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Decision No. _____

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 gas turbine electric generating unit, to be located at its Ellwood Substation site, to be known as the Ellwood Energy Support Facility, together with other appurtenances to be used in connection with said unit.	Application No. 53458 (Filed July 14, 1972)

O P I N I O N

This is an application by Southern California Edison Company (applicant) for an order of this Commission, under the provisions of Section 1001 of the Public Utilities Code and the Commission's General Order No. 131, granting to applicant a certificate of public convenience and necessity covering the construction and operation of a new gas turbine electric generating station to be known as the Ellwood Energy Support Facility, together with related structures, equipment, and facilities.

Applicant proposes to use its existing vacant Ellwood Substation property as the site for the new gas turbine generating unit. This site consists of approximately one and one-half acres of land in Santa Barbara County, located approximately 12 miles west of the Santa Barbara Civic Center and three miles west of the Santa Barbara airport.

Applicant states that, because of needs of the Santa Barbara area for a local source of emergency backup power, applicant will require the use of said Ellwood Energy Support Facility by June 1, 1974. To meet this operating date, it is estimated that

site preparation work for construction needs to be commenced by October 1, 1972. Because of the early date, site preparation and construction must be commenced to meet such operating schedule; applicant therefore requests waiver of the 12-month requirement set forth in General Order No. 131, Section 4, and applicant also requests that the certificate order issue no later than September 15, 1972, to permit the required construction schedule to be met.

Pursuant to the requirements of Section 6 of General Order No. 131, applicant has furnished copies of the application to the agencies of state government specified in the General Order. Notice was also given, as required, by advertising twice in a local newspaper. No protests to the proposed certificate have been received nor has there been a request for a public hearing.

Requirement of Pubic Convenience and Necessity

Applicant's records and studies indicate that its net system peak demand has increased from 6,173,000 kilowatts in 1966 to 9,350,000 kilowatts in 1971. It is estimated that its net system peak demand will further increase to 11,150,000 kilowatts by 1974 and to 11,970,000 kilowatts by 1975. During the same period, applicant's net system energy requirements have increased from approximately 36.1 billion kilowatt-hours for the year 1966 to 51.3 billion for 1971. It is estimated that net energy requirements will further increase to approximately 64.0 billion kilowatt-hours for the 1974 and to 69.0 billion kilowatt-hours for 1975.

In addition to the use of the Ellwood facility as a system resource, its installation in Santa Barbara County will increase the reliability of service to the Santa Barbara area since it will provide a local source of emergency backup power.

The area of Santa Barbara County served by applicant receives its power via two 220 kv transmission lines from Santa Clara Substation to Goleta Substation. The only other connection to this area within applicant's transmission system is by way of three 66 kv lines which interconnect the Goleta Substation 66 kv

system with the Santa Clara Substation 66 kv system. Since the 220 kv lines from Santa Clara Substation normally carry applicant's entire Santa Barbara area load, the 66 kv lines are not normally closed between Goleta and Santa Clara Substations. Furthermore, the 220 kv and 66 kv lines share the same transmission right-of-way for approximately half the distance between Santa Clara Substation and Goleta Substation.

In 1969, extensive flooding of the Ventura River occurred along a portion of the shared transmission line corridor. As a result of the flood, only one 220 kv line remained to carry applicant's Santa Barbara area load. In the fall of 1971, fires in the Romero Canyon area near Carpinteria also endangered these transmission lines, with interruptions in service to the Santa Barbara area served by applicant narrowly avoided. Earlier fires had similarly jeopardized electric service to the area.

Although the 66 kv lines can be utilized to transmit power to the Santa Barbara area served by applicant in the event of loss of the 220 kv lines, these 66 kv lines are capable of carrying only about half of applicant's current Santa Barbara load. In addition, the proportion of the area load that such 66 kv lines are capable of supplying decreases as such load continues to grow.

An alternate means of providing backup service to the area would be to construct additional 220 kv transmission lines. However, to provide meaningful backup service via additional transmission would necessarily involve acquisition and utilization of new rights-of-way in order to separate the alternative transmission routes. Potential alternative transmission routes are limited and difficult to acquire. The exposure to power outages in the Santa Barbara area due to loss of existing transmission to the area can be reduced by the addition of the Ellwood Energy Support Facility. It will also contribute to meeting the need for additional system generation.

Although the generating capacity of this facility is not large enough to carry applicant's entire Santa Barbara area load, it will contribute support to the 66 kv system in the event of loss of the 220 kv lines, and can provide important emergency energy support to selected vital services in the area which are dependent upon electricity in case of loss of both the 220 kv and 66 kv lines.

General Description of Proposed Facility

The proposed gas turbine generating unit will be designed for remote automatic operation to perform the functions of start-up, synchronizing, load pickup, and normal operation. The unit will have the capability of being operated and controlled from both a local control room located at the Ellwood site and a remote control panel to be incorporated in the applicant's existing Goleta Substation control house.

The base fuel for the gas turbine unit will be natural gas. As a backup for the base fuel supply, the unit will be provided with one onsite storage tank having a capacity of 9,000 barrels to hold distillate fuel for use when gas fuel is curtailed or interrupted. If the supply of gas fuel is interrupted, the unit can operate for 72 hours at full load with the distillate fuel stored onsite. The distillate fuel consumption for the unit is estimated to be about 5,000 gallons per hour at 53,800 kw.

The gas turbine generating unit will be electrically connected into the system by use of a tap into an existing 66 kv transmission line which is part of Goleta Substation's 66 kv system and is located adjacent to the west boundary of the Ellwood property.

Safety and Reliability of Plant

The application states that the unit control system provides a fail to safe condition. The features of this control system should preclude all situations which could be dangerous to the unit, any personnel present or the community.

The application lists 26 trips which, among others, are provided to trip or shutdown the gas generators, and free the turbine and/or electric generator.

The design philosophy of this unit is to stress the use of proven components of high reliability with redundant paths of control where critical. The unit is capable of operating at approximately 50 percent load with one engine disabled.

Cost Considerations

The following table summarizes the present estimate of the cost, including general overheads, of the proposed new unit:

Account	Description	Cost of New Unit
340	Land	$ -
341	Structures and Improvements	424,000
342	Fuel Holders	278,000
343	Prime Movers	5,696,000
344	Generators	1,321,000
345	Accessory Electric Equipment	576,000
	Other Equipment	175,000
	Total Cost of Plant	$8,470,000
	Estimated cost per kw of Ellwood Energy Support Facility (based on nameplate rating of 53,800 kw)	$157.43

The above estimated costs include interest during construction and all other overhead expenses chargeable to plant costs. Using present cost levels, the estimated annual cost, exclusive of fuel costs, of operating and maintaining the new generating unit is $112,300. The estimated annual costs of the onsite investment for depreciation, taxes and return, assuming an 8.0 percent return and using the average interest method of calculating return for a plant half depreciated are approximately $1,112,000.

The Ellwood Energy Support Facility is estimated to have a rated net output heat rate of 12,975 BTU/kwh on gas fuel and 12,425 BTU/kwh on distillate fuel. Assuming a 1.7 percent capacity factor on 53,800 kw capacity for the new unit and a weighted average net heat rate and an assumed operation of 50 percent of the time on gas fuel and 50 percent of the time on distillate fuel over the life of the generating unit, and based upon an assumed weighted average cost of fuel of 66.0 cents per million BTU's at present

price levels, the estimated fuel cost of generation for the new unit would be 8.38 mills per kwh. If a fuel cost of 98 cents per million BTU's were to be assumed, based upon current cost of the higher priced of the fuels expected to be used in the new unit, the corresponding estimated fuel cost of generation would be 12.18 mills per kwh.

The present estimate of annual expenses associated with Ellwood Energy Support Facility by principal categories is summarized as follows:

Expenses (Total for Unit)	
Fuel (present price levels)	$ 67,000
Other operation and maintenance	112,300
Depreciation	280,000
Income taxes	198,000
Ad valorem taxes	284,000
Return (average)	350,000
Total	$1,291,300

Based on the foregoing assumptions, the estimated average total generating cost per kwh for the new unit, assuming fuel at present price levels and a 50 percent gas, 50 percent distillate fuel mix, is 16.1 cents per kwh. Assuming a cost of fuel of 98 cents per million BTU's based on the current cost of the higher priced fuel which is expected to be used in the new unit, the estimated total generating cost per kwh for the new unit would be 16.5 cents per kwh.

Project Scheduling

The project schedule for the Ellwood plant, summarizing the proposed program for design, material acquisition, construction and testing is shown in bar chart form in Exhibit I attached to the application. Site preparation is scheduled to commence October 1, 1972, and plant construction on January 2, 1973. The operating date is scheduled for June 1, 1974.

In order to permit adherence to the construction schedule, the twelve month period required by Section 4 of General Order No. 131 will need to be shortened.

Alternate Siting

The selection of the proposed Ellwood site was the result of an in-depth analysis, evaluation and comparison with an alternate siting at applicant's Goleta Substation. General area and vicinity maps showing the location of both alternative sites are attached to the application as Exhibit A. A differential capital cost comparison of the Goleta and Ellwood Substation sites is attached as Exhibit H. A detailed description of the Ellwood site, together with a discussion of why applicant proposes use of the Ellwood site rather than the alternative Goleta location is attached as Exhibit J.

The alternate sites of Ellwood and Goleta Substations were evaluated and compared in detail because each fulfilled the following requirements:

1. Location within close proximity of the Santa Barbara area load center.
2. Available transmission facilities adequate for the additional generation.
3. Adequate space to accommodate the facility.

The Ellwood site was selected because of advantages over the Goleta site in respect to the following:

1. Close proximity of natural gas supply.
2. Ease of access for liquid fuel truck deliveries.
3. Minimal impact on surrounding environment.
4. Proper zoning (restricted light industrial), resulting in compatibility with existing planned use of the surrounding area.

The differential capital cost study contained in Exhibit H attached to the application indicates that the capital cost of the Goleta site would be $1,302,000 higher than Ellwood, largely because of the less favorable situation of Goleta in regard to offsite fuel delivery systems.

Environmental and Community Considerations

Based on environmental review and considerations described in the application and exhibits thereto, applicant states that the proposed Ellwood Energy Support Facility will not produce an unreasonable burden on natural resources, aesthetics of the area in which the proposed facilities are to be located, public health and safety, air and water quality in the vicinity, or parks, recreational and scenic areas, or historic sites and buildings or archeological sites.

Atmospheric emissions from the plant will be primarily oxides of nitrogen (NO_x), sulfur oxides (SO_2) and particulate matter. There will also be small quantities of carbon monoxide, water vapor and hydrocarbons. Emissions from the unit will be within the limitations of the rules and regulations which have been established to control air quality within Santa Barbara County.

Santa Barbara County Rule 39 severely limits emission quantities of NO_x, SO_2 and combustion contaminants. The combustion contaminant limitation of 10 pounds per hour includes not only the ash content of the fuel but also the condensable gases. This limitation restricts fuel use more than the sulfur content limitation of the District's Rule 32. The latter prohibits use of fuel having a sulfur content greater than 0.5 percent by weight. In order to achieve compliance with the emission limitations of Rule 39, the fuels to be used will be natural gas and a liquid fuel which is a kerosene-type distillate fuel.

The manufacturer of the basic equipment purchased has guaranteed that atmospheric emissions will be within the limitations of the rules and regulations of the Santa Barbara County APCD. This facility will employ recently developed "smokeless" combustors as a method of reducing NO_x. These combustors combine air blast nozzles and improved burner cans for cooler and more complete

combustion. The fuel nozzles provide a finer atomization of liquid fuel and a more even distribtuion of natural gas as an aid to combustion. The burner cans were improved by use of additional air holes. This allows more oxygen to be present, and this additional oxygen provides for more complete combustion of the fuel. Also, this excess oxygen provides a cooling effect, resulting in lower combustion temperature for a given flow rate. The final result of these improvements is a significant reduction in the formation of NO_x.

Since the unit utilizes air as the cooling medium, there will be no waste water associated with this function. The waste disposal facilities used for other purposes, such as sewage, will be submitted for approval by the Santa Barbara County Sanitation District.

A property line noise restriction of 50 db is included in the zoning ordinance which applies to this facility. Several silencing systems will be used to insure compliance with this noise level limitation. The inlet air plenums and exhaust stacks will be treated with acoustical baffles. In addition, the turbine generating unit will be housed in two separate acoustical enclosures. Also, use of a low noise level transformer is anticipated. Further, the interior perimeter wall surrounding both the unit and the transformer will be constructed from special acoustical concrete blocks which, applicant states, have excellent sound attenuating capabilities. Applicant believes that in complying with the 50 db limitation, the unit will produce no noticeable effect on the noise levels in the local community.

The Ellwood site was originally used as a low-voltage switching station. However, less than a year ago, this substation use was replaced by Isla Vista Substation, and all of the facilities were removed. Since then, the property has been vacant.

The Ellwood Substation site is separated from the residences to the north by the Southern Pacific Railroad, a row of tall trees, and Highway 101. The nearest building directly west is a gasoline station, which is separated from the site by approximately 1/2 mile of vacant property bounded by Hollister Avenue and the Southern Pacific railroad. A recreational vehicle sales facility occupies the property to the east and south as far as Hollister Avenue. A school is located approximately 1/2 mile to the east on Hollister Avenue. Beyond that, various businesses are located on the north side of Hollister Avenue, with residential areas on the south side. Directly south and west of the site, across Hollister Avenue, is beach area, which is currently oil-lease property. This area is currently directly beneath an airport-approach route.

Architectural Concepts

Two artists' renditions of the proposed Ellwood Energy Support Facility showing the architectural concept of the proposed facility with the surrounding area are attached to the application as Exhibit M. These renditions show the proposed buildings to be of low profile with French-type roofs, the sloping portion covered with mission-type roof tiles. The architecture appears to be attractive with a Spanish flair suitable for the Santa Barbara area. From the renditions it appears that the plant will be architecturaly compatible with its surroundings.

Governmental Agency Permits

Applicant will require authorizations from various agencies of Santa Barbara County, as shown in Exhibit N attached to the application. These include routine grading and building permits and approval of the County's Board of Architectural Review. Applicant also requires authorizations from the County Air Pollution Control District to construct and to operate the plant. Applicant proposes to obtain all the necessary permits and authorizations. No additional franchises are required.

Financing

Applicant proposes to finance the construction of said unit from available funds or funds to be obtained through the sale of securities. A financial statement of applicant, as of May 31, 1972, is attached to the application as Exhibit O.

According to Exhibit O, applicant's net income for the first five months of 1972 was $46,511,000. As of May 31, 1972, shareholder's equity amounted to $1,604,374,000. Net current assets were $105,890,000 with cash balances of $7,107,000 and temporary cash investments of $45,809,000.

Findings and Conclusions

The Commission finds that:

1. A public hearing is not necessary.

2. The construction and operation by applicant of the 53,800 kw gas turbine unit and related equipment and structures, as described in this application, are reasonably required to meet area demands for present and future reliable and economic electric service.

3. The construction and operation of said gas turbine unit will not produce an unreasonable burden on natural resources, aesthetics of the area in which the proposed facilities are to be located, public health and safety, air and water quality in the vicinity, or parks, recreational and scenic areas, or historic sites and buildings or archeological sites.

4. Present and future public convenience and necessity require or will require the construction and operation by applicant of said gas turbine unit.

5. Applicant has the financial and operating capability to construct and operate the project.

6. Applicant's proposal is in the public interest.

The Commission concludes that:

1. The 12-month requirement of Section 4 of General Order No. 131 should be shortened to 75 days.

2. A certificate of public convenience and necessity for the proposed construction should be issued.

O R D E R

IT IS ORDERED that:

1. A certificate of public convenience and necessity is granted to Southern California Edison Company to construct, operate, and use the 53,800 kw gas turbine unit and related equipment and structures described in this application.

2. The period between filing of this application and the effective date of this decision shall be shortened from the one year required by General Order No. 131, Section 4, to 75 days.

The authorization herein granted shall expire if not exercised within three years of the date hereof.

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

Dated at San Francisco, California, this 17th day of OCTOBER, 1972.

President

Commissioners

Commissioner D. W. Holmes, being necessarily absent, did not participate in the disposition of this proceeding.