
By-laws under the *Electricity Commission Act*

The Northern Territory Electricity Commission pursuant to section 26 of the *Electricity Commission Act*, hereby makes the following By-laws.

Dated this thirteenth day of December, 1978.

E. S. DRYER
Chairman

ELECTRICITY BY-LAWS

PART I — PRELIMINARY

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| 1. These by-laws may be cited as the Electricity By-laws. | Citation |
| 2. In these by-laws, unless the contrary intention appears— | Interpretation |
| <p>“approved” means approved by the Commission;</p> <p>“authorized officer” means a person authorized by the Commission in accordance with by-law 3;</p> <p>“consumer” means a person who has made application for, or to whom is supplied, electricity under these by-laws;</p> <p>“consumer’s installation” includes all electrical wiring, fitting and apparatus installed on and within the consumer’s premises after the point of attachment;</p> <p>“consumer’s service” means the line or cable from the supply line to the point of attachment;</p> <p>“officer” means any person employed by the Commission to carry out duties under the <i>Electricity Commission Act</i> or these by-laws;</p> <p>“person” includes a firm or company;</p> <p>“point of attachment” means the point where the consumer’s service line is physically terminated;</p> <p>“premises” means all buildings and land occupied by a consumer;</p> <p>“service line” means any overhead or underground conductors between the supply authority’s distribution system and the consumer’s terminals (the junction of the supply authority’s conductors with the consumer’s mains) through which electricity is to be supplied by the supply authority to a consumer or consumers and where a consumer is supplied directly from a distribution centre, the conductors between the distribution centre and the consumer’s terminals shall be deemed to constitute the service line;</p> | |

*Notified in the *Northern Territory Government Gazette* on 29 December, 1978.

“supply line” means a wire or wires, or conductor, or other means of distributing or transmitting electricity, together with any casing, covering, tube, pipe, pole, post, frame, bracket or insulator enclosing or other means of distributing or transmitting electricity or any part thereof, or any apparatus connected therewith, for the purpose of distributing or transmitting electricity and owned by the Commission;

“works” includes electric lights, and any buildings, machinery, engines, works, meters, or things of whatever description required to supply electrical energy.

- Authorization**
- 3.**(1) The Commission may, by instrument in writing, authorize officers to carry out the functions, powers and duties under these by-laws specified in the instrument.
- (2) A copy of any such instrument signed or purporting to be signed by the Commission shall be sufficient authority for the person named therein to carry out the functions, powers and duties specified in the instrument.

PART II — CONDITIONS OF SUPPLY

- Service and Installation Rules**
- 4.** All power and lighting installations shall be in accordance with the Service and Installation Rules in Schedule 1.
- Application for supply of electricity**
- 5.** A person may apply to the Commission for the supply of electricity and, where he does so, he shall apply in writing on a form approved by the Commission and pay at the time of application the prescribed fee, if any.
- Commission not compellable**
- 6.** The Commission shall not be compellable to supply or continue to supply electricity to any person.
- Commission not liable**
- 7.**(1) The Commission shall not be liable to any penalty or damages for not supplying or continuing to supply electricity to any person if the want of such supply arises from unavoidable cause or accident, a necessity to effect repairs or alterations to any supply line or works, an action taken under by-law 8 or from such other cause as, in the opinion of the Chairman, is sufficient.
- (2) The Commission shall not be liable to any penalty or damages for supplying electricity by an irregular or fluctuating voltage.
- Restrictions**
- 8.**(1) In the case of accident, necessity to effect repairs or alterations to any supply line or works unavoidable cause or necessity to distribute electricity equitably, the Chairman may restrict, regulate, or restrict and regulate, the use of electricity.
- (2) A person shall not use electricity in contravention of a restriction imposed by the Chairman under clause (1).
- Commission may cut off supply**
- 9.** The Commission may cause the supply of electricity to any consumer to be cut off at any premises occupied by that consumer—
- for such time as is necessary for the purpose of testing by the Commission or for any other purpose connected with the efficient working of the Commission;
 - if the consumer appears to have committed or permitted any offence under the Act or these by-laws;
 - if the consumer obstructs an officer in the exercise of any power under the Act or these by-laws;

- (d) if the consumer's installation does not comply with the requirements of the Service and Installation Rules for the supply of electricity as prescribed in Schedule 1; or
- (e) if the consumer fails to pay any moneys due for electricity supplied or for apparatus hired from the Commission or for any other charges payable under the Act or these by-laws,

and the Commission may discontinue to supply electricity so long as the cause remains or is not remedied or such moneys or charges are not paid.

10.(1) An account rendered by the Commission for the supply of electricity shall be due and payable by the consumer 14 days after the date upon which it is sent. Accounts

(2) The Commission may, upon application by a consumer, grant an extension of time to pay an account.

11.(1) Before supplying electricity to any person, the Commission may require him to lodge a deposit as security for the payment of charges as they become due and for the proper care and custody of apparatus belonging to the Commission which may be, or be required to be, installed on his premises. Security deposits

(2) Where the Commission is supplying electricity to a consumer, it may require the consumer to lodge a security deposit or further security deposit before continuing to supply electricity.

12. The Commission may, at any time in its absolute discretion, refund to the consumer all or portion of the deposit lodged by the consumer under these by-laws. Refund of deposits

13.(1) Subject to this by-law, when the consumer has lodged a deposit and the supply of electricity is subsequently cut off from the consumer at the consumer's own request the consumer shall apply in writing to the Commission within 3 months from the supply of electricity to the consumer being cut off for a refund to him of the deposit lodged by him and the Commission shall return the deposit to the consumer. Accounting for deposits

(2) If at the time of the cutting off of the supply of electricity there is owing some amount by the consumer for the use of electricity on any account, then such amount shall be deducted from the deposit and the Commission shall refund the balance to the consumer.

(3) If, at the time of the cutting off of the supply of electricity, the amount owing by the consumer for electricity on any account exceeds the deposit lodged by the consumer, the Commission shall retain the deposit.

(4) A person who requests a temporary disconnection of the supply of electricity may request the Commission to retain a deposit in anticipation of reconnection to the electricity supply.

14. If the consumer does not apply in writing to the Commission for the return of the deposit or portion of it within the 3 months referred to in by-law 13(1), the consumer shall forfeit his deposit and all his right to it to the Commission. Forfeiture of deposit

15. Where the consumer has lodged a deposit and subsequently the supply of electricity is cut off from the consumer for some reason other than at the request of the consumer, the Commission may deduct the amount of the supply of electricity owing by the consumer from the deposit lodged and, where it does so, shall refund the balance, if any, to the consumer. Cost of electricity to be deducted

Recovery of
cost of
electricity

16. Nothing in these by-laws shall prevent the Commission from recovering in any competent court any amount for electricity used or related charge when the amount owing for the supply of electricity by the consumer exceeds the amount of the deposit lodged.

Extension
of supply
line

17. Where the Commission receives an application for the supply of electricity to any premises, and that supply necessitates the extension of a supply line, the Commission may grant supply upon such conditions as it considers fit.

48 hours
notice

18.(1) A consumer who intends to discontinue the use of electricity shall give 48 hours notice in writing to the Commission of his intention.

(2) A consumer who fails to give notice in accordance with clause (1) shall be held responsible for all electricity registered by the meter or assessed in accordance with the Act or these by-laws until such time as the meter has been read or 48 hours have elapsed from the date of notification of intention to discontinue, whichever is the later.

Electricity
may be cut
off for failure
to pay

19.(1) If a person fails to pay any money due on an account for the supply of electricity or the related charges of hiring apparatus from the Commission, an authorized officer may, without prejudice to any other remedy, cut off the supply of electricity from the premises of that person and remove all apparatus situated thereon which apparatus is the property of the Commission.

(2) If a consumer discontinues the use of electricity, becomes bankrupt, assigns his estate for the benefit of his creditors or, being a company, goes into liquidation, an authorized officer may discontinue the supply of electricity to premises occupied by the consumer.

Clearance
of shrubs, &c.

20.(1) The Commission may remove or cut back a tree, bush or undergrowth which could interfere with electric lines or works of the Commission.

(2) It shall be a condition of the supply of electricity to premises that the Commission has power to remove or cut back trees, bushes or undergrowth on the premises of the person to whom the electricity supply is supplied.

PART III — MISCELLANEOUS

Meter reading
as evidence

21. Where electricity is supplied to a consumer through a meter, the record taken by an officer who in the course of his duties reads the meter of the number of units of electricity which pass through that meter shall be evidence of the quantity of electricity which passed through that meter to the time when that reading was made.

Repairs
to meter

22. In the case of the destruction or damage by fire or otherwise, or the loss of any meter, maximum demand indicator, time switch or other apparatus, the consumer shall pay the value thereof to the Commission or in the case of damage only, shall pay to the Commission such amount as the Commission considers reasonable for the repair of the apparatus.

Restriction
on work
undertaken

23.(1) Except as specified in the Act or these by-laws, the Commission shall not undertake any work on the consumer's premises.

(2) On completion of a consumer's installation, the consumer shall forward notification on a form approved by the Commission to the authorized officer and before connection to the supply line, an officer shall inspect and test the consumer's installation.

(3) If the test and inspection show the consumer's installation has not been carried out in accordance with these by-laws, a connection shall not be made until the Commission is satisfied that these by-laws have been complied with.

- 24.** If the supply of electricity is disconnected in pursuance of these by-laws, a reconnection shall not be made until an application for supply in accordance with the form approved by the Commission is submitted to the Commission together with the prescribed fee. Application for reconnection
- 25.** No power lines, metres, apparatus, fittings or works belonging to the Commission shall be subject to distress or to be taken in execution under process of any court, or under proceedings in connection with the winding up of companies or in bankruptcy against the person in whose possession they are. Power lines, &c., not subject to distress
- 26.**(1) Any notice under these by-laws may be served by post or by delivery on the premises to which the notice relates. Service
- (2) Where a notice is served by post under this by-law, it shall be deemed to have been served on the day following the posting of the notice.
- 27.** Proceedings to enforce any penalty for breach of these by-laws or for the recovery of any damage incurred or for payments due under these by-laws may be instituted by the Commission in a court of competent jurisdiction. Proceedings
- 28.** A person who commits an offence against these by-laws for which no penalty is expressly provided shall be liable, on conviction, to a penalty not exceeding \$500. Offences
- 29.** A person shall not be eligible for appointment as an electrical inspector under section 19(1) of the Act unless that person is the holder of an electrical mechanic's licence grade A. Appointment of electrical inspectors
- 30.** The presence on a consumer's premises of a hazard which interferes with or has the potential to interfere with an authorized officer's obligation to read a meter shall, for the purposes of these by-laws and for the purpose of section 31(1)(c) of the Act, constitute a prevention of reading the meter. Hazards

SCHEDULE 1

By-law 4

SERVICE AND INSTALLATION RULES

PART I — PRELIMINARY

1. In these Rules, unless the contrary intention appears—

“direct earthing system” means a system of earthing in which the parts of an installation required to be earthed are connected to a discreet earthing medium, usually a conductor specifically provided for the purpose, a cable sheath or an electrically continuous water main and where the earth wire is not connected within the installation to the neutral conductor, or to earth through the trip coil of an earth leakage circuit-breaker;

“distribution centre” means any substation or generating station from which electricity is supplied direct at low voltage or medium voltage to a distribution system or to an installation and where the distribution centre may consist of one or more transformers on a pole, on or under the ground or in a building it may be located in a generating station or in a zone substation;

- “distribution system” means that portion of the supply system whereby electricity at low voltage is conveyed from any one distribution centre to the premises of all consumers supplied therefrom but does not include service lines;
- “earthed” means electrically connected to the general mass of earth;
- “earth connection” means a connection to the general mass of earth by means of an electrode or electrodes connected in parallel at a given location;
- “earthing electrode” means a metal rod, tube, water pipe, plate or other conductor buried in or driven into the ground and used for making a connection to the general mass of earth;
- “earth leakage circuit-breaker system” means a system that causes a breaker to operate and disconnect the protected circuit whenever an earth fault is sensed and includes:
- (a) a voltage operated earth leakage circuit-breaker system that is a system where the parts of an installation required to be earthed are connected to an earth electrode through a coil of a voltage operated earth leakage circuit-breaker which controls the supply to all those parts of the installation which are to be protected; and
 - (b) a current operated earth leakage circuit-breaker system where the parts of an installation required to be earthed are connected to an earthing electrode and the actives and neutral of the installation are passed through an “out-of-balance-current” sensing circuit-breaker and where, under normal circumstances, the “out-of-balance-current” approached zero and the breaker does not operate but where the current to earth from the installation exceeds a predetermined value (usually 30 ma or less) the breaker is caused to open thereby disconnecting the faulty installation;
- “earth impedance” (of an earth connection) means the ohmic impedance between the electrode system and the general mass of earth;
- “earthing circuit” means the complete loop through which the earth fault current flows. This includes the transformer winding and distribution active and the return earth path between the earth connection at the installation and the earth connection at the distribution centre (which, for the MEN system, includes the distribution neutral);
- “earthing conductor” means a conductor connecting any portion of the earthing system to equipment required to be earthed or to any other portion of the earthing system;
- “earthing system” means all conductors, piping, electrodes, clamps and other connections whereby conductors or equipment are earthed;
- “electrode”, see earthing electrode;
- “multiple earthed neutral system” (MEN system) means a system of earthing in which the earthing conductor within an installation is connected to the neutral as well as an earthing electrode. In this system the distribution system neutral provides the continuous electrical path between the consumer and the distribution centre earthing point;
- “service line” means any overhead or underground conductors between the supply authority’s distribution system and the consumer’s terminals (the junction of the supply authority’s conductors with the consumer’s mains) through which electricity is to be supplied by the supply authority to a consumer or consumers, and where a consumer is supplied directly from a distribution centre, the conductors between the distribution centre and the consumer’s terminals shall be deemed to constitute the service line;

“voltage” means differences of potential normally existing between conductors and between conductors and earth as follows:

- (a) extra-low voltage — not exceeding 32 V alternating current or 115 V direct current.
- (b) low voltage — exceeding extra-low voltage, but not exceeding 250 V.
- (c) medium voltage — exceeding low voltage, but not exceeding 650 V.
- (d) high voltage — exceeding 650 V;

“zone substation” means a substation receiving supply at subtransmission voltage and from which one or more distribution centres is supplied at a high voltage.

2.(1) The electricity supplied by the Commission is in the form of a 50 hertz alternating current from a 415/240 V 3-phase, 4-wire, or 480/240 single-phase 2-wire system.

(2) High voltage may be made available where large amounts of electricity are required.

3. The neutral conductor of the system is solidly earthed at the source of supply without a circuit-breaker or fuse of current limiting resistance. It follows that the method of control required for installations connected to the Commission’s system is that set out in S.A.A. Wiring Rule No. 2.15 and these Rules.

4. The voltage at the terminals of consumer’s mains is generally maintained within \pm 6 per cent.

5. Overhead services lines shall be in accordance with the following:

- (a) these by-laws;
- (b) any special requirements of the Department of Transport, the Department of Defence or Telecom when the overhead electrical works are erected adjacent to an aerodrome, wireless receiving or transmitting station;
- (c) the Standards Association of Australia Wiring Rules Part I, Wiring Methods;
- (d) the Standards Association of Australia Appropriate Standards (Line Construction); and
- (e) the appropriate standards of the Electricity Supply Association of Australia.

PART II — LIMITATIONS OF THE LOADING OF APPARATUS AND BALANCING OF LOAD

6. In an installation or separately metered portion of an installation supplied through a service having more than one active conductor, the total loading shall be balanced as nearly as practicable over the active conductors and in any case shall be so balanced that the out-of-balance-current, unless otherwise directed, shall not normally exceed 25 amperes or 15 per cent of the most heavily loaded phase, whichever is the greater.

7. If a 3-phase supply is provided, an individual appliance (other than one of those dealt with specifically in this Part which is designed to operate at 240 volts, phase to neutral voltage) shall, if its load exceeds 50 amperes, be balanced over 3 phases.

8.(1) The Commission may refuse the supply of electricity from the general supply mains to any electric welder and no expense should be incurred by any consumer or prospective consumer, until an application has been lodged with the Commission and advice has been received that the supply will be given and upon what terms and conditions it will be given.

(2) The Commission reserves the right to restrict the hours of use or discontinue the supply of electricity to any electric welder, the use of which may cause or is causing interference with the supply of any other consumer.

9. The loading of water heaters of the instantaneous type, must not exceed the following:

- (a) for single-phase 240 volts A.C., 18 amperes; and
- (b) for 3-phase 415 volts A.C., 18 amperes per phase.

10.(1) Except where the service requirements are determined by the application of these Rules, the method for assessing a service will be in accordance with the following:

- (a) the total loading on the service calculated as amperes at the single phase to neutral voltage must be calculated in accordance with S.A.A. Wiring Rule No. 2.5; and
- (b) when the calculation in paragraph (a) has been made, the type of service to be installed may be determined from the following:
 - (i) 4-wire service (3 active conductors and neutral) will be installed if available and where—
 - (A) the calculated maximum demand on the service exceeds 140 amperes; and
 - (B) a motor rated for more than 3 kW is to be supplied through the service,
and should additional phases be required to provide supply to multiphase equipment, the Commission may charge the additional cost to the consumer; or
 - (ii) 2-wire service (one active conductor and neutral) will be installed in all other cases where directed by an authorized officer of the Commission for this purpose.

(2) No expense should be incurred by a prospective consumer nor any installation work carried out by an electrical contractor without first ascertaining the availability of supply for the purposes required and the necessary requirements including the number of phases which will be connected.

PART III — SERVICE LINES

11. The Commission will install only one service to supply one building or any group of buildings on the property.

12.(1) The Commission will determine the route of the service line and the position of the point of attachment.

(2) The Commission will not accept responsibility for damage to premises resulting from normal tension in the service line or from cases beyond the Commission's control.

13.(1) The point of attachment must be of sufficient strength and give clearance of the attachments from the guttering and the like, and provide for attaching the service lines as required by the Commission.

(2) Where metal brackets are required for attachment of service lines, they shall be galvanized and of a design approved by the Commission.

14.(1) If an aerial service is to be provided it will be installed by the Commission and, where the length of the service line from the building alignment to the point of attachment on the consumer's premises, pole or other support exceeds 20 m, the consumer will be required to arrange the cost of that portion of the service in excess of 20 m with an electrical contractor.

(2) Any overhead line section of the consumer's mains shall be constructed to comply with the Overhead Line Construction and Maintenance Regulations 1974 and S.A.A. Wiring Rule No. 3.13.

(3) Where poles, attachment spars or blocks or any portion of the line on the consumer's property, are to be provided and erected by the consumer, they shall be in accordance with these Rules and instructions and the Commission regarding dimensions and particulars.

(4) Where aerial mains exist and a special type of service is required by the consumer and agreed to by the Commission, the consumer will be charged with the full cost of such service between the aerial mains and the termination of the service.

PART IV — UNDERGROUND SERVICE CABLES

15.(1) Unless approved by the Commission, underground services are required in central business districts and some shopping centres.

(2) Underground services are also required in underground residential distribution (URD) areas.

(3) Underground services may be required in other areas or may be provided at the consumer's cost in overhead areas.

16.(1) Where an underground service is provided to a single residence, it shall be single phase unless otherwise approved by the Commission.

(2) The consumer will provide a non-metallic conduit in accordance with S.A.A. Rule 3.14 to protect the service cable throughout its entire length between the property boundary and the meter box.

(3) The Commission will supply the full length of the service cable and install it from the property boundary.

17.(1) Where a builder's supply is required—

- (a) the service cable will be installed to its final position and pending completion of the portion of the building a meter box may be located temporarily at its final position or adjacent to its final position; or
- (b) temporary underground consumer's mains may be installed by the electrical contractor from the service fuse pillar to the meter box position.

(2) Alternatively, the consumer's mains may, on request, be installed to the final position on the residence.

**PART V — SERVICE LINES AND OVERHEAD CONSUMER'S MAINS
ON PRIVATE PROPERTY**

18.(1) Cable and supports provided by the consumer on private property, shall be in accordance with the minimum requirements set out in this rule and their maintenance shall be the responsibility of the consumer and the Commission may order the replacement of defective components.

- (2) The minimum requirements for the purpose of sub-rule (1) are—
- (a) the Standards Association of Australia Wiring Rules Part I, Wiring Methods; and
 - (b) any instructions by the Northern Territory Electricity Commission.

PART VI — SERVICE FUSES

19.(1) In general for aerial services, fuses will be fixed at the pole top in the street and will be supplied and fixed by the Commission.

(2) For underground services, the Commission will determine the location of the service fuses and these fuses must be readily accessible at all times.

PART VII — TEMPORARY SERVICES AND WIRING

20.(1) Where electricity is supplied to a temporary installation for any purpose, the charges for electricity used will be made in accordance with the tariff applicable.

(2) A fee for the installation of the service, as prescribed by the Regulations, is payable before the service is made available.

- (3) A service is considered to be temporary—
- (a) if it is installed to supply for a period of 2 years or less; or
 - (b) if it is not part of the permanent wiring of a building.

21. Where electricity is connected to temporary wiring, inspections will be made in accordance with S.A.A. Wiring Rule No. 3.31 and a permit issued.

**PART VIII — INSTALLATION OF SPECIAL OR ADDITIONAL
SERVICES**

22.(1) Except in special circumstances, the Commission will install only one service to supply one building or to supply any group of buildings on the same property and where a special or additional service is agreed to by the Commission, the consumer may be required to pay the total cost of installing the service, including the cost of material and the cost of fixing additional meters.

(2) Where 2 or more services are installed to supply any premises the wiring shall be so arranged that the limits of the portions of the installation connected to each service are clearly defined.

(3) Unless the additional service is provided to supply specific equipment, the whole of the installation in any defined portion of the premises must be supplied from the same service.

- (4) There shall be no interconnection between any service.

(5) Where a special or additional service is installed, the consumer shall be required to label each of the services in the premises to indicate the presence and positions of the other services and the specific equipment or defined portion of the premises supplied through each service.

(6) Alternate services installed for continuity of supply shall be taken to the main switchboard and change-over switching arrangements installed, and labelled to the satisfaction of the Commission.

PART IX — SUPPLY TO LARGE INSTALLATIONS

23.(1) If the supply of electricity required by an applicant is, in the opinion of the Commission, in excess of that which can be supplied from the Commission's street mains and such supply can best be given by installing transformers, switchgear and other equipment on the premises which are to be supplied, the applicant shall provide free of cost to the Commission a suitable space within the premises to accommodate the transformers, switchgear and other equipment necessary to provide the electricity required.

(2) Where a consumer takes electricity from a substation on his premises, he will be required to bear the cost of, or provide, the mains from the substation enclosure to his switchboard, provided this is not detrimental to the supply of the consumer on whose premises the substation is located, and the Commission may also supply other consumers from that substation.

PART X — SUPPLY IN RURAL AREAS

24.(1) In rural or semi-rural areas with blocks of one hectare or larger the Commission will provide electricity to no more than 20 m inside the property boundary.

(2) If supply is required beyond 20 m, the consumer shall provide a pole no more than 20 m inside the boundary. The consumer shall provide on this pole a weather-proof box with space for the Commission's kWh metering and a fully insulated circuit-breaker suitable for the maximum demand of the installation conductors down the pole and within the box shall be double insulated.

PART XI — PROVISION AND INSTALLATION OF METERING

25.(1) Meters, metering links, time switches or relays for the control of power usage and, where necessary, maximum demand meters, will be supplied and fixed by the Commission and shall remain the Commission's property.

(2) Medium voltage supply will be metered by single or 3-phase kWh metres connected in the active conductor.

(3) Installations which, in the opinion of the Commission will have a maximum demand exceeding 100 amperes per phase on any one tariff, will be metered using toroidal current transformers.

(4) The consumer shall arrange for provision for installation of the current transformers on the incoming side of the main switch or switches.

(5) At the discretion of the Commission the current transformers may be issued to the electrical contractor for mounting in the switchboard assembly.

(6) The consumer shall provide facilities for the connection of meters and other instruments but all such connection may be made by the Commission's staff.

(7) For connection of single-phase meters a minimum of 200 mm of cable shall protrude from the meter board.

(8) With the approval of the Commission provision for erection of metering equipment may be made remote from the main switchboard.

(9) For current transformers metering it will be the consumer's responsibility to supply and install both cables and cable enclosure to the satisfaction of the Commission.

(10) Where metering is direct the consumer shall supply and install both cables and cable enclosure.

26. Full details of metering installations for single and multiple applications are to be obtained from the Commission.

27.(1) The position of the metres shall be determined by the electrical inspector.

(2) The consumer or the consumer's electrical contractor shall be advised in writing by the electrical inspector of the position selected.

(3) Under no conditions shall meter boxes or switchboards be installed so as to present a hazard to pedestrian traffic.

28.(1) Suitable space shall be made available at a height not more than 2 m from ground or floor level for the meters in a position readily accessible to officers for fixing, reading, testing, adjusting and removing them without difficulty.

(2) Unless otherwise approved by the Commission, the position shall be such that officers can gain access to it without having to obtain a key, but no objection will be raised to the enclosure of metering equipment within business premises which will always be open during ordinary business hours.

(3) In private residences, meters will be fixed in such positions that they can be read without having to enter enclosed verandahs with doors which may be locked during the occupant's absence.

(4) In the case of premises where there is more than one consumer, multimetering shall be carried out in accordance with diagrams available at the Commission's office.

29.(1) Protection shall be provided by the consumer to ensure that the metres installed are protected against—

- (a) mechanical injury;
- (b) effects of the weather;
- (c) corrosion; and
- (d) sea air.

(2) The meter box shall be of a type acceptable to the Commission.

(3) On other than single domestic premises a similar type of meter box of suitable dimensions for mounting of all necessary meters and metering links shall be provided where the metering position is exposed to the weather, excessive dust or the possibility of mechanical damage.

(4) On existing installations a consumer shall, at his own expense, enclose all meters and switchboards, if fixed on open verandahs or in a position exposed to the weather, in a weather-proof box suitably flashed and of approved manufacture with a suitable hinged door and catch made to the satisfaction of the Commission.

30. Where one consumer is supplied with electricity at different rates or where several consumers occupy one building or are supplied from one service, the meters will be fixed in a group or in groups and in accordance with instructions by the Commission.

31. The type of meters which will be used and the method of connecting them is dependent upon the tariff at which electricity is supplied and determined by the nature of the load.

32. Meters other than those installed at the main metering position will not be supplied by the Commission but the consumer may arrange for the supply and installation of such meters at his own expense.

33.(1) The installation of prepayment meters on electrical installations will only be permitted in special cases.

(2) A commercial laundry or a laundry provided for tenants of multi-unit dwellings shall be approved under sub-rule (1) subject to the following conditions:

- (a) written application for permission to erect prepayment meters must be made by the owner;
- (b) the meters must be calibrated and maintained so that the charges made for electricity by the owner do not exceed those charged by the Commission;
- (c) the glass face of the meters must be obscured so that the dials are not visible without first removing the meter cover; and
- (d) the Commission does not accept any responsibility for losses incurred by damage to the meters.

PART XII — CONNECTION OF CONDUCTORS IN SERVICE FUSES, METERS, &c.

34.(1) Only the Commission's staff may insert the end of any conductor in any service cut-out, meter, relay, time switch or other device which is the property of the Commission or under the sole control of the Commission.

(2) No electrical contractor, electrician or person working under his direction shall remove Commission seals from fuses, meters, instruments or connecting links and shall not alter or make any connection thereto.

(3) The terminals of the Commission meters shall not be used for connecting together the various circuits of the installation.

(4) The connection of the various circuits of the installation shall be made on the consumer's switchboard or on connecting links provided by the consumer.

(5) One cable only will be permitted to be connected to any one terminal of a meter.

35. The consumer or his electrician shall not be permitted to make any connection or disconnection from conductors directly connected to the supply system.

PART XIII — CONSUMER'S INSTALLATIONS

36.(1) Every installation to be connected to the Commission's mains shall comply with the Wiring Rules published by the Standards Association of Australia and known as the S.A.A. Wiring Rules and with these Rules.

(2) Every installation or addition to an installation prepared for connection to the Commission's mains must be carried out by a person or firm duly licensed under the *Electrical Workers and Contractors Act*.

(3) The fact that an installation has been connected to the supply mains by the Commission shall not be construed to be a statement by the Commission that that installation complies in every detail with the S.A.A. Wiring Rules and these Rules.

37.(1) A duly licensed person or firm shall, prior to commencement of electrical wiring work on any installation, submit to the Commission notice on the approved form.

(2) This notice must be delivered to the Commission's area office, and must be given on the printed form provided by the Commission in all Commission area offices work shall not be commenced before advice in writing has been given by the electrical inspector.

38.(1) The advice under By-law 37 shall state whether or not approval is given to carry out the wiring work proposed in the approved form to wire, and also state details of any changes in the wiring or material subject to which approval may have been given.

(2) Instructions made under sub-rule (1) shall be complied with.

PART XIV — NOTICE OF COMPLETION

39. When the consumer's installation, alterations or additions to the installation are completed and ready for inspection and connection, the electrical contractor or electrician who has carried out the installation must give the Commission written notice that the installation has been carried out by him and is complete and ready for connection to the Commission's mains.

(2) The notice required under sub-rule (1) must be given on the printed form provided for the purpose by the Commission.

40.(1) Upon the receipt of the notice of completion referred to in Rule 39 and before any connection to the Commission's mains is made, the Commission will inspect and test each installation.

(2) If the inspection and testing shows that the installation does not comply with the S.A.A. Wiring Rules or with these Rules the Commission may refuse to connect the installation to its mains.

(3) No charge will be made for the first inspection and test, but a charge as prescribed will be made for each and every subsequent test and inspection made by the Commission.

41.(1) An electrical installation which does not comply with the S.A.A. Wiring Rules or these Rules is defective.

(2) The inspector will issue a defect notice on an approved form in which he will list all defects.

(3) After the listed defects are rectified a new "Notice of Completion" form must be submitted to the Commission in order that another inspection and test can be carried out by the Commission and a fee is prescribed for such second or subsequent inspection.

42. No addition to any existing installation may be connected until it has been inspected and tested for connection by the Commission.

43. Additional circuits may be connected to the switchboard of existing installations, provided the new circuits are isolated from the supply by removing the fuses from circuit cut-out or leaving circuit-breakers in the off position. The fuses or circuit-breakers must be clearly labelled to indicate that the fuse carriers must not be inserted in the fuse base or the circuit-breakers closed until such time as the additions have been tested and approved by the Commission.

PART XV — EARTHING

44.(1) The MEN system of earthing has been generally adopted by the Commission and on all new installations or on existing installations where extensions which involve additional final sub-circuits or alterations to circuits which involve alterations or additions to existing switchboards are carried out, provision shall be made for earthing in accordance with the system.

(2) The connection of the main earth wire shall be to the incoming neutral link on the main switchboard (see S.A.A. Wiring Rule No. 5.10.2).

(3) The earth leakage system shall apply only in isolated cases where directed by the Commission and where required for compliance with the *Mining Act*.

(4) Where a temporary supply is required for such purposes as building construction, carnivals and the like, in areas where the method of earthing is the direct earthing system, the Commission may require an earth leakage circuit-breaker to be installed.

(5) Where additions or alterations are made which may form part of, or be separate from, the original installations the electrical contractor must ensure, in addition to the requirements of S.A.A. Rule No. 1.5, that the whole installation is completely earthed in accordance with S.A.A. Rule No. 5.6.

PART XVI — POWER FACTOR

45. The average power factor of any installation should not be less than 0.85 lagging unless otherwise approved by the Commission average power factor shall be determined from the registration of kVAh and kWh meters over a period set by the Commission.

PART XVII — CONTROL AND INSTALLATION OF CAPACITORS

46.(1) Capacitors shall comply with requirements of A.S. 1013-1971 and shall be installed in accordance with the relevant clauses of S.A.A. Wiring Rules, particularly S.A.A. Wiring Rule No. 4.17, and the following additional requirements.

(2) Capacitors connected in parallel with an individual motor or transformer shall not have a kVAh rating exceeding 90 per cent of the kW rating of such motor or transformers to prevent over voltage upon disconnection of supply to the combination.

(3) Unless capacitors are permanently connected in parallel with individual motors and transformers or groups of discharge lights, they shall be controlled by automatic equipment in groups corresponding with variation in kVAh load unless approved by the Commission.

(4) The maximum kVAh of any group shall not exceed one-quarter of the maximum kW loading of the installation as determined by a kW demand meter.

(5) The automatic equipment shall incorporate a no-volt release to prevent capacitors being immediately energized upon restoration of supply.

(6) No condition of operation of capacitors or variation of inductive load shall at any time cause the power factor of the installation to become leading for longer than the inbuilt time delay of the automatic control equipment.

PART XVIII — STARTING CURRENTS OF A.C. MOTORS

47.(1) The Commission reserves the right to restrict the starting current of any motor connected to its system or the operation of such motor likely to interfere in any way with the normal operation of the Commission's plant.

(2) Where no specific restrictions are required, the starting currents of 3-phase, 415 V motors shall not exceed the following values when measured with a back stopped ammeter;

- (a) motors not exceeding 4 kW : 50 A; and
- (b) motors exceeding 4 kW shall not exceed the greatest values calculated in accordance with the following sub-paragraphs:
 - (i) $3.3 \text{ A} \times \text{kW} + 40 \text{ A}$;
 - (ii) $1.1 \text{ A} \times \text{total kW of motors installed on the same service}$; and
 - (iii) the starting current of the largest motor installed, calculated in accordance with sub-paragraph (i).

(3) The starting currents of single-phase motors shall not exceed the following values measured with a back stopped ammeter:

- (a) 240 V motors : 40 A; and
- (b) 440/480 V motors—
 - (i) motors not exceeding 1.5 kW : 40 A;
 - (ii) motors exceeding 1.5 kW but not exceeding 4 kW : $\text{kW} \times 9 + 26 \text{ A}$; and
 - (iii) motors exceeding 4 kW but not exceeding 15 kW : $\text{kW} \times 6.7 + 35 \text{ A}$.

(4) Motors which are frequently started and stopped may, at the discretion of the Commission, be excluded from these Rules and starting currents be restricted as directed.

(5) Motors which are supplied direct from a distribution substation may be allowed greater starting current than set out in this rule and the kilowatt of motors installed means the motors connected to the particular service from which the proposed motor is to be supplied and includes the proposed motor.

(6) Larger motors shall also comply with any instructions given by the Commission in relation to voltage dip.

PART XIX — HIGH VOLTAGE SUPPLY

48.(1) All high voltage equipment which is to be connected to the mains must be approved by the Commission, both with respect to its design and construction and installed in accordance with the S.A.A. Wiring Rules, Part (1) and these Rules.

(2) The Commission will examine drawings and specifications of the proposed high voltage equipment, if such drawings and specifications are submitted to the Commission, and will approve such drawings and specifications if satisfied that they comply with the requirements.

(3) If the consumer purchases or installs any high voltage equipment before the design, construction and method of installation of that equipment have been formally approved by the Commission, the Commission will hold itself free to refuse to connect the whole or any part of the equipment which, in the opinion of the Commission, is not satisfactory.

(4) All high voltage switchgear must comply with the last published Australian Standards Specification applicable to it, and must have the rupturing capacity specified by the Commission.

(5) Transformers supplied at a voltage of 11 kV and having ratings up to and including 1,000 kVA, shall be protected on the high voltage supply by approved fuses or circuit-breakers and relay system.

(6) Transformers having ratings greater than 100 kVA must be protected by an approved circuit-breaker and relay system.

(7) Relays, current transformers and other protective equipment must have characteristics to suit the Commission's existing protective system.

(8) The Commission may test the consumer's equipment for the purpose referred to in sub-rule (7) at the time of the initial installation.

(9) Facilities must be provided for the disconnection of all high voltage and protective circuits.

(10) Suitable earthing electrodes or other approved means of earthing must be provided by the consumer.

(11) All overhead lines operating at voltages in excess of 650 V must be constructed in accordance with the instructions of the Commission.

(12) Supply at high voltage will generally be metered from instrument transformers installed in conjunction with the circuit-breakers.

(13) The Commission may direct that separate high voltage metering be erected or that supply be metered at medium voltage.

49.(1) The switchgear and protective equipment of every high voltage installation must be maintained on a basis as determined by the Commission so that it will perform the functions for which it was designed.

(2) Such maintenance shall be either carried out by the consumer, who shall advise the Commission of his intentions prior to each maintenance, or may be performed by the Commission at the consumer's expense.

(3) The Commission reserves the right to supervise any maintenance carried out by the consumer on equipment connected to the Commission's supply.

PART XX — LOW VOLTAGE RUPTURING CAPACITY OF MAIN OVERLOAD PROTECTIVE DEVICES

50. Where a service is provided to supply a maximum demand exceeding 100 A per phase, or the supply is provided on a separate feeder directly from a substation, all fuses or circuit-breakers mounted on the main switchboard having a rating exceeding 30 A shall have a category of duty or breaking capacity of not less than 15 kA, except as follows:

- (a) in special cases, as determined by the Commission, where substation capacity results in above average fault levels, the category of duty of fuses and the breaking capacity of circuit-breakers shall be in conformity with those fault levels; and
- (b) the minimum rupturing capacity for any fuse connected to the Commission's supply shall not be less than category A.C.I.-S.A.A. Specification C. 135.

**PART XXI — CONSUMER'S MAINS AND SUB-INSTALLATION
MAINS CONNECTED TO UNMETERED SUPPLY**

51. Where other than armoured underground cable is used on consumer's mains, cables shall be enclosed so as to conform with S.A.A. Rule No. 3.15, Table 15, Category A "Enclosures using types (b) to (j)".

52.(1) Unprotected TRS or TPS cables may not be used for consumer's mains.

(2) Double insulated neutral screened cable may be used for consumer's mains provided it is installed in accordance with S.A.A. Rule 3.28.

53. Domestic premises shall have only one main switch per Commission's kWh meter. (Circuit-breakers for no more than 6 final sub-circuits may not be used as main switch-power, main switch-light, &c. A separate main switch is required.)

54. All cables must conform with the S.A.A. Colour Code Rule No. 3.1.3. Jointing will only be permitted at the mains connection box.

55.(1) Where a consumer operates any electrical equipment in a manner so as to unduly or improperly interfere with the Commission's metering equipment or the supply of electricity to any other consumer, the Commission may, without notice, forthwith disconnect the supply to the installation in which the equipment exists.

(2) The fact that the Commission shall have connected and have approved any apparatus or equipment shall not be taken to exempt the consumer from the operation of this rule.

(3) The Commission will only connect apparatus having large or fluctuating demands such as electrical furnaces, welding machines and the like, if it is satisfied that by so doing its supply to other consumers will not be adversely affected.

(4) When contemplating the connection of electrical welding apparatus, X-ray equipment, motors with fluctuating loads, motor-driven reciprocating pumps and the like, particular care should be taken to ascertain from the Commission what conditions must be observed to prevent them interfering with the supply to other consumers.

56. Electrical equipment shall not be installed which generates harmonic voltages at the supply terminals in excess of 0.15 per cent of the 50 Hz voltage, within the frequency range of 850 to 1,250 Hz except, where such equipment is provided with a suitable filter to keep the harmonic voltages at the main within the stated limits.

PART XXII — CONSUMER'S APPLIANCES

57. Where 2 or more power outlets connected to separately metered supplies are required in communal laundries or the like for the operation of wash-boilers, washing machines, &c., these may be installed provided that each outlet is prominently and permanently labelled to indicate the source of supply.

58.(1) When normal servicing of a fixed appliance requires the withdrawal or removal of the components the appliance shall be installed in such a manner that those components are readily removable.

(2) Where it is necessary to withdraw an appliance from its normal position for servicing or disconnection from supply, the sub-circuit to the appliance shall include a flexible conduit connection of sufficient length so that the appliance may be withdrawn to a position where all components are accessible.

(3) Under no circumstances must appliances be installed so that the fuses are inaccessible without first moving the appliance.

59. The plumbing to all fixed electrical appliances shall be correctly installed and complete before a Completion Notice is lodged with the Commission by the electrical contractor responsible for the electrical installation.

60. AC/DC rectifying equipment will only be approved for connection if there is a double wound transformer interposed between the A.C. and D.C. supplies. This will not apply in the following cases:

- (a) full wave rectifiers, clearly marked as such; or
- (b) rectifiers used in conjunction with electrical measuring instruments where the D.C. current does not exceed 100 milliamperes.

61. The electrical installations in caravans and caravan parks shall be in accordance with the S.A.A. Code for Electrical Installations in Caravans and Caravan Parks, Australian Standards No. 3001 of 1977.

62.(1) The maximum demand for consumer's mains for caravan parks shall be calculated at 7 amperes per caravan outlet plus other loading and for sub-mains shall be 10 amperes per caravan outlet plus other loading and Rules 3.2.1.1, and 3.2.1.2 of A.S. 3001-1971 shall not apply.

63.(1) On application, inspection of caravans will be conducted by the Commission and a certificate issued together with an identification number if found to comply with the required standards.

(2) The Commission may at all reasonable times, inspect and test a consumer's installation or any moveable equipment, which includes caravans, on the consumer's premises and if any defect is found which, in the opinion of the inspector is, or is likely to become dangerous to life, health or property, the installation or moveable equipment may be disconnected from supply until the defects are rectified and re-inspected.

64.(1) Standby generating plant connected to installations supplied by the Northern Territory Electricity Commission is permitted, subject to the following conditions:

- (a) permission in writing is obtained from the Commission;
- (b) the installation complies with the S.A.A. Wiring Rules and is inspected on completion;
- (c) a permanently connected change-over switch is installed in all actives in such a way that parallel operation is not possible;
- (d) the neutral conductor is not switched and the installation neutral link is connected to earth; and
- (e) if more than 3.6 kVA or if 3-phase standby supply is required then the generator shall be permanently installed and permanently connected.

(2) Up to 3.6 kVA single-phase portable generating plant may be used, subject to the following additional conditions:

- (a) the generating plant is non-polarized, and has no pre-wired connection between the output and the generator frame or earthing terminal;
 - (b) a permanently connected 15 A input point similar to a Clipsal caravan input socket is installed;
 - (c) a 15 A circuit-breaker is installed; and
 - (d) conforms with the diagram and application forms available from the Commission.
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