

Decision No. 54789

**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 neces- )  
 sity require or will require the )  
 construction and operation by )  
 applicant of a new steam-electric )  
 generating station to be known as )  
 MANDALAY STEAM STATION, together )  
 with the transmission lines and )  
 other appurtenances to be used in )  
 connection with said Station. )

Application No. 38686

Bruce Renwick, Rollin E. Woodbury, Harry W. Sturges, Jr., and John R. Bury, for applicant.  
 California Farm Bureau Federation by J. J. Deuel and Bert Buzzini, interested party.  
L. S. Patterson, 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 December 21, 1956, requesting a certificate that present and future public convenience and necessity require or will require the construction and operation of a new steam-electric generating station with the installation of the first and second units consisting principally of two steam turbine-electric generators rated at 200,000 kw each, and related structures, equipment, facilities, transmission lines and other appurtenances, and the acquisition of lands, easements, rights of way, permits, licenses and other

rights necessary or convenient for the purpose of constructing, installing, operating or maintaining the same.

#### Public Hearing

After due notice, public hearing on this application was held before Examiner Manley W. Edwards on March 12, 1957, in Los Angeles. Applicant presented three exhibits and testimony by two witnesses in support of its application. In addition it late-filed an exhibit regarding the current Hoover Dam power situation. The Commission staff, represented by an electrical engineer, cross-examined applicant's witnesses for the purpose of developing a full record to aid the Commission in issuing its decision. Counsel for the California Farm Bureau Federation also cross-examined one of applicant's witnesses and urged the Commission to grant the application. No opposition to the applicant's proposal was expressed at the hearing.

#### Proposed Construction

Applicant proposes to construct this new steam station on a coastal site consisting of approximately 114 acres, located about 4 miles westerly from the City of Oxnard in Ventura County. Each unit is expected to have a nameplate rating of 200,000 kw or a total initial station nameplate generating capacity of 400,000 kw for units 1 and 2. Steam for each unit is to be produced in a single boiler having an operating capacity of 1,560,000 pounds of steam per hour for delivery at the turbine throttle at 2,400 psi pressure and 1,050° F. temperature and built to reheat the steam leaving the high pressure turbine to 1,000° F. for return to the reheat section of the turbine.

The type of turbine generator proposed to be used for each unit is comprised of a high pressure turbine, a reheat turbine, and a low pressure turbine arranged on two shafts rotating at speeds of

3,600 and 1,800 rpm for the high and low pressure elements, respectively, with the two generators coupled respectively to the high speed and low speed turbine shafts in a cross-compound arrangement and with no separate auxiliary generator. Station auxiliary power normally would then be obtained from the main generator leads. A station service reserve transformer will be provided for backup of the normal source of station auxiliary power.

The proposed station is to be an outdoor type station with centralized control facilities and is so located that sea water will be used for cooling purposes. Provision will be made for two or more future units. The necessary transformer, switches and transmission lines (220,000 volts) will be provided for transmission of electric energy generated at the station to the Santa Clara Substation, some 10 miles from the plant where it will connect with applicant's integrated 220-kv transmission system.

The proposed in-service dates for the units are March 1959, for the first unit and September 1959, for the second unit..

Natural gas and fuel oil are expected to be burned for fuel. It is anticipated that fuel oil used will include high viscosity fuel oils as well as Bunker C fuel oil and that on-the-site storage will be utilized.

#### Additional System Capacity Requirements

One of applicant's witnesses testified that in 1956 the system peak load increased 219,000 kw over the load in 1955, a growth rate of about 9.6 per cent, and the energy transmitted increased by 1,415,000,000 kwhr a growth rate of 11.5 per cent.

For the next 4 years applicant forecasts the following trend in growth of peak demand:

| Year          | Estimated Peak<br>Kw | Estimated<br>Increase in Peak<br>Kw | Ratio |
|---------------|----------------------|-------------------------------------|-------|
| 1957          | 2,730,000            | 226,000                             | 9.0%  |
| 1958          | 2,955,000            | 225,000                             | 8.2   |
| 1959          | 3,195,000            | 240,000                             | 8.1   |
| 1960          | 3,430,000            | 235,000                             | 7.4   |
| 4-year total: | .....                | 926,000                             |       |

The present program of applicant is to install the following major new plants during this 4-year period:

| Date           | Unit                | Capacity<br>Kw |
|----------------|---------------------|----------------|
| February 1957  | Alamitos #2         | 175,000        |
| July 1957      | Redondo #6          | 175,000        |
| June 1958      | Huntington Beach #1 | 200,000        |
| December 1958  | Huntington Beach #2 | 200,000        |
| March 1959     | Mandalay #1         | 200,000        |
| September 1959 | Mandalay #2         | 200,000        |
| March 1960     | Mammoth Pool        | 126,000        |
| Total ....     |                     | 1,276,000      |

The record shows that while the above new capacity program is some 350,000 kw greater than the estimated system peak-load growth, applicant plans, in January 1958, to retire or place on cold standby 65,000 kw of capacity comprised of Long Beach Plant No. 1 and Unit No. 7R and the Vernon Diesel Plant, and will 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, applicant plans to place its Long Beach Plant No. 2 which has a capacity of 150,000 kw on cold reserve.

In Exhibit No. 1 applicant shows, that after allowing for 200,000 kw of spinning reserve, its system capacity deficit will be 144,000 kw shortly before the first unit at Mandalay is brought into service, and 118,000 kw deficit shortly before the second unit is brought into service, if a year of adverse hydro conditions should

occur. Applicant's showing was to the effect that it expects to be able to provide for this deficit until the units are available by non-firm energy purchase and mutual standby from other utilities in the Pacific Southwest Power Area as well as from its own cold reserves. Included in Exhibit No. 1 is a summary of the power resources for the entire Pacific Southwest Power Area which indicates that in 1959, both August and December, the estimated margin after scheduled maintenance will be 15.0 per cent under adverse hydro conditions. The witness expressed the view that the area margins are about the standard of margins required, provided all capacity proposed is installed on scheduled dates.

#### Estimated Plant Cost

The increase in production capital which will result from the proposed Mandalay plant for the first two units is estimated as follows:

| Item                              | Unit<br>No. 1 | Unit<br>No. 2 | Total      |
|-----------------------------------|---------------|---------------|------------|
| Land and Land Rights              | \$ 326,000    | \$ -          | \$ 326,000 |
| Clearing and Grading              | 261,000       | -             | 261,000    |
| Structures and Improvements       | 2,517,000     | 1,171,000     | 3,688,000  |
| Boiler Plant Equipment            | 12,097,000    | 11,551,000    | 23,648,000 |
| Turbine Generator Units           | 13,774,000    | 9,589,000     | 23,363,000 |
| Accessory Electrical Equipment    | 2,889,000     | 2,011,000     | 4,900,000  |
| Other Equipment                   | 2,600,000     | 1,589,000     | 4,189,000  |
| Total                             | 34,464,000    | 25,911,000    | 60,375,000 |
| Cost per Kw of Nameplate Capacity | \$172.32      | \$129.55      | \$150.94   |

Applicant proposes to finance the construction of this new steam-electric generating station from available funds, or from funds to be obtained through the sale of securities as the Commission shall hereafter, upon proper application, authorize for that purpose.

The above cost is exclusive of an estimated cost of \$1,465,000 for the approximate 10-mile transmission line between the plant location and the Santa Clara Substation. Applicant's witness stated that these cost estimates are all based upon present price levels, and assume that such levels will not be materially altered

during the construction period, but stated that applicant is experiencing an increase in labor and material costs annually of about 5 per cent. A witness for the applicant testified that in spite of such increases in labor and material costs, estimated costs on a unit basis for the Mandalay plant are lower because of savings in engineering and design resulting from experience in building the Alamitos and Huntington Beach steam plants.

Annual Operating Cost

Applicant's annual estimated cost of operation for the first two units at the Mandalay Steam Station is:

| <u>Annual Expense Item</u>                                 | <u>Amount</u> |
|--|---------------|
| Fuel (at 60% capacity factor) .....                        | \$ 8,162,000  |
| Other operation and maintenance .....                      | 700,000       |
| Depreciation (straight-line, 40-year life) .....           | 1,495,000     |
| Income Taxes (54% composite rate, Federal and State) ..... | 1,630,000     |
| Ad valorem taxes (\$6.80 per \$100 assessed value) .....   | 1,642,000     |
| Return (6% on average depreciated capital) .....           | 1,857,000     |
| Total  | 15,486,000    |

The above fuel cost is predicated on a combined delivered cost of oil and gas of about \$2.65 per equivalent barrel of oil and an operating efficiency of 9,132 Btu per kwhr. On the basis of 2,140,000,000 kwhr annual output, the total unit cost of energy to be produced is estimated at 7.24 mills per kwhr delivered to the switchboard. Currently, the posted price of fuel oil is \$2.65 per barrel in the Los Angeles area for pipeline delivery. At a cost of \$2.75 per equivalent barrel, the unit production cost is estimated at 7.38 mills per kwhr at the switchboard.

In view of the size of this plant and the large increase in rate base and expenses expected in 1959, the depressing effect it may have on applicant's earnings was discussed during the hearing. For 1959 applicant estimated that its rate base will be about \$1,100,000,000, of which about 5.4 per cent will be due to this new plant; also the expenses connected with the new plant will represent

an increase of the order of 6 per cent in the 1959 annual operating expenses. The staff representative questioned applicant's witness regarding delaying of the first unit about six months by continuing to run Long Beach Plant No. 2 past January 1959, when it is scheduled to go on cold reserve. The witness replied that there were important savings in cost of operation and maintenance labor and in fuel because of the higher relative efficiency of the new units.

#### Permits, Franchises and Competition

Applicant proposes to obtain all necessary permits from public authorities, including the County of Ventura, the Regional Water Pollution Control Board, the United States Army, Corps of Engineers, and any additional franchises and permits from public authorities which may be necessary for the construction or operation of the new generating station, transmission lines and other appurtenances. Applicant states that the proposed new construction is not likely to compete with any other public utility, corporation, person or entity, public or private, but will provide an additional supply of electric capacity and energy to its electric system.

#### 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 8 to 9 per cent, and 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. While the estimated unit cost of electric energy from the proposed plant appears favorable, the sizeable increase in rate base might adversely affect system earnings. However, applicant's revenues should grow more than 5.4 per cent in 1959 and the savings realized by placing Long Beach Plant No. 2 on cold reserve might considerably reduce the indicated decline in earnings. The

Commission is concerned that applicant size and time its system 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.

It is our opinion that the applicant has the financial means to construct the plant 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 Mandalay Steam Station with two 200,000-kw units is in the public interest.

The Commission finds that public convenience and necessity require the construction, operation and maintenance of the proposed steam-electric 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 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 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 Mandalay Steam Station consisting of two 200,000-kw units generally as described in the application, the procurement of the requisite lands or land rights, permission or such 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 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 HEREBY FURTHER ORDERED that 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 first two units in the plant.

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 2<sup>nd</sup> day of April, 1957.

[Signature]  
President  
[Signature]  
[Signature]  
[Signature]  
Commissioners