ES 1

Premises Connection Requirements

September 2024

SCOPE

This publication provides general information to assist with connection to Ausgrid's network.

WARNING

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

Ausgrid may amend this document at any time.

DOCUMENT AND AMENDMENT HISTORY

Issue No.	Date	Approved by	Summary of Changes
1	1 July 2013	EM-S&MS (acting)	Complete revision to align with NECF requirements. New title.
2	12 June 2014	M – Connection Policy	Various amendments as per CIA1384
3	4 September 2014	M – Connection Policy	Correction to clause 2.8 Electrical Safety Inspections, to reflect that this work is carried out by the customer's electrical contractor
4	21 January 2015	M – Installation Inspections	Changes to installation inspection office hours and locations, Sydney South and East
5	20 September 2024	Head of Network Strategy and Future Grid	Changes to facilitate additional points of connections that meet certain conditions and other updates and amendments to maintain currency

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Contents

1 Introduction

This publication must be read in conjunction with the current edition of the Service and Installation Rules of NSW. The Premises Connection Requirements set out in this publication are intended to be consistent with the Service and Installation Rules and provide further clarification where those Rules refer to decisions to be made by the Network Operator (the 'local distributor').

Ausgrid's Premises Connection Requirements apply to the connection or upgrading the connection of private electrical installations in Ausgrid's distribution network area. The requirements are relevant to Ausgrid's existing and new network customers, their electrical consultants, electrical contractors and Accredited Service Providers.

"**Premises Connections**" referred to in this publication are the connection of a customer's electrical installation to Ausgrid's network via "premises connection assets" such as low voltage overhead service lines, low voltage underground service mains and high voltage mains to customers taking supply at high voltage. Premises connection assets are necessary for the connection of the electrical installation to the network and dedicated for that connection. New or altered premises connection assets are funded by the customer, installed by appropriately accredited service providers and become assets that Ausgrid will take ownership of and maintain.

This publication should be read in conjunction with the following relevant Ausgrid publications:

- NS238 – Supply Quality and other network standard referred to in this publication or that is relevant
- ES 3 Part A – Metering Installations
- ES 3 Part B – Technical Specifications for Metering Installations
- ES 4 – Service Provider Authorisation
- Ausgrid Connection Policy
- Policy for ASP/1 Premises Connections
- ES 7 – Network Price Guide
- ES12 – Metering Contestability

Copies of all Ausgrid publications can be downloaded from Ausgrid's website www.ausgrid.com.au.

2 Premises Connections – General Information

2.1 Premises connection enquiries

Information for customers wishing to connect or upgrade their current connection to the network can be found on Ausgrid's website: www.ausgrid.com.au/connectingtothenetwork

Enquiries may also be made through the Ausgrid website or Customer Contact Centre on 13 13 65.

Technical enquiries concerning premises connections at a particular site can be made by emailing servicesupport@ausgrid.com.au.

2.2 Determining the Point of Common Coupling

When new or altered connection arrangements are proposed, it will be necessary to determine in advance the most effective way to connect the service and metering equipment so that it complies with the relevant documentation set out in the Service and Installation Rules of NSW. This may be carried out by a suitably authorised level 2 Accredited Service Provider (ASP 2).

Alternatively, a Preliminary Enquiry form can be submitted to Ausgrid seeking clarification of the service connection arrangements. Details of the Preliminary Enquiry form can be found on the Ausgrid website. There may also be charges for this service.

2.3 Establishing a Retail Contract

All new connections to Ausgrid's network must have a Retail contract established prior to energisation. On receipt of a completed Connection Application, Ausgrid will return the National Metering Identifier (NMI) to the applicant. It is the responsibility of the applicant and customer to establish a Retail contract with a Retailer of their choice. Once this is completed the new Retailer will notify Ausgrid. Ausgrid will only then issue a Job Number. This Job Number can then be used by the applicants Accredited Service Provider (ASP) to collect appropriate metering to establish the connection.

2.4 Site Establishment Fee (SEF)

A Site Establishment Fee (SEF) will be charged where a customer's installation requires the creation of a new National Metering Identifier (NMI). The fee covers the coordination with AEMO (Australian Energy Market Operator) for the purpose of establishing the NMI (in MSATS (Market Settlement and Transfer System) and for checking and updating network standing data. It will apply to new premises or to any existing premises for which AEMO requires a new NMI. This includes a new account at a new premise or an additional account at an existing premise.

A new NMI will be allocated to all new installations which generally include:

- temporary builder's supplies
- permanent unmetered supplies
- single domestic residence
- single customer commercial sites
- multi-customer commercial and domestic sites (a new NMI will be allocated for House Lights, essential services etc and for each separately metered account customer or separately metered living unit, shop, factory or business)
- duplex residences (new NMI for each separately metered living unit)
- separation of supply (new NMI for the new separately metered portion only)
- change in the type of network connection. (For example, where an overhead service line is replaced by an underground cable direct from a substation. In this case, a new NMI is created and the old NMI is made extinct.)
- Electric Vehicle Charging Infrastructure (EVCI) sites

The Site Establishment Fee **does not** apply in the following circumstances involving **Temporary Builder's Services (TBS)**, where an existing service line is 'relocated' on the same site and no new NMI is created:

- a new TBS, where an existing single domestic residence is being demolished and the site redeveloped for a new single domestic residence only. The associated NOSWs for the

recovered and the new metering/service lines must be submitted to Ausgrid at the same time. The NOSW for the new metering/TBS should be marked 'Service Line Relocation'.

- For a new single domestic residence, where the TBS used for its construction is being removed. The associated NOSWs for the recovered and the new metering/service lines must be submitted to Ausgrid at the same time.

Note: The Site Establishment Fee will be charged (and a new NMI created) for the initial 'greenfield' TBS. The NOSW for the new metering/service line should be marked 'Service Line Relocation'.

The Site Establishment Fee will usually be charged to the ASP responsible for installing the metering for the installation. It will be charged when the Notification of Service Work (NOSW) form is submitted detailing metering for the new installation or the transfer or separation of an existing installation for which a new NMI is to be created. If an ASP is not involved with the work, the Site Establishment fee will be charged to the installing electrical contractor upon submission or a Certificate of Compliance (CCEW).

2.5 Underground or Overhead Connections?

A network connection via underground service mains will apply to installations connected in areas reticulated by underground distribution mains. The standard connection in overhead mains reticulated areas is via an overhead service line however, an application may be considered for an underground to overhead (UGOH) connection under certain conditions as detailed in the Service and Installation Rules. Additional conditions for future undergrounding, as highlighted in Ausgrid publication ES10, may also apply.

The premises listed below, which are in an urban overhead distribution mains area, must make provision for connection to future underground distribution mains:

- commercial premises with a property frontage greater than 50 metres
- multiple residential developments (eg home units or villa homes) not including duplexes.

In such developments the customer must install:

- an underground service line to a suitable existing street pole; or
- sheathed underground consumers mains to a customer pole erected near the front property boundary (within 1 metre).

Note: Where neither of the above methods of supply is suitable contact the Ausgrid.

2.6 Underground Cable Locations

Ausgrid has a network of underground cables. These cables range from the normal house supply voltage for 240 volts to others up to 132,000 volts. Whether or not poles and overhead wires exist in the local area, it is quite possible that there are underground cables at your work site.

If you do any type of excavation, you should be aware that interfering with underground cables could result in danger to yourself and people nearby. Damage to cables can cause loss of supply to Ausgrid customers and can be costly to repair. It may also lead to you being liable for the cost of repairs and fines or even prosecution depending on the nature and severity of the incident.

Before carrying out any earthworks or excavations it is important that you check the location of underground services, including electricity mains that may be in or near the area you are working.

To determine if Ausgrid cables or conduits exist in the proposed work location, the person in charge of the work site must contact Before You Dig Australia (BYDA) Service www.byda.com.au or telephone 1100 before commencing any work on site.

Once Ausgrid plans have been received, the person in charge of the work must assess whether the proximity of the Ausgrid underground cables or conduits located within the proposed work site, requires a BYDA certified service locator to identify and mark these Ausgrid assets on the ground surface.

If Ausgrid cables or conduits are located within the proposed work site, the requirements of NS156 Excavating Near Ausgrid Underground Cables or Conduits must be followed to ensure the safety of all workers and maintain the integrity of the Ausgrid electrical network.

2.7 Safety near Overhead Powerlines

Before starting to plan any work on a building site it is important to identify and be aware of any potential electrical hazards that may impact on the work.

Overhead power lines can be present in several forms of construction having bare, covered, insulated or insulated and screened conductors. Electrical accidents can be caused by the unintended contact with power lines, for example accidental contact during the erection of scaffolding, guttering and building frames. They can also present a hazard to construction vehicles and plant operating at the construction site.

All overhead powerlines and cables must be treated as potentially dangerous electrical hazards during a building site risk assessment.

The SafeWork NSW (previously document *Work near Overhead Powerlines* aims is to protect the health and safety of persons from the risks arising when they are working near overhead power lines and associated electrical apparatus. It provides practical advice on implementing the requirements of the *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2017.* If the construction is in our network area and the required clearances cannot be adhered to during construction you must contact Ausgrid for further advice.

Phone 13 13 65.

2.8 Electrical Safety Inspections

The *Gas and Electricity (Consumer Safety) Act 2017 and the Gas and Electricity (Consumer Safety) Regulation 2018* (**Consumer Safety Act and Regulation**) requires owners or controllers of electrical installations, to maintain their electrical installation to ensure that:

- the safe and satisfactory operation of the installation is not impaired by interference, damage, ageing or wear;
- the live parts remain properly insulated or protected against inadvertent contact with any person;
- the earthing system operates effectively;
- the installation is not used in a manner that exceeds the operating limits imposed by its design or installation; and
- the installation does not become a significant potential cause of fire for the environment surrounding the installation.

Owners of installations in commercial premises are obligated under similar but more stringent requirements of the Work Health and Safety Act.

Ausgrid encourages customers to arrange regular safety checks of their electrical installation by a qualified person. Of particular concern is old wiring that has deteriorated and become unsafe. It is also advised that customers, purchasing existing premises, request an electrical safety check of the installation to ensure there is no faulty wiring due to deterioration or defective workmanship.

Where a safety check is requested by the owner, who is not the actual electricity customer, or by a prospective purchaser, the customer's permission must be given for the safety check prior to it being carried out by an electrical contractor.

2.9 Maintenance of Existing Installations

(Particularly with old and deteriorated equipment)

It is particularly important, where the installation is very old or deteriorated, resulting in for example high resistance connections, failed insulation or high risk of private aerial mains starting bush fires etc. that special attention be paid to the following aspects:

- service neutral links and the customer's active and neutral links
- (overhead) point of attachment including exposed consumers mains that are often prone to ultraviolet degradation
- structural integrity of private Pole A's (and other private poles)
- old hinged wooden switchboards
- obsolete service fuses
- old underground service termination boxes and old overhead mains connection boxes. Refer to NS199 for guidance.

- 200-400 Amp Service Fuse cabinets. These cabinets are deemed obsolete and should be replaced at every opportunity.
- private aerial mains, particularly bare mains in bush fire prone areas.

The customer must arrange to carry out any necessary repair work to rectify any safety hazards that could cause fires and electric shocks.

It is also recommended that periodic operational checks be carried out of Residual Current Devices (RCDs) (safety switches) and circuit breakers (where installed), in accordance with manufacturer's recommendations and Australian Standards. As an approximate guide, circuit breakers should be checked every two years and RCDs every six months.

Note: Any identified potential safety hazards associated with Ausgrid's service mains, including fittings such overhead line strain clamps, should be referred to Ausgrid to enable any necessary repairs to be carried out.

2.10 Inspection and Maintenance of all Private Aerial Mains

Customers will be given written notification of any installation defects Ausgrid becomes aware of during the conduct of its normal business operations or which may have been reported to Ausgrid.

The electrical safety requirements for aerial wiring are contained in the Service and Installation Rules of NSW, AS/NZS 3000 Wiring Rules and the following Ausgrid publications:

- NS 166 Line Inspection
- ISSC Guideline for Managing Vegetation Near Power Lines.

These Network Standards specify the following requirements:

- An annual visual inspection must be carried out for installations in bush fire prone areas (as defined in Ausgrid's Bush Fire Risk Management Plan) prior to the commencement of the bush fire danger season (as declared by the Rural Fire Service).
- A complete line inspection must be performed every four years and a complete pole inspection is required two years after each complete line inspection. Any safety breaches must be attended to promptly.
- The installation of approved spreaders on bare low voltage aerial mains (in bush fire prone areas), to minimise the risk of these mains starting a bush fire.
- The maintenance of required vegetation safety clearances from private aerial mains. Private poles should be inspected by a qualified person to determine the residual strength of the structure, and re-inspected on their recommendation. Ausgrid's Network Standards can also be used for guidance.

Ausgrid's website lists service providers authorised to carry out tree trimming in the vicinity of aerial mains.

Only suitably qualified electrical contractors can carry out low voltage spreader installation.

New, replacement and disused private aerial mains must not be connected or reconnected to the electricity supply unless they have been inspected and tested by an electrical contractor and proven to be safe and compliant with the current AS/NZS 3000 Wiring Rules.

Ausgrid recommends that customers arrange for the removal of permanently disused private aerial mains from their premises.

2.11 Electricity Metering Locking System

Ausgrid has a restricted Electricity Metering (EM) locking system for installations in its network area. The locking system replaces the NMB and Frost locking systems that were previously issued to customers who require locks on their meter boxes and enclosures. These locks permit access by the customer, authorised Ausgrid staff and some staff authorised by Retailers.

Existing NMB and Frost locks previously installed on customers' properties will not need to be replaced whilst in good order. All new sites, requiring Ausgrid master keyed locks, will now require the installation of the EM Utilities locking system. The EM locking system must be installed when replacing existing damaged or faulty locks.

The EM locking system uses Abloy Protec locks that are available as padlocks, commercial and residential cylinders and key safes. All Master keys are protected by world-wide patents and cannot be

duplicated without the correct authorisation. Superior type master-keying possibilities are also available.

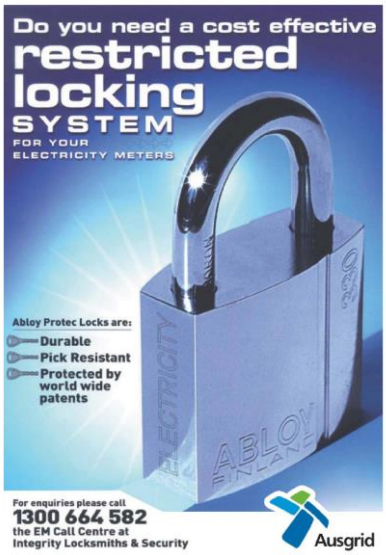
All EM locks can also be keyed to allow access by other authorities such as:

- Endeavour Energy, Sydney Water, Hunter and Central Coast Water, Telstra, Gas.

With a full range of locking options, the EM locking system can be used for many purposes such as securing meter boxes, entry gates, building entries, meter rooms and enclosures. The EM locking system is a cost-effective way of providing access without the cost of moving electricity meters.

The full range of EM locking options, including master keying and multi-utility access, is available from Integrity Locksmiths & Security. For all residential, commercial and trade inquiries call the EM Call Centre at Integrity Locksmiths on **1300 664 582** or visit their web site www.integritysecurity.com.au.

Universal master keys of these locking systems are restricted to Ausgrid staff only. It is the responsibility of the owner of the electrical installation to allow access to their switchboard for any works that they initiate.



3 Connections at Low Voltage

3.1 Requirements for Subdivided Land

The premises connection to subdivided land will depend on the land title under which the subdivision is created. The following premises connection arrangements shall apply.

3.1.1 Torrens Title Properties

All Torrens Title lots are to be treated as separate electrical installations and connected via a separate service connection. Premises connection assets (service lines or service mains) shall not encroach on any other lot of land unless they are covered by a registered easement in favour of Ausgrid.

On an exception basis only, for justified practical reasons, Ausgrid may consider alternative arrangements for sharing unmetered consumer owned mains, pits, pillars and poles, providing they are covered by a legally binding arrangement between all affected land owners specifying (as a minimum) obligations for:

- ownership
- maintenance
- relocation
- repair.
- Examples of such arrangements are:
- Community Title over the land where the jointly owned infrastructure is situated or,
- Strata Title over the land where the jointly owned infrastructure is situated, or
- 88B easement over the land where the jointly owned infrastructure is situated and an 88BA Positive Covenant specifying the obligations stated above.

3.1.2 Strata Title Properties

Strata title subdivisions will be connected via one point of supply and have one metering location. Any deviations from this arrangement must be approved by the Ausgrid.

3.1.3 Community Title Properties

Community Title subdivisions will have one point of supply to the development, but each separate dwelling can be separately metered. Due to the complexity of these developments, you must consult Ausgrid prior to commencing work.

The electrical reticulation to each dwelling must comply with AS/NZS3000.

3.2 Additional Points of Supply

A customer may apply for and be granted an additional point of supply for their property's electrical installation in circumstances where the property already has at least one or more approved points of supply if they meet the requirements of this clause.

If a customer wishes to apply for an additional point of supply that does not meet these requirements, they must submit a preliminary application for Ausgrid to consider on a case-by case basis.

Dwelling type

The following requirements are based on the associated dwelling type for the additional point of supply, as outlined in the *National Construction Code*.

Residential[1] additional points of supply must be for less than 100A and be to supply or allow:

- Electric Vehicle Charging Infrastructure (EVCI) located on a separate structure from the primary supply, or
- One connection per dwelling (including duplexes), separated by a fire-rated wall or located on a separate structure from the primary supply.

[1] Building classes 1, 2, 3, and 10 as defined by the *National Construction Code*

Industrial and Commercial[2] additional points of supply must be for less than 100A and be to supply:

- Electric Vehicle Charging Infrastructure (EVCI) on a separate structure from the primary supply.

General requirements

In addition to the above dwelling type requirements, the following conditions must also be met:

a) The additional point of supply must be for a new or separate development, activity or function on the site that is easily identifiable from what the rest of the electrical installation is currently supplying (e.g. EV charging station)

b) No interconnection is allowed between existing and new points of supply.

c) The main switchboards and distribution boards (both existing and new) are clearly labelled in accordance with the requirements of AS/NZS 3000, any other applicable standards and the current Service and Installation Rules of NSW, including what each connection point supplies and where its point of isolation is located

d) Each point of supply is supplied with a different NMI

e) Earth potential rise risks must be addressed if the property has both high voltage and low voltage connections

f) TBS must be disconnected once the permanent supply has been established

g) Multiple services must not be connected to the same common structure, including but not limited to private poles, private pillars or riser brackets.

3.3 Connections Crossing an Adjoining Property

New or altered service mains (underground or overhead) are to be constructed so they do not cross an adjoining property. If there is no other alternative, a suitable easement in favour of Ausgrid must be obtained for the service mains where they cross the adjoining property.

Dedicated privately owned consumers mains that cross adjoining property must also be covered by a suitable easement in favour of the property being supplied.

3.4 Shared Road Crossing Service Lines

A previous premises connection arrangement was to connect multiple services to installations from:

- one service line via a span of overhead mains crossing a road (or at the end of a cul-de-sac), connected between Ausgrid's distribution pole and a road-crossing (lead-in) pole; or
- to underground service mains crossing a roadway (or at the end of a cul-de-sac), terminating at an Ausgrid underground pillar.

Where shared road crossing service lines and mains (including associated underground pillars) require upgrading to increase their current carrying capacity or to increase the number of phases, i.e. 1 phase to 3 phase upgrade (or permanent removal) as a result of a connection application, then customer requiring the work must fund the full cost of the contestable work.

A Level 2 ASP may carry out this work, with the exception of:

- work on pole transformer poles
- the installation of an Ausgrid underground pillar which requires suitable Level 1 Accreditation.

The service mains installation must comply with the Service and Installation Rules of NSW. Consideration must be given to the total electrical loading on the new mains, to ensure the mains are sized adequately, to avoid overloading.

In certain cases, Ausgrid may NOT permit the reconnection of altered service mains to an existing road-crossing pole but may require the customer to install a private Pole A. For instance, where there is an opportunity for Ausgrid to permanently remove the road-crossing pole, as there are no other services connected to it and no existing streetlight or the road-crossing pole requires replacement to accommodate the altered service mains. Ausgrid should be contacted to confirm the connection arrangements before commencing these projects.

A new service line connection between a private Pole A and an Ausgrid road-crossing pole is not permitted without written approval from Ausgrid. The service line must be connected between the Pole

[2] Building classes 4, 5, 6, 7, 8, and 9 as defined by the *National Construction Code*.

A and the distribution mains located across the road in accordance with the Service and Installation Rules of NSW.

The customer requesting the upgrading of the shared service lines and their ASP must negotiate with the other affected customers for an agreeable date to carry out the work. Refer to Ausgrid publication ES4- Service Provider Authorisation for further details.

3.5 Separation of Supply

Where a customer requires an existing installation to be rearranged into separately metered portions, (eg a new off-peak hot water circuit or separation of the commercial part of the installation from the residential part), the customer should coordinate the electrical installation work with the contestable metering work.

Details of the authorisation required by ASPs to do contestable metering work are contained in Ausgrid's publication ES4 - *Service Provider Authorisation.*

No installations or parts of installations are to be left energised and unmetered at any stage unless the installation is a Permanently Unmetered Supply and Ausgrid has inspected and approved the installation.

Where a separation is completed, the new customer must have a Retail contract in place before the new (separated) installation is energised. If the installation is energised without a Retail contract in place, the installation may be disconnected.

3.6 Connections to Pole Mounted Substations

Connections (new or altered) at pole transformers (PT's) are only permitted as a last resort. A new private Pole A must be installed where this would avoid a connection at a PT. Ausgrid may permit a mid-span connection where LV ABC distribution mains exist as an alternative under certain circumstances.

The connection application must indicate whether a service line connection at a PT is being proposed. Ausgrid must assess these particular applications and the connection may only proceed where Ausgrid grants approval (monopoly charges apply; refer to Ausgrid's document *Connection Policy – Connection Charges*.

Note: The Level 2 ASP must provide a minimum of 10 working days prior notice to Ausgrid to enable the assessment/approval of the proposed service connection.

Where the connection to the PT incorporates consumers mains, a fully completed CCEW covering the installation of the consumers mains must be completed and submitted prior to energising.

3.7 'Tap-off' Consumer's Mains Connections

In older reticulated areas it was common for multiple premises to be connected (tapped off) a single Ausgrid service line via cross property consumer's mains. These arrangements were particularly common for terrace houses.

The following procedures apply for a customer who requires the removal of cross-property tap-off consumer mains to adjoining premises, for example when they are renovating their premises.

(a) Inform the neighbour of the requirement to remove their cross-property consumer's mains prior to the commencement of any work and coordinate the works in direct consultation with the neighbour.

(b) Arrange for the installation and funding of temporary tap-off consumer's mains to the neighbouring premises prior to disconnecting and removing the existing tap-off consumer's mains. This is required where the neighbour requires additional time to arrange (and fund) the installation of a new permanent service line connection to their premises (i.e. a separate connection to Ausgrid's distribution mains in the roadway).

(c) Where it is not possible to install temporary tap-off consumers mains, the existing tap-off connection must not be disconnected and removed until the neighbour has installed a new permanent service connection to their premises.

(d) The neighbour must be given a minimum of four business days written notice, not including the day of notification nor the day of interruption, of any interruption (disconnection and reconnection) of their electricity supply required to install the temporary tap-off consumers mains (the notice must include the duration of the interruption). Provision of this notification is

a regulatory requirement. Apart from the time specified on this disconnection and reconnection notice, the neighbouring property/ies must not be left disconnected.

(e) The installing electrical contractor and ASP must submit completed NOSW/CCEW forms for the work carried out.

(f) Private legal advice should be sought if the adjoining property owner is unwilling to cooperate or to install a new separate service line.

Ausgrid will raise a Defect Report on any temporary supply connections which will be subsequently followed-up by an inspection to ensure that a new permanent service or other suitable arrangements have been made.

The neighbour/s with the cross-property consumer mains must either arrange and fund a new separate service line to supply their premises within a reasonable time period or make other permanent arrangements such as a suitable easement covering their private consumer mains across the adjoining property.

3.8 Service Connections to Paper Lead Distribution Cables

Ausgrid publication ES4 – Service Provider Authorisation, specifies that Level 2 Category 2 *ASP's* are not permitted to make service connections to existing paper lead distribution cables. If a service is required to be connected to this type of cable the following methods (in order of preference) shall apply:

(a) A new Ausgrid distribution pillar shall be installed. This is achieved by extending the existing paper lead cable with an appropriate length of XLPE. The Level 2 Category 2 *ASP* may then connect to the new pillar.

(b) A new private pillar located on the customer's property shall be installed via a tee joint to the paper lead cable. The Level 2 Category 2 *ASP* may then connect to the new pillar.

(c) A tee connected service shall be installed as an absolute last resort by a Level 1 ASP as a Contestable project

Any cable jointing work conducted on the paper lead distribution cable must be carried out by Ausgrid, or in the case of a Contestable project, an Authorised Level 1 paper lead cable jointer.

Note: 1 Upgrades of the Network, including installation of pillars in the above scenarios, to provide a Level 2 connection for loads up to and including 200amps, will in most cases be funded by Ausgrid.

Note 2: Where Ausgrid performs the work it is important to allow at least three months to adequately schedule the work with all appropriate authorities.

3.9 Bare Aerial Consumers Mains

All new or altered electrically unprotected aerial consumers mains must comply with Section 3 of the Service and Installation Rules and AS/NZS3000.

Customers must not install new or replacement bare aerial electrically unprotected consumers mains or reconnect existing disused bare aerial consumers mains unless specific approval has been given by Ausgrid.

Note: 'Disused' refers to installations that have been disconnected by removal of either the service fuses, metering or service mains bonds, or a period greater than six months.

For electrical safety reasons, Ausgrid strongly recommends that customers consider the installation of XLPE insulated aerial mains (complying with AS/NZS 3560) to replace existing bare aerial mains.

3.10 Connections at Kiosk and Chamber Substations

3.10.1 New Connections

All new installations supplied via a dedicated low voltage circuit that originates within an Ausgrid kiosk or chamber type substation, must have a circuit breaker as the Service Protective Device at the installation main switchboard. The circuit-breaker/Service Protective Device may also function as the main switch for the installation. The risk of a short-circuit between the substation and the Service Protective Device must be minimised.

Where the substation is on the premises and the conductors are consumer's mains, a fully completed CCEW covering the installation of the consumer's mains must be completed and submitted prior to energising.

3.10.2 Alterations and Additions

The Service and Installation Rules of NSW require that a Service Protective Device must be located adjacent to or incorporated in the main switchboard when alterations or additions to an installation are being carried out (with some exceptions).

The following is a list of typical situations, where Ausgrid may require a Service Protective Device to be installed at the main switchboard in conjunction with alterations or additions to existing installations connected directly to the low voltage within kiosk or chamber stations:

(1) Consumers mains are being replaced (e.g. due to increased load) or relocated or extended due to works within the premises;

(2) The main switchboard or CT Metering enclosure is being relocated, reconstructed or significantly altered to accommodate a change in capacity such as an increase or transfer of electrical load;

(3) Switchgear panels are being added to the main switchboard to accommodate additional circuits which increase the maximum demand of the installation or to accommodate load profiling equipment such as Power Factor Correction or voltage optimisation/regulation equipment (see note 1);

(4) Additional circuits are added to the main switchboard resulting in an increase in the maximum demand and/or require a change to the upstream installation protection equipment;

(5) Ausgrid is required to increase the capacity of its substation as a result of changes to the customer's installation;

(6) Ausgrid's protection equipment within the substation is no longer considered adequate for the customer's installation.

Note 1: When installing these types of devices consideration must be given to the requirements of all the relevant sections of AS/NZS3000 and the Service and Installation Rules of NSW, in particular the requirement for under and over voltage protection.

Note 2: Each situation must be assessed by Ausgrid on a case by case basis prior to carrying out the additions or alterations.

Ausgrid Network Standards NS 114 (chamber substations) or NS 117 (kiosk substations) must be referred to prior to making a request for consideration of alternative arrangements for the location of the Service Protective Device.

3.11 Out of Area Connections

In special circumstances Ausgrid may consider applications from customers whose premises are located outside Ausgrid's distribution network area, known as 'out of area' customers. The application must be clearly marked at the top "Out of Area Connection" and normally involve installations on or near Ausgrid's boundary with neighbouring distributors Endeavour and Essential Energy. The application will be assessed in consultation with the relevant neighbouring network operator to determine the relative viability of a normal in area connection to that distributor's network.

Ausgrid will generally not agree to such connections where it requires significant Ausgrid funded augmentation works.

The design and construction of the connection assets must comply with all of Ausgrid's normal requirements for in area connections and must be carried out by an ASP with relevant Ausgrid authorisation. The new network and premises connection assets will be owned and maintained by Ausgrid.

3.12 Connecting small scale solar, batteries and other embedded generation

To connect solar panels, batteries and other embedded generation in Ausgrid's area you need to make a connection application.

The majority of embedded generation systems installed in Ausgrid's area are Solar and/or Battery systems with a total inverter nameplate capacity of 30kW or less (10kW per phase) and these are approved under Ausgrid's streamlined approvals process.

Before applying to connect a new system or upgrade an existing one it is the responsibility of the solar installer and the customer's electrical contractor to ensure the proposed system is compatible with the customer's existing private electrical installation and is installed as per relevant Australian, the Service and Installation Rules of NSW and Network Standards and any other specific requirements imposed by Ausgrid to ensure that the Solar/Battery system and will not adversely impact on the Ausgrid network. This includes considering the effect on voltage rise and power quality of the proposed system.

You may also need to organise a metering upgrade with your electricity retailer to enable bi-directional energy recording.

3.12.1 Accreditation

To install a solar power or battery storage system at a customer's premises in Ausgrid's network, Ausgrid requires designer and installers to have the appropriate accreditation through Solar Accreditation Australia (SAA). You should also obtain any additional training/accreditation from the manufacturer of the equipment to be installed.

If you do not have SAA accreditation but you believe you meet the formal training requirements to complete the work proposed, you can email eg@ausgrid.com.au to discuss your situation.

In NSW electrical work can only be performed by persons with a current Electrical License.

3.12.2 Inverter installation

The inverter you are installing as part of a solar or battery storage system must meet the following criteria:

- be compliant with AS/NZS 4777.2;
- be installed as per the requirements of AS/NZS4777.1;
- be configured in accordance with Ausgrid's requirements for inverters which are set out in NS194 Embedded Generation. This includes configuring inverter settings to the AS4777.2-2020 regional setting "Australia A"; and
- either:
    - be of a type approved by the Clean Energy Council; or
    - have written approval from Ausgrid to use the make and model of the inverter (please email eg@ausgrid.com.au to discuss your CEC unlisted inverter proposal).

3.12.3 AEMO's Distributed Energy Resource Register

Solar and battery installers will need to enter installation and DER equipment information directly into AEMO's Distributed Energy Resource (DER) Register within 20 days of DER installation/activation. You can find out more about your obligations as an installer on our Distributed Energy Resources Register.

3.13 Permanent Unmetered Supplies

As a general rule the maximum load that will be approved by Ausgrid for Special Small Services (SSS)/Permanent Unmetered Supplies (PUMS) or Type 7 unmetered Installations, are loads of no greater than 10A (2.4kW) single phase and supplied from the one Network Point of Common Coupling. Approval for any proposed connections greater than 10A (2.4kW) single phase must be sought from Ausgrid.

In addition PUMS loads should be of a constant consumption (i.e. non variable loads). If the consumption of the PUMS is variable it will either be required to be metered or if unmetered, assessed at its maximum variable consumption rate (e.g. a PUMS that has a maximum current of 10A will be assessed at 10A during its period of energy consumption).

The customer must supply Ausgrid with details of each PUMS device which is proposed to be connected to the Ausgrid Network, prior to submitting an application, by submission of appropriate details to the following email address pums@ausgrid.com.au

This information will be collated for each PUMS customer in a PUMS "Load Table". From this load table an "Inventory Table" of *each* PUMS installation will be prepared for inclusion under a single NMI.

Where a customer's PUMS installations span across the Ausgrid Network area a NMI will be allocated for the following geographical areas:

- South of Broken Bay,
- North of Broken Bay,
- Far North (upper Hunter Valley, e.g. Muswellbrook, Singleton).

Multiple PUMS installations can be allocated under the one NMI.

All unmetered supplies must comply with Section 5 of the Service and Installation Rules of NSW.

3.13.1 Alterations and Additions of PUMS Installations

An new application ***must*** be submitted for each ***new or alteration of an existing*** PUMS installation.

To assist in identification and reconciliation of PUMS installations the customer may provide Ausgrid with a site specific customer identifier when submitting an application. Ausgrid will allocate its own site specific identifier.

For removal or permanent disconnection of a PUMS installation, a NOSW form must be submitted to Ausgrid.

3.13.2 Management of PUMS Installations

Each PUMS customer must provide the required device information to Ausgrid upon request and prior to the installation of any new or altered PUMS device to the Ausgrid Network. This mandatory requirement is necessary to ensure accurate energy consumption values can be calculated and agreed between Ausgrid and the customer. This will also allow for ease of application, auditing, reconciliation and inspection of PUMS installations.

In order to confirm the Daily Average Load (DAL) for an unmetered device that is connected to the Ausgrid Network, the customer must provide the electrical technical specifications for each device. These specifications must include total operating wattage, voltage, current and power factor for each device, which will allow for an accurate assessment of energy consumption as required by jurisdictional regulations. In addition to the electrical specifications, if the device is controlled to operate at specific times, the customer must provide the type of control (e.g. time switch, ripple, photoelectric (PE) cell) and the hours of use per day.

Appropriate documentation outlining the above requirements must be submitted to Ausgrid upon application for the registration of new PUMS devices.

Contact details for PUMS account queries and the addition of new PUMS devices to the load table, should be forwarded to the following email address: pums@ausgrid.com.au

On an annual basis Ausgrid may contact each PUMS customer to confirm that the inventory table and associated load table of devices is up to date. Each PUMS customer must supply contact details to Ausgrid for account and technical enquiries.

The customer must ensure that PUMS installations are able to be fitted with an inspection label which will be attached to the PUMS installation during the mandatory inspection by an Ausgrid officer.

3.13.3 PUMS Lighting

For the purposes of classifying PUMS installations in this document, lighting installations which are covered under the Department of Trade and Investment, Regional Infrastructure and Services, Division of Resources and Energy Water 's NSW Public Lighting Code framework are not considered a PUMS installation.

Approval may be given by Ausgrid for the lighting of public areas and private places, other than those covered by DWE NSW Public Lighting Code, to be supplied from the distribution mains as a PUMS installation.

The conditions and charges applicable will be made available on written application. Ausgrid's document ES7 - Application of Network Use of System Charges provides more detail regarding this requirement.

Smart Poles where access is unrestricted so that further load may be added to the Point of Common Coupling must be metered or will be assessed at their maximum possible load (i.e. If the Smart Pole contains a 10A GPO that is available at all times the installation will be assessed at 10A continuous in addition to the luminaries' usage) as the load on these Points of Common Coupling are considered variable.

3.14 Power quality assessment requirements

Customers should note that the connection of individual low voltage equipment rated at greater than 75A per phase or that may cause excessive fluctuations of voltage, and for all High Voltage connections, an assessment and allocation of permissible voltage fluctuation, unbalance and distortion levels is required.

Voltage Level	**Load**	**Assessment**
Low Voltage (230/400V)	> 75A/phase	PQ Assessment required
Low Voltage (230/400V)	Fluctuating load – e.g. lifts, welders, pumps, cranes, x-ray, MRI or similar type medical equipment	PQ Assessment required
Medium Voltage > 1kV	All Connections	PQ Assessment required

Any such connections must complete the Power Quality Assessment ('Specific Equipment – Non Linear/Fluctuating Load details') section of the application form prior to approval to energisation of the installation.

For all electrical equipment connected within an electrical installation must comply with the relevant Australian Standards including those mandated in the Service and Installation Rules of NSW. Power Quality Assessment for high voltage installations will be assessed based on the Australian Standards as indicated in the relevant clauses of National Electricity Rules.

4 Connections at High Voltage

The NSW Service and Installation Rules and Ausgrid require the controller (i.e. the owner or a lessee) of any premises having a high voltage (HV) installation to produce an Installation Safety Management Plan. In addition Ausgrid will collaborate with the controller of a HV installation to produce an Operating Protocol. The information below is provided for assistance in preparing an Installation Safety Management Plan and must be read in conjunction with Section 7 of the NSW Service and Installation Rules and Ausgrid Network Standard NS195 - *High Voltage Customer Connections (HVC)*.

A new HV installation connection to the network may be withheld until a complete Installation Safety Management Plan has been prepared as required. It is worthwhile considering the drafting of a preliminary Installation Safety Management Plan during the design stage of a proposed HV installation. Preliminary installation safety considerations may suggest the need for certain features to be incorporated into the installation. An Installation Safety Management Plan for any new HV installation must be submitted to Ausgrid to confirm that such a plan has been prepared.

Ausgrid does not undertake to approve any Installation Safety Management Plan that is presented nor does Ausgrid assume responsibility for the accuracy or completeness of such customer documentation. While Ausgrid may acknowledge the presentation of a plan, and perhaps comment on it, this is not to be construed as an approval or verification of the completeness of such a plan.

Work Health and Safety legislation contain specific requirements regarding the elimination or control of risk of injury by electricity in the workplace. The Consumer Safety Act and Regulation obligates the owner/controller of any electrical installation with responsibility to correctly maintain their installation. Those preparing plans are advised to familiarise themselves with the legislative requirements. Due care in the preparation and implementation of an Installation Safety Management Plan in line with the following suggestions will assist in the discharge of these legal responsibilities.

4.1 Installation Safety Management Plan

The contents of an Installation Safety Management Plan should address the full range of risks likely to be associated with the operation, maintenance and possible deterioration of electrical equipment as it ages. The Plan should be based on appropriate risk analysis techniques and cover matters such as non-compliant equipment, upgrade and refurbishment programs, site hazards, etc. An Installation Safety Management Plan for a HV installation should not be limited to the high voltage sections of the installation and it is strongly recommended that a customer extend the Plan to cover all parts of the electrical installation.

The following are some, but not necessarily all, of the topics that should be considered for inclusion in a plan:

- A single line diagram (schematic) for the high voltage installation showing all switches and circuit breakers and their identifying labels or numbers.
- A set of site specific operating rules covering all aspects of operating the high voltage installation. This should contain specific operating instructions for each piece of high voltage equipment. It should also contain a procedure for arranging isolation of the installation from the Ausgrid high voltage network. Ausgrid's will on request, provide details of the Operating Agreement procedure that applies to arranging isolation of a HV installation from the network.
- The qualifications and training of people who will be allowed to operate and/or work on the high voltage installation. This should also address retraining/retesting/re-accreditation procedures.
- Procedures for ensuring that areas containing high voltage equipment are accessible only by persons suitably qualified to enter such areas.
- Induction procedures for acquainting non-employees (contractors, visitors, etc) with the requirements of the plan when relevant.
- Inspection and maintenance programs including a periodic testing regime that will ensure all high voltage equipment remains serviceable and safe and that protection schemes will operate correctly when required. A testing regime may need to include both condition monitoring and functional testing.
- An action plan to address deterioration and aging of equipment or non-compliance with applicable codes such as Australian Standards by instituting a suitable repair and replacement program.

- Procedures to ensure that no extension or alteration of a HV installation is commissioned without Ausgrid's agreement (*Gas and Electricity (Consumer Safety) Regulation 2018*). Notification for extensions to the low voltage installation must also comply with this regulation.
- Procedures to ensure prior negotiation with Ausgrid concerning proposed alterations that may affect the interface between the distribution network and a HV installation, or increase and/or change the nature of an installation's load. (see Section 8 of this document)
- It may be relevant to include procedures for safe handling of insulating oils or other substances that will be encountered by staff/contractors in the course of maintaining or repairing electrical equipment (environmental considerations).
- Hazardous areas including confined space risks must be addressed if these exist or may arise on the plant.
- Emergency contacts and procedures such as urgent isolation of electricity supply. The correct contact details of authorised personnel must be shown.
- Procedures for ensuring that parts of a HV installation (eg underground cables) are not damaged by non-electrical staff or contractors (eg by excavators) - Warning signs may be required in some locations.

Additional References

- AS2067- Substations and high voltage installations exceeding 1 kV AC.
- ENA NENS 03 -2006 National Guidelines for Safe Access to Electrical and Mechanical Apparatus.

4.2 Operating protocol

An operating protocol is a brief document that defines the respective responsibilities of the controller of a private high voltage installation and Ausgrid for operating (switching) of parts of the customers installation and the electricity distribution network at the interface of the installation and the Network. It also records the contact details for communication between Ausgrid's System Control personnel and the customer's high voltage operating personnel. This document needs to be prepared in consultation with Ausgrid following preparation of the Installation Safety Management Plan.

4.3 Fault levels within a High Voltage Installation

High Voltage customers must provide Ausgrid with details of fault levels assigned throughout their installation as prescribed in the Service and Installation Rules on NSW. The prospective three phase and single phase to ground fault level contribution from the installation, at the Point of Common Coupling to Ausgrid's network, must be specified separately.

4.4 Cables that enter Ausgrid substations

If any of the customer's high voltage cables pass through or terminate in an Ausgrid substation, additional testing must be carried out. This testing must be in accordance with Ausgrid's Network Standard NS161, *Specification for Testing of Underground Cables.*

5 Notifying Ausgrid

5.1 Electrical Installation Work (CCEW)

All work inside the customers' property must be carried out by a licenced electrical contractor, in accordance with the Consumer Safety Act and Regulation.

When undertaking service and installation work an electrical contractor should complete a CCEW form for all electrical installations or work resulting in an increase in electrical rating and provide customers with a copy of the Certification of Compliance for Electrical Work (CCEW) and where required by legislation, submit a copy of the CCEW to Ausgrid.

5.2 Service Work (NOSW)

ASPs are required to submit to Ausgrid, completed *Notification of Service Work (NOSW)* forms, detailing all contestable work performed. These forms must be lodged within two working days of the work being energised. If electrical installation work is carried out in conjunction with the contestable work, the installing electrical contractor is required to provide the ASP with a completed copy of the CCEW form prior to the commencement of the contestable work. Ausgrid's publication ES4 - *Service Provider Authorisation* should be read for further details.

6 Inspections and Appointments

6.1 Inspection of Electrical Installation Work

Ausgrid operates an audit inspection program aimed at securing compliance of the licenced electrician and the licenced electrical contractor company with the requirements by monitoring several categories and type of electrical installation work.

Electrical installation work, notified to Ausgrid, will be inspected on every occasion where it is deemed to be the type that has a higher level of risk to people and property. This applies to the following types of installation work:

- high voltage installations
- rectification of installation, service or metering defects (Monopoly Re-inspection fees apply)
- changes to consumer mains and main switchboards, submains and sub-boards where the load at these points exceeds 100 Amps
- changes to permanent unmetered installations
- changes to CT (current transformer) metering and unmetered submains supplying multiple separately metered tenants.

Where it is impractical or inconvenient for the customer to isolate the electrical installation work of the types listed above after commissioning, electrical contractors should consider arranging an installation inspection prior to energising to avoid any disruption that may be involved during the inspection process.

6.2 Work Requiring an Inspection Prior to Energising

The following types of installation work must be inspected by Ausgrid prior to energising:

(a) New electrical installations supplied at high voltage.

The low voltage portions of these installations will be inspected on an audit basis providing a satisfactory mandatory Installation Safety Management Plan (ISMP) has been prepared by the customer and submitted to Ausgrid in accordance with the requirements of Ausgrid's *Customer Installation Safety Plan.*

(b) New electrical installations containing hazardous zones and alterations and additions to these installations.

(c) New consumers mains and main switchboards where the load at these points exceeds 100 Amps.

(d) New CT (current transformer) metering and any unmetered submains supplying multiple metered tenants.

(e) New permanently unmetered supplies (special small services) and additions to existing sites which affect the electrical loading of the installation.

(f) Submains and sub-boards where the rating at these points exceeds 100 Amps.

If the electrical installation work involves this type of work, isolation may be achieved by:

(a) Either the main switch, residual current device or circuit breaker controlling the new or altered installation must be left sealed in the OFF position; or

(b) If a fused sub-circuit, the fuse element must be removed and the empty fuse holder re-inserted for safety; and

(c) A suitable warning tag is to be fixed to the switchboard equipment clearly indicating that the relevant section of the installation cannot be energised until an inspection by Ausgrid is completed.

Note 1: Wherever it is possible to do so, the wiring to the control and protection equipment should be fully installed.

Note 2: Energising any of the types of installations listed above prior to an inspection by Ausgrid is a breach of the Electricity Supply Act.

6.3 Inspections Outside Normal Business Hours

Under some circumstances customers may require Ausgrid to provide inspection services outside normal working hours and should contact Ausgrid to make these arrangements. Sufficient notice will be necessary to schedule the work. Normal business hours are between 7.30 am and 4.00 pm Monday to Friday excluding public holidays.

If the work involves the inspection of electrical installation work, the customer or the contractor requesting the work will be required to pay the recoverable costs involved in providing inspection services outside normal working hours.

The fee for after-hours inspections of contestable work will be charged to the ASP. AER regulated fees, as detailed in Ausgrid publication Ausgrid's document *Connection Policy – Connection Charges* apply.

Pre-payment or a charge to an operations account will be requested if the amount has been determined in advance. Alternatively, the customer or contractor may be requested to sign an 'Offer to Pay' form for billing upon completion of the work.

6.4 Appointments

Ausgrid must be contacted in person or by phone if you wish to discuss specific arrangements for the connection of a customer's electrical installation or to make an appointment for inspection. Five business days notice should be allowed for arranging appointments, to ensure a time can be mutually agreed. Prior to an inspection, the installation work must be complete and all notifications (and security deposits if applicable) lodged.

6.5 Identification

Ausgrid's employees and subcontractors, acting under Ausgrid's authority, must show identification to the customer before carrying out work on their premises. The identification must be carried on the person while they are on the job. Ausgrid issues photo Identification Cards to their employees and contractors indicating the nature of their authority.

Ausgrid issues a different form of photo identification card to individuals employed by ASPs after granting them authorisation to carry out contestable works on or near the distribution network. ASP photo identification cards do not authorise the individual to be an agent of Ausgrid. The contractual relationship is between the ASP and their customer.

7 Defects

Defects are regarded as electrical installation and service installation work which do not comply with AS/NZS 3000 Wiring Rules, the Service and Installation Rules of NSW or Ausgrid's requirements and Network Standards that apply at the time of the installation.

Where electrical installation defects are found within a customer's electrical installation, the customer and the electrical contractor will each be given a copy of the inspection 'Defect' report. ASPs will be given a copy of a similar report covering any defects found in contestable service work. Electrical contractors and ASPs are required to rectify all defects without delay and within the maximum time specified by Ausgrid.

7.1 Defects in Existing Installations

Electrical contractors who observe existing electrical defects when working on customers' installations and equipment have a legal duty of care to advise the customer and ensure defects, that are immediately dangerous, are disconnected or made safe as soon as possible. Customers should be advised to have other defects that do not present a safety hazard, rectified within a reasonable period.

Where the contractor has reasonable grounds to believe that the customer may not disconnect the defective equipment or installation, or may reconnect it without having suitable repairs performed, the contractor should notify Ausgrid of the details of the defective installation. Contractors will not be charged inspection fees for defects that are not associated with their work.

7.2 Defect Categories

MAJOR DEFECTS are considered to present a high-risk safety hazard to life, health or property. Electrical installation and service work containing major defects **must not** be connected to the network.

If major defects are encountered during an inspection, the inspecting officer may isolate and appropriately label the section of the installation containing the major defect if possible. If this is not possible the entire electricity supply to the installation or the service line may need to be disconnected. Disconnection of the complete installation will only be carried out as a last resort if the situation cannot be made safe by other means. Any work carried out by Ausgrid in these situations to make safe will be temporary and must be rectified by the installing electrical contractor or ASP. A new notification form (and/or a CCEW or NOSW) must be submitted notifying Ausgrid that defects have been rectified.

During an inspection, if an electrical appliance, fitting or apparatus is found to present a high-risk safety hazard to life, health or property, the equipment will be disconnected and a label attached indicating that the equipment is considered to be dangerous and must not be used until it is repaired.

The following are considered **MAJOR DEFECTS:**

(a) Exposed live parts:

- Exposed LIVE terminals on equipment that are accessible by unauthorised persons, without the use of a tool or key. This does not include vacant lampholders and fuse bases.
- Exposed conductors of unterminated or damaged cables, which can be energised by the operation of a switch, circuit breaker or insertion of a fuse. This includes cables with open circuits, which cannot be readily located.
- Bare aerial conductors in accessible positions without the use of a ladder.

(b) Earthing system:

- Open circuit or high resistance from any point on the installation that is required to be earthed to the neutral conductor of the supply system.
- Unearthed exposed metal, which is in an earthed situation.

(c) Insulation resistance:

- Insulation resistance less than 1 Meg Ohm between the circuit conductors and between circuit conductors and earth on new circuits and 250,000 Ohms on other circuits (no appliances connected).
- Insulation resistance less than 10,000 Ohms between live parts and earthed parts of appliances which incorporates a heating element.
- Insulation resistance less than 1 Megaohm on other low voltage equipment.

NOTE: The minimum safety requirement for insulation resistance between live conductors and earth is 1 Meg Ohm as per the current version of AS/NZS 3000 Wiring Rules.

(d) Overloaded equipment:

- Socket outlets, switches, switchboard equipment, cables and accessories operating in excess of 125% of current rating.

  The current rating is determined by the maximum demand of the portion of installation or equipment supplied by the protective device, cable or accessory.

- Appliances and cables, which may overheat to such an extent that serious damage or fire could be expected to occur or has occurred.

(e) Overcurrent protection:

- No overcurrent (or RCD) device provided where required.

(f) Polarity:

- Incorrect connection of active, neutral and earthing conductors at socket outlets, lamp holders, switchboard equipment and appliances.
- Isolating device not operating in active conductor(s).

(g) Unsuitable equipment:

- Equipment exposed to the weather or other damp situation, which is not adequately protected against the direct ingress of water.
- Electrical equipment installed in a hazardous area that does not meet the appropriate requirements of relevant Australian Standards current at the time of installation of that equipment.
- Equipment used in an immediately dangerous manner.
- Equipment installed for the supply of fire and smoke control equipment and lifts, which does not provide the required level of protection against fire and mechanical damage.

(h) Failed fault loop impedance.

MINOR DEFECTS are defects that are not considered to be Major Defects. These will be categorised under the section of the current version of AS/NZS 3000 Wiring Rules, Service and Installation Rules of NSW or Network Standard to which they are applicable.

Note: Ausgrid is required to ensure defective electrical installation and contestable work defects are rectified. It is illegal for a person to use any electrical installation or equipment which has been disconnected by Ausgrid due to defects until the defects have been rectified and Ausgrid notified on either a Certificate of Compliance - Electrical Work (CCEW) or Notification of Service Work (NOSW) form.

Failure to carry out the required tests is considered a Major defect.

ASPs should refer to Ausgrid publication ES4 – *Service Provider Authorisation* for further details concerning defects or safety breaches associated with contestable service and distribution work.

7.3 Reporting and Follow up

Ausgrid will carry out the following procedures when defects are detected during an inspection. The defects may or may not be temporarily isolated, or disconnected. As stated above an entire installation may be immediately disconnected from Ausgrid's network if the defect cannot be satisfactorily isolated.

(a) Ausgrid Defect Notices will be left on site where appropriate. There will be one notice addressed to the customer and one addressed to the installing contractor or ASP. If the notices are not left on site they will be posted. The defects must be rectified within the time period specified on the defect notice.

(b) If defects have not been rectified within specified period and Ausgrid has not approved an application to extend this period, a letter will be sent to the customer indicating the final date in which the work must be completed. Ausgrid may also send a letter to NSW Fair Trading advising them of the matter.

(c) If the defect has not been rectified by the final date indicated to the customer, a second letter will be sent to the customer specifying a date on which electricity supply to the premises will

be disconnected if necessary. At this stage, if an electrical contractor or ASP is responsible for the defect, a letter **will** be sent to NSW Fair Trading and corrective or disciplinary action taken.

(d) On the disconnection date an Installation Inspector will visit the installation. If, at that time, the defects have not been fixed, or if the Installation Inspector is unable to gain access to the premises, the installation or the faulty portion of the installation will be disconnected without further notice. A re-inspection charge will apply for the reconnection.

Note: On large installations where inspection may take place over a period and where it is in the best interests of both parties, the relevant Superintendent at Ausgrid may make special arrangements.

Ausgrid's Customer Installation Safety Management Plan provides further details of arrangements under which installations may be disconnected.

7.4 Breach of Law

If a person breaches any law applicable to the provision of electricity supply, electrical safety, electrical installation work or contestable work, Ausgrid may report that person to the appropriate authority or take legal action itself. Ausgrid may also disconnect the premises from the network. Such breaches occur for example where a person:

(a) Carries out electrical installation work that does not comply with the current version of AS/NZS 3000 Wiring Rules or is not appropriately qualified.

(b) Carries out contestable work without the required accreditation or authorisation.

(c) Fails to notify Ausgrid after carrying out electrical installation work or contestable work as required.

(d) Deceives or attempts to deceive any of Ausgrid's employees as to any fact, matter or thing relating to an electrical installation.

(e) Makes a representation in any document in relation to any electrical installation, which they have supplied, that is false or misleading.

(f) Tampers with or breaks the seal on any meter metering equipment or other sealed equipment under Ausgrid's control, without Ausgrid's written authorisation.

(g) Connects an electrical installation to Ausgrid's network without Ausgrid's consent.

(h) Connects an electrical installation, to any electricity supply main or service line in such a manner that the consumption of electricity by that installation is not metered or is metered at a tariff other than that which it is required to be.

(i) Extends or connects an electrical installation to another electrical installation which is connected to Ausgrid's network without Ausgrid's consent.

(j) Does not rectify defects found during an inspection and for which the person was responsible, within the required time.

8 Disconnection or Refusal to Connect

8.1 Reasons Disconnection or Refusal to Connect

Ausgrid may refuse to connect a new installation or part thereof that is non-compliant with the required rules or standards. Ausgrid may also disconnect an existing installation or part thereof that is unsafe. The procedures that Ausgrid will follow before disconnection for unsafe work are in accordance with NSW legislation.

Disconnection of an unsafe or non-compliant installation may occur immediately at any time, if a **major defect** is identified that is considered dangerous to life, health or property. Details of major defects can be found in Section 7 of this publication.

8.2 Disconnection for Safety

Ausgrid may in certain circumstances disconnect a section or the whole customers' installation due to immediate dangers associated with their electricity supply. This may involve isolating the connection at the customer's point of supply or at Ausgrid's street pole or underground pillar connection.

In some cases where a customer has requested disconnection for safety reasons, the work may be considered contestable work which a suitably qualified ASP could have provided, as such a regulated fee may be charged. Reconnection once the appropriate repairs have been completed is a contestable function and may be completed an ASP with the appropriate authorisation.

8.3 Disconnection and Removal of Unused Mains and Metering

When notified or identified that a premises no longer has a retail contract for the supply of electricity or other energy customer registered, if a new customer has not requested continuance of electricity supply at that installation within six months, Ausgrid may request the customer or owner of the installation to arrange for the disconnection of the installation from its network. If necessary Ausgrid may also request removal of any premises connection assets connected to the installation and recovery and return of the metering equipment to the nominated owner of the equipment within five business days. This work must be carried out by an appropriately Authorised ASP.

If disconnection is required at an installation which has multiple customers and metering points, the separately metered portion that is no longer required must be permanently physically disconnected in a manner that prevents re-energisation. Permanent physical disconnection could include breaking of bonds, disconnecting cables or busbars in an unmetered section of the switchboard and resealing or locking out a switch with an Ausgrid approved locking device.

Ausgrid may also request the installation of stay wires or poles on private property if removing a service line would leave the consumers mains and/or poles without adequate support.

Any subsequent reconnection of a disconnected unused installation is customer funded contestable work and must be approved in advance by Ausgrid. The installation then must comply with the current rules that apply at the time of reconnection.

8.4 Permanent Disconnection of Supply

When a customer proposes to permanently disconnect the electricity supply from their premises to the Ausgrid Network, specific permission must be obtained prior to the work being carried out by making an application through our website. Clause 10.6 of Ausgrid's document ES4 Service Provider Authorisation provides additional guidance.

The approval must be obtained from Ausgrid prior to carrying out the disconnection. The customer must engage an ASP with the relevant class of authorisation to carry out this type of work, who then be responsible for the coordination of the work and for obtaining approval from Ausgrid.

The procedure to be followed for each separately metered installation is as follows:

(a) A written request must be obtained from the owner (or their agent) of the premises. It must also include the written agreement of the occupier (customer) if they are not the owner.

(b) If the customer purchases their energy under a mass market or negotiated supply contract that retailer must also provide written agreement for the permanent removal of supply.

(c) The above written agreements and a request for disconnection must be forwarded to the Ausgrid's Installation Data Operations office together with details of the installation address, size and type of *service main* and the existing meter numbers.

Note: The approval does not permit ASPs who have not been requested by the meter device owner to disconnect or remove the metering equipment, (Type 1 – 4 meters) provided by an Energy Retailer under a negotiated supply contract. ASPs require separate AEMO Meter Provider Accreditation for this type of work.

If the above conditions have been met, the Installation Data Operation Group will issue a Job Number to the ASP to proceed with the work.

Where the proposed removal of supply is associated with a demolition, customers and ASPs should be aware that the premises might have more than one source of electricity supply. The perimeter of the building or premises should be inspected for any attached street lighting fittings, catenary wires supporting streetlamps, or other wires or equipment provided by Ausgrid. Any such attachments must be noted and reported to Ausgrid to arrange for their removal, prior to demolition.

Once a premises is permanently disconnected, any reconnection of supply is to be treated as a new connection application and must be in accordance with the current standards at the time the new connection is applied for.

9 Dispute Resolution Procedures

The following dispute resolution procedures are specifically available to **Accredited Service Providers Level 2** (ASP/2) and **electrical contractors** for disputes arising from corrective or disciplinary actions taken by Ausgrid in relation to defective installation work under Ausgrid's *Customer Installation Safety Management Plan* or contestable work under the Ausgrid Service Provider Authorisation scheme (as detailed in publication ES 4).

Note: The ASP/1 Authorisation Agreement details dispute resolution procedures for Accredited Service Providers Level 1.

9.1 Initial Consultation

If, after receiving an initial notification concerning an action or a requirement imposed by Ausgrid, the matter requires further clarification, it is suggested that initially an interview should be arranged with Ausgrid to discuss the matter.

9.2 Internal Review

If the matter results in a dispute, an appeal can be lodged by forwarding a written request for a review. The request should be lodged promptly (but no later than 28 days) after receiving the original notification from Ausgrid. It must state the reasons why the review is being requested. The request should be sent to:

- **For matters associated with electrical contractors:** the local Network Operations Manager or nominated representative. The relevant manager will then conduct an internal review of the matter and notify the appellant of his or her decision in writing within 14 days or a date agreed with the appellant. The manager will also decide whether the original action taken by Ausgrid continues to apply during the dispute resolution process.
- **For matters associated with accredited service providers ASP2:** the Manager – Installation Policy and Compliance or nominated representative. The Manager – Installation Policy and Compliance will then conduct an internal review of the matter and notify the appellant of his or her decision in writing within 14 days or a date agreed with the appellant. The Manager – Installation Policy and Compliance will also decide whether the original action taken by Ausgrid continues to apply during the dispute resolution process.

9.3 Alternative Dispute Resolution - Mediation

If the dispute is not satisfactorily resolved through the internal review process, as a next step, the appellant may choose to participate in mediation. A request, in writing, for the appointment of a mediator must be sent to the local Network Operations Area Manager (for electrical contractor matters) or the Manager Installation Policy and Compliance (for ASP matters promptly but no later than 14 days after receiving notification of the outcome of the internal review. The request must state the reason why the internal review was considered unsatisfactory.

The appointment of an independent qualified mediator will be by mutual agreement and all applicable mediation costs will be shared equally between Ausgrid and the appellant. Participation in mediation is voluntary and either the appellant or Ausgrid may withdraw from the process at any time.

The mediator will attempt to resolve the dispute through negotiation, consultation and collaboration. Ausgrid and the appellant will be bound by the outcome of the mediation process upon formal mutual acceptance of the outcome by both parties.

9.4 Arbitration

If agreement is not reached on the appointment of a suitable mediator, or either party refuses to participate in mediation at any time, or the outcome of the mediation process is unsatisfactory, the appellant may request that the dispute be resolved through arbitration.

A request for the dispute to be heard under arbitration must be made to Ausgrid in writing no later than:

- 28 days after the failure of the mediation process; or
- if mediation has not commenced, 42 days after the original notification by Ausgrid.

Arbitration will be conducted under the provisions of the Commercial Arbitration Act or as follows:

(a) For matters concerning contestable work involving accredited or authorised service providers, Department of Trade and Investment, Regional Infrastructure and Services may appoint the arbitrator. A copy of request for arbitration must be sent to Ausgrid.

(b) For matters concerning electrical installation work involving electrical contractors, Fair Trading NSW may appoint the arbitrator. A copy of the request for arbitration must be sent to the Licensing Section of NSW Fair Trading at the same time it is sent to Ausgrid.

The arbitrator will serve a written notice on either Ausgrid or the appellant as an outcome of the arbitration process. The decision of the arbitrator will be binding on both parties. The arbitrator will provide the reasons for the decision and, if the decision varies Ausgrid's original action, the manner in which the action is varied.

Initially, each party will be equally responsible for any preliminary costs required to initiate arbitration. The arbitrator at the end of the process shall determine the final allocation of costs to each or either party