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Decision 93311

JUL 22 1981

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of
PACIFIC GAS AND ELECTRIC COMPANY for
an order or orders to deviate from
Rule 55.3-C, Table 12, of General
Order No. 95, "Rules For Overhead
Electric Line Construction," with
respect to reducing minimum dry
flashover rating for certain line
insulators on circuits in the "D"
insulation district to be converted
to 21 kV.

(Electric)

Application 59970
(Filed September 26, 1980)

O P I N I O N

Pacific Gas and Electric Company (PG&E) seeks Commission approval to deviate from General Order 95, Rule 55.3-C, Table 12, to allow an increase in distribution voltage from 12 to 21 kV using existing NEMA Class 55-4 insulators on wood poles and crossarms on certain circuits in the utility's "D" insulation district.

PG&E predicates its request on the successful completion of the test program ordered in Resolution E-1618, dated December 26, 1976 (Resolution E-1618 authorized PG&E a temporary deviation from Rule 55.3-C, General Order 95, Table 12, for a two-year period, to test NEMA 55-4 class insulators on certain distribution lines where the distribution voltage was raised from 12 kV to 21 kV). PG&E contends because of reduced line losses and increased capacity afforded by 21 kV, as compared to 12 kV operation, it can realize an ultimate energy savings, when conversion is completed in the "D" insulation district, of \$9,000,000 annually. The cost of replacing insulators in the "D" insulation district for the 55 circuits being considered for 21 kV operation is estimated at \$6,000,000. Thus, if the existing insulators are adequate, this capital outlay would be saved.

The three test circuits converted to 21 kV operation, under authorization of Resolution E-1618, comprise 2,066 wood poles with wood crossarms supporting NEMA Class 55-4 insulators on 80 pole miles of line. No pole fires, or circuit interruptions, were attributable to insulator failure on the test circuits operated at 21 kV during the test period.

The "D" insulation district is an area of low contamination. Therefore, insulator washing in this area is not necessary.

It should be noted that most of the insulators in the "D" insulation district are rated at 70 kV dry flashover voltage. However, some of the insulators are rated 65 kV, because of design for reduced radio interference. The deviation is necessary because of the requirement in General Order 95, based on Rule 55.3-C, Table 12, that for circuits operating at 21 kV, insulators shall have a dry flashover rating of approximately 72.7 kV.

Since no insulator failure, pole fires attributable to insulator failure, or circuit interruptions due to insulator flashovers occurred on the test circuits, we believe it follows that flashover is not a problem in the "D" insulation district. Furthermore, conversion and operation of 80 miles of line at 21 kV during the test period appears not to have presented a hazard to workmen or the general public. Therefore, it is proper to extend the deviation for a five-year period to enable PG&E to convert additional circuits to 21 kV operation.

The Electric Branch will monitor the circuit changes by requiring PG&E to annually report on conversion activity and operating experience. As a further precaution, PG&E is put on notice that the Commission will discontinue the deviation if it becomes apparent that operation of the lines at 21 kV is hazardous.

The annual report shall contain the following data:

1. Pole miles and circuit descriptions in the "D" insulation district that have been changed to 21 kV operation.
2. The number of insulators rated at 65 kV dry flashover voltage converted to 21 kV operation.
3. Number of interruptions due to flashover per pole mile on circuits changed to 21 kV operation.
4. Number of pole fires per pole mile on circuits changed to 21 kV operation.

The information reported shall be grouped by subareas so as to permit significant analysis of statistical data.

In a letter to Walter J. Cavagnaro of the Commission staff, dated June 11, 1981, the Director of the State of California Department of Forestry expressed a concern over the possibility of flashover when increasing circuit voltages from 12 kV to 21 kV using minimum dry flashover rated 65 kV insulators. In addition to this concern, he made a request which he said would be helpful in reducing wildfires caused by power lines. He asked that the order in this application include a requirement that before a circuit voltage is increased PG&E certify that the circuit meets the pole and tower clearance and conductor clearance requirements of Public Resources Code Sections 4292 and 4293. These sections deal with ground and conductor clearances, and the clearing of flammable fuels around the outer circumferences of certain poles and towers.

The experience with the 80 miles of 12 kV line converted to 21 kV operation during the test period showed no problem relating to insulators in any area during the two-year test. We concur, however, with the Department of Forestry's desire that PG&E comply with Sections 4292 and 4293 of the Public Resources Code. For the five-year test period to be authorized and for the voltage upgrades in the "D" district from 12 kV to 21 kV, we shall require PG&E to certify compliance prior to increasing any circuit voltage.

Based on a consideration of the foregoing facts, we conclude that the application for authority to deviate from Rule 55.3-C, Table 12, of General Order 95, should be granted, but for a period of five years. PG&E has presented facts which, if substantiated on an evidentiary record, would lead us to grant the requested relief. Accordingly, a public hearing is not required.

Findings of Fact

1. The "D" insulation district is an area of low insulator contamination.
2. As a result of the low contamination level, insulator washing is not necessary in the "D" insulation district of the Pacific Gas and Electric Company system.
3. No pole fires, or circuit interruptions, are attributable to insulator failure on the test circuits.

Conclusions of Law

1. A public hearing is not necessary.
2. The application for deviation should be approved for a five-year period.

O R D E R

IT IS ORDERED that:

1. The application is approved.
2. Pacific Gas and Electric Company is authorized to deviate from Rule 55.3-C, Table 12, of General Order 95, and retain existing insulators for use on 21 kV distribution lines in the "D" insulation district.
3. Pacific Gas and Electric Company shall file annual reports on conversion activity and operating results, as described in the opinion.
4. At least 30 days prior to increasing circuit voltage from 12 kV to 21 kV operation on any circuit in the "D" insulation district, Pacific Gas and Electric Company shall by letter notify the Commission's Electric Branch of compliance of that circuit with requirements of Public Resources Code Sections 4292 and 4293.

This order becomes effective 30 days from today. The authority granted shall remain in effect for a five-year period, at which time a further order is required.

Dated JUL 22 1981, at San Francisco, California.

John E. Coyne
President
Richard D. Krawinkel
Samuel M. ...
Antonio ...
Presulla C. ...
Commissioners