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Decision No. 56112

ORIGINAL

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY for a certificate that present and future public convenience and necessity require or will require the construction and operation by Applicant of a new hydroelectric power plant to be known as the MAMMOTH POOL PROJECT, including a dam, reservoir, appurtenant water conduit and penstock, powerhouse, transmission lines, and other structures and facilities necessary or useful for the construction, operation or maintenance of said Project.	Application No. 39433

Bruce Renwick, Rollin E. Woodbury, Harry W. Sturges, Jr., and John R. Bury, for applicant.
Claude L. Rowe, for City of Fresno, protestant.
J. J. Deuel, for California Farm Bureau Federation; Gilbert Jones, for California Department of Water Resources, interested parties.
Leonard Patterson and Harold T. Sipe, for the Commission staff.

O P I N I O N

Applicant's Request

Southern California Edison Company, a California corporation, engaged in the business of generating, transmitting and distributing electricity in the central and southern portions of the State of California as a public utility, filed the above-entitled application on September 27, 1957 requesting a certificate that present and future public convenience and necessity require or will require the construction and operation of a new 126,000-kw hydroelectric power project to be known as the Mammoth Pool Project, including a dam, reservoir, appurtenant water conduit and penstock,

powerhouse, transmission lines, and other structures and facilities necessary or useful for the construction, operation or maintenance of said project and the acquisition of the permits, license and other rights necessary or convenient for the purpose of constructing, operating or maintaining the same.

Public Hearing

After due notice, public hearing upon this application was held on October 22, 1957 in Los Angeles and on November 15, 1957 in Fresno before Examiner Manley W. Edwards. Applicant presented three exhibits and testimony by four witnesses in support of its application. At the first day of hearing the City of Fresno appeared as a protestant for the purpose of considering an increase in the size of the dam and reservoir to provide greater upstream water storage and sought a short delay in the proceeding in order to enable it to prepare and present evidence. At the second day of hearing, the City filed an answer to the application and presented two exhibits through one witness. The Commission staff, represented by electrical engineers, cross-examined the witnesses for the purpose of developing a full record to aid the Commission in deciding this matter. The representative of the California Farm Bureau Federation also cross-examined certain of the witnesses and made a closing statement in favor of the applicant's proposal. The matter was submitted at the close of the second day of hearing and now is ready for decision.

Proposed Construction

Applicant proposes to construct the Mammoth Pool Dam across the San Joaquin River in the N½ of Sec. 14, T.7 S., R.24 E., E.M.D.B.& M., in the Counties of Fresno and Madera at a location about 9 miles upstream from its present Big Creek Power House No. 8. The proposed dam will have a net height above stream bed of about

330 feet, and a gross height above bedrock of about 430 feet. The dam will be of rolled earth-fill construction, with a crest length of about 820 feet and a length from upstream toe to downstream toe of approximately 1,800 feet; and will create a reservoir with a gross capacity of approximately 123,000 acre-feet, which will be over 8 miles in length.

The proposed Mammoth Pool Power House will be located on the upstream end of the existing after bay of Big Creek Power House No. 8, some 40,000 feet downstream from the proposed dam. The proposed water conduit between the new dam and powerhouse will consist of a tunnel through granite with lining provided at points of poor support or insufficient cover. Two small diversion dams will be constructed over the center line of the tunnel across two small tributary streams, known as Rock Creek and Ross Creek. By means of vertical bore holes, the waters from these two creeks will be diverted downward into the tunnel.

At the downstream end of the tunnel, two steel penstocks will extend from a Wye-branch down the mountain side to the powerhouse. The penstocks will vary in diameter from approximately 105 inches at the upper butterfly valve to approximately 90 inches at the lower butterfly valve. The complete reservoir and water conduit system will be capable of delivering approximately 1,800 cubic feet of water per second to the powerhouse.

The powerhouse will be of an outdoor type and contain two generating units, each having a multijet impulse turbine directly connected to a 63,000-kva generator. The combined name-plate rating of the two units will be 126,000 kw. Applicant proposes to operate the Mammoth Pool Power House by supervisory control from its Big Creek Power House No. 3, which is located approximately 9 miles downstream. A substation will be provided at Mammoth Pool Power House where the energy generated at 13,800 volts will be stepped up to a

nominal potential of 220,000 volts for transmission. Short transmission lines will be constructed to interconnect the powerhouse with applicant's existing Big Creek transmission line system; however, in order to take full advantage of the Pacific Gas and Electric Company interconnection at Magunden, without exceeding stability limitations while simultaneously transmitting the full load output of the Big Creek system after the addition of Mammoth Pool, it will be necessary to construct approximately 70 miles of single-circuit, 220-kv line between Magunden Substation (near Bakersfield) and Saugus Substation.

Proposed Operations

Under applicant's proposed method of operation, waters will be conducted through the Mammoth Pool Tunnel from the reservoir and from the points where the waters from Rock Creek and Ross Creek are diverted into said tunnel to the penstock and thence to the powerhouse where said waters are estimated to produce 550,000,000 kwhr per year on the average. The Mammoth Pool Project is strategically located across the San Joaquin River at a point where approximately 60 per cent of the flow of the river passes by unregulated, and applicant estimates that the additional amounts of water made available for use at Big Creek Power Houses Nos. 3 and 4 by the operation of Mammoth Pool Reservoir will result in an average annual gain of 86,000,000 kwhr from said powerhouses.

Additional System Capacity Requirements

One of applicant's witnesses testified that during the period 1952 to 1956, the system peak demand increased by 788,000 kw, from approximately 1,716,000 to 2,504,000 kw; that up to October 22, 1957 the peak load had been 2,583,700 kw; and that he estimated a peak load of 2,730,000 kw before the end of the year 1957. During the four years, 1952 to 1956, the growth rate varied from

7.79 to 14.40 per cent, and for 1957 the estimated growth rate is 9.20 per cent. During this same period, the net system energy requirements increased from 9.4 billion kwhr in 1952 to an estimated 15.0 billion kwhr in 1957, or, by annual growth rates, varying from 6.61 to 13.10 per cent. For the next three years, applicant forecasts the following trend in growth of peak demand:

Year	Estimated Peak Load kw	Estimated Increase in Peak kw	Ratio
1958	2,955,000	225,000	8.24%
1959	3,195,000	240,000	8.12
1960	3,430,000	235,000	7.36
Three-Year Total		700,000	

The present program of applicant is to install the following major new plants during this 3-year period:

June 1958	Huntington Beach #1	200,000
Dec. 1958	Huntington Beach #2	200,000
March 1959	Mandalay #1	200,000
Sept. 1959	Mandalay #2	200,000
March 1960	Mammoth Pool	126,000
April 1960	Huntington Beach #3	200,000
Aug. 1960	Huntington Beach #4	200,000
	Total ...	1,326,000

Partly offsetting the above capacity increases are retirements and other capacity losses totaling 502,000 kw. Applicant plans, in January 1958, to retire or place on cold reserve 65,000 kw of capacity comprised of Long Beach Plant No. 1 and Unit No. 7-R and the Vernon Diesel Plant; to relinquish, as of March 20, 1958, a firm capacity of 75,000 kw being purchased from Pacific Gas and Electric Company; as of January 1959 to place Long Beach Plant No. 2 on cold reserve, a capacity of 150,000 kw; and as of June 1960 to place Long Beach Plant No. 3 on cold reserve, a capacity of 212,000 kw. Net capacity additions for the period 1958-1960 are therefore 824,000 kw.

In Exhibit No. 1, applicant shows that, in 1960, under adverse hydro conditions, after allowing for 200,000 kw of spinning reserve, the maximum margin is 449,000 kw in the month of May and the minimum margin is a minus 84,000 kw in the month of August. Applicant's witness testified that this deficiency could be made up by non-firm purchases and mutual standby from other utilities and that this figure is derived after allowing fully for the proposed Mammoth Pool Project. Included in Exhibit No. 1 is a summary of the power resources for the entire Pacific Southwest Power Area which indicates that in 1960, under adverse hydro conditions, the indicated margin will be 14.6 per cent in August, and 16.2 per cent in December. The witness' conclusion with regard to the need for this new plant is that for the year 1960 the margins shown, plus the addition of Mammoth Pool, would be about the amount required to supply the estimated area demands provided the capacity is installed on or about its scheduled operating date of March 1, 1960.

Estimated Plant Costs

The increase in production capital which will result from the proposed Mammoth Pool Project is estimated as follows:

Mammoth Pool Plant:		
Roads and trails		$ 2,231,000
Reservoirs, dams and waterways		35,433,000
Structures and improvements		1,980,000
Turbines and generators		5,845,000
Other equipment		4,111,000
Subtotal Plant		49,600,000
Additional Transmission, Magunden to Saugus Substations:		
Estimated cost including rights of way and general overhead	$ 4,016,000	
Total Cost	53,616,000	
Cost per Kw of Capacity		426

The above total of $49,600,000 for the plant proper includes direct costs, interest, taxes, contractor's overhead and applicant's own engineering and construction cost.

Applicant proposes to finance its future construction programs, including the proposed hydroelectric power project, from available funds, from bank loans, or from funds to be obtained through the sale of securities as the Commission shall hereafter, upon proper application, authorize for that purpose.

Annual Operating Cost

Applicant's annual estimated cost of operation for the Mammoth Pool Project is:

Annual Expense Item	Amount
Mammoth Pool Plant:	
Operation and Maintenance	$ 110,000
Deprec. (straight-line, 80-year life)	620,000
Income Taxes (54% composite rate, Federal and State)	1,223,136
Ad Valorem Taxes ($4.35 per $100 assessed value)	863,040
Return (6.4% on average depreciated capital)	1,607,040
Subtotal, Plant	4,423,216
Additional Transmission, Magunden to Saugus Substations:	
Annual Carrying Charges at 9.81%	394,000
Operation and Maintenance	22,000
Subtotal, Added Transmission	416,000
Total	4,839,216

In computing the income tax allowance, the applicant assumed a 50 per cent bond ratio and an average interest rate on bonds of 4.5 per cent.

On the basis of 550,000,000 kwhr production for Mammoth Pool Powerhouse, plus additional annual production of 86,000,000 kwhr from Big Creek Powerhouses Nos. 3 and 4, applicant computes the unit production cost from this project at 6.96 mills per kwhr. This is an incremental cost and does not include the project's pro rata share of the annual cost of existing transmission facilities from Big Creek to Magunden and an allocation of miscellaneous and general expenses which would be applicable to production. The cost of added transmission from Magunden to Saugus is computed at 0.65 mills per kwhr. Thus the total unit energy cost from this proposed project is

something in excess of 7.5 mills per kwhr at the load center of the system.

Permits, Licenses and Rights

Applicant proposes to obtain all necessary permits, licenses and other rights necessary or convenient for the purpose of constructing and operating the Mammoth Pool Project. Applicant has now obtained a major project license from the Federal Power Commission for the construction, operation and maintenance of this project (Project No. 2085) affecting lands of the United States. It represents that no county or municipal franchises are necessary to complete and put the project into operation.

Competition and Rates

Applicant represents that the construction of the proposed Mammoth Pool Project is not likely to compete with any other utility, corporation, person or entity, public or private, but is an economical and appropriate means of increasing its generating capacity to help handle its growing load. Applicant proposes to charge the rates specified in its regular tariff schedules, filed from time to time with the Commission, for service to customers whose capacity and energy requirements will be supplied from this proposed project.

Position of City of Fresno

The City of Fresno represents that there is approximately 300,000 acre-feet of surplus water in the San Joaquin River subject to appropriation, that it has filings with the California State Water Rights Board for such appropriation, that it needs a surface water supply from the San Joaquin River for domestic and municipal use, and that the storage at Mammoth Pool feasibly could be increased to 505,000 acre-feet which is some 382,000 acre-feet more storage capacity than proposed by applicant herein. Fresno's counsel stated that it will not oppose the granting of this application if it does

not prejudice the rights of the City of Fresno to later enter into a joint construction program with the applicant to increase the storage capacity of Mammoth Pool Dam, and if it will not be construed as in any way affecting the rights of the City under its Applications Nos. 6771, 6772, 7134 and 7135 now pending before the State Water Rights Board.

The City's witness indicated that Fresno never has wished to oppose the construction of a dam by the applicant at Mammoth Pool or at any other site because the storage of water in one form or another is a benefit to all persons in this State or in the San Joaquin Valley, but desired specific provisions that the certificate in no way be construed as affecting the City's rights under its filings before the California State Water Rights Board in January 1958 and, in the future in asking for additional storage at Mammoth Pool. The witness admitted that at present Fresno is not affected by the construction of a lower earth-fill dam, but in the future when the City's water needs may be some 200,000 acre-feet per year, compared to the present 52,000 acre-feet, he stated the picture may be entirely different.

Discussion of Higher Dam

The City's witness estimated that a dam which would create a 505,000 acre-foot reservoir would cost about $47,000,000, which cost is some $37,000,000 more than the approximate $10,000,000 that applicant plans on spending on the earth-fill dam. Also, such a dam would be about 200 feet higher than the proposed dam and the added head would cause a considerable change in the design of the power plant, penstocks, and equipment. One of applicant's witnesses indicated that the present design could be modified now with relatively minor cost in order to make possible an additional 100 feet of head

in the future; however, City's counsel stated, "We are not trying to get them to spend any more money at this time."[1]

The representative for the California Farm Bureau Federation stated that the possibility or probability of raising the height of the dam is too far in the future to justify any sizable additional expenditures at this time. He also stated that all additional storage upstream on any of the rivers benefits everybody downstream and that the Farm Bureau recognizes the fact that the City of Fresno or any other city has a prior right to the use of water under our State water law and, therefore, the Farm Bureau has no objection to the City's actions.

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 7 to 8 per cent and after allowing for the proposed retirement of the older plants, we hereby find and conclude that the proposed new capacity will be needed when scheduled to help supply the future public demands for electric energy. The estimated unit cost of power from this project is not unreasonable in light of present-day production costs.

With regard to the position taken by the City of Fresno, it is the Commission's conclusion that any storage upstream will benefit the City and, inasmuch as Fresno does not have any funds available at this time to apply to a higher dam, that the applicant's proposal should be authorized. It should be pointed out that the Federal Power Commission on December 30, 1957, after considering Fresno's position, issued a license under Project No. 2085 for the dam and plant as proposed by the applicant, and did not provide for

1 Transcript Page 119, Lines 8 and 9.

any changes in the height of the dam. Our certificate does not in any way prevent the City from negotiating with the applicant, and if an agreement can be reached then the City and applicant are in a position to apply to the Commission for an amendment to this certificate. Furthermore, this proceeding does not involve the water rights mentioned by the City.

It is our opinion that the applicant has the financial means to construct the proposed project and place it into successful operation. After considering the record in this proceeding and the showing with regard to the probable need for this additional capacity in the entire Pacific Southwest Power Area, it is our conclusion that the construction of the proposed Mammoth Pool Project is in the public interest.

The Commission finds that public convenience and necessity require the construction, operation and maintenance of the proposed hydroelectric plant 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 the franchise involved herein or 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 charges) 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 Southern California Edison Company be and it is hereby granted a certificate that public convenience and necessity require the construction, operation, maintenance and use of the proposed Mammoth Pool Project consisting of a dam, reservoir, two, 63,000-kw units and appurtenances generally as described in the application, the procurement of land or land rights, license or permission 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 plant 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 FURTHER ORDERED that:

1. Southern California Edison 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 the project.

2. That the granting of this certificate of public convenience and necessity shall not prejudice the rights of the City of Fresno to later enter into a joint construction program with Southern California Edison Company to increase the storage capacity of Mammoth Pool Dam.

3. That this certificate of public convenience and necessity shall not be construed as in any way affecting the rights of the City of Fresno under its Applications Nos. 6771, 6772, 7134 and 7135 now pending before the State Water Rights Board.

The authorization herein granted shall 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 21st day of January, 1958.

President

Commissioners