

ORIGINALDecision No. 52767

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 of the Public Utilities)
 Commission of the State of California)
 issuing to applicant a certificate of)
 public convenience and necessity for)
 the construction and installation of)
 the within described additional steam)
 electric generating unit at applicant's)
 Station "P" Steam Plant in San Francisco,)
 California, together with related)
 transmission facilities.)
 (Electric))

Application No. 37537

F. T. Searls and John C. Morrissey for applicant.
City and County of San Francisco by Dion R. Holm
 and Paul L. Beck; 12th Naval District Public
Works Office by Joseph Rosman; Sacramento
Municipal Utility District by Herbert Blender;
California Farm Bureau Federation by Bert Buzzini
 and J. J. Deuel; and State Engineer, Harvey O.
Banks by Fred J. Groat, interested parties.
Robert W. Beardslee for the Commission staff.

O P I N I O N

Applicant's Request

Pacific Gas and Electric Company, a California corporation operating public utility electric and gas systems and relatively minor water and steam-heat systems in northern and central California, on December 2, 1955, filed the above-entitled application requesting a certificate of public convenience and necessity to construct and thereafter operate, maintain and use an additional turbine generating unit at its Station "P" Steam Plant in San Francisco, together with related transmission facilities. The proposed unit is to be known as Unit No. 4, the three previous units having been installed and being of sizes as

designated below:

	<u>Installation Date</u>	<u>Size</u>
Unit No. 1	1929	35,000 kw
Unit No. 2	1948	110,000 kw
Unit No. 3	1949	110,000 kw

Proposed Unit No. 4

The proposed generating unit will have a name plate rating of 156,250 kw and will be directly connected to a tandem compound, reheat steam turbine to be operated at 3,600 rpm. Steam will be produced in a single boiler to have a capacity of 1,135,000 pounds of steam per hour for delivery to the turbine at a steam pressure of 1,850 psi, and 1,000 degrees Fahrenheit temperature, with reheat to 1,000 degrees. The new unit will be of the semi-outdoor type. Cooling water will be obtained from San Francisco Bay through the existing intake channel to the plant but will require a new intake structure and screen. The unit will be complete with auxiliaries and related supporting steam plant equipment, including essential high voltage transforming and switching equipment. Energy will be generated at 18,000 volts and applicant proposes to use gas or oil as fuel, but will design the plant to use coal if its use becomes necessary.

In order to make the output of No. 4 unit available to help supply the growing San Francisco and Peninsula load, applicant proposes to install approximately four miles of single circuit underground transmission from Station "P" northward to the existing Mission Substation, located at 8th and Mission Streets in San Francisco, and approximately four miles southward to Martin Substation, located at 3150 Geneva Avenue, San Mateo County. These two circuits will each consist of three 1,000,000 circular mil

insulated copper cables, encased in a steel pipe and pressurized with nitrogen gas. The operating voltage of these circuits will be 110 kilovolts. A drawing showing the general location of Station "P" and the existing interconnected transmission system in the City and County of San Francisco and San Mateo County is shown in Exhibit C attached to the application.

Public Hearing

After due notice, public hearing was held on this application before Commissioner Ray E. Untereiner and Examiner M. W. Edwards on February 6, 1956, at San Francisco. At the hearing applicant presented six exhibits and testimony by one witness in support of its application. Cross-examination of applicant's witness was conducted by several of the interested parties and the Commission staff's representative. No one entered any objection to the granting of applicant's request.

Additional System Capacity Requirements

Applicant anticipates future load growth at the rate of approximately 6 per cent per year, or roughly 255,000 kw per year on a dry year basis. It has experienced an average rate of growth of about 8½ per cent during the last ten years, which period includes the sharp growth incident to the Korean War. Applicant estimates that Unit No. 4 can be completed by June, 1958.

During the past three years the gross system loads experienced by applicant were:

<u>Year</u>	<u>Maximum Demand</u>	<u>Energy Produced</u>
1953	3,366,000 kw	18,691,000,000 kwhr
1954	3,710,000 kw	19,499,000,000 kwhr
1955	3,820,000 kw	21,558,000,000 kwhr

The estimated future loads on a dry year (like 1931) basis are:

<u>Year</u>	<u>Estimated Maximum Demand</u>	<u>Estimated Energy Requirement</u>
1957	4,435,000 kw	24,726,000,000 kwhr
1958	4,685,000 kw	26,171,000,000 kwhr
1959	4,935,000 kw	27,612,000,000 kwhr
1960	5,190,000 kw	29,127,000,000 kwhr
1961	5,445,000 kw	30,540,000,000 kwhr

Should these dry years eventuate applicant estimates by Exhibit No. 6 that it would have the following margins over the load:

<u>Year</u>	<u>Capacity Margin</u>		<u>Energy Margin</u>	
	<u>Quantity in Thousand kw</u>	<u>Ratio To Load</u>	<u>Quantity in Million kwhr</u>	<u>Ratio To Load</u>
1957	488	11.0%	5,885	23.8%
1958	532	11.4	5,639	21.5
1959	637	12.9	5,758	20.9
1960	670	12.9	5,416	18.6
1961	735	13.5	5,530	18.1

Applicant's witness indicated that a desirable margin is 620,000 kw which allows 90,000 kw for governing, 200,000 kw for a transmission line outage, 165,000 kw for generator overhaul and 165,000 kw for nonscheduled outage of a large generator. During 1957 and 1958 the indicated capacity margin will be below this 620,000 kw level if a dry year occurs; however, there is always the possibility that applicant in an emergency could obtain some power from the utilities operating in southern California. The indicated low level of margin points to the need for this added capacity.

New Capacity Program

The proposed unit represents less than one year's load growth, and it is evident that new plants in addition to this unit will be needed. The following new capacity program is outlined in Exhibit No. 6:

<u>Name and Type of Plant</u>		<u>Available Capacity</u>	<u>Date Available</u>
Morro Bay, 2nd Unit	- Steam	165,000 kw	Spring 1956
Humboldt Bay, 1st Unit	- Steam	50,000	Fall 1956
Poe	- Hydro	106,000	Spring 1958
Station P, 4th Unit	- Steam	165,000	June 1958
Humboldt Bay, 2nd Unit	- Steam	50,000	Fall 1958
Butt Valley	- Hydro	30,000	Spring 1959
Caribou No. 2	- Hydro	109,000	Spring 1959
Balch Addition	- Hydro	92,000	Spring 1959
Haas	- Hydro	123,000	Spring 1960
Unnamed	- Steam	165,000	Spring 1960
Kings River Plant	- Hydro	42,000	Spring 1961
Belden	- Hydro	113,000	Spring 1961
Unnamed	- Steam	165,000	Spring 1961
Total		1,375,000 kw	

In addition to the above new plant capacity, applicant anticipates an additional dry year increase of 103,000 kw from the Central Valley Project and 63,000 kw from the Tri-Dam Project in 1959. Through regulation provided by the Tri-Dam project an increase of 11,000 kw will be obtained in Melones' Power House dry year capacity. Construction of Wishon Dam will firm and make available in the spring of 1958 an additional 23,000 kw from existing Balch Power House. Over the six-year period 1956-1961, the indicated total is 1,575,000 kw or an average of 262,500 kw per year of added capacity.

Estimated Plant Cost

Increase in production and transmission capital which will result from the proposed new Unit No. 4 at Station "P" and related transmission circuits covered by this application are estimated at \$23,100,000. A segregation of this sum to the principal categories of equipment, as set forth in Exhibit No. 4 and unit costs computed for a 165,000 kw capability rating follows:

<u>Item</u>	<u>Total Cost</u>	<u>Unit Cost Per kw</u>
Steam Production		
Structures and Improvements	\$ 1,940,000	\$ 11.76
Boiler Plant Equipment	7,730,000	46.85
Turbo-Generator Units	5,220,000	31.64
Accessory and Misc. Equipment	1,741,000	10.55
Engr., Supt., Acctg. and Overhead	<u>3,106,000</u>	<u>18.82</u>
Subtotal Production	19,737,000	119.62
Substations		
Station "P" Sub (Transformers etc.)	\$ 1,263,000	\$ 7.65
Mission Sub (Terminal Facilities)	78,000	.47
Martin Sub (Terminal Facilities)	122,000	.74
Transmission = U.G. Conduit and Cables	<u>1,900,000</u>	<u>11.52</u>
Total Project	23,100,000	140.00

Applicant plans to finance the construction of this unit from treasury funds presently on hand, from cash available from internal sources, from short term bank loans, and, if necessary, from the sale of additional securities. The sale of additional securities according to law will be subject to Commission authorization in the future.

Annual Operating Cost

For estimating purposes at a 52% Federal income tax rate applicant used annual fixed charges at the rate of 13.2 per cent for steam production, 14.2 per cent for transmission and 12.4 per cent for substation. Such fixed charges cover a return of 5.55% on a depreciated rate base and allowances for depreciation, property taxes, income taxes, insurance, injuries and damages. The total estimated annual operating costs based on a 52% Federal income tax rate and the posted price of fuel oil at \$2.10 per barrel for various plant capacity factors are:

ESTIMATED ANNUAL COSTS (Thousand Dollars)

	<u>Plant Capacity Factors</u>			
	<u>20%</u>	<u>40%</u>	<u>60%</u>	<u>80%</u>
Fixed Charges				
On Plant and Equipment	3,056	3,056	3,056	3,056
On Oil Storage Inventory	21	21	21	21
Operation	183	183	183	183
Maintenance	219	219	219	219
General Expense (16% of O.& M.)	64	64	64	64
Fuel	<u>1,182</u>	<u>1,972</u>	<u>2,762</u>	<u>3,554</u>
Total Cost	4,725	5,515	6,305	7,097
Energy at Terminus of Lines Million kwhr	271.9	543.8	815.6	1,087.5
Unit Cost, Mills per kwhr	17.38	10.14	7.73	6.53

The above figures are extracted from Exhibit No. 5. This exhibit also shows unit costs for oil at a posted price of \$1.85 per barrel. Similar computations for a 47% Federal income tax rate also are shown. The lowest unit cost for power shown on the exhibit under the most favorable assumptions is 5.97 mills per kwhr.

Franchises, Permits and Competition

Applicant represents that it now has or will obtain all necessary franchises and/or rights required for the construction involved, and states that the transmission system will be constructed in certain roads, highways, streets or public places in the City and County of San Francisco and in the County of San Mateo. It alleges that this proposed project will not compete with any person, firm, or public or private corporation now engaged in the business of furnishing or supplying public utility electric service but mentions that it sells a relatively small amount of energy generated at its plants to a number of municipalities and other public agencies and to other corporations for resale to their customers. Applicant represents that there will be a demand for the power to be generated by the proposed unit and that its

construction will be in the public interest.

Conclusions and Findings

In view of the past trend in growth of demand for electric energy on applicant's system it appears reasonable to project a growth trend into the future of approximately 6 per cent and conclude that the proposed new capacity will be needed when completed to supply the future public demands for electric energy. The proposed capacity increment is less than 4% of the present system capacity under average year conditions. The estimated cost of energy from this proposed project appears favorable and should not unreasonably increase the over-all system unit cost of energy production. It is our opinion that the applicant has the financial means to construct the project and place it into successful operation. After considering the record in this proceeding it is our conclusion that the proposed construction is in the public interest.

The Commission finds that public convenience and necessity require the construction, operation, maintenance and use of the steam generation project to be known as Unit No. 4 at Station "P" Steam Plant, San Francisco, and related transmission system as shown on Exhibit C attached to the application and as described in the application; and that an order should be issued in general granting the authority requested by applicant.

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; 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, maintenance and use of the steam-electric generating plant and transmission system 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 file with this Commission a detailed statement of capital costs of the generation and transmission project herein authorized within six months following the date of its completion.

The authorization herein granted will expire if not exercised within three years after the date hereof.

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

Dated at San Francisco, California, this
13th day of March, 1956.

John F. Hill
President
Justus J. Adams
Frank Waterhouse
W. H. Hardy
Commissioners