out the disconnection work are appropriately trained and competent.

5.1 What we aim to achieve

The detection, rectification or disconnection of unsafe installation work and taking corrective action as appropriate.

5.2 How we plan to achieve it

- Maintaining and monitoring records of work performed by Contractors.
- Maintaining a risk based inspection process and adequate samples to secure compliance by Contractors with requirements.
- Carrying out unannounced audits of electrical installation work at major commercial development sites to monitor compliance with the Electricity (Consumer Safety) Regulation.
- When inspections are undertaken, confirming that workmanship has been sound (and specific obligations met) with particular attention paid to work involving:
 - consumer's mains;
 - main switchboards;
 - high voltage installations;
 - installations in environments classified as hazardous (by relevant Australian Standards);
 - permanent un-metered supply connections; or
 - embedded grid connected generation.
- Using only trained staff and documented procedures in the audit inspection program.
- Carrying out inspections within the time required by the Code.
- Conducting reviews of internal inspection processes to check for adequacy and compliance with the objectives of this Plan.
- Carrying out disconnection work in accordance with statutory requirements using appropriately trained and competent staff.

5.3 How we will communicate it

- Liaising directly with individual Contractors and industry bodies such as the National Electrical and Communications Association (NECA), the NSW Fair Trading and other network operators to improve procedures
- providing general information updates via our Customer Installation Advices (CIAs) and other communication channels including the Ausgrid website www.ausgrid.com.au.
- maintaining and updating related reference standards and policy documents.

5.4 How we will measure it

- Number of inspections performed
- number and details of audits performed
- defect rates for major defects
- corrective and disciplinary action taken.

6 Corrective action procedures

Ausgrid will seek corrective or disciplinary action to remedy non-compliance with the Rules and Standards. This may include action against owners of electrical installations, Contractors, employees or individuals - in the form of warnings, retraining or disciplinary measures or referral to NSW Fair Trading.

NSW Fair Trading is responsible for the register of Electrical contractors, including licence type and status, and can remove a contractor's licence or impose penalties under the Electricity (Consumer Safety) Act. NSW Department of Trade and Investment is responsible for the accreditation of service providers and maintains a register of all NSW Accredited Service Providers (ASPs) and nominates the grade of accreditation established through performance.

6.1 We will take action relating to

- Defective or unsafe installation work ('major' and 'minor' safety defects)
- unsafe work practices when performing installation work
- failure of Contractors to notify Ausgrid of work performed
- unauthorised connections to the supply network
- failure by Contractors to carry out required tests and correct any defects
- work performed by unqualified persons
- failure of an owner of an electrical installation to maintain the installation so it remains safe.

Where work is dangerous to life, health or property, we will act immediately to prevent an accident by making the installation safe either by disconnecting the entire installation or part thereof.

6.2 Disciplinary action may include

- A verbal or written advice or warning
- a re-assessment of the audit program for the offending Contractor (e.g., more frequent inspections)
- recommendations for additional training
- a formal interview or counselling session, possibly involving NSW Fair Trading

The disciplinary action taken will depend on the seriousness of the non-compliance and/or the number or frequency of non-compliance cases.

- suspension or cancellation of network connection authorisations granted to accredited service providers by Ausgrid
- reporting the offending Contractor to other NSW network operators and the licensing section of Fair Trading NSW.
- recommending to NSW Trade and Investment the re-grading, suspension or cancellation of the offender's accreditation or licence
- reporting unlicensed persons performing electrical contracting work and recommending the issuing of Penalty notices for breaches of the Electricity (Consumer Safety) Act to NSW Fair Trading
- increasing the flow of information, alerting Contractors and customers to their obligations and responsibilities (and any specific issues) as appropriate.

Ausgrid will continue to liaise with NSW Fair Trading and NSW Trade and Investment (as the compliance regulators) to encourage 100% compliance by Contractors and Accredited Services Providers with the Rules and Standards.

We will also endeavour to ensure the network customer is kept informed at all times of any disciplinary action being undertaken.

6.3 Right of reply

Before any disciplinary action is taken, the person subject to the action has the right of reply. Where appropriate, the customer concerned will also be advised on the action taken.

7 Management and reporting

Ausgrid operates a due diligence framework aims to ensure that all risks are identified and that there is an appropriate system for compliance, proper supervision and facilitating compliance.

This Customer Installation Safety Plan and supporting internal documents, policies and procedures are managed in accordance with Ausgrid's quality management system.

We monitor performance against the Customer Installation Safety Plan and publish the results annually as part of our Electricity Network Performance Report (available on our website www.ausgrid.com.au).

Activities related to the management and reporting of this Plan include:

- monitoring Contractor performance, defects and other parameters to allow proper inspection programs to be established and corrective action initiated;
- developing and maintaining a database of regulatory and other relevant information;
- maintaining a Risk Management Plan that includes, but is not limited to, identifying risks and implementing cost effective management actions;
- assessing data from an effective safety monitoring system;
- assessing the consequences of failures of the system;
- periodic reviews; and
- plans for improvement and corrective action.

8 Definitions

Accredited Service Provider (ASP)

Refers to companies/sole traders who have gained accreditation from NSW Department of Trade and Investment (who manage the accreditation schemes) allowing them to perform contestable work in accordance with the Electricity Supply Act 1995.

Contractors

Includes both Electrical, Installing Contractors or ASPs.

Codes of Practice

This refers to the:

- NSW Code of Practice – Installation Safety Management
- NSW Code of Practice –Service and Installation Rules of NSW.

Electrical Contractor (Contractor)

A firm or person who holds an electrical contractor's licence, issued by NSW Fair Trading.

Electrical Installation

Customer owned and operated fixed electrical wiring and associated equipment including the Customers private poles and overhead wires, but not Ausgrid's assets such as service lines and metering, or electrical appliances, flexible leads, or anything connected beyond an electrical socket outlet.

Installing Contractor

An electrical contractor who carries out installation work or tests (whether themselves or through any partner, sub-contractor or employee) whether or not for fee, gain or reward.

Rules and Standards

These are key documents for the Customer Installation Safety Plan and are listed in the next section.

Other descriptions and terminologies used have been drawn from:

- AS/NZS 3000 Wiring Rules (and other relevant Australian Standards)
- Service and Installation Rules of NSW
- AS4741 Testing of connections to low voltage networks

9 Reference documents

Key reference documents of the Rules and Standards include:

- AS/NZS 3000 Wiring Rules and other relevant standards produced by Standards Australia
- AS 2067 – Substations and High Voltage Installations Exceeding 1 kV a.c.
- AS 2467 - Maintenance of Electrical Switchgear
- AS/NZS 3017 - Electrical installations - Verification Guidelines
- AS/NZS 3019 – Electrical Installations – Periodic Verification
- NSW Code of Practice – Installation Safety Management
- The Service and Installation Rules of NSW and Ausgrid's Network Standards (collectively known as the Service Rules)
- Ausgrid's Electrical Safety Rules
- Ausgrid's National Energy Customer Framework (NECF) and Electricity Supply (ES) series of policy documents and Customer Installation Advice (CIA) documents for ongoing advice on policy and practices on customer supply matters
- ES1 - Premises Connection Information
- ES4 - Service Provider Authorisation
- Ausgrid's Deemed Standard Connection Contract
- Certificate of Compliance: Electrical Work (CCEW) administered by NSW Fair Trading
- Notification of Service Work form (NOSW)
- NSW Work Health and Safety Regulation 2011 and the NSW Work Health and Safety Act 2011
- Relevant WorkCover safety guidelines, model procedures listed on their website (www.workcover.nsw.gov.au) from time to time.