

- "Inspecting Engineer" means the Engineer or other officer appointed by the Minister for the purpose of inspecting the works to be constructed or maintained under this license.
- "Low pressure" means pressures up to 600 volts.
- "Minister" means the Minister of Public Works.
- "Pressure" means difference of electric potential between any two conductors through which supply of energy is given, or between any part of either conductor and the earth.
- "Street" includes road.
- "Telegraph" includes telephone.

SYSTEM OF SUPPLY.

2. Electrical energy shall be generated at a pressure not exceeding 460 volts direct current for distribution on the three-wire system with 460 volts between the two outers and 230 volts between each outer and the neutral.

Three-phase alternating current shall also be received from the Lake Coleridge supply at a pressure not exceeding 2,200 volts. This shall be stepped down by transformers to 400 volts between phases and 230 volts between each phase and the neutral for distribution on the three-phase four-wire system.

The supply to private consumers for lighting purposes shall be at a pressure not exceeding 230 volts.

CAPACITY OF APPARATUS.

3. All apparatus and conductors for all pressures shall be sufficient in size and power for the work they are called upon to do, and so constructed, installed, protected, worked, and maintained as to prevent danger as far as is reasonably practicable.

NEUTRAL TO BE EARTHED.

4. The connection with earth of the neutral conductor of the three-phase system shall be made at one point only on each distinct circuit, namely, at the generating-station, substation, or transformer, and the insulation of the circuit shall be efficiently maintained at all other parts.

In the case of direct current, the current from the intermediate conductor to earth shall be continuously recorded by means of a low-reading ammeter, reading to a maximum of 5 amperes.

In all cases a link switch shall be provided for disconnecting the earth connection for testing.

No fuse shall be employed in the neutral wire of either system.

The earth shall not be used as a return in place of a neutral wire.

DISTRIBUTION.

5. The distribution may be carried out either by underground or overhead conductors. Provided that, if at any time it is deemed by the Minister to be detrimental to the public safety for the conductors or any particular class of conductors to be overhead, such conductors shall, on receipt of notification to that effect from the Minister, and within ten months of such notification, be laid underground, and all consequent and necessary alterations made by and at the expense of the Council.

REGULATION OF PRESSURE.

6. The pressure shall be maintained within 4 per cent. on lighting-distributing circuits above or below the declared pressure at the consumers' terminals. The licensee shall supply a suitable recording voltmeter for this service, and on complaint by any consumer that the variations in voltage exceed these limits, or on the instructions of the Inspecting Engineer, the Council shall connect a recording voltmeter to record the pressure between the lines at their entrance to the consumers' premises, and shall supply to the Inspecting Engineer a chart showing the variations in voltage between the lines at this point for a period of seven consecutive days. If the variations thus recorded exceed the above limits, the Council shall take immediate steps to comply with this regulation. If after thirty days a similar chart shows that the above limits of variation in voltage are not complied with, a breach of these regulations shall be deemed to have been committed. If the accuracy of the Council's recording voltmeter is questioned by the consumer, a standard instrument shall be supplied by the Inspecting Engineer, the reading of which shall be accepted as final.

SWITCHBOARDS.

7. All switchboards shall be made of and mounted on material that is not inflammable, and the maximum permissible current in any switchboard conductor or conductor

leading thereto shall not exceed the values permitted under the rules of the Institution of Electrical Engineers. No conductor at a pressure above 600 volts shall be exposed on the front of any switchboard, and the back of any switchboard carrying exposed conductors at a pressure over 600 volts shall be screened off and accessible only to authorized persons.

CIRCUIT-BREAKERS.

8. All outgoing feeders and distributors from any generating station or substation shall be provided with automatic circuit-breakers or fuses set to open at 50 per cent. excess current over the rated full load of such feeder or distributor, with a time-limit not exceeding ten seconds.

OVERHEAD ELECTRIC LINES.

9. The diameter of any conductor in any electric line laid or erected for the supply of electrical energy shall not be less than 0.104 inches diameter (No. 12 S.W.G. or 7/20 S.W.G.). If the material of the conductor is aluminium the conductor shall be stranded.

The stress in overhead conductors shall not exceed 25,000 lb. per square inch for copper, 12,000 lb. per square inch for aluminium, 34,000 lb. per square inch for steel, and 22,500 lb. per square inch for iron in the extreme case of a temperature of 32° Fahr. and a wind-pressure of 18 lb. per square foot of diametrical plane occurring simultaneously. The span between supports and the sag shall be determined to conform with the above limiting stresses.

No overhead electric lines shall come within 2 ft. of any other aerial wires or cables, except where it may be permitted to pass either set of wires between other wires at a pole or support.

Electric lines carried on poles shall be at least 18 ft. from the ground, and not less than 5 ft. measured horizontally nor 7 ft. measured vertically from any part of any building or erection other than a support for the wire, except where led to transformers or brought into a building for the purpose of supply.

Electric lines at low pressure shall be insulated throughout with double jute braiding impregnated with waterproof compound; provided that, where circumstances permit, the lines may, with the consent of the Minister, be bare.

Electric lines at high pressure shall be covered with vulcanized rubber of at least 600-megohms grade; provided that where circumstances permit the lines may, with the consent of the Minister, be bare.

Earthed neutrals may in all cases be bare.

SUPPORTS FOR OVERHEAD ELECTRIC LINES.

10. All overhead electric lines at low pressure shall be carried at a minimum height of 18 ft. above the ground.

All overhead lines at high pressure shall be carried at a minimum height of 20 ft. above the ground.

At road crossings the foregoing minimum heights shall be increased in each case by 2 ft.

All aerial wires shall be attached to suitable insulators carried on cross-arms of suitable material and cross-section, and they shall be so attached to the insulators or guarded that they cannot fall from the support. Conductors covered with insulating material shall be so attached that their insulation shall not be impaired where they are secured to the insulator.

Every support for an aerial line shall be of durable material, and properly strengthened against forces due to wind-pressure, change of direction of line, and unequal length of span. The factor of safety of such supports shall be such that the moment resulting from a wind-pressure of 30 lb. per square foot of plane surface and 18 lb. per square foot of diametrical plane upon a cylindrical surface upon the lines and supports shall not exceed one-half of the applied moment which is sufficient to cripple the support if of iron, steel, or ferro-concrete, and shall not exceed one-fourth of the breaking-stress in the case of wood.

The distance between supports shall not exceed 200 ft., except by approval of the Minister.

LOCATION OF OVERHEAD LINES.

11. Except by permission of the Minister of Telegraphs, or subject to an agreement between the Post and Telegraph Department and the licensee, all overhead electric lines shall be placed on the opposite side of the street to that on which any telegraph lines exist; and where the erection of the electric lines necessitates the alteration of any telegraph lines, and such alteration is approved by the Minister of Telegraphs, the cost of the alteration shall be borne by the Council.

In running the lines authorized by this license through or along any street where no telegraph line exists the Council shall keep to one side of the street, and in running service