

Decision No. 26940.

BEFORE THE RAILROAD COMMISSION OF THE STATE OF CALIFORNIA.

In the Matter of the Application of  
PACIFIC GAS AND ELECTRIC COMPANY,  
GREAT WESTERN POWER COMPANY OF CALI-  
FORNIA, SAN JOAQUIN LIGHT AND POWER  
CORPORATION, SOUTHERN CALIFORNIA  
EDISON COMPANY, LTD., LOS ANGELES  
GAS AND ELECTRIC CORPORATION, SAN  
DIEGO CONSOLIDATED GAS AND ELECTRIC  
COMPANY AND SOUTHERN SIERRAS POWER  
COMPANY, for an order of the Railroad  
Commission of the State of California  
amending and revising the provisions  
of GENERAL ORDER NO. 64-A relating to  
the marking of cross arms, as in this  
application requested.

ORIGINAL

Application No. 19146

BY THE COMMISSION:

OPINION AND ORDER

Applicants request certain revisions and modifications of General Order No. 64-A "Rules for Overhead Electric Line Construction," and particularly of Rules 51.6, 52.4 and 68, pertaining to the marking and identification of cross arms and structures supporting circuits of high voltage. The revisions requested are attached as Exhibit "A" to the application. The proposed rules incorporate the following:

1. Revision and modification of the existing rules which the applicants seek in the interest of economy of construction, maintenance and operation.
2. Additions to the existing rules in the interest of added safety to the general public.
3. Revisions which include interpretations that have been issued from time to time informally by the Commission in the course of application and administration of the present rules.

After careful consideration of the application the Commission is of the opinion that the modifications proposed therein will result in economies in the construction, maintenance and operation of overhead electric lines and will provide equivalent or greater safety to the general public and to persons engaged in the construction and operation of electric supply lines than is afforded under the existing rules. Public hearing appears unnecessary in this proceeding.

The following, however, should be added as subdivision (d) to Rule 52.4i(2):

"(d) All cross arms supporting conductors of constant current series circuits carrying more than 750 volts shall be marked as required in these rules."

Good cause appearing, IT IS ORDERED that Rules 51.6, 52.4, and 68 of General Order No. 64-A are hereby modified to read as set forth in Exhibit "A" attached hereto and made a part hereof.

IT IS FURTHER ORDERED that on and after June 30, 1934, all electric lines carrying high voltage circuits wherein construction, reconstruction and/or maintenance are involved shall be marked and guarded to conform to said revised rules.

IT IS FURTHER ORDERED that said revised rules shall be known and designated as Supplement No. 2 to General Order No. 64-A.

Dated at San Francisco, California, this 16<sup>th</sup>  
day of April, 1934.

C. C. Seaver,  
Leon Whitehill  
M. A. C.  
M. B. Harris  
Walter H. H.

Commissioners.

EXHIBIT "A"

RULES AMENDING THE EXISTING REGULATIONS  
OF GENERAL ORDER 64A PERTAINING TO THE MARKING OF CROSS ARMS  
AND POLES.

51.6 IDENTIFICATION, MARKING, AND GUARDING.

A. Identification (See Rule 31.6-C)

B. Marking of Poles Where Conductors Not on Cross arms.

Wood poles supporting conductors of 750 to 17,000 volts in vertical configuration and not on cross arms shall have a ring at least one foot in width of bright yellow color painted on them beginning at a point not less than 2-1/2 feet, nor more than 3 feet, below the lowest conductor attachment so supported.

In lieu of the paint required by this rule, signs showing in white letters, not less than 3 inches in height on a green or black background, the words "High Voltage" may be used.

Where the pole or similar structure is of metal construction and supports conductors in vertical configuration and not on cross arms, a sign or signs may be placed at a distance of not less than 8 feet nor more than 20 feet above the ground and so located as to be easily read 6 feet from any side or leg of the structure which can be climbed.

The provisions of this paragraph shall be held not to apply to poles supporting supply conductors in excess of 17,000 volts, which are situated in rural districts. (See Rule 68).

C. Guarding of Latticed Metal Poles and Latticed Structures.

Where the pole is of latticed metal or of similar construction and supports supply conductors in excess of 750 volts and is located in urban districts, or in rural areas adjacent to schools, dwellings, permanent or seasonal camps, or in fruit orchards, or near roads or trails which are frequently traveled, an effective barrier shall be so located on the structure as to prevent easy climbing. If the bottom of the barrier is within 12 feet of the ground line, the top shall be not less than 15 feet above the ground line, but in no event shall the barrier be less than 8 feet in length. If the bottom of the barrier is more than 12 feet above the ground line, it shall be not less than 6 feet in length. In addition thereto, a sign or signs showing in white letters, not less than 3 inches in height on a green or black background, the words "High Voltage" shall be placed on any two opposite sides of the structure not less than 8 feet nor more than 25 feet above the ground.

The provisions of this paragraph C shall not be held to apply where the conductor has 5 feet or more horizontal clearance from the supporting structure, nor to poles within fenced substation yards.

It is the intent of this rule 51.6-C to require such guarding as will prevent easy climbing of these poles by young persons who do not realize the danger of contact with live conductors supported thereon. It is not intended that such guarding will be required in sparsely settled districts, mountainous and desert areas, and similar locations.

#### 52.4 MARKING.

##### A. Voltage in Excess of 750.

- (1) All cross arms supporting only conductors carrying in excess of 750 volts shall be painted a bright yellow color, or in lieu thereof there shall be placed on the face and back of each cross arm a sign showing in white letters, not less than 3 inches in height on a green or black background, the words "High Voltage."
- (2) The provisions of paragraph (1) above shall be held not to apply to cross arms supporting supply conductors carrying more than 7500 volts, which are situated in rural districts, provided that:
  - (a) At all crossings over public thoroughfares and at locations adjacent to structures such as water tanks, windmills, buildings, and over wells, etc. the cross arms supporting conductors carrying 7500-17000 volts shall be marked as required in these rules.
  - (b) All cross arms supporting conductors carrying voltages in excess of 7500 volts at or below the level of circuits carrying less than 7500 volts on the same structure, shall be marked as required in these rules. Hanger arms and arms supporting transformer cutouts shall be marked as required in sub-paragraph C(4) of this rule.
  - (c) Where on the same structure cross arms support conductors carrying voltages 0-750 and conductors of 7500-17000 volts (each voltage class being on a separate arm, the higher voltage circuit being maintained at the upper level) the cross arm at the lowest level supporting 7500-17000 volt conductors shall be marked as required in these rules. Hanger arms and arms supporting transformer cutouts, shall be marked as required in sub-paragraph

C(4) of this rule.

- (d) All cross arms supporting conductors of constant current series circuits carrying more than 750 volts shall be marked as required in these rules.

B. Combination Arms.

- (1) Where supply circuits of 0-750 volts are carried on the same cross arm with circuits of 750-7500 volts, the sign shall be placed on the cross arm under the circuit of 750-7500 volts, or that end of the cross arm carrying circuits of 750-7500 volts shall be painted yellow from the center line of pole.
- (2) Where the cross arm carries circuits of 750-7500 volts on both ends, 2 signs shall be placed on both face and back of the cross arm or the sign may be divided, the word "High" being placed on one end and "Voltage" on the other to show that the entire cross arm carries high voltage circuits. This rule does not apply to systems where circuits of 0-750 volts and circuits of 750-7500 volts are not usually carried on the same cross arm.
- (3) Where alley arms and bridge arm construction is used and supply circuits of 0-750 volts and 750-7500 volts are carried on the same arm, the High Voltage sign shall be placed under the circuit of 750-7500 volts or only that end of the arm that is under the 750-7500 volt conductors and half of the intervening space between these conductors and the 0-750 volt conductors shall be painted yellow.

C. Exceptions.

- (1) Heel arms. The painting of heel arms or placing of high voltage signs on heel arms (either metal or wood) is not required where:
- (a) The length of the heel arm does not exceed the width of the transformer case where a single transformer is installed.
- (b) The heel arm supports two or more transformers.
- (2) Metal poles and structures.
- (a) Where metal poles and similar structures which support conductors in vertical configuration and not on cross arms are marked as required in Rule 51.6 such marking shall be deemed sufficient.
- (b) Where metal poles or structures of a design easily climbed are guarded with barriers and equipped with signs as required in Rule 51.6 C,

and where the higher voltage circuits are carried at the higher level, and where the conductors carrying voltages in excess of 7500 volts are more than 15 feet distant from walls, fire escapes, exits, windows, etc., at which human contact may be expected:

1. No marking of cross arms supporting supply conductors will be required when all the circuits on the structure carry 7500 volts and above.
2. Only the cross arms carrying 750-7500 volt conductors and the cross arm at the lowest level supporting 7500-17000 volt conductors are required to be marked as specified in these rules, where supply conductors of 0-750 volts and/or 750-7500 volts are supported on the structure carrying conductors of 7500 volts and above (each voltage class being on a separate arm).
- (3) Where High Voltage signs are used as the method of marking in lieu of painting, they are not required on the inside faces of double arms.
- (4) Hanger Arms and Arms Used To Support Transformer Outlets:

Where high voltage signs are used as a method of marking in lieu of painting, they are not required on the face of a line arm used as a hanger arm, or on the face of a separate hanger arm, or on the face of a separate arm supporting only cutouts under the following conditions:

- (a) Where two or more transformers or regulators or pieces of similar apparatus are hung on the same arm.
- (b) Where one or more transformers and one or more oil switches or air switches are hung on the same arm.
- (c) Where one or more constant current transformers or regulators and its accompanying series controller are hung on the same cross arm.
- (d) Where one transformer and one or more primary cutouts used in connection therewith are hung on the same arm, provided the conductors leading to these pieces of apparatus are supported on cross arms immediately adjacent thereto (maximum vertical separation of not more than 30 inches) shall have been marked in accordance with Rule 52.4A.
- (e) Where on the same structure a separate cross arm is used to support only cutouts in

circuit with a transformer supported on the next lower arm (maximum vertical separation of not more than 30 inches).

- (5) Vertical Configuration - No Cross Arms Used:  
Where conductors of 750-17000 volts are supported in vertical configuration on poles and not on cross arms, the marking on the pole as provided in Rule 51.6 B shall be deemed sufficient and no painting or other marking will be required.
- (6) Brackets: Where extension brackets or clearance brackets are used to extend or supplement cross arms, and said brackets support conductors carrying in excess of 750 volts, the painting or the signing of these supplemental supports shall not be deemed necessary provided the cross arms or other supports to which they are attached have been marked as provided for in these rules.

68. MARKING.

All fabricated steel towers and similar structures which are of a design easily climbed and which are located in urban districts or in cultivated agricultural areas or near roads or trails which are frequently traveled, shall be equipped with a sign so worded as to warn the public of the danger of climbing same. Such sign shall be hung at a distance of not less than 8 feet or more than 20 feet above the ground, except where the lowest steel member of the tower on which the sign may be supported is more than 20 feet above the ground, and in such position that it may be read from the four corners of the structure.