

Regulations under Section 2 of the Public Works Amendment Act, 1911.

LIVERPOOL, Governor-General.
ORDER IN COUNCIL.

At the Government House at Wellington, this twenty-second day of September, 1919.

Present:

HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL.

IN pursuance and exercise of the powers and authorities conferred on him by section two of the Public Works Amendment Act, 1911, and of every other power and authority enabling him in this behalf, His Excellency the Governor-General of the Dominion of New Zealand, acting by and with the advice and consent of the Executive Council of that Dominion, doth hereby revoke the regulations prescribing the conditions on which licenses to construct electric lines may be issued, published in the *New Zealand Gazette* of the twenty-ninth day of April, one thousand nine hundred and fifteen, and doth hereby make the following regulations for the purposes of the said section; and doth hereby declare that this Order in Council shall come into operation on the date of the publication thereof in the *New Zealand Gazette*.

REGULATIONS.

1. INTERPRETATIONS.

IN these regulations the following words and phrases shall have the meanings attached to them respectively:—

- "Conductor" means any wire or cable for the transmission of electric energy.
- "Consumer" means any body or person supplied or entitled to be supplied with electrical energy by the licensee.
- "Consumer's wires" means any electric line or lines on the consumer's premises which are electrically connected with the licensee's electric supply-lines.
- "Earthed" means connected to the general mass of earth in such a manner as to ensure at all times an immediate and safe discharge to earth of electric energy.
- "Electric line" means any wire, wires, conductor, or other means used for conveying electricity for power, lighting, or heating purposes; and includes any instrument, insulator, casing, tubing, pipe-covering, enclosing, or post supporting an electric line, or anything connected therewith.
- "Electric distribution-line" means that portion of the system to which electric service-lines are connected for the purpose of supplying consumers.
- "Electric service-line" means the line which connects consumers' premises with an electric distribution-line.
- "Extra-high pressure" means any pressure in excess of 3,300 volts.
- "High pressure" means any pressure over 650 volts but not in excess of 3,300 volts.
- "Low pressure" means any pressure up to and including 650 volts.
- "Inspecting Engineer" means and includes any Inspecting Engineer authorized by the Minister to inspect electric lines.
- "Licensee" means any local authority, company, body, person, or persons authorized to lay, construct, put up, place, or use any electric line.
- "Minister" means Minister of Public Works.
- "Pressure" means the difference of potential between any two conductors through which a supply of energy is given, or between any part of either conductor and the earth.
- "Public Works Engineer" means the Engineer in charge of the Public Works district in which the area of supply is situated.
- "Street" includes road.
- "Substation" means any building, structure, or enclosure, either above or below ground, and containing transforming and converting apparatus for the supply of energy.
- "Telegraph" includes telephone.
- "Telegraph-line" has the same meaning as "electric line" in the Post and Telegraph Act, 1908, and also includes all telegraph, telephone, and electric signal wires belonging to the Government Railways Department.

2. FREQUENCY.

The frequency of alternating-current systems shall be 50 complete cycles per second.

3. SYSTEMS OF SUPPLY.

The supply of electric energy shall be given on one or more of the following systems:—

- (a.) Two-wire system at a nominal pressure of 230 volts, measured at the consumer's terminals—
- (1.) Direct current.
 - (2.) Single-phase alternating current.
- (b.) Three-wire system at a nominal pressure of 460 volts between the outer conductors and 230 volts between each outer and intermediate conductor, measured at the consumer's terminals—
- (1.) Direct current.
 - (2.) Single-phase alternating current.
- (c.) Three-phase four-wire system, at a nominal pressure of 400 volts between phases and 230 volts between each phase and neutral conductor, measured at the consumer's terminals.
- (d.) High or extra-high pressure alternating single-phase two-wire supply to motors, motor generators, pole transformers, transformers placed in street-boxes or in substations, together with a supply from the pole transformers or substations to a low-pressure system or systems as defined in subclauses (a) and (b) of this clause.
- (e.) High or extra-high pressure alternating-current three-phase supply to motors, motor generators, rotary converters, pole transformers, or transformers placed in substations, together with a supply from the pole transformers or substations to a low-pressure system or systems as defined in subclauses (a), (b), and (c) of this clause.
- (f.) High or extra-high pressure two-wire direct-current supply to motors and motor generators.
- (g.) Series street-lighting for any pressure not exceeding 3,300 volts.
- (h.) Direct-current supply at a pressure not exceeding 650 volts with the negative pole earthed.
- (i.) Such other systems as may be authorized by the Minister.

4. VOLTAGE OF SUPPLY.

- (a.) For purposes of lighting and domestic supply not exceeding 3 kilowatts the pressure shall not exceed 230 volts at the consumers' terminals, and for supply to other services exceeding 3 kilowatts and motors of any capacity the pressure shall not exceed 460 volts at such terminals.
- (b.) Supply for power for industrial purposes may be given at high or extra-high pressure not exceeding 11,000 volts either for transformation or for direct supply to motors; provided that the apparatus is so enclosed as to be inaccessible except to authorized persons.
- (c.) Supply for series street-lighting may be given for pressures up to but not exceeding 3,300 volts.

5. CONDITIONS OF DIRECT-CURRENT SUPPLY.

Supply under the conditions of clause 3, paragraph (h), shall be limited to the operation of electric motors and motor generators and to outdoor electric lighting. In such cases a single-pole fuse cut-out or automatic circuit-breaker shall be inserted in the positive conductor, and arranged to operate with an overload of 100 per cent. above the rated full load of the circuit. Such cut-out or circuit-breaker shall be placed in a suitable locked or sealed receptacle of fireproof construction fixed at convenient height at the point of supply. At the distributing-point of a lighting-circuit there shall be inserted in the positive conductor a single-pole switch, together with a fuse arranged to operate with an overload of 50 per cent. above the rated full load of such circuit. In a motor circuit there shall be provided in the immediate vicinity of each motor connected thereto a single-pole switch and fuse cut-out or circuit-breaker arranged to operate with an overload of 50 per cent. above the rated full load of the motor so controlled. Each motor shall also be fitted with an automatic no-voltage release and a series resistance for starting. The negative conductor shall be continuous throughout its length without a switch or fuse.

6. CONNECTION OF CIRCUITS WITH EARTH.

The connection of circuits with earth shall be made in accordance with the following conditions:—

- (a.) The intermediate conductor of a low-pressure three-wire single-phase system, and the neutral conductor of a low-pressure three-phase four-wire system shall be effectively earthed at the point of supply—that is, at the generating-station, substation, or transformer—and at such other points along the electric distribution-line as are necessary to give a resistance not exceeding 10 ohms between any point in such conductor and the general mass of earth.
- (b.) In a three-wire direct-current system the intermediate conductor shall be earthed at the generating-station only, and the current from the intermediate conductor to earth shall be continuously recorded by means of a recording