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ORIGINAL

Decision No. 55132

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 Sec-)
 tion 1001 of the Public Utilities)
 Act of the State of California)
 declaring that public convenience) Application No. 33182
 and necessity require the construction,) (Second Supplemental)
 operation and maintenance by applicant)
 of a steam electric generating plant,)
 transmission lines, and related)
 facilities herein generally described.)
 (Electric))

F. T. Searls, John C. Morrissey and Malcolm A. MacKillop, for applicant.
Burle C. Laton, for U.S. Bureau of Reclamation;
Fred J. Groat, for Harvey O. Banks, Director of Water Resources, State of California;
 Dion R. Holm and Paul L. Beck, for City and County of San Francisco; I. E. Ball, for Sacramento Municipal Utility District; Grace McDonald, for California Farm Research and Legislative Committee; Joseph Q. Joynt, for California Farm Bureau Federation; interested parties.
John J. Doran, for the Commission staff.

O P I N I O N

Nature of Application

This supplemental application, filed February 11, 1957, is concerned with the addition of Units Nos. 5 and 6 of 300,000 kw nominal rating each, at the Pittsburg Power Plant (formerly called Pittsburg Steam Plant). The application was filed by the Pacific Gas and Electric Company, which company is engaged, principally, in the business of furnishing electric and gas service in California.^{1/}

^{1/} Applicant also distributes and sells water in a number of cities, towns and certain rural areas, and produces and sells steam heat in certain parts of the cities of San Francisco and Oakland.

Applicant's Request

Applicant requests that the Commission duly give and make its order and decision as provided for by the provisions of Section 1001 of the Public Utilities Code of the State of California, granting and conferring all necessary permission and authority to construct, install, operate, maintain and use the electric production and other facilities described and/or mentioned in the body of this supplemental petition, and issuing a certificate declaring that the present and/or future public convenience and necessity require or will require that such work be done and such construction be made by applicant.

Public Hearing

After due notice, public hearing was held on this second supplemental application before Examiner Manley W. Edwards on May 13, 1957, at San Francisco. Applicant presented four exhibits^{2/} and testimony by one witness in support of its application. The Commission staff, represented by an electrical engineer, cross-examined applicant's witness for the purpose of developing a full record to aid the Commission in deciding this matter. Other persons, who appeared as interested parties, also cross-examined the applicant's witness. No opposition to the applicant's proposal was expressed at the hearing.

Proposed Construction

Applicant proposes to add Units Nos. 5 and 6 at the Pittsburg Power Plant of 300,000 kw nominal capacity each, together with related transmission and other appurtenant facilities. Each

^{2/} Exhibits Nos. 8, 9, 10 and 11 under Application No. 33182.

unit will consist of one cross-compound, reheat, turbine generator with expected normal operating capacity of 325,000 kw; and one boiler having a capacity of 2,200,000 pounds of steam per hour at a throttle pressure of 2,400 psig and 1,050 deg. F. Reheat capacity will be 1,855,000 pounds of steam per hour at 1,000 deg. F. Each generator of the cross-compound unit will operate at 3,600 rpm and the generators will have a combined rating of 384,000 kva. Each unit will be complete with auxiliaries and related supporting steam plant equipment, including essential high voltage transforming and switching equipment. Units will be of the outdoor type.

The new units will utilize certain existing site facilities, such as portions of the circulating water system, shops, warehouse, fuel oil handling system, natural gas facilities, spur tracks, switchyard, offices, and crane.

In order to make the output of Units Nos. 5 and 6 available to its interconnected electrical system, applicant proposes to install and place in operation the following steel tower transmission lines:

- (a) Two double-circuit 220 kv lines extending 17.4 miles from the existing Pittsburg-Contra Costa circuits near Clayton to a point near San Ramon.
- (b) A 220 kv line, consisting of one circuit strung on double circuit towers, extending 20.6 miles from said point near San Ramon to the existing Tesla Substation.
- (c) A single 220 kv circuit strung on existing towers, extending 125.2 miles from Pittsburg Power Plant to the existing Panoche Substation.

The proposed in-service dates for the units are the first quarter of 1960 for Unit No. 5 and the first quarter of 1961 for Unit No. 6.

Natural gas and fuel oil are expected to be burned for fuel; however, the boilers will be so designed, and space provided, for future burning of coal and provision of coal pulverizers if needed.

Additional System Capacity Requirement

Applicant's witness indicated the system has experienced an average growth in demand of 8.5 percent per year from 1947 to 1956 and the justification for these two units is predicated on an assumed future growth rate of slightly under 6 percent. Applicant expects its system peak loads to occur in August each year. Its estimates of loads and margins under average and dry year conditions after addition of programmed construction including Pittsburg Units 5 and 6 are set forth in Exhibit No. 11 and may be summarized as follows:

Years	Capacity - Thous. Kw				Energy - Million Kwhr			
	Avail. Cap.	Peak Load	Margin Quan.	Margin Ratio	Avail. Energy	Annual Load	Margin Quan.	Margin Ratio
1957 (Avg.)	5,065	4,454	611	13.7%	33,599	24,593	9,006	36.6%
1958 (Avg.)	5,408	4,640	768	16.6	35,206	26,205	9,001	34.3
1958 (Dry)	5,258	4,745	513	10.8	32,175	26,919	5,256	19.6
1959 (Avg.)	5,819	4,950	869	17.6	36,918	27,900	9,018	32.3
1959 (Dry)	5,664	5,050	614	12.2	33,709	28,580	5,129	17.9
1960 (Avg.)	6,256	5,245	1,011	19.3	39,384	29,640	9,744	32.9
1960 (Dry)	6,100	5,345	755	14.1	36,096	30,280	5,816	19.2
1961 (Avg.)	6,623	5,583	1,040	18.6	41,950	31,485	10,465	33.2
1961 (Dry)	6,467	5,680	787	13.9	38,688	32,080	6,608	20.6

The present program of applicant is to install the following additional and major new plants during this four-year period:

<u>Plant</u>	<u>Available Capacity (Dry Year)</u>	<u>Date Available</u>
Poe - hydro	106,000 kw	Spring 1958
Hunters Point - steam	165,000	Spring 1958
Balch - firmed by Wishon (Dry year increase)	23,000	Spring 1958
Humboldt Bay - steam	50,000	Fall 1958
Butt Balley - hydro	30,000	Fall 1958
Caribou No. 2 - hydro	109,000	Fall 1958
Balch Addition - hydro	92,000	Fall 1958
Haas - hydro	125,000	Fall 1958
Pittsburg No. 5 Unit - steam	325,000	Spring 1960
Belden - hydro	113,000	Spring 1960
Pittsburg No. 6 Unit - steam	325,000	Spring 1961
Kings River Plant - hydro	42,000	Spring 1961
Total	<u>1,505,000</u>	

In addition to the above capacity the applicant expects to obtain capacity from other agencies to the extent of 75,000 kw from the Tri-Dam Project in 1958 and states that there will be additional August capacity of 11,000 kw in a dry year available in its Melones Plant due to regulation provided by the Tri-Dam Project.

Estimated Plant Cost

The increase in production and related capital which will result from the proposed Units Nos. 5 and 6 at Pittsburg Power Plant is estimated as follows:

<u>Acct. No.</u>	<u>Item</u>	<u>Estimated Cost</u>
311	Structures and Improvements	\$ 6,180,000
312	Boiler Plant Equipment	27,800,000
314	Turbo-Generator Units	23,330,000
315	Accessory Electric Equipment	4,143,000
316	Misc. Power Plant Equipment	535,000
	Communication Equipment	16,000
	Removal, Operating, and Maintenance	4,000
	Engineering, Supt. and Acctg.	3,100,000
	Construction Plant, Warehouse, etc.	1,550,000
	Overhead Construction Cost	6,342,000
	Total Production	<u>\$73,000,000</u>
	Step-Up Substation - Pittsburg Power Plant	3,700,000
	Terminal Substation Facilities	1,550,000
	Transmission Lines	4,950,000
	Total Project	<u>\$83,200,000</u>

On the basis of 650,000 kw capability the estimated unit cost is \$128 per kw for the units, substation and transmission facilities.

Applicant proposes to finance the cost of constructing these additions 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 or other evidences of indebtedness as the Commission shall hereafter, upon proper application, authorize for that purpose.

Annual Operating Cost

Applicant's estimated cost of operation for Units Nos. 5 and 6 at the Pittsburg Power Plant is:

<u>Annual Expense Item</u>	<u>Amount</u>
Fuel (at 60% capacity factor)	\$14,020,000
Operation	369,000
Maintenance	406,000
General Expense	124,000
Fixed Charges on Oil Storage Inventory	145,000
Fixed Charges on Plant, Transmission and Substations (11.76% of \$83,200,000)	9,785,000
Total Annual Cost	<u>\$24,849,000</u>

The above fuel cost is predicated on fuel oil at a price of \$2.87 per barrel delivered at the plant, assuming a heat content of 6,250,000 Btu per barrel, and an efficiency of approximately 700 kwhr per barrel. Based on a 60 percent capacity factor the gross annual energy production is 3,416,400,000 kwhr and the estimated unit production cost is 7.3 mills. At the same capacity factor the net energy at the terminus of the transmission lines is 3,067,100,000 kwhr and the unit production cost is 8.1 mills per kwhr. If an 80 percent capacity factor is assumed, these unit costs would drop to 6.4 mills and 7.1 mills per kwhr respectively.

Economics of Units

In view of the size of these two units and the large increase in rate base and expenses they would cause in 1960 and 1961, the depressing effect they may have on applicant's earnings was discussed during the hearing. Applicant's studies indicate that the first unit, when installed in 1960, might reduce the system's rate of return by 0.15 percent if the load did not grow as assumed; and that the second unit in 1961 might reduce the rate of return by 0.13 percent. However, this appears to be an extreme condition and it may be that by the end of the years when installed the growth in revenues will completely counteract the depressing effect on rate of return.

Applicant's witness also testified as to studies that were made to determine the most economic size of units. The first step was to estimate the future power growth requirements and then study the effect of adding various sizes of units. The results of this study indicated advantages in changing from 165,000 kw units as previously installed at Pittsburg to 325,000 kw units as proposed in this application. For a short period of time from 1960 to 1962 the economic study showed some \$900,000 disadvantage for the larger units but after 1962 sizeable savings were indicated that should quickly wipe out this disadvantage.

Competition and Permits

In further support of this request the applicant alleges that this proposed project of new construction 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, and that the present and/or future public convenience and

necessity require or will require the construction or carrying to completion of this project. Applicant represents that there will be a demand within the territory in which it operates for the additional power to be generated and that such power will be used and distributed by it for beneficial use. Applicant mentions that it sells a relatively small amount of electric energy generated at its plants to a number of municipalities and other public agencies and to other corporations for resale to their customers.

Applicant's witness indicated that these units will not interfere with development of the State's Feather River Project or the Government's Trinity River Project as this additional power equipment is needed in the northern California area before these river projects can be completed.

Applicant will obtain all permits, franchises or certificates necessary to complete the project.

Findings and Conclusions

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 percent and conclude that the demand will grow from the estimated 4,454,000 kw in 1957 to 5,680,000 kw in 1961 or by 1,226,000 kw in this four-year period. Applicant proposes to add 1,505,000 kw in this period. The margin of 13.9 percent estimated for 1961, on a dry year basis, is not unreasonable. The Commission finds and concludes that the proposed new capacity will be needed when scheduled to help supply the future public demands for electric energy.

The Commission is concerned that applicant size and time its additions exactly to the system needs, and not overbuild in

such a manner as to require it to seek an increase in rates from its customers. While the size of these units is very large, and a very substantial amount must be invested by the applicant in them, nevertheless the unit capital costs per kw and the unit production costs appear favorable, and it appears that applicant's system has grown to the point where it can absorb them without undue economic strain.

It is our opinion that the applicant has the financial means to construct the 5th and 6th units at Pittsburg Power Plant and place them into successful operation. The Commission finds that public convenience and necessity require the construction, operation and maintenance of the two 300,000 kw units together with the necessary appurtenances and transmission lines, and that an order should be issued granting the certificate as requested.

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 supplemental application having been considered, a public hearing having been hold, 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 proposed Units Nos. 5 and 6 at the Pittsburg Power Plant consisting of 300,000 kw units generally as described in the supplemental application, the procurement of the requisite lands or land rights, permissions or such franchises as may be necessary for the construction or operation of the project, the production, transmission and distribution, delivery and sale of such electric energy as may be generated by these units to its present and prospective customers in accordance with its certificates of public convenience and necessity and with its rates and rules 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 project within six months following the date of completion of Units Nos. 5 and 6 in the Pittsburg Power Plant.

The authorization herein granted shall expire if not exercised within four 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 18th day of JUNE, 1957.

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President
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Rex Hardy
Commissioner
being necessarily absent, did not participate in the disposition of this proceeding.