

**ORIGINAL**

Decision No. 68315

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application  
of SAN DIEGO GAS & ELECTRIC COMPANY,  
a corporation, for a Certificate of  
Public Convenience and Necessity to  
construct and operate a natural gas  
liquefaction, storage, and regasifi-  
cation facility.

Application No. 46879  
(Filed August 7, 1964)

Chickering & Gregory, by Sherman Chickering  
and C. Hayden Ames; Stanley Jewell; for  
applicant.  
William W. Evers, for California Manufacturers  
Association; Henry F. Lippitt, for California  
Gas Producers Association; interested parties.  
Arch E. Main, for Commission staff.

O P I N I O N

San Diego Gas & Electric Company requests a certificate to construct and operate a natural gas liquefaction, storage, and regasification facility in Chula Vista, California.

The matter was heard and submitted before Examiner Patterson in San Diego on September 17, 1964.

Applicant presented testimony through one witness and introduced 9 exhibits. A spokesman for the California Gas Producers Association made a statement in support of the application. No protests were entered.

Geological formations suitable for underground gas storage have not been found in applicant's service area and at present applicant has only limited storage capacity of 16.8 MMCF in 2 low-pressure tanks in the downtown San Diego area and 3 high-pressure

holders dispersed about the system. In addition, it relies upon transmission line pack when available for storage and a propane-air peak shaving facility at its Mission Station.

The facility, as proposed, will allow applicant to liquefy and store gas during the warmer periods of the year for use in meeting system requirements during the colder periods. The peak shaving thereby attained will allow a lower contract demand in applicant's gas purchase contract. The added storage will also improve applicant's means of maintaining service to its customers in the event of interruption of any of the three existing gas transmission pipelines which normally provide the entire gas supply.

The liquefied natural gas plant will have a gross liquefaction capacity of 2.5 MMCFD, will store 620 MMCF (175,000 Bbls.) of natural gas, and will be capable of regasifying the stored liquid product at a rate of 60 MMCFD. The regasified gas available from storage to the system will at all times be interchangeable with the natural gas delivered to applicant's system. The facility will be erected on applicant's property in Chula Vista, adjacent to its South Bay Power Plant. An expander cycle will be used to reduce the natural gas to atmospheric pressure and to cool it to  $-258^{\circ}\text{F}$  at which temperature and pressure it liquefies. This type of liquefaction was chosen to put to use the "pressure energy" available in the large, nearly continuous gas deliveries to applicant's South Bay Power Plant. The liquefied natural gas will then be stored in a double-walled, perlite-insulated, above-ground, vertical cylindrical storage tank. The space between the inner and outer tank will be charged with nitrogen gas at very low pressure to keep the perlite insulation material dry and to provide an inert gas medium adjacent to the liquid storage tank. The storage tank will be located within

a diked area. The facilities for liquefaction and regasification will be located outside the storage tank area.

No personnel will be quartered at the site of the new facility as it will be controlled by the regular operating personnel at the existing adjacent South Bay Power Plant. The design will permit such personnel to completely de-energize the liquefied natural gas process facility and to energize the fire protection system from the power plant location.

The estimated cost of construction of the new facility is \$2,820,300 as detailed in Exhibit 3. The first full year operating cost including fixed charges and a rate of return of 6.3% is estimated to be \$557,500 as detailed in Exhibit 4.

In support of the economic feasibility of the project applicant presented Exhibits 5 and 6 which compare the total costs of meeting system peaking requirements by installing two liquefaction plants within a 10-year period or by continuing the past practice of annually increasing the contract demand in the gas purchase contract. The exhibits show an estimated saving over the 10-year period from 1965 to 1974 of at least \$10,183,900 if the liquefaction plants were to be installed.

Two principal contractors will be involved in the project. The Chicago Bridge and Iron Company will be responsible for design, engineering and erection of the cryogenic vessel in which the liquid will be stored. The American Messer Corporation will be responsible for the design, engineering and erection of the process plant. The record shows that both of these contractors have had extensive experience in their respective fields.

Liquefaction of natural gas is not a new process but to

date it has not been used extensively by utilities in this country. The plant under consideration herein would be the first plant operating on a commercial scale in California.

Applicant stressed the extent to which consideration has been given to the safety aspects of the project. First, the facility will be constructed in an industrial area, remote from other structures, and the tank will be positioned a distance of at least 400 feet from the nearest adjacent property line. Second, the storage tank will be surrounded by an earthen dike which will be capable of containing 150 per cent of the tank contents. Third, protection from fire will be afforded by two fixed and two portable fire protection systems. Fourth, although there are no existing codes which apply specifically to liquefied natural gas storage and processing, applicant states that the design is in accordance with all existing codes which are applicable to the various individual components of the plant.

Applicant's witness pointed out that liquefied natural gas has several inherent physical properties which tend to make it safe for handling. First, if it is exposed to air the very cold vapors quickly condense the water vapor in the air to form a cloud clearly identifying the extent of its presence in the atmosphere, and second, if liquefied natural gas vapors are warmed above approximately minus 171°F they become lighter than air and thus there is little chance that they would ever descend to accumulate in a low area.

The staff recommended that the liquefied natural gas storage and associated process equipment be required to meet the provisions of Sections 3 through 6 of General Order No. 94-A

insofar as such provisions are reasonably applicable. The staff also recommended that applicant be required to file a statement of practices and procedures governing the operation of the liquefied natural gas facilities.

Applicant represents that it has obtained from the City of Chula Vista a building permit and approval of its fire protection plans and that the State Division of Industrial Safety has determined that the design and engineering of the proposed storage tank comply with its requirements.

Applicant proposes to finance construction of the proposed facility from internal sources in the ordinary course of business.

Preliminary startup and cooldown procedures are scheduled to begin in June 1965 and commercial operation in September 1965.

Based upon the evidence the Commission finds that public convenience and necessity require that the application of San Diego Gas & Electric Company to construct and operate a natural gas liquefaction, storage and regasification facility at Chula Vista as described herein and in the application, be granted.

The certificate hereinafter granted shall be subject to the following provision of law:

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.

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 also finds that the staff's recommendations concerning conformance to applicable portions of General Order No. 94-A and the filing of a statement of operating practices and procedures are reasonable. It is clear, however, that the specific portions of General Order No. 94-A which may reasonably be applied to this storage facility were not fully developed on this record, and we are of the opinion that they can best be developed when applicant prepares said statement of operating practices and procedures. Accordingly the following order will require applicant to file with the Commission a statement of practices and procedures which govern operation of the facility together with a statement of those portions of General Order No. 94-A deemed applicable to the facility.

O R D E R

IT IS ORDERED that:

1. A certificate of public convenience and necessity is granted to San Diego Gas & Electric Company to construct and operate a natural gas liquefaction, storage and regasification facility in Chula Vista of the size and capacity generally as described in the application.

2. Within ninety days after the facility is in commercial operation applicant shall file statements, acceptable to the Commission, as follows:

- a. Statement of practices and procedures which govern operation of the facility.
- b. Statement of those portions of General Order No. 94-A deemed applicable to the facility.

3. Within one year following the date of completion, applicant shall file with this Commission a detailed statement of the capital cost of the facility certificated herein.

4. The authority herein granted will expire if not exercised within two years from the effective date hereof.

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

Dated at San Francisco, California, this 9th day of DECEMBER, 1964.

Frederick B. Haldorff  
President

George L. Trotter

William W. Leonard

~~Commissioner Peter E. Mitchell, being necessarily absent, did not participate in the disposition of this proceeding.~~

~~Commissioner Everett C. McKeage, being necessarily absent, did not participate in the disposition of this proceeding.~~