

Australian Capital Territory

# Utilities (Electricity Service and Installation Rules Code) Determination 2013

Disallowable instrument DI2013–220

made under the

*Utilities Act 2000*, section 65 (application of industry code provisions)

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## 1 Name of instrument

This instrument is the *Utilities (Electricity Service and Installation Rules Code) Determination 2013*.

## 2 Commencement

This instrument commences the day after it is notified.

## 3 Revocation of code

This instrument revokes the technical code, the Electricity Service and Installation Rules Code (December 2000).

## 4 Determination of code

The Minister determines the Electricity Service and Installation Rules Code.

## 5 Public access to documents

Copies of the Management of Electricity Service and Installation Rules Code are available for inspection by members of the public between 9:00 am and 5:00 pm, Monday to Friday, at the Commission's offices at Level 8, 221 London Circuit, Canberra City ACT and on the Commission's website ([www.icrc.act.gov.au](http://www.icrc.act.gov.au)). Copies of these documents can be made at the Commission's offices. Electronic copies are available on request. No charge will apply.

Simon Corbell MLA

Minister for the Environment and Sustainable Development

22 August 2013



Australian Capital Territory

# **ELECTRICITY SERVICE AND INSTALLATION RULES CODE**

**August 2013**

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## 1 INTRODUCTION

### 1.1 Technical codes

The Electricity Service and Installation Rules Code (this Code) is a technical code under Part 5 of the *Utilities Act 2000* (the Act).

### 1.2 Utility to comply with technical codes

Section 25(2)(a)(iv) of the Act requires licence holders to comply with technical codes.

## 2 APPLICATION and PURPOSE

### 2.1 Application

This Code applies to electricity distributors.

### 2.2 Purpose

The purpose of this Code is to require electricity distributors to develop Electricity Service and Installation Rules (ES&I Rules) that set out the requirements and associated obligations and procedures for the safe, reliable and efficient connection of electrical installations to an electricity network.

## 3 DICTIONARY

### 3.1 Dictionary

The dictionary at the end of this Code is part of this Code.

## **4 ELECTRICITY SERVICE AND INSTALLATION RULES**

### **4.1 Electricity Service and Installation Rules to Comply with this Code**

ES&I Rules must comply with the terms of this Code.

### **4.2 Electricity Distributor to Prepare and Submit Electricity Service and Installation Rules**

- (1) An electricity distributor must, within 21 days following the grant of its utility services licence, notify the director-general of their intention of making draft ES&I Rules in writing.
- (2) The electricity distributor must, within 60 days following the notification of making draft ES&I Rules, prepare draft ES&I Rules and submit it to the director-general for approval.

### **4.3 Electricity Distributor to Publish Electricity Service and Installation Rules**

After receiving written approval by the director-general, an electricity distributor must as soon as possible:

- (1) adopt ES&I Rules;
- (2) publish ES&I Rules; and
- (3) provide a copy of the published ES&I Rules to the director-general.

### **4.4 Amendments to published Electricity Service and Installation Rules**

- (1) An electricity distributor must maintain and update its published ES&I Rules to ensure the ongoing safe, reliable and efficient connection of electrical installations to its electricity network.
- (2) The electricity distributor must submit draft amendments to the director-general for approval.
- (3) The director-general may direct an electricity distributor to amend its published ES&I Rules.

### **4.5 Compliance by Electricity Distributor with Electricity Service and Installation Rules**

An electricity distributor must comply with all the terms of any ES&I Rules it adopts.

## 5 GENERAL REQUIREMENTS

### 5.1 Content of Electricity Service and Installation Rules

- (1) ES&I Rules must seek to preserve security, reliability and safety of the electricity network, while minimising interference to the customers.
- (2) ES&I Rules must seek to adopt the best industry practices.
- (3) ES&I Rules must specify requirements for the electricity distributor's standard method of connection to the electricity network and specify, for alternative methods of connection:
  - (a) the process by which a person may propose an alternative method of connection;
  - (b) who decides whether or not the proposal is acceptable;
  - (c) the time allowed for the decision; and
  - (d) an independent review process for any disputes arising out of the alternative proposals.
- (4) ES&I Rules must specify the electricity distributor's standard methods of metering connections, and if applicable, any alternative methods of metering connections.

### 5.2 Application of Electricity Service and Installation Rules

- (1) An electricity distributor may include, in its contract with a customer, provisions that require an electrical installation to comply with its ES&I Rules prior to the connection of that electrical installation to its electricity network.
- (2) ES&I Rules may state that provisions of ES&I Rules apply to a new electrical installation, an addition or alteration to an electrical installation.

### 5.3 Failure to Comply with Electricity Service and Installation Rules

- (1) ES&I Rules may allow an electricity distributor to refuse to supply a customer with electricity or to disconnect the supply of electricity to the customer's premises if the customer fails to comply with the electricity distributor's ES&I Rules.
- (2) If the electricity distributor disconnects the supply of electricity to a customer's premises under subclause 5.3(1), ES&I Rules may allow the electricity distributor to not reconnect the premises until the customer has complied with the ES&I Rules.

## 6 SPECIFIC CONTENTS OF ELECTRICITY SERVICE AND INSTALLATION RULES

### 6.1 Electricity Distributor's Electricity Supply

ES&I Rules must state that the electricity distributor will provide a standard system nominal voltage for its electricity network that complies with AS 60038 Standard Voltage.

### 6.2 High Voltage Power Supply to Customer

ES&I Rules may set requirements for the design, construction, installation and use of a customer's high voltage electrical equipment when an electricity distributor is to provide high voltage electricity supply to the customer.

### 6.3 Number of Services Provided to Customer

- (1) ES&I Rules may limit the number of services the electricity distributor will provide to a customer to one service for any one building or one group of buildings on the same premises.
- (2) Despite subclause 6.3 (1), the electricity distributor may:
  - (a) require more than one service to large premises if the electricity distributor considers it necessary; or
  - (b) agree, at a customer's request, to provide, at the customer's expense, an additional service to the customer's premises.
- (3) ES&I Rules may state that, if the electricity distributor provides an additional service to premises:
  - (a) each service must, unless the electricity distributor agrees otherwise, supply a separate and clearly defined portion of the premises; and
  - (b) any one service must, unless the additional service is intended to supply specific electrical equipment, supply the whole of the electrical installation in a separate portion of the premises.

### 6.4 Temporary Power Supply to Customer

ES&I Rules may set requirements that comply with AS/NZS 3001 Electrical installations – Transportable structures and vehicles including their site supplies, AS/NZS 3002 Electrical installations – Shows and carnivals, AS/NZS 3004 Electrical installations – Marinas and recreational boats and AS 3012 Electricity installations – Construction and demolition sites for providing a temporary electricity supply to a customer.



## 6.5 Common Trenching

If no common trenching agreement is in place, ES&I Rules may authorise, subject to conditions set by the ES&I Rules, the use for other services of a trench excavated for the electricity distributor's service cable.

## 6.6 Customer's Electrical Installation Connection to Electricity Network

- (1) ES&I Rules may require a customer to provide and maintain, at the customer's expense, space, housing, and mounting to accommodate network apparatus service equipment on the customer's premises.
- (2) ES&I Rules may allow an electricity distributor to refuse to connect an electrical installation to electricity distributor's electricity network if the installation is not in accordance with AS/NZS 3000 Electrical Installations.

## 6.7 System of Earthing

ES&I Rules must require customer's electrical installations to comply with the multiple earth neutral system of earthing or another system consistent with AS/NZS 3000 Electrical Installations.

## 6.8 Fault Current

- (1) ES&I Rules must state the maximum current from the electricity network that customers' electrical installations must be designed to withstand, without damage, under fault conditions.
- (2) ES&I Rules must state the circumstances in which the maximum fault current differs from the stated maximum and, if it differs, require the electricity distributor to inform the customer.

## 6.9 Substation on Customer's Premises

- (1) ES&I Rules must state that the method of supply to large or isolated electrical installations may be determined by agreement between an electricity distributor and a customer.
- (2) If maximum demand of the customer's electrical installation exceeds 250 kVA, ES&I Rules must state that the electricity distributor requires the customer to install a substation within the customer's premises.

## 6.10 Sealing Parts of a Customer's Electrical Installation

ES&I Rules may require a customer to provide the means to fix seals to parts of the customer's electrical installation if the electricity distributor or the customer considers that the seals are necessary to secure the electricity supply.

### 6.11 Customer to Label Parts of Electrical Installation

- (1) If a customer's premises are divided into subtenancies and a separate electricity supply is given to occupancy, ES&I Rules may require the customer to identify an occupancy that has a separate supply and mark the distribution board with the same identification mark to identify the supply equipment for that occupancy.
- (2) If the customer's premises consist of a number of separate areas, ES&I Rules may require the customer to mark or otherwise identify each area and mark the meter panel with the same identification mark to identify the meter and service equipment for that area.
- (1) If the customer's premises are supplied from more than one service, ES&I Rules may require the customer to label each service position, mark the main switchboard associated with that area with the same identification mark to identify the part of the electrical installation supplied and indicate the location and conditions of operation of any alternative source of supply to the electrical installation.

### 6.12 Number of Phases of Electricity Supply and Balancing of Load

- (1) ES&I Rules may specify the number of phases of low voltage electricity that an electricity distributor will supply to a customer's electrical installation or a separately metered portion of the customer's electrical installation.
- (2) If the customer's electrical installation or separately metered portion of the customer's electrical installation is supplied from more than one phase, ES&I Rules may set requirements for the balancing of the load per phase.

### 6.13 Interference with Electricity Supply to Other Customers

- (1) ES&I Rules may set requirements for the connection and operation of electric motor installations and control of starting current or any other electrical articles which may affect the quality of supply.
- (2) Any requirements of ES&I Rules in relation to limits on harmonic voltage distortion or voltage fluctuations in the electricity network caused by a customer's electrical Installation must be consistent with AS/NZS 61000 Electromagnetic compatibility.

### 6.14 Power Factor of Customers' Electrical Installations

ES&I Rules may set requirements for the minimum power factor of a customer's electrical installation if an electricity distributor considers that:

- (1) the electricity supply is not or will not be efficiently utilised; or
- (2) the electricity supply to another customer will or might be adversely affected.

## 6.15 Alternative Power Supply Installed by Customer

If a customer installs equipment, including generators momentarily connected in parallel with the electricity distributor's network, ES&I Rules may set requirements to ensure the safe changeover operation of the alternative source of electricity supply.

## 6.16 Electricity Network Capital Contribution Code

ES&I Rules may specify the conditions of charges applicable to a customer if the customer's network installation requires services outside a scope of the basic standard infrastructure defined within the industry code, the Electricity Network Capital Contribution Code.

## 6.17 Embedded Generation

- (1) ES&I Rules must state that any embedded generating unit up to 10 kVA per single phase units and up to 30 kVA for three-phase units connected to an electricity distributor's network must comply with AS 4777 (series) Grid connection of energy systems via inverters and AS/NZS 5033 Installation and safety requirements for photovoltaic (PV) arrays.
- (2) ES&I Rules must set requirements, for the connection to the electricity distributor's network by any embedded generating unit greater than 30kVA, which include:
  - (a) Network connection arrangements and capacity;
  - (b) Synchronisation and asynchronisation;
  - (c) Frequency control and limits;
  - (d) Voltage and reactive power control and limits;
  - (e) Load control and limits;
  - (f) Power quality and limits;
  - (g) Metering requirements;
  - (h) Wiring requirements;
  - (i) Connection capacity limits;
  - (j) Connection, disconnection and re-connection operations;
  - (k) Isolation of an embedded generating unit from the electricity distributor's electricity network;
  - (l) Protection systems requirements;
  - (m) Fault levels;
  - (n) Earthing;
  - (o) Monitoring, control and communications requirements;
  - (p) Emergency requirements;
  - (q) Network operations;
  - (r) Commissioning;
  - (s) Testing;
  - (t) Maintenance; and
  - (u) For sub transmission network connection generating units, requirements as set out in the schedules to Chapter 5 of the *National Electricity Rules*.

- (3) ES&I Rules must set requirements for all protection measures applying to an embedded generating unit greater than 30kVA to be tested by persons qualified and accredited by the electricity distributor:
  - (a) when the embedded generating unit is installed and commissioned, before connecting to a electricity distributor's electricity network; and
  - (b) at a minimum of every 5 years after connecting to the electricity distributor's electricity network.
- (4) ES&I Rules must state that the electricity distributor disconnects any embedded generating unit from its network, where it is satisfied, on reasonable grounds that the embedded generating unit:
  - (a) presents a safety hazard to the electricity distributor's network, persons accessing or working upon the electricity distributor's network, the public or any emergency services;
  - (b) is affecting the quality or reliability of supply to other customers supplied by the electricity distributor;
  - (c) may or is affecting the safety, quality or reliability of any other distribution or transmission networks; or
  - (d) is not in compliance with its ES&I Rules.
- (5) ES&I Rules must state that embedded generating unit greater than 30kVA must submit the safety operating plan which consists of the safety related plan and rules, maintenance procedures and relevant competencies of staff and contractors, to ensure the safe operation and maintenance for the connection to the electricity network.

### 6.18 High Voltage Installations

- (1) ES&I Rules must set requirements, for the connection of any high voltage installation onto an electricity distributor's network in compliance with AS 2067 Substation and high voltage installations exceeding 1kV a.c.
- (2) ES&I Rules must state that the electricity distributor disconnects high voltage installations from its network, where it is satisfied, on reasonable grounds that the high voltage installation:
  - (a) presents a safety hazard to the electricity distributor's network, persons accessing or working upon the electricity distributor's network, the public or any emergency services;
  - (b) is affecting the quality or reliability of supply to other customers supplied by the electricity distributor;
  - (c) may or is affecting the safety, quality or reliability of any other distribution or transmission networks; or
  - (d) is not in compliance with its ES&I Rules.
- (6) ES&I Rules must state that the electricity distributor will require the operator of high voltage installations to submit the safety operating plan which consists of the safety related plan and rules, maintenance procedures and relevant competencies of staff and contractors, to ensure the safe operation and maintenance for the connection to the electricity network.

## DICTIONARY

- (1) "the Act" means the *Utilities Act 2000* (ACT);
- (2) "Australian Standard (AS)" or "Australian Standard / New Zealand Standard (AS/NZS)" means a standard published by Standards Australia as current at the time;
- (3) "consumer's mains" means those conductors between the point of supply and the main switchboard;
- (4) "customer" means;
  - (a) a person whom the service is provided under a customer contract; or
  - (b) a person who has applied, orally or in writing, to the relevant utility for the service to be provided under a customer contract;
- (5) "customer contract" means;
  - (a) a standard customer contract, made under the Act;
  - (b) a negotiated customer contract, made under the Act; or
  - (c) a customer connection contract, made under the National Energy Retail Law;
- (6) "electrical article" means:
  - (a) a wire, cable, fitting, meter, insulator, switchboard, or apparatus designed or intended for use in an electrical installation; and
  - (b) an appliance, fitting or apparatus operated by electricity and the cable and other things required for its connection to an electrical installation;
- (7) "director-general" means the director-general under part 5 of the Act;
- (8) "electricity distributor" is as defined within the Act;
- (9) "electricity network" is as defined within the Act;
- (10) "electrical installation" means the electrical wiring and associated equipment used to convey and to control the conveyance of electricity within customer's premises, but does not include any electrical equipment connected to or extending or situated beyond an electrical outlet socket;
- (11) "embedded generating unit" has the same meaning as in the *National Electricity Rules* published by the Australian Energy Market Commission;
- (12) "meter" is as defined in the *National Electricity Rules* published by the Australian Energy Market Commission;
- (13) "metering equipment" means equipment necessary for measuring and recording the consumption of electricity and includes the meter and may also include current transformers, potential transformers, test links, potential fusers, etc;
- (14) "person" includes a natural person, a firm, an unincorporated association or a body corporate;

- (15) "technical code" means a code approved or determined by the Minister under part 5 of the Act;
- (16) "utility" is as defined within the Act;
- (17) "utility service" has the same meaning as in the Act; and
- (18) "licence" means a licence granted to a utility under the Act.