ORIGINAL

Decision No. 47492

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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|---|---|
| In the matter of the application of PACIFIC GAS AND ELECTRIC COMPANY, a corporation, for an order of the Commission issuing to applicant a certificate of public convenience and necessity, under Chapter 5, Article 1 of the Public Utilities Act of the State of California, for the construction, operation and maintenance of the natural gas pipe line project herein described. | Application No. 29548 (First Supplemental Amended) |

Appearances for Applicant: Robert H. Gerdes, Ralph W. DuVal and Richard H. Peterson.

Interested Parties: City and County of San Francisco, by Dion R. Holm and Paul L. Beck; City of Los Angeles, by Roger Arnebergh and T. M. Chubb; California Manufacturer's Association, by Homer R. Ross; California Farm Bureau Federation, by Eldon N. Dye.

Other Appearances: For the Commission's staff Lloyd E. Cooper, Gas Engineer.

OPINION ON FIRST SUPPLEMENTAL APPLICATION AS AMENDED

Pacific Gas and Electric Company, operating public utility electric and gas systems and relatively minor water and steam heat systems in northern and central California, on September 28, 1951, filed this first supplemental application for authority to construct, install and place in operation additional facilities to increase the capacity of its Milpitas-Topock 34-inch gas transmission pipe line by approximately 150,000,000 cubic feet per day to 550,000,000 cubic feet.

By Decision No. 42460 on January 25, 1949, the applicant was granted a certificate under the original application bearing this number to construct the afore-mentioned main pipe line for

the purpose of transmitting 400,000,000 cubic feet per day of out-of-state natural gas purchased from El Paso Natural Gas Company at the state border at Topock to the San Francisco Bay area. Pursuant to the authorization contained in our earlier decision, the applicant constructed the pipe line and placed it in commercial operation on December 26, 1950.

Applicant's proposal on September 28, 1951 for increasing line capacity was to install four parallel sections of pipe at four separate points along the line and add a total of 22,780 hp of compressors. The total length of line to be looped was 141.78 miles at an estimated total cost of $19,391,000. Because subsequent pipe-line flow tests indicated better line performance than forecast in September, by amendment applicant reduced the length to be looped from 141.78 to 86.25 miles and reduced the compressor capacity required from 22,780 hp to 19,540 hp.

On February 14, 1952 applicant filed the first amendment to the first supplemental application for the purpose of modifying the description of the additional pipe-line facilities and reducing the estimated cost to $13,428,000. Public hearings were held on the amended supplemental application before Commission Harold P. Huls and Examiner M. W. Edwards on February 27 and 28, 1952, at San Francisco, California. At the hearings applicant submitted 13 exhibits and presented testimony by five witnesses in support of the need for the increased deliverability of the transmission pipe-line facilities.

Proposed Construction

Additional pipe is proposed at four sections along the line marked on the map attached to Exhibit S-3 as Sections A, B, C and D. Section A consists of a 31.50-mile loop of 34-inch O.D. pipe extending in an easterly direction from the Hinkley Compressor Station so located as to provide a second crossing of the

Mojave River, widely separated from the existing crossing. The Mojave River is a major hazard to continuity of service. Section B consists of a 30.25-mile loop of 34-inch O.D. pipe extending in an easterly direction from pressure limiting Station No. 4 over the high part of the Tehachapi Mountains at nearly 5,000 feet elevation where winter snow hazards make line breaks difficult to repair. Section C consists of a 10.00-mile loop of 34-inch O.D. pipe extending in a southeasterly direction from Kettleman Compressor Station located mainly to provide additional capacity, there being no special hazard in this area. Section D consists of a 14.50-mile loop of 34-inch O.D. pipe extending in a southeasterly direction from pressure limiting Station No. 6 in the Panoche Pass with a separation up to 3 miles, running along a different ridge, in the interest of continuity of service.

Additional compressor capacity is proposed in the quantity of 5,000 hp at Topock Compressor Station near the Arizona state line, 7,500 hp at the Hinkley Compressor Station some 150 miles west of the state line, and 7,040 hp at the Kettleman Compressor Station some 150 miles from Milpitas, the terminus of the line.

Applicant has negotiated with the Consolidated Western Steel Corporation regarding the fabrication and delivery of the pipe. It plans to have the work of installation done by contractors and anticipates the work can be completed by the end of the year 1952. No contracts have been made for the compressors but negotiations are under way and applicant is optimistic that they will be available. Application has been made to the Petroleum Administration for Defense for allocation of the essential materials to cover these proposed additions.

Plant Cost

The cost detail of the proposed facilities for increasing the capacity of the Topock-Milpitas pipe line from 400 to 550 million cubic feet per day is set forth in Exhibit No. S-3 and is summarized below:

ESTIMATED CONSTRUCTION COST

| | |
|---|---|
| Land Rights | $ 100,000 |
| Transmission Main | 8,116,000 |
| Meters and Regulators | 55,000 |
| Compressor Plants | 4,397,000 |
| Total Direct Cost | 12,668,000 |
| Overhead at 6% | 760,000 |
| Total Estimated Cost | 13,428,000 |

This exhibit also contains details as to the weight of the pipe and valves and as to unit prices per ton as a means of making the detailed cost estimate. The installation cost, included in the above total cost summary, is estimated at $6 per foot for 455,400 feet or a total of $2,732,400.

Applicant plans to finance the construction from funds which it will have on hand from time to time as obtained from the sale of bonds, preferred and common stock and from internal sources.

Loads

Like other utilities in the state, the applicant has experienced a constantly mounting demand for natural gas. It estimates that such trend will continue in the future as revealed by its analysis of annual requirements set forth in Exhibit No. S-10:

SUMMARY OF AVERAGE DAILY REQUIREMENTS - MILLION CUBIC FEET

| Year | Firm | Ratio to 1947 | Interruptible | Ratio to 1947 | Total | Ratio to 1947 |
|---|---|---|---|---|---|---|
| 1947 | 272 | 100% | 243 | 100% | 515 | 100% |
| 1948 | 318 | 117 | 278 | 114 | 596 | 116 |
| 1949 | 346 | 127 | 269 | 111 | 615 | 119 |
| 1950 | 349 | 128 | 286 | 118 | 635 | 123 |
| 1951 | 389 | 143 | 304 | 125 | 693 | 135 |
| 1952 Est. | 421 | 155 | 436 | 179 | 857 | 166 |
| 1953 " | 452 | 166 | 464 | 191 | 916 | 178 |
| 1954 " | 486 | 179 | 459 | 189 | 945 | 184 |
| 1955 " | 523 | 192 | 493 | 203 | 1,016 | 197 |
| 1956 " | 558 | 205 | 509 | 210 | 1,067 | 207 |

During 1951 applicant served an average of 1,059,365 firm natural gas customers. It estimated the year-end population in the area in which it serves firm natural gas at 4,627,000 persons. During the four-year period 1947-1951 applicant's natural gas customers grew at an annual rate between 6.0% and 6.5%, and it estimates that for the next five years to 1956 the growth rate will be between 4.1% and 4.7% annually.

The foregoing estimates of interruptible requirements include the estimated usage which was curtailed during the years 1947 to 1951. The estimates of future requirements reflect this unsupplied demand. The extent of past curtailments was shown to be:

CURTAILMENT SUMMARY - MILLION CUBIC FEET

| Year | Interruptible Reqm'nts | | Curtailment Included | | |
|---|---|---|---|---|---|
| | Annual | Daily Average | Annual | Daily Average | Ratio |
| 1947 | 88,840 | 243 | 4,621 | 13 | 5.3% |
| 1948 | 101,791 | 278 | 10,014 | 27 | 9.7 |
| 1949 | 98,044 | 269 | 17,111 | 47 | 17.5 |
| 1950 | 104,437 | 286 | 19,370 | 53 | 18.5 |
| 1951 | 111,078 | 304 | 5,473 | 15 | 4.9 |

Curtailment occurs during a cold winter day when the demands of the firm customers may run as high as three times their average day requirements. The interruptible customers as a class thus comprise a valuable load for the utility because, by ability to control demands of this portion of the load, the system operating load factor will be improved and enable the out-of-state gas to be taken at a high load factor, thus realizing reasonable transmission costs per Mcf handled through the transmission line.

System Resources

The sources from which the system requirements were obtained for the period 1947 to 1951 and the estimated supply from

all sources available to meet anticipated requirements from 1952 to 1956 can be summarized from the evidence as follows:

SUPPLY - AVERAGE DAILY VOLUME IN MILLION CUBIC FEET

| Years | California Sources: From Own Sources: Dry | Oil Well | From Other | Out-of-State Sources At 91% L.F. | Total Supply | Excess of Supply Over: Firm | Firm and Interruptible |
|---|---|---|---|---|---|---|---|
| 1947 | 372 | 122 | 8 | - | 502 | 230 | (13) |
| 1948 | 365 | 146 | 57 | - | 568 | 250 | (28) |
| 1949 | 350 | 152 | 66 | - | 568 | 222 | (47) |
| 1950 | 364 | 110 | 86 | 22 | 582 | 233 | (53) |
| 1951* | 271 | 89 | 61 | 258 | 679 | 290 | (14) |
| Estimated with out-of-state gas at 400 million cubic feet per day | | | | | | | |
| 1952 | 371 | 48 | 49 | 363 | 831 | 410 | (26) |
| 1953 | 401 | 46 | 38 | 363 | 848 | 396 | (68) |
| 1954 | 413 | 46 | - | 363 | 822 | 336 | (123) |
| 1955 | 407 | 45 | - | 363 | 815 | 292 | (201) |
| 1956 | 362 | 44 | - | 363 | 769 | 211 | (298) |
| Estimated with out-of-state gas at 550 million cubic feet per day | | | | | | | |
| 1952 | 371 | 48 | 49 | 363 | 831 | 410 | (26) |
| 1953 | 306 | 46 | 38 | 497 | 887 | 435 | (29) |
| 1954 | 343 | 46 | - | 497 | 886 | 400 | (59) |
| 1955 | 358 | 45 | - | 497 | 900 | 377 | (116) |
| 1956 | 345 | 44 | - | 497 | 886 | 328 | (181) |

(Red Figure)

* Preliminary figures for calendar year 1951.

Gas available to the gas utilities from oil fields is materially affected by the amount of gas returned to underground formations for pressure maintenance and repressuring operations. The above figures of oilwell gas show a sharp decline from 1949 to 1951. This down trend is expected to continue in the future.

Production from dry gas fields is largely a function of physical factors but in any case for a particular field it indicates a steadily declining rate of availability from a maximum reached at about the time a field is fully developed. The rate of gas production is not tied to the rate of oil production as is oilwell gas, so that during periods of low system demand the dry gas can be

cut back and conserved. Also the importation of larger quantities of out-of-state gas makes it possible to further cut back on the state's dry gas withdrawals and help maintain the level of local reserve.

The tabulation shows that without out-of-state gas the applicant would not be able to meet annual firm load requirements except upon a more rapid depletion of local dry gas resources. If it be assumed that the firm load will continue to grow at the approximate rate of 100% in nine years and local gas supplies will continue to decrease, it is apparent that by about 1960 the firm load will require in excess of 400 million cubic feet per day of out-of-state gas plus all presently indicated available local gas. Thus, in the interval between the present and 1960, it is reasonable to assume that the interruptible load may be counted on to absorb all available gas in excess of firm requirements. Furthermore, on cold days full curtailment of interruptible customers may be necessary as well as some curtailment of firm load.

An analysis of Exhibit No. S-9 indicates that the Pacific Gas and Electric Company and the other companies operating in northern California will experience a deficiency of 89 million cubic feet per day in their ability to supply the abnormal peak day requirements, which are substantially firm peak day requirements, for the 1952-1953 heating season unless the out-of-state gas supply is increased. This peak day deficiency is estimated to increase to 745 million cubic feet per day in the 1956 period. With the added supply of 150 million cubic feet per day available the 1952-1953 peak day deficiency would be eliminated and the 1956 peak day

deficiency reduced to 599 million cubic feet per day. The tabulation following shows the requirements, supply and deficiencies, estimated for peak days in 1952-53 to 1956-57, inclusive:

Relationship of Requirements to Supply Northern California Companies - Million Cubic Feet Per Day

| Winter Season | Total Northern California Requirements | With 400 Million Cubic Feet Out-of-State Gas | | With 550 Million Cubic Feet Out-of-State Gas | |
|---|---|---|---|---|---|
| | | Supply | Deficiency | Supply | Deficiency |
| 1952-53 | 1,482 | 1,393 | 89 | 1,539 | - |
| 1953-54 | 1,591 | 1,336 | 255 | 1,482 | 109 |
| 1954-55 | 1,701 | 1,291 | 410 | 1,437 | 264 |
| 1955-56 | 1,821 | 1,241 | 580 | 1,387 | 434 |
| 1956-57 | 1,936 | 1,191 | 745 | 1,337 | 599 |

With peak day deficiencies in the range of 599-745 million feet in 1956, indicating possible curtailment of as much as 31% - 38% in firm load on such abnormal days, it is apparent that the applicant should augment its supply and in addition provide supplementary seasonal storage or standby gas production plants. In fact, the additional pipe line will supply some storage capacity; however, its purpose largely will be to handle daily rather than seasonal variations in requirements.

In further substantiation of the need for out-of-state gas, the applicant's witness on resources read into the record the estimates of natural gas reserves in the State of California for the years 1945 to 1950 prepared by the Division of Oil and Gas of the State of California. The reserves as of July 1 each year were:

1945 - 11.8 trillion cubic feet
1946 - 11.7 " " "
1947 - 12.0 " " "
1948 - 10.0 " " "
1949 - 9.8 " " "
1950 - 9.4 " " "

Applicant's analysis allocates about 39% of these reserves to supply northern California and 61% to supply southern California.

Additional Out-of-State Gas

Applicant proposes to obtain its additional supply of natural gas for the proposed construction project from El Paso Natural Gas Company, which in turn proposes to obtain its natural gas supply from gas producing fields located in the Permian Basin area in southeastern New Mexico and west Texas and in the San Juan Basin area of northwestern New Mexico, southwestern Colorado and southeastern Utah. The preliminary agreement between applicant and El Paso Natural Gas Company for an additional 150,000,000 cubic feet of gas was annexed to applicant's first supplemental application as Exhibit "B". Applicant proposes to take the additional volume on or about November 1, 1952, or as soon thereafter as possible. The preliminary agreement for said additional gas was superseded by an amended service agreement which, following execution thereof, applicant filed with the Commission as Exhibit No. S-14 in this proceeding.

This increase will result, when added to existing contract deliveries of 400,000,000 cubic feet per day, in an obligation on the part of the El Paso Natural Gas Company to supply applicant with 550,000,000 cubic feet of gas per day and an obligation on the part of applicant to purchase said volume of gas at a 91% average annual load factor. The term of the respective obligations to sell and purchase said gas is for a period of 15 years after January 1, 1952. The provisions of the former service agreement and tariffs as to pressure, heat content, quality, measurement, and point of delivery of gas are not changed.

The preliminary agreement was consummated on the grounds that there are additional gas reserves adequate to support the increased deliveries and subject to obtaining all necessary governmental permits, licenses and authorizations, including that of the Federal Power Commission. Applicant's request for an

authorization from the Federal Power Commission was made under FPC Docket G-1651 and many of the exhibits used in its presentation before that body have been received in the record in this proceeding.

By order issued June 23, 1952 under Docket G-1630, et al., the Federal Power Commission granted El Paso Natural Gas Company a certificate of public convenience and necessity to sell Pacific Gas and Electric Company an additional 150 million cubic feet of gas per day and issued a certificate of public convenience and necessity under Docket G-1651, authorizing the construction and operation of additional pipe-line facilities and the transportation and sale of the additional 150 million cubic feet of natural gas per day to be purchased at the California-Arizona boundary, near Topock, Arizona, by Pacific Gas and Electric Company.

In the gas service agreement, Exhibit No. S-14, there is set forth as Exhibit A thereto a tabulation of contracts which El Paso Natural Gas Company has made with various operators comprising the reserves dedicated as of November 30, 1948, to performance of its obligation for delivery of natural gas.

Annual Operation Cost

The annual cost of operation of the added pipe-line facilities consists of the added operation and maintenance costs, cost of compressor fuel, administrative and general expenses, depreciation, taxes, and return or interest on the capital investment. Applicant's estimates of annual cost for the existing pipe

line, the added line, and the total line are presented in Exhibit No. S-13 and may be summarized as follows:

ESTIMATES OF ANNUAL TRANSPORTATION EXPENSE

| | Present Line | Added Line | Total Line |
|---|---|---|---|
| Cost plus Working Capital | $62,901,000 | $13,462,000 | $76,363,000 |
| Operation and Maintenance, Compressor Fuel and Administrative and General Expenses | 1,274,000 | 460,900 | 1,734,900 |
| Depreciation (5% S.F.) | 1,890,000 | 477,400 | 2,367,400 |
| Taxes | 3,923,000 | 937,200 | 4,860,200 |
| Return at 6% | 3,774,000 | 807,700 | 4,581,700 |
| Total Est. Annual Cost | 10,861,000 | 2,683,200 | 13,544,200 |

In the above tabulation depreciation was computed on the basis of an 18-year life for the added line facilities which corresponds to the remaining 18-year life estimated for the present line.

Unit Cost of Gas Delivered at Milpitas

The volume of gas which applicant expects to purchase at Topock and deliver at Milpitas, and the unit costs of purchase, transportation and delivery are:

| | Present Line | Added Line | Total Line |
|---|---|---|---|
| Annual Purchase Million Cubic Feet | 134,393 | 50,397 | 184,790 |
| Annual Delivery Million Cubic Feet | 132,437 | 48,850 | 181,287 |
| Avg. Cost at Topock per Mcf of Gas Delivered to Milpitas | 18.153¢ | 18.153¢ | 18.153¢ |
| Transportation Cost per Mcf | 8.201¢ | 5.493¢ | 7.471¢ |
| Average Cost per Mcf at Milpitas | 26.354¢ | 23.646¢ | 25.624¢ |

The estimated average cost of out-of-state gas delivered at Milpitas is higher than the average cost of gas purchased from producers on the system as a whole, which during 1951 averaged

20.277 cents per Mcf. However, the estimated cost at Topock is less than system average for 1951. Costs of gas in California have been increasing in the postwar period and since 1946 have practically doubled. The applicant's witness testified that the various fields from which the El Paso Company plans on obtaining the gas are the nearest presently known adequate and dependable out-of-state sources of supply for the added requirements of the Pacific Gas and Electric Company. According to the record, no new major additional fields or sources of gas in California are in prospect in the immediate future.

Applicant's witness further testified that the price of gas delivered at Milpitas is roughly equivalent to fuel oil at $1.50 a barrel in contrast to present posted prices at the refineries of $1.75 to $1.80 per barrel. This witness further stated that, even with an anticipated increase in the cost of gas purchased from the El Paso Company, there is no doubt that the gas can be sold at prices which will pay for its cost and give the company a fair return on its investment. It was his opinion that, while this may require some rate increase, the value of the service is such that there should be no material reduction, if any, in the quantities of gas that could be sold under whatever higher rates may be necessary.

Conclusion

The problem of providing an adequate gas supply for the growing public demand in face of the declining availability of California gas supplies is one that is of vital concern to all citizens of the State of California. The cost of obtaining the large volumes of gas required from local gas manufacturing plants would be three or four times more than that of the proposed importation of natural gas. Applicant's witness testified that, while

there are risks involved that the reserves may not last for 15 years nor produce the full quantities estimated, the performance to date under the original line and contracts has exceeded expectations.

The representative of the City of Los Angeles stated that it would be in the public interest to grant the application. He further stated that present requirements in California are far in excess of California production and that the deficiency in California supply compared to requirements is continuously increasing. He also stated that it is of the utmost importance that adequate natural gas reserves be dedicated to supplying the additional gas which is to be carried by the proposed increase in capacity.

The representative of the City of San Francisco took a similar position that the application should be granted. He stated that the showing made by the applicant in this proceeding indicates beyond a reasonable doubt that the company requires new sources of gas and that the only available source at the present time is the Texas gas. The California Manufacturers Association also was in favor of the proposal made by the applicant.

After reviewing the record in this proceeding and the statements by representatives of the public and various organizations, it is our conclusion that an order should be issued granting the authority requested by the application. It is our opinion that the proposed project offers the greatest promise of additional adequate and efficient gas service at the most reasonable cost of any immediate plan.

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,

IT IS HEREBY FOUND AS A FACT that public convenience and necessity require the construction, operation and maintenance of the natural gas pipe-line project as shown on the map attached to Exhibit No. S-3 in this proceeding; therefore,

IT IS HEREBY ORDERED that Pacific Gas and Electric Company be and it is hereby granted a certificate that public convenience and necessity require the construction, operation and maintenance of the transmission pipe line described in this first supplemental application as amended, the procurement of requisite permission and franchises, lands or land rights necessary for the construction or operation of the project, the acquisition of natural gas supplies by means of the project, and the transmission, distribution, delivery and sale of such natural gas supplies to its present and prospective customers in accordance with its certificates of public convenience and necessity and with its rates, rules and regulations duly filed with this Commission.

IT IS HEREBY FURTHER ORDERED that Pacific Gas and Electric Company shall secure further authority of this Commission to exercise such franchises as may be obtained for the construction and operation of the pipe line in accordance with the provisions of Chapter 5, Article 1, of the Public Utilities Code of the State of California.

IT IS HEREBY FURTHER ORDERED that Pacific Gas and Electric Company shall file with this Commission copies of any agreements amendatory to the service agreement, Exhibit No. S-14, and copies of additional gas purchase contracts between El Paso Natural Gas Company and producers dedicated in full or in part to performance under the service agreement as well as a detailed statement of the capital costs of the pipe line when completed. Such cost report shall be submitted within six months of the date of completion.

The authorization herein granted will lapse if not exercised within two (2) years from the date hereof.

The effective date of this order shall be twenty (20) days after the date hereof.

Dated at San Francisco, California, this 22nd day of July, 1952.

President.

Commissioners.

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