

**ORIGINAL**

Decision No. 75323

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of SAN DIEGO GAS & ELECTRIC COMPANY for a Certificate that Present and Future Public Convenience and Necessity require or will require the construction and operation by Applicant of new turbine electric generating peaking units, to be located at its Encina Power Plant, and at its El Cajon, Division, Kearny and Mission Substations, together with other appurtenances to be used in connection with said units and stations.)

Application No. 50598  
(Filed October 8, 1968)

OPINION AND ORDER

San Diego Gas & Electric Company (applicant) requests an order granting it a certificate of public convenience and necessity to construct and operate gas turbine electric generating units and related facilities at various locations in San Diego County as described in the application.

Applicant proposes to construct one new gas turbine electric generating peaking unit at its Encina Power Plant and one each at its El Cajon, Division, and Kearny Substations in 1968. In addition to the four new peaking units in 1968, applicant proposes to construct two four-unit power block gas turbine peaking units at its Mission Substation in 1969. It is planned that the new generating units will be located on applicant's present plant and substation sites. An area map showing locations of the proposed gas turbine generators is attached to the application marked Exhibit A. The total name plate rating of the units herein described is 221,080 kw.

Each of the proposed new units will consist of a simple-cycle, single-shaft gas turbine coupled with a single three-phase, 60-cycle, 0.85 power factor, air cooled, 12.5 kv, 21,176 kva generator.

Each of the four units proposed for installation in 1968 has a nameplate capacity of 18,270 kw at 80°F and sea level and an expected maximum capacity of 20,550 kw at 50°F and sea level. Each of the units proposed for installation at Mission Substation in 1969 has a nameplate capacity of 18,500 kw at 80°F and sea level and an expected maximum capacity of 20,188 kw at 50°F and 330 feet elevation.

The proposed peaking units are designed for remote or local control. The fully automatic starting sequence of each unit can be initiated remotely or locally at the unit. Normally the units will be started and controlled remotely.

The auxiliary electric system of each of the gas turbine generator units will normally be supplied power from applicant's electric system; however, each of the units is to be capable of starting and being synchronized to the system without start-up power from applicant's system. Each of the two four-unit power blocks at Mission Substation will be equipped with two 300-hp diesel cranking engines and two 350-hp, 480 v ac starting motors with torque convertors.

The four gas turbine generator units for 1968 will be equipped with 300-hp diesel cranking engines. All of the diesel cranking engines have 10-hp, 125 v dc starter motors which receive power from station batteries. Batteries will also supply 125 v dc power to the necessary auxiliaries and controls during emergency starts, making the units with diesel start-up engines capable of starting without power from the system.

Four of the 1969 Mission gas turbine generator units will have diesel starting engines and four will have electric starting motors. In the event that no power is available from the system, the four units having diesel starting engines will start first so that they can be used to supply starting power for the four units with electric starting motors.

Sound attenuation for each unit will be provided by acoustically treated generator and turbine compartments and silencers for the turbine inlet and exhaust.

The 12.5-kv output of the Encina gas turbine generator will be transformed to 138 kv and connected to an existing 138-kv line which supplies power from the 138 kv switchyard to the existing 138-kv/2.4 kv Encina station auxiliary power transformer banks. Power from the gas turbine generator unit can be fed into applicant's 138-kv transmission system or in the event of a system outage, the gas turbine generator unit can be isolated from the system to supply auxiliary power for the Encina steam generating units.

El Cajon, Division, and Kearny gas turbine generator units will be connected to the 12-kv substation main buses. The Mission units will be connected to the Mission Substation 69-kv bus through two 12.5-kv/69-kv transformers.

All of the gas turbine peaking units proposed for 1968 and 1969 operation, with the exception of the Division unit, will be capable of using either natural gas fuel or distillate fuel oil. The Division unit will have distillate fuel oil burning capability only because natural gas is not economically available at the site. Natural gas is readily available at the other gas turbine sites and will be supplied from applicant's gas system. Diesel oil will be purchased and stored in facilities to be constructed in connection with the installation of the units.

Base load continuous rating, guaranteed net heat rate and estimated cost of generation at base load continuous rating for natural gas or distillate fuel oil is shown for the 1968 and 1969 gas turbine generator units in the following tabulation:

<u>1968 Units</u>	<u>Base Load Continuous Rating kw</u>	<u>Guaranteed Net Heat Rate Btu/kwhr</u>	<u>Fuel Cost of Generation Mills/kwhr</u>
Natural Gas Fuel	15,300	16,060	5.5
Distillate Fuel Oil	15,300	15,360	14.9
<u>1969 Units</u>			
Natural Gas Fuel	15,862	15,930	5.4
Distillate Fuel Oil	15,500	15,420	15.0

Applicant alleges that on the basis of the system peak demands and energy requirements over a period of several years and an estimate of these demands and requirements for the future, the 1968 units will be required by October, 1968, and that the 1969 units will be required by October, 1969, to meet its increasing electric system peak demands.

Applicant's records and forecasts indicate the following growth in its net system peak demand, net electric system capacity resources, and net system energy requirements.

<u>Year</u>	<u>Peak Demand kw (Thousands)</u>	<u>Capacity Resources kw (Thousands)</u>	<u>Energy Requirements kwhr (Millions)</u>
1964*	801	1166	3,726.8
1965*	885	1166	3,978.2
1966*	911	1188	4,416.0
1967*	1089	1263	4,828.9
1968**	1113	1409	5,388.0
1969**	1209	1686	5,858.0
1970**	1306	1729	6,383.0

\* Recorded.

\*\* Estimated on normal weather basis.

Load and resource requirements of applicant are set forth in detail in Exhibit H which is attached to the application.

Applicant states that in addition to providing the needed increase in peaking capacity, the gas turbines are particularly advantageous to its system for the following reasons:

- (a) Gas turbines complement applicant's present high efficiency steam units located at Encina and South Bay. The gas turbines will be operated during the short duration peak load periods experienced on applicant's system. Thus, applicant can take advantage of the gas turbine's relatively low installation cost, compared to other types of generating units, without being disadvantaged by the gas turbine's relatively high fuel cost.
- (b) The gas turbine's start-up characteristics are such that it can quickly eliminate an overload condition that might be imposed on the interconnection between applicant and Southern California Edison Company in the event of an unscheduled outage of generating equipment.
- (c) The quick start, quick load pick-up features of the gas turbines dispersed throughout applicant's system will provide protection against local outages as well as provide emergency start-up power for large steam turbine generators. Applicant does not have hydroelectric generating units on its system for use as quick-start capacity.

The estimated installed cost and annual operating cost as set forth in Exhibit I attached to the application is summarized as follows:

The installed cost of the four 1968 peaking units is estimated to be:

<u>Unit</u>		
Encina	\$ 1,693,600	
El Cajon	1,653,300	
Division	1,552,000	
Kearny	1,662,700	
Total	<u>\$ 6,561,600</u>	
Average cost of 1968 units per kw (based on 82,200 kw rating)		\$79.82

The installed cost of the two 1969 power blocks, consisting of four units each, is \$12,700,000.

Cost per unit	\$1,587,500
Average cost of 1969 units per kw (based on 161,500 kw rating)	\$78.64

The estimate of annual fuel cost is based upon a typical unit (El Cajon) and upon an estimated capacity factor of approximately 1% over the life of the unit, using gas 85% of the time and distillate fuel 15% of the time. It is estimated that the unit will operate an average of 120 hours per year in peaking service.

The fuel costs used in developing the estimated annual fuel cost are \$0.342 per million Btu for natural gas and \$0.97 per million Btu for distillate fuel oil (No. 2 Diesel).

Supplemental information showing start-up and on-line fuel costs to generate a daily peaking requirement for determination of the most economical operation was provided by applicant by letter dated January 30, 1969. Said letter is hereby received and marked as Exhibit 1 herein.

Estimated annual operating costs are summarized as follows:

Fuel	\$ 9,600
Operation and Maintenance	6,900
Capital Recovery	133,260
Income Taxes	38,520
Ad Valorem Taxes	<u>47,200</u>
Total Operating Cost	\$235,480

Applicant proposes to obtain all necessary permits and/or authorizations which are required from public authorities which may be needed for the construction and operation of the new generating units and other equipment and facilities. No additional franchises are required by applicant for the construction and operation of the new generating units and appurtenant facilities.

Applicant alleges that the proposed new construction will not directly compete with any other public utility, corporation, person or entity, public or private. For service rendered by means of the generating units, applicant proposes to charge the level of rates specified in its regular tariff schedules or duly authorized special contracts on file from time to time with this Commission.

Applicant states that a saving in time and costs may be realized if it is allowed to file capital cost reports for all of the units one year after the last of the new units is placed in commercial operation.

No protests have been received by the Commission in opposition to granting the certificate requested.

The Commission finds that with the continuing growth in demand and energy requirements that applicant is experiencing, the generating capacity proposed herein will be needed to provide adequate and reasonable electric service to the public within the area it serves; that sound attenuation for each unit will be provided by acoustically treated generator and turbine compartments and silencers for the turbine inlet and exhaust at each location; that a saving in time and costs may be realized by applicant if it is allowed to file cost reports for all units and related equipment and facilities one year after the last of the units is placed in commercial operation. The Commission further finds that present and future public convenience and necessity now requires and will require the construction and operation of the additional generating units with related equipment and facilities as described in the application.

The certificate of public convenience and necessity which will issue herein is subject to the following provision of law:

The Commission shall have no power to authorize the capitalization of the 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 a consideration for the issuance of such certificate of public convenience and necessity or right.

The action taken herein is for the issuance of a certificate of public convenience and necessity only and is not to be considered as indicative of amounts to be included in proceedings for the purpose of determining just and reasonable rates.

The Commission concludes that the application should be granted, and that a public hearing is not necessary.

IT IS ORDERED that:

1. A certificate of public convenience and necessity is granted to San Diego Gas & Electric Company to construct and operate the new gas turbine electric generating peaking units, together with related equipment, facilities and appurtenances at the locations shown and as described in the application herein.

2. San Diego Gas & Electric Company shall file with this Commission a detailed statement of the capital costs of each of the new units and related equipment, facilities and appurtenances thereto, within one year following the date on which the last of the new units is placed in commercial operation.



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

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

Dated at Los Angeles, California, this 18<sup>th</sup> day of FEBRUARY, 1969.

William James, Jr.  
President

Augusta

Paul P. Morrissey

W. J. Moran

1

Commissioners

Commissioner Thomas Moran, being necessarily absent, did not participate in the disposition of this proceeding.