

Decision No. 36790

BEFORE THE RAILROAD COMMISSION OF THE STATE OF CALIFORNIA

In the matter of the application of SOUTHERN CALIFORNIA EDISON COMPANY LTD., a corporation, for an Order of the Railroad Commission of the State of California authorizing it to deviate from those provisions of General Order No. 95 herein mentioned.

Application No. 25859

ORIGINAL

BY THE COMMISSION:

O P I N I O N

In this application the Southern California Edison Company Ltd. (herein sometimes called Edison) has requested authority to deviate from certain provisions of the rules of General Order No. 95, "Rules For Overhead Electric Line Construction." This order governing the construction of overhead electric supply and communication lines was adopted by the Commission on December 23, 1941<sup>(1)</sup> and became effective on July 1, 1942.

Authorization to employ the deviations herein requested was granted to the Pacific Gas and Electric Company on May 11, 1943.<sup>(2)</sup> It appears that in the light of reasonable standards of safety and service, as well as in the construction and maintenance of electric lines, that applicant should also be authorized to utilize the requested deviations under appropriate conditions of use. For the purpose of establishing a clear understanding of these conditions the deviations sought will be briefly discussed in the order in which they appear in the application.

Rule 37, Table 1, Case No. 8, Columns D and E (Page 36)<sup>(3)</sup>

Table 1, in Case No. 8, Columns D and E, prescribes certain basic minimum clearance distances of 15 and 18 inches between supply conductors and the center lines of poles. The application alleges that these clearance requirements are difficult to meet in actual practice with respect to the terminal bushings of transformers and the leads thereto, because the energized

(1) 43 C.R.C. 872; Decision No. 34884, Case 4324.

(2) 44 C.R.C. 684; Decision No. 36344, Application No. 25309.

(3) The page numbers cited throughout this opinion are the pages in General Order No. 95 where the particular rule under discussion appears,

parts at the bushings of the smaller size transformers, when hung in a conventional manner in the center position on a single pole, are generally less than the foregoing clearance distances. The same is true for regulators and capacitors.

It appears that limited deviations from the prescribed clearances of 15 and 18 inches from the center line of pole should be permitted relative to the installation of transformers, regulators, and capacitors supported in the center position on a single pole structure where such equipment, conventionally supported, has its terminal bushings and associated energized parts less than 15 inches (for 0-7500 volts) or less than 18 inches (for 7500-20,000 volts) from the center line of pole, and the order will so provide. These deviations shall not apply to so called bus or interconnection wiring of polyphase installations, nor to any lead wire passing between pole and transformer or regulator or capacitor, and will be limited to terminal bushings of transformers, regulators and capacitors and the lead wires extending between such bushings and the next point of support of such lead wires, which point of support shall have not less than the minimum distance from the center line of pole specified in Table 1, Case 8, Columns D and E.

Rule 53.4-A2 (Page 92)

This rule permits certain bonds (wires or straps) to be installed vertically between crossarms without a suitable protective covering where such bond wires or straps are not less than 30 inches from the center lines of poles. Edison requests a similar provision for bond wires installed horizontally between crossarms in double arm construction. It is the opinion of the Commission that the request is reasonable if limited to portions of bond wires which extend from the underside of one crossarm of a double arm to the underside of the companion arm of the double arm, provided such portions of the bond wires are approximately at right angles to said arms and are not less than 30 inches from center line of pole.

Rule 53.4-A3 (Pages 92 - 93)

This rule pertains to conductors of more than one circuit at same level and permits certain bonds (wires or straps) to be installed vertically between crossarms without a suitable protective covering where such bond wires or straps are not less than 30 inches from the center line of pole. Edison requests a similar provision for bond wires installed horizontally between crossarms in double arm construction. This request appears reasonable if limited to portions of bond wires which extend from the underside of one crossarm of a double arm to the underside of the companion arm of the double arm, provided such portions of the bond wires are approximately at right angles to said arms and are not less than 30 inches from center line of pole, and further provided that on single pole construction not more than one circuit exists on the same side of pole at the same level.

Rule 54.6-B (Page 108)

One of the requirements of this rule is that ground wires on the surface of poles be protected by suitable covering throughout their entire length. Edison requests that it be granted permission to omit this ground wire protection in rural areas where said ground wire is used in connection with lightning protection wires on wood poles supporting only transmission lines of more than 35,000 volts. This request appears reasonable and with certain limitations such deviation will be authorized.

Rule 54.6-F (Pages 110 - 111)

This rule requires that a protective crossarm be installed directly above the upper end of terminals or terminal fittings of risers and runs on wood poles except for a 0-750 volt riser run terminating directly under a transformer. Edison requests permission to deviate from this rule where the upper end of a riser terminates not less than 3 inches nor more than 6 inches below and approximately centered in the vertical plane of the rack conductors to which riser circuit is connected. It is the opinion of the Commission that this deviation is warranted and it will be so ordered.

Rule 54.7-A2 (Page 113 and Fig. 1, Page 320)

This rule requires, where line arms only are involved, that the center of one side of the climbing space shall be approximately centered at the center line of pole. Edison requests permission to shift this center of side of climbing space not more than 5 inches from center line of pole where it is found necessary to avoid dead end insulators in climbing space. This request appears reasonable and with one limitation will be so ordered.

Rule 54.8-A and 49.4-C7a (Pages 118 and 66)

This rule provides in part that service drops shall have a weather-resisting covering equivalent to double braid weather proofing. The application asserts that by reason of the war emergency and restrictions imposed upon the use of such material by the War Production Board, it is impossible to fully meet the requirements of these rules for an indefinite period. Edison requests a deviation, for the duration of the war restrictions, which would permit the use of bare conductors for the grounded conductors of two-wire or three-wire services when voltage does not exceed 150 volts to ground, subject to the effective grounding of the transformer load or line conductor and the attachment to a grounded conductor on consumer premises and the maintenance of clearances between such bare service drop conductors and poles and fire alarm conductors as provided in Table 2, Page 121, for "other communication conductors."

In view of the critical situation in regard to procurement of material brought about by war conditions, it is the opinion of the Commission that a deviation is warranted authorizing the use of bare wire for the grounded conductor of service drops, under certain conditions, and as provided in the order herein.

Rule 54.9-E1 (Page 126)

This rule requires, among other things, the installation of a guard arm directly above and parallel to line conductors in rack construction when the distance between the top conductor in the rack is less than 6 feet but not less than 4 feet below the next conductor level above. Edison, in order to

clarify the application of this rule, requests a deviation authorizing the installation of a guard arm directly above and at right angles to the conductors dead-ended in rack construction instead of parallel to such conductors and the omission of the provision that no service drop conductors supported on such rack shall pass between the surface of the pole and the vertical plane of the line conductors when such service drops have a horizontal angle of 90 degrees or less from the vertical plane of the line conductors and, further, where line conductors in rack construction extend in two or more directions from a rack or where these conductors make an angle, a guard arm may be installed directly above and approximately parallel to the top line conductor nearest the climbing space.

This request appears justifiable and the order will authorize such deviation from the rule.

Rule 58.3-B3d (Pages 148 - 149)

This rule relates to the clearances between transformer cases or hangers and conductors of 750-7500 volts, either above or along side case or hanger, and provides for clearances of 12 inches from nonrelated circuits; 6 inches from related circuits; and 3 inches from hangers to related circuits. Edison requests the authority to deviate from this rule in so far as its provisions apply between conductors and the unenergized metal parts of street lighting insulating (or isolating) transformers, and other similar small transformers, because of their small size and method of mounting. A deviation appears warranted if limited to the installations of small sealed case transformers of series lighting circuits, and the order herein will so provide.

Rule 12.3 (Page 9)

This rule provides that facilities constructed or reconstructed prior to July 1, 1942, the effective date of General Order No. 95, shall conform to the requirements of the rules in effect at the time of their construction or reconstruction. Edison asserts this requirement imposes a heavy burden upon the company in that a number of lines or parts of lines are thus

subjected to more exacting requirements than would be applicable to identical lines built today. Edison desires to maintain such facilities in conformity with the provisions of General Order No. 95, but only in those instances and particulars in which the requirements of that general order are less stringent than the requirements in effect at the time of construction or reconstruction. This request appears to be reasonable and will be granted.

O R D E R

The Commission having considered the above application, and being of the opinion that a public hearing is unnecessary, and good cause appearing,

IT IS ORDERED that Southern California Edison Company Ltd. be and it is hereby authorized to deviate from the provisions of General Order No. 95 in the following particulars and under the conditions herein specified, it being found that such deviations and exemptions are justified:

1. Rule 37, Table 1, Case No. 8, Columns D and E (G.O.95,p.36)

Transformers, regulators, or capacitors may be installed on poles consisting of a single pole structure or on crossarms attached thereto so that the energized parts of the terminal bushings of such equipment and the 0-20,000 volt unprotected lead wires extending between said terminals and the next point of support may be less than the 15 or 18 inch clearance of Rule 37, Table 1, Case 8, Columns D and E, as specified in Rules 58.3-B7 and 58.4-B6, provided (1) said terminals and lead wires shall be not less than 6 inches from the surface of the pole instead of the distance of 3 inches specified in Table 1, Case 9, Columns D and E, and shall have as much as practicable of the 15 inch or 18 inch clearance of Table 1, Case 8, Columns D and E as can be obtained; and, (2) This deviation shall not apply to so called bus or interconnection wiring of polyphase installations nor to any lead wire passing between pole and transformer or regulator or capacitor.

2. Rule 53.4-A2 (Page 92)

The requirement that portion of bond wires, for circuits of more than 7500 volts, which extend from the underside of one crossarm of a double arm to the underside of the companion arm of the double arm at approximately right angles to said arms be covered by a suitable protective covering may be omitted provided such portions of bond wires are not less than 30 inches from center line of pole.

3. Rule 53.4-A3 (Page 93)

Except for physical configuration all conditions affecting bonding in this rule are identical with those of Rule 53.4-A2, and the protective covering of the horizontal bond wire, running from the underside of one crossarm of a double arm to the underside of the companion arm of the double arm at approximately right angles to said arms, may be omitted; provided that said portions of bond wires are not less than 30 inches from the center line of pole, and further provided that, on single pole construction, not more than one circuit exists on the same side of pole at the same level.

4. Rule 54.6-B (Page 108)

Ground wires connected to overhead lightning protection wires installed on poles or crossarms supporting only circuits of more than 35,000 volts need not be covered by a suitable protective covering, provided (1) said lines are situated in rural areas; (2) the ground wires have mechanical strength of not less than that of 1/4 inch (diameter) steel strand, and (3) the ground wires conform to the requirements of Rule 49.4-A with respect to the use of corrosion-resisting material.

5. Rule 54.6-F (Pages 110 - 111)

Where the terminal leads from the upper ends of risers or vertical runs are connected to conductors in rack construction, the guard arm may be omitted provided the top of the terminal fitting of the riser shall be not less than 3 inches and not more than 6 inches below the lowest conductor of the rack, and such terminal fitting shall be approximately centered in the vertical plane of the rack conductors.

6. Rule 54.7-A2 (Page 113 and Fig. 16, Page 320)

The climbing space required by this rule may be shifted not more than 5 inches provided that (1) the midpoint of the side of the climbing space required to coincide with the center line of pole shall be not more than 5 inches from the center line of pole, and (2) full climbing space dimensions shall be maintained, but without the use of the 2% reduction where the shift is more than 2 inches.

7. Rule 54.8-A and 49.4-C7a (Pages 118 and 66)

Until the War Production Board restrictions no longer prohibit the installation of weatherproof conductor for the grounded wire of low voltage circuits, bare conductors may be used as the grounded conductors of two or three wire services where the voltage to ground from any conductor of such services does not exceed 150 volts, provided that such bare service drop conductor is connected to a line conductor or transformer lead which is effectively grounded, and further provided that such service entrance conductor to which such bare service drop conductor shall be attached is connected to a ground on the premises served, and further provided that the minimum radial clearance of such bare service drop conductors from police and fire alarm conductors shall be not less than the clearances specified in Table 2, page 121 of General Order No. 95 under the caption "From Other Communication Conductors."

8. Rule 54.9-E1 (Page 126)

Where line conductors are dead-ended in rack construction and the top conductor terminates less than 6 feet but not less than 4 feet below the next conductor level above, the guard arm required to be placed directly above and parallel to said line conductors may be omitted, provided a guard arm not less than 48 inches long is installed directly above the rack attachment and at right angles to the line conductors so dead-ended, and further provided service drops attached to such dead end rack may pass between the pole and the vertical plane of the dead-ended line conductors when such



service drops make a horizontal angle of not more than 90 degrees with the vertical plane of such line conductors.

In cases where line conductors in rack construction extend in two or more directions from a rack or where line conductors make an angle, a guard arm installed directly above and approximately parallel to the top line conductor nearest the climbing space shall be considered as fully meeting the requirements of this rule.

9. Rule 58.3-B3d (Pages 148. - 149)

The provisions of this rule need not apply to clearances between conductors of series street lighting circuits and the unenergized parts of sealed case insulating transformers connected to those series lighting circuits, provided a radial clearance of not less than 1-1/2 inches is maintained between such transformers and their related conductors, except leads to the transformers, and provided also that a clearance of not less than 8 inches is maintained between such transformers and the vertical plane of un-related conductors supported on the same crossarm.

10. Rule 12.3 (Page 9)

Lines, or portions of lines, or elements thereof constructed or reconstructed before July 1, 1942, may conform to and be maintained in accordance with the requirements of General Order No. 95, instead of the requirements in effect at the time of such construction or reconstruction, but only in those instances where the requirements of General Order No. 95 are less stringent than the requirements in effect at the time of construction or reconstruction.

This order shall become effective on the twentieth day after the date hereof.

Dated, San Francisco, California, this 28<sup>th</sup> day of December, 1943.

Francis D. Havenue  
Justin J. Cragg  
Richard Jackson  
Frank W. Cron  
 Commissioners