

DEPARTMENT OF BUDGET AND FINANCE

Repeal of State of Hawaii, Public Utilities
Commission, Rules for Overhead Electric Line
Construction in the State of Hawaii,
General Order No. 6,
Repeal of State of Hawaii, Public Utilities
Commission, Rules for Construction of Underground
Electric and Communications Systems,
General Order No. 10,
and Adoption of Chapter 6-73,
Hawaii Administrative Rules

March 8, 2007

SUMMARY

1. State of Hawaii, Public Utilities Commission, Rules for Overhead Electric Line Construction in the State of Hawaii, General Order No. 6, is repealed.
2. State of Hawaii, Public Utilities Commission, Rules for Construction of Underground Electric and Communications Systems, General Order No. 10, is repealed.
3. Chapter 6-73, Hawaii Administrative Rules, "Installation, Operation, and Maintenance of Overhead and Underground Electrical Supply and Communication Lines," is adopted.

DEPARTMENT OF BUDGET AND FINANCE

State of Hawaii, Public Utilities Commission,
Rules for Overhead Electric Line Construction
in the State of Hawaii, General Order No. 6,
REPEALED [APR 23 2007]

DEPARTMENT OF BUDGET AND FINANCE

State of Hawaii, Public Utilities Commission,
Rules for Construction of Underground Electric and
Communications Systems, General Order No. 10,
REPEALED [APR 23 2007]

HAWAII ADMINISTRATIVE RULES

TITLE 6

DEPARTMENT OF BUDGET AND FINANCE

CHAPTER 73

INSTALLATION, OPERATION, AND
MAINTENANCE OF OVERHEAD AND UNDERGROUND
ELECTRICAL SUPPLY AND COMMUNICATION LINES

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§6-73-1

SUBCHAPTER 1

GENERAL PROVISIONS

§6-73-1 Purpose of chapter. The purpose of this chapter is to adopt standards for the installation, operation, and maintenance of overhead and underground electrical supply and communication lines that are used to provide public utility service in the State, in order to ensure the adequacy and reliability of service and the safety of the general public and of all persons who engage in the installation, operation, and maintenance of the lines. [Eff **APR 23 2007**]
(Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-2 Definitions. As used in this chapter, unless the context clearly requires otherwise:

"Commission" means the public utilities commission of the State.

"HRS" means the Hawaii Revised Statutes.

"National Electrical Safety Code" or "Code" means the National Electrical Safety Code, 2002 Edition, and includes any errata or supplement in existence on the effective date of this chapter.

"Person" means the same as in §1-19, HRS, and includes a public utility.

"Public utility" means a public utility as defined in §269-1, HRS, that installs, operates, or maintains electrical supply or communication lines.

"State" means the State of Hawaii.

[Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-3 Application of additional sources. This chapter shall be read in context with Chapter 269, HRS, Chapter 6-68, HAR, and any other applicable

federal law and state law, including any commission rule and order. [Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-4 Severability. If any provision of this chapter, or the application thereof to any person or circumstance, is held to be invalid, such invalidity shall not affect other provisions or applications of this chapter that can be given effect without the invalid provision or application, and to this end the provisions of this chapter are severable. [Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§§6-73-5 to 6-73-10 (Reserved)

SUBCHAPTER 2

NATIONAL ELECTRICAL SAFETY CODE

§6-73-11 Commission's findings; adoption of the National Electrical Safety Code. (a) The commission finds that the National Electrical Safety Code represents the current, up-to-date, expert, and industry-accepted standards for the installation, operation, and maintenance of overhead and underground electrical supply and communication lines, and that it is appropriate to use these standards regarding public utility service in the State.

(b) Accordingly, the commission adopts and incorporates by reference the 2002 edition of the National Electrical Safety Code, as it pertains to the installation, operation, and maintenance of overhead

§6-73-11

and underground electrical supply and communication lines, as part of this chapter.

[Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-12 Code adherence date. Except as otherwise provided in this chapter, one year from the effective date of this chapter, i.e., the Code "adherence" date, each public utility shall adhere to the applicable standards of the Code in the installation, operation, and maintenance of overhead and underground electrical supply and communication lines. [Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-13 Prospective application. (a) This chapter shall apply on a prospective basis only, i.e., to new installations and extensions, and to maintenance replacements of all existing installations, starting construction on or after the Code adherence date.

(b) Except as may be required for maintaining safety, service reliability and security, protection of vital or critical infrastructure, or other similar reasons, electrical supply and communication lines and associated equipment that start construction or are in existence before the Code adherence date are governed by the following:

- (1) Installations that start construction or existing installations that were constructed or installed during the period the commission's General Orders No. 6 and No. 10 were in effect:
 - (A) Must, at a minimum, comply with these orders; and
 - (B) Need not be modified to comply with the Code;

- (2) Existing installations that were constructed or installed prior to the commission's adoption of General Orders No. 6 and No. 10:
- (A) Must, at a minimum, comply with the commission's requirements that were in effect when such lines were constructed or installed; and
 - (B) Need not be modified to comply with the Code. [Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-14 Utility specific standards; informational workshops. (a) The Code states that for all particulars not specified in its rules, "construction and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the construction or maintenance of the communication or supply lines and equipment." Code, Sec. 1, Rule 012C, p.1.

(b) Prior to the adoption or modification of specific construction and maintenance standards governing local conditions not specified in the Code, each affected public utility shall hold informational workshops to review these proposed standards that may affect government agencies and developers. Each such public utility may hold its own workshops, or it may hold workshops jointly with other affected utilities.

(c) Invitees to the workshops shall include all affected government agencies (State and counties) and developers. Participation and input from such third persons is voluntary.

(d) In developing or modifying specific construction and maintenance standards, the public utility must consider the comments or input of the workshop participants. [Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-15

§6-73-15 Exemption and waiver. (a) Upon its own motion, or upon the written request of any person, the commission may exempt a public utility from, or may waive, the provisions of this chapter, including provisions of the Code, in whole or in part, upon the commission's determination that the exemption or waiver is in the public interest.

(b) The written request must include:

- (1) The reasons for the exemption or waiver;
- (2) Citation to the provisions of this chapter or the Code from which an exemption or waiver is requested;
- (3) If relevant, the standard or guideline with which the public utility will comply in lieu of that prescribed by this chapter or the Code; and
- (4) Any evidence or documents in support of the request for an exemption or waiver.

(c) The commission, at any time, may request additional information or documents from the public utility in connection with the request for exemption or waiver.

(d) No hearing is required for the commission's determination of whether the proposed exemption or waiver is in the public interest. However, the commission may choose to hold a hearing regarding this issue prior to its determination.

[Eff APR 23 2007] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-16 Modification or rescission of exemption or waiver. (a) Upon its own motion, or upon the written request of any person, the commission may modify any exemption or waiver granted, if it deems that such action is necessary to protect the public interest or safety.

(b) Upon its own motion, or upon the written request of any person, the commission may rescind any exemption or waiver granted, if it finds that:

- (1) The conditions justifying the granting of the exemption or waiver no longer apply;

- (2) The exemption or waiver is no longer in the public interest; or
- (3) The public utility has failed to comply with:
 - (A) One or more of the conditions of the exemption or waiver; or
 - (B) Any applicable State law or commission order or rule. [Eff **APR 23 2007**]
(Auth: HRS §269-6) (Imp: ~~HRS~~ §269-6)

§§6-73-17 to 6-73-19 (Reserved)

SUBCHAPTER 3

PROVISIONS OF PARTICULAR APPLICABILITY TO HAWAII

§6-73-20 Loading for electrical transmission lines. (a) This section prescribes the method of calculating loadings for electrical transmission lines. The methodology prescribed in this section will apply notwithstanding any provision of the Code to the contrary. The methodology must be applied for lines of 69 kV or 138 kV. At the discretion of the public utility's engineer or team responsible for line design, the methodology may be applied to other voltage classes, depending on the importance and necessity of the line.

(b) For parts of the State where the elevation of the line is 6,250 feet or less, no ice loading need be considered. For parts of the State where the elevation of the line exceeds 6,250 feet, a radial thickness of one-half inch of ice, weighing 57 pounds per cubic foot, on all conductors must be considered in computing the vertical and wind loadings.

(c) Temperature considerations are as follows:

- (1) For all locations in the State, less than 2,000 feet above sea level:

- (A) The temperature at the time of maximum loading is assumed to be 50°F;
 - (B) The normal temperature for computing erection conditions is 75°F; and
 - (C) The maximum temperature for computing sags and clearances is assumed at 212°F.
- (2) For elevations greater than 2,000 feet, the temperatures at the 2,000-foot level are reduced incrementally as the elevation rises, as follows:
- (A) The temperature at maximum loading at 2,000 feet (50°F) is reduced by 10°F per thousand feet in excess of 2,000 feet; provided, that this temperature must not be lower than 0°F;
 - (B) The normal temperature for computing erection conditions at 2,000 feet (75°F) is reduced by 3°F per thousand feet in excess of 2,000 feet; provided, that this temperature must not be lower than 60°F; and
 - (C) The maximum temperature for computing sags and clearances is assumed at 212°F. [Eff **APR 23 2007**] (Auth: HRS §269-6) (Imp: HRS §269-6)

§6-73-21 Modifications to the National Electrical Safety Code. As applied to public utilities operating within the State, the Code is modified as follows:

- (1) The following definition of "antenna" is added to page 4:
- "antenna.** The part of a transmitting or receiving system that is designed to radiate or to receive electromagnetic waves.
- NOTE: Unless the context clearly requires otherwise, any reference to communication conductor, communication cable, communication circuit, or communication

- equipment in the Code shall include antenna."
- (2) Rule 013B2, page 2, is replaced in its entirety with the following:
 "Existing installations, including maintenance replacements, that currently comply with prior editions of the Code or the rules that were in effect at the time of the original installation, need not be modified to comply with these rules except as may be required for safety reasons by the administrative authority. "
- (3) The following exception is added to Rule 94B3a, page 22:
 "*EXCEPTION 3:* The equivalent of a bare ground conductor not less than no. 4 AWG copper with a continuous length of at least 40 feet buried at a minimum depth of 8 feet in the earth may be used."
- (4) The first paragraph of Rule 96, page 24, is replaced in its entirety with the following:
 "Grounding systems shall be designed to minimize hazard to personnel and shall be of sufficiently low impedance (inherently and/or intentionally obtained) that fault grounds which may occur cannot build up voltages dangerous to connected equipment. Grounding systems may consist of buried conductors and grounding electrodes per Rule 94. Individual made electrodes shall, where practical, have a resistance to ground not exceeding 25 ohm. If an impedance of less than 25 ohm is not obtained, the equivalent of a ground conductor not less than No. 6 AWG copper connected to two corrosion resisting rods, not less than one-half inch in diameter and 8 feet in length and continuous throughout, driven to a minimum depth of 8 feet in the earth at

not less than 6 foot centers, will be considered an effective ground for the purpose of these rules."

- (5) In Table 235-1, page 123, under "Supply conductors of the same circuit," the "Above 50 kV" class of circuit, with no clearance values specified, is replaced with the following under columns headed "Class of circuit", "Clearance (mm)", and "Clearance (in)", respectively:

"69kV	1219 (mm)	48 (in)
138kV	2108 (mm)	83 (in)"

- (6) Footnote 3, Table 235-5, page 132, is replaced in its entirety with the following: "These values do not apply to conductors of the same circuit or circuits (mounted side-by-side) being carried on adjacent conductor supports. For conductors of the same circuit, the following vertical clearances will apply regarding line-to-line voltage:

Open conductors of 46kV	48 (in)
Open conductors of 69kV	48 (in)
Open conductors of 138kV	83 (in)"

- (7) The following new paragraph is added to Rule 235, page 141:
"J. Communication-Supply and Supply Conductors on the Same Crossarm With Supply Conductors of 0-750V
Where communication-supply conductors are supported on the same crossarms with supply conductors of 0 - 750 volts, the communication-supply conductors shall preferably be located at the outer pin positions."

- (8) Rule 252A, page 171, is replaced in its entirety with the following:
"A. Assumed Vertical Loads
The vertical loads on poles, towers, foundations, crossarms, pins, insulators, conductor fastenings, and antennas shall be their own weight plus the weight that they support, including all wires and cables, in

accordance with Rules 251A and 251B1, together with the effect of any difference in elevation of supports. Loads due to radial ice shall be computed on wires, cables, and messengers, but need not be computed on supports."

- (9) Rule 252B, page 171, applies to total transverse loads on poles, towers, foundations, crossarms, pins, insulators, conductor fastenings, and antennas.
- (10) Rule 341A6, page 201, is replaced in its entirety with the following:

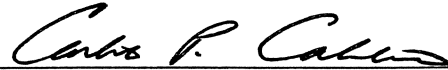
"Supply, control, and communication cables shall not be installed in the same duct or conduit unless the cables are maintained or operated by the same utility. In the case where the communication cables are nonconductive fiber optic communication cables and related facilities, these cables for public use, owned by supply utilities, and installed and maintained by telecommunications carriers, may occupy the same duct or conduit system of supply systems; provided that the fiber optic cable and its related facilities are installed and maintained in accordance with specifications and by entities or persons approved by the affected supply utility.

[Eff APR 23 2007] (Auth: HRS §269-6)
(Imp: HRS §269-6)

DEPARTMENT OF BUDGET AND FINANCE


Chapter 73, Hawaii Administrative Rules, State of Hawaii Public Utilities Commission Installation, Operation, and Maintenance Of Overhead and Underground Electrical Supply And Communication Lines on the Summary Page dated March 8, 2007 was adopted following public hearings held on December 22, 2006 after public notice was given in The Garden Island on November 22, 2006, The Maui News on November 22, 2006, The Honolulu Star-Bulletin on November 22, 2006, Midweek on November 22, 2006, West Hawaii Today on November 22, 2006, and The Hawaii Tribune-Herald on November 22, 2006.

These rules shall take effect ten days after filing with the Office of the Lieutenant Governor.



CARLITO P. CALIBOSO
Chairman
Public Utilities
Commission

APPROVED AS TO FORM:



Deputy Attorney General



LINDA LINGLE
Governor
State of Hawaii

Date: **APR 11 2007**

Filed

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LIEUTENANT GOVERNOR'S
OFFICE