Decision No. 47143

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the matter of the application of PACIFIC GAS AND ELECTRIC COMPANY, a corporation, for an order issuing to applicant a certificate under Section 1001 of the Public Utilities Act of the State of California declaring that public convenience and necessity require the construction, operation and maintenance by applicant of the steam electric generating plant, transmission lines, and related facilities herein generally described. (Electric)	Application No. 33182

Appearance for Applicant: Ralph W. DuVal.

Interested Parties: Sacramento Municipal Utility District by Albert J. Hamilton; California Farm Research and Legislative Committee by Ernest Schallinger; California Manufacturers Association by Homer R. Ross; City and County of San Francisco by Dion R. Holm and Paul L. Beck; State Engineer by Fred J. Groat; United States Bureau of Reclamation, Region II, by H. G. Davis.

O P I N I O N

Pacific Gas and Electric Company, operating public utility electric and gas systems and relatively minor water and steam heat systems in northern and central California, on March 3, 1952, filed the above-entitled application requesting a certificate of public convenience and necessity under Section 1001 of the Public Utilities Code of the State of California, for the construction, operation and maintenance of a 600,000 kw steam-electric generating plant upon a site on the south shore of Suisun Bay, west of Pittsburg, County of Contra Costa, California. This plant is to be known as the Pittsburg Steam Plant. After due notice a public hearing was held on this application before

Commissioner Harold P. Huls and Examiner M. W. Edwards on April 14, 1952, at San Francisco, California. At the hearing applicant submitted exhibits and presented testimony by witnesses in support of the need for the proposed system improvement.

Proposed Construction

Applicant proposes to install four 125,000 kw nominal and 156,250 kw maximum (manufacturer's rating) size reheat type turbine-generator units, four boilers (one per turbine-generator), each to have a capacity of 1,080,000 pounds of steam per hour, design pressure 2,050 psig at 1,000° F., and related supporting steam plant equipment, including essential high voltage transformers and switching equipment. Said turbine-generator units are to be designed for semi-outdoor installation with major plant auxiliary equipment to be completely housed in a steel and concrete building. The boilers are to be equipped with forced and induced draft fans and will be semi-outdoor, housed under an umbrella type roof with enclosed firing aisle. By locating the plant at sea level an unlimited source of water for steam condensing purposes will be available.

In order to connect the generators of the Pittsburg Steam Plant to the system applicant proposes to install and place in operation 110 kv and 220 kv steel tower transmission lines as follows:

(a) Twin 110 kv circuits (397,500 cm aluminum conductors), a length of 8 miles to loop in the existing Martinez-Contra Costa transmission line to Pittsburg Steam Plant,

(b) Twin 220 kv circuits (954,000 cm aluminum cable steel reinforced), a length of 13.5 miles to loop in the existing Contra Costa-Moraga transmission line to Pittsburg Steam Plant,

(c) Twin 220 kv circuits (1,113,000 cm aluminum conductors), a length of 132 miles from Pittsburg Steam Plant to the existing Panoche Substation located in Fresno County, California, and

(d) Twin 220 kv circuits (795,000 cm aluminum cable, steel reinforced), a length of 14 miles to extend the existing Moss Landing-Sunol line to Hayward where it will be tapped to the Moraga-San Mateo 220 kv Circuits No. 1 and No. 2 which are now under construction.

Applicant has contracted with Bechtel Corporation to construct the steam-electric plant and anticipates that the first and second units will be made ready for service by November, 1953, the third unit by March, 1954, and the fourth unit by April, 1954. The transmission lines will be built by several contractors with the utility handling the engineering planning work. Application has been made to the government for all critical materials involved and approval has been received. It does not anticipate any unusual construction delays because of scarcity of steel or other common construction materials.

Plant Cost

Increases to production and transmission capital which will result from the proposed new plant and lines were estimated, as of December 31, 1951, at approximately 83 million dollars. A segregation of this sum to the principal categories of equipment, as set forth in Exhibit No. 3, and unit costs computed for a 600,000 kw rating follows:

Estimated Construction Cost -
Pittsburg Steam Plant and Transmission Connections

Item	Total Cost	Unit Cost per Kw
Steam Plant		
Land, Structures and Improvements	$3,000,000	$5.00
Boiler Plant Equipment	28,700,000	47.83
Turbo-Generator Units	18,950,000	31.58
Accessory and Misc. Equipment	6,407,000	10.68
Engr.,Supt.,Acctg. and Overhead	11,080,000	18.47
Total	68,137,000	113.56
Transmission Substation	7,221,600	12.04
Transmission Lines	7,661,400	12.77
Project Total	83,020,000	138.37

Applicant's witness testified that the final cost may vary somewhat from the estimate because of price changes of material

and labor cost between December 31, 1951 and date of completion. Applicant plans to finance the construction by using, to the extent available, its working capital, moneys in reserve funds not required for immediate use, and the proceeds of the issue and sale of such stocks, bonds, notes and other evidences of indebtedness as the Commission hereafter, upon proper application, shall authorize for that purpose.

Need for Additional Capacity

Applicant's showing as to need for this new capacity is based upon estimates of peak load growth in 1952 of 11.5%, in 1953 of 9.6% and in 1954 of 7.9%, and estimates of growth of energy sales in 1952 of 13.3%, in 1953 of 9.3% and in 1954 of 8.0%. Such sharp rates of growth are predicated on a continuation of the growth in population and industry which has been evident since the close of World War II in 1945 in northern California. Such rates of growth are nearly double prewar rates. Applicant has had difficulty in maintaining an adequate margin of capacity for reserve over and above load requirements in the postwar period. It desires to re-establish a 15% margin for system reserve. Part of the justification for such a large plant as that proposed herein is to help restore the system's reserve.

The results of the utility's estimates contained in Exhibits Nos. 5 and 6 with regard to capacity, load and margin may be summarized in the manner following:

Estimate of Margin over Load Requirements

	August Peak-Kw	December Peak-Kw	Energy For Year Million Kwhr
Year 1952 (with present hydro outlook)			
Available Capacity	3,457,000	3,710,000	23,560
Estimated Load	3,240,000	3,200,000	18,200
Estimated Margin	217,000	510,000	5,360
Ratio Margin to Load	6.7%	15.9%	29.4%
Year 1953 (average year hydro conditions)			
Available Capacity	3,959,000	4,255,000	23,532
Estimated Load	3,550,000	3,520,000	19,900
Estimated Margin	409,000	735,000	3,632
Ratio Margin to Load	11.5%	20.9%	18.3%
Year 1953 (dry year hydro conditions)			
Available Capacity	3,793,000	4,007,000	21,353
Estimated Load	3,610,000	3,520,000	20,400
Estimated Margin	183,000	487,000	953
Ratio Margin to Load	5.1%	13.8%	4.7%
Year 1954 (average year hydro conditions)			
Available Capacity	4,552,000	4,553,000	27,479
Estimated Load	3,830,000	3,820,000	21,500
Estimated Margin	722,000	733,000	5,979
Ratio Margin to Load	18.8%	19.2%	27.8%
Year 1954 (dry year hydro conditions)			
Available Capacity	4,390,000	4,304,000	25,223
Estimated Load	3,890,000	3,820,000	22,000
Estimated Margin	500,000	484,000	3,223
Ratio Margin to Load	12.9%	12.7%	14.6%

The margins shown for 1952 reflect the effect of above average hydro production. The present hydro outlook, one of the best of record, is due to record breaking snowfall in the High Sierras during the winter of 1951-1952. Even with the excellent outlook, the summer margin for reserve is only 6.7%. Under average year assumptions for 1953 and 1954 the margins are generally above 15%, but for dry year conditions in these two years the margins are all below the desirable 15% level. Applicant's estimates, however, did not allow for a decreased demand if the

interruptible load of the chemical companies is discontinued or substantially reduced. Even if the dry year load is so reduced, it is not anticipated that margins will exceed materially the desirable 15% level.

New Capacity Program

The increasing total capacity figures shown in the preceding tabulation include the 1952-1955 new capacity program of the applicant of which this project constitutes approximately one-half. The new capacity program as set forth in Exhibit No. 4 and as supplemented by testimony of the witness is:

	Date Effective Month, Year	Name Plate Rating Kw	Effect on Available Capacity Kw
Moss Landing Steam Plant			
Fourth Unit	Sept. 1952	100,000	117,500
Fifth Unit	Oct. 1952	100,000	117,500
Bear River Unit	Mar. 1953	29,700	29,000
Contra Costa Steam Plant			
Fourth Unit	Mar. 1953	100,000	117,500
Fifth Unit	July 1953	100,000	117,500
Murphys Hydro-Net Improvement	Nov. 1953	2,250	2,400
Pittsburg Steam Plant			
First Unit	Nov. 1953	125,000	150,000
Second Unit	Nov. 1953	125,000	150,000
Third Unit	Mar. 1954	125,000	150,000
Fourth Unit	Apr. 1954	125,000	150,000
Pit River Projects			
Pit 4 Plant (2 units)	June 1955	84,000	84,000
Pit 6 Plant (2 units)	Oct. 1955	60,000	60,000
Total			1,245,400

In addition the applicant proposes development of 275,000 kw of hydro on the North Fork of the Kings River but the witness could not state a date for completion because of litigation over the license obtained from the Federal Power Commission.

Cost of Production

Applicant estimates that when the plant is completed it will require 840,000 barrels of fuel oil per year to warm up the plant and take care of no-load losses and an additional 5,218,000

barrels of fuel oil to produce the energy when operating at 70% load factor. Applicant will arrange the plant to burn natural gas or coal to supplement or replace oil as a fuel. The estimated costs of power at the Pittsburg Steam Plant with four units installed and operating under assumed load factors of 70% and 80% with fuel at a price equivalent to $1.65 and $2.00 per barrel of oil are:

Estimated Cost of Production

	Equivalent Fuel Price	
	$1.65 per Bbl. of Oil	$2.00 per Bbl. of Oil
At 70% Load Factor	6.36 mills/kwhr	6.94 mills/kwhr
At 80% Load Factor	5.86 " "	6.42 " "

The above cost figures include all fixed charges and operating expenses assuming an efficiency of 705 kwhr per barrel for energy fuel. This efficiency is higher than the 680 kwhr per barrel figure used for the fourth and fifth units at Moss Landing Steam Plant. Such high efficiency will be attained by using a 1,800-pound working pressure at a temperature of 1,000° F. with a reheat cycle.

Customer Representation

Customers and their representatives were present at the hearing but none offered any objection to the granting of a certificate of public convenience authorizing the construction of this plant. A representative of the California Farm Research and Legislative Committee read a prepared statement into the record suggesting that the applicant's request be granted on the basis that California's booming agriculture, industry and population need all of the power and water that can be developed both by private companies and public agencies.

While applicant's justification for this project is based upon a rate of growth that may not continue should a depression

occur, nevertheless we must guard against a dry year and should authorize needed projects. If depression should occur hydro construction proposed for 1955, or later, could be delayed at such time as the company may apply for certificates on such hydro plants. In the meantime the addition of this large block of steam energy, in view of postwar load trends in the area and the need for firming of present and future hydro power, appears in the public interest.

Conclusion

The problem of providing an adequate electric supply for the growing public demand for electricity is one that is of vital concern to all citizens of northern and central California. While the size of the plant in itself is large, plant capacity represents an increment of less than 18% of total load capacity. Applicant's estimates of load growth and costs for power production from the proposed plant do not appear unreasonable considering current growth trends and present-day cost levels. It is our opinion that the applicant has the financial means to construct the project and place it in successful operation. After reviewing the record in this proceeding and the statements by representatives of the public and other parties it is our conclusion that an order should be issued granting the authority requested by the applicant.

Certification

Applicant proposes to construct the afore-mentioned transmission lines on private rights of way and/or on certain of the roads, highways, streets or public places in the following counties: Contra Costa, Alameda, Stanislaus, San Joaquin, Merced and Fresno. Applicant proposes to acquire such private rights of way, easements or servitudes for land use in such counties as may be necessary for the installation, maintenance or use of said new transmission lines and it claims ownership of franchises permitting

such new construction. Applicant claims certificates of public convenience and necessity to exercise such franchises heretofore have been obtained from the Commission as follows:

County	Ordinance Number	Expires	Application Number	Decision Number
Contra Costa	242	July 1, 1986	20829	29272
Alameda	307	July 16, 1986	21011	30456
San Joaquin	498	May 28, 1997	28821	40980
Stanislaus	265	Indeterminate	30281	43185
Merced	213	June 15, 1988	22726	34501
Fresno	318	May 29, 1988	22642	34503

The certificate of public convenience and necessity issued herein is subject to the following provision of law:

> That the Commission shall have no power to authorize the capitalization of this certificate of public convenience and necessity or the right to own, operate or enjoy such certificate of public convenience and necessity in excess of the amount (exclusive of any tax or annual charge) actually paid to the State as the consideration for the issuance of such certificate of public convenience and necessity or right.

O R D E R

The above-entitled application having been considered, a public hearing having been held, the matter having been submitted and now being ready for decision,

IT IS HEREBY FOUND AS A FACT that public convenience and necessity require the construction, operation and maintenance of the electric generation and transmission project as shown on Exhibit No. 1 in this proceeding and as described in this application; therefore,

IT IS HEREBY ORDERED that Pacific Gas and Electric Company be and it is hereby granted a certificate that public convenience and necessity require the construction, operation and maintenance of the steam-electric generating plant and transmission lines described in this application, the procurement of the

requisite lands or land rights, permission or such extra franchises as may be necessary for the construction or operation of the project, the production, transmission, distribution, delivery and sale of such electric energy as may be generated by the project to its present and prospective customers in accordance with its certificates of public convenience and necessity and with its rates, rules and regulations duly filed with the Commission.

IT IS HEREBY FURTHER ORDERED that Pacific Gas and Electric Company shall secure further authority of this Commission to exercise the rights and privileges pursuant to such additional franchises as may be obtained for the construction and operation of the project in accordance with the provisions of Section 1002 of the Public Utilities Code of the State of California.

IT IS HEREBY FURTHER ORDERED that Pacific Gas and Electric Company shall file with this Commission a detailed statement of the capital costs of the generation and transmission projects when completed. Such cost reports shall be submitted within six months of the date of completion.

The authorization herein granted will lapse if not exercised within two (2) years from the date hereof.

The effective date of this order shall be twenty (20) days after the date hereof.

Dated at San Francisco, California, this 13th day of May, 1952.

R. I. Dorman
President.
Justus F. Craemer
Harold P. Huls
Kenneth Peters
Commissioners.