Australian Capital Territory

Utilities (Electricity Distribution Supply Standards Code) Determination 2013

Disallowable Instrument DI2013–221

made under the

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

1 Name of instrument

This instrument is the *Utilities (Electricity Distribution Supply Standards 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 Distribution (Supply Standards) Code (December 2000).

4 Determination of code

The Minister determines the Electricity Distribution Supply Standards Code.

5 Public access to documents

Copies of the Management of Electricity Distribution Supply Standards 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). 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

Australian Capital Territory

ELECTRICITY DISTRIBUTION SUPPLY STANDADS CODE

August 2013

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1. INTRODUCTION

1.1 Technical codes

The Electricity Distribution Supply Standards 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 OF THIS CODE

2.1 Application

This Code applies to electricity distributors.

2.2 Purpose

The purpose of this Code is to provide the requirements for safe and reliable electricity supply from the electricity distributor's network.

3 DICTIONARY

3.1 Dictionary

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

4 VOLTAGE

4.1 Nominal Voltage

An electricity distributor must specify a standard system nominal voltage for its electricity network that complies with AS 60038 Standard Voltages.

4.2 Rapid Fluctuations in Supply Voltage

An electricity distributor must include provisions in its customer contract to the effect that:

(1) if a customer notifies the electricity distributor that another customer's equipment is giving adverse effects to its electricity supply, the electricity distributor must conduct a test at the point of common coupling;

(2) the electricity distributor may require the customer to pay for a test conducted under subclause 4.2(1), if the test proved that the voltage fluctuation did not exceed the limit of AS/NZS 61000; and

(3) as a result of the test referred to in subclause 4.2(1), if the electricity distributor is made aware that the limits of AS/NZS 61000 are being exceeded, the electricity distributor must take reasonable steps to require the other customer to rectify the situation.

4.3 Voltage Dips

(1) Subject to subclause 4.3(2), an electricity distributor must take all reasonable steps to ensure that the number of voltage dips per point of supply does not exceed the numbers corresponding to the relevant magnitude of the voltage dip as set out in Schedule 1.

(2) The electricity distributor's obligation under subclause 4.3(1) is subject to being no voltage dips, due to the failure of equipment in the electrical installation or due to voltage dips caused by events associated with the transmission network or from the generation of electricity.

4.4 Switching Transients

An electricity distributor must take all reasonable steps to ensure that switching transients on its electricity network are limited to less than two times normal supply volts.

4.5 Voltage Differences between Neutral and Earth

An electricity distributor must take all reasonable steps to ensure that voltage differences between neutral and earth are limited to 10 volts steady state (5 minute average) at the point of supply.

4.6 Earth Potential Rises

An electricity distributor must take all reasonable steps to comply with the requirements for step and touch voltage outlined in AS/NZS 7000 Overhead line design – Detailed procedures and ENA EG1 Substation Earthing.

4.7 Voltage Unbalance

An electricity distributor must take all reasonable steps to ensure that the voltage of electricity distributed through its electricity network does not exceed:

(1) a 6% difference between the highest and lowest phase to neutral or phase to phase steady state voltage (five minutes average) for the low voltage network; and

(2) a 3% difference between the highest and lowest phase to phase steady state voltage (five minutes average) for the high voltage network.

4.8 Direct Current

An electricity distributor must take all reasonable steps to ensure that electricity distributed through its electricity network does not exceed a direct current voltage component of the neutral conductor with respect to earth of more than plus or minus 10 volts at the point of supply.

4.9 Harmonic Content of Voltage and Current Waveforms

An electricity distributor must include provisions in its customer contract to the effect that:

(1) if a customer notifies the electricity distributor that another customer's equipment or appliance is generating harmonic levels at the point of common coupling in excess of the levels specified in AS/NZS 61000, the electricity distributor must conduct a test at the point of common coupling;

(2) the electricity distributor may require the customer to pay for any test conducted under subclause 4.9(1), if the test proved the harmonic levels did not exceed the limits specified AS/NZS 61000; and

(3) if the results of a test referred to subclause 4.9(1) indicate that the limits within AS/NZS 61000 are being exceeded, the electricity distributor must take whatever reasonable steps are necessary to require the other customer to rectify the situation.

5 LIGHTNING

5.1 Obligation of Electricity Distributor to Observe Good Industry Practice

An electricity distributor must comply with good electricity industry practice to minimise the risk of damage due to lightning strikes on, or near, the electricity network.

5.2 Customer Awareness

An electricity distributor must make all reasonable efforts to make customers aware of lightning protection measures.

6 SUPPLY RELIABILITY

6.1 Reliability Targets

(1) An electricity distributor must, before 31 December each year, publish its targets for the reliability of supply for the following year.

(2) Where groups of customers are expected to receive substantially different levels of service, separate targets should be set under Schedule 2.

(3) At a minimum, reliability targets should be as advantageous to customers as the reliability targets specified in Schedule 2.

6.2 Content of Reliability Targets

Targets for the reliability of electricity supply for customers must include:

(1) the total time customers may experience loss of supply, expressed as the customer Average Interruption Duration Index (CAIDI);

(2) the frequency with which supply to customers may be interrupted, expressed as the Supply Average Interruption Frequency Index (SAIFI); and

(3) the duration of interruptions to supply that customers may experience, expressed as the System Average Interruption Duration Index (SAIDI).

7. LEVELS OF ELECTROMAGNETIC FIELDS

7.1 National Health and Medical Research Council (NHMRC) Guidelines

An electricity distributor must take all reasonable steps to ensure that electromagnetic fields generated by its electricity network are kept within the limits prescribed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) - Guidelines on Manageing Exposure to Electric and Magnetic Fields – 0 to 3 kHz.

7.2 Inductive Interference

An electricity distributor must take all reasonable steps to ensure that inductive interference caused by its network system is within the limits specified in AS/NZS 2344.

8. MONITORING QUALITY OF SUPPLY

8.1 Data Gathering for Monitoring

An electricity distributor must gather data for monitoring purposes, referring to Technical Inspector's guideline for data gathering if it is available.

8.2 Distributor to Report Annually

An electricity distributor must monitor the quality of supply and report annually to the director-general on its performance in relation to this Code.

SCHEDULE 1: VOLTAGE DIPS

VOLTAGE DIPS		
Dips down to % of nominal volts	**Max Number of Dips (per year per Point of Supply) - Urban**	**Max Number of Dips (per year per Point of Supply) - Rural**
<30%	2	6
30-50%	20	40
50-70%	20	40
70-80%	25	50
80-90%	200	300

SCHEDULE 2: MINIMUM SUPPLY RELIABILITY TARGETS

SUPPLY RELIABILITY TARGETS		
Parameter	**Target**	**Units**
Outage time (CAIDI)	74.6	Minutes
Outage frequency (SAIFI)	1.2	Number
Outage duration (SAIDI)	91.0	Minutes

NOTES:

(1) **CAIDI: Customer Average Interruption Duration Index.** The ratio of total customer hours interrupted to the total customer interruptions. Measured in minutes and indicates an average duration an affected customer is without power.

(2) **SAIFI: System Average Interruption Frequency Index.** The ratio of total number of customer interruptions to the total number of customers served. This indicates the number of interruptions an average customer experiences.

(3) **SAIDI: System Average Interruption Duration Index**. The ratio of total customer hours interrupted to total customers served. This is expressed in minutes and indicates the average duration a customer is without power.

(4) These indices exclude outages of less than one minute and extended outages due to storms. Storms are those outages where 10% or more of customers in an area are affected.

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 and as current at the time;

(3) "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;

(4) "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;

(5) "director-general" means the director-general under part 5 of the Act;

(6) "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;

(7) "electricity distributor" is as defined within the Act;

(8) "electricity network" is as defined within the Act;

(9) "electricity retailer" has the same meaning as in the *National Energy Retail Rules* by Australian Energy Market Commission;

(10) "Electricity Service and Installation Rules Code" means the Electricity Service and Installation Rules Code approved by the Minister as a Technical Code under the Act;

(11) "harmonic" has the same meaning as in AS/NZS 61000 (series);

(10) "high voltage network" means the part (if any) of an electricity network that is used to distribute electricity at voltages in excess of 1 kilovolt;

(11) "ICRC" means the Independent Competition and Regulatory Commission established under the *Independent Competition and Regulatory Commission Act 1997*;

(13) "low voltage network" means the part (if any) of an electricity network used to distribute electricity at voltages of 1 kilovolt or less;

(14) "Minister" means the Minister responsible for administering Part 5 of the Act;

(15) "nominal voltage" has the same meaning as in AS 60038;

(16) “person” includes a natural person, a firm, an unincorporated association or a body corporate;

(17) “premises” has the same meaning as in the Act;

(18) “point of supply” means the junction of the conductors of the electricity distributor’s electricity network with the customer’s electrical installation;

(19) “point of common coupling” has the same meaning in this Code as within AS/NZS 61000 (series);

(17) “switching transients” are transient oscillatory distortions of the voltage waveform lasting from less than 1 microsecond to several milliseconds;

(18) “technical code” means a code approved or determined by the Minister under part 5 of the Act;

(19) “transmission network” has the same meaning as in the *National Electricity Rules* published by the Australian Energy Market Commission;

(20) “utility” is as defined within the Act;

(21) “voltage dip” means a single short reduction in supply voltage as defined in AS 61000.3.100;

(22) “licence” means a licence granted to a utility under the Act.