REPORT BY THE U.S.

# General Accounting Office

## Natural Gas Price Increases In Los Angeles

Natural gas price increases in recent years captured congressional and public attention. To determine which factors contributed to an average price increase of 61 percent in the Los Angeles, California, area between April 1981 and April 1983, GAO obtained and analyzed information from the distribution company which sells gas to retail customers in Los Angeles, the state agency which regulates it, and the distribution company's four principal pipeline company suppliers.

GAO found that about three quarters of the price increase was due to (1) the depletion of old and less expensive gas reserves and the addition of new and higher cost reserves, (2) price increases permitted by federal regulation, (3) increased imports of relatively expensive Canadian natural gas, (4) contract clauses affecting purchases by the distribution company and its pipeline suppliers, and (5) a decline in gas consumption which made purchasing patterns and company operations less efficient. The remaining increases stemmed from operating costs.



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WASHINGTON, D.C. 20548

RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

B-213545

The Honorable George Miller
The Honorable Anthony Beilenson
The Honorable George E. Brown, Jr.
The Honorable Sala Burton
The Honorable Ronald V. Dellums
The Honorable Mervyn Dymally
The Honorable Don Edwards
The Honorable Augustus Hawkins
The Honorable Matthew Martinez
The Honorable Robert T. Matsui
The Honorable Norman Mineta
The Honorable Fortney H. Stark
House of Representatives

The Honorable Alan Cranston
United States Senate

This report responds to your separate, but similar, requests for information explaining natural gas price increases in Los Angeles, California.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of the report. At that time, we will send copies of this report to the Secretary of Energy; the Chairman, Federal Energy Regulatory Commission; and officials of the Southern California Gas Company, El Paso Natural Gas Company, Pacific Interstate Transmission Company, Pacific Lighting Gas Supply Company, Transwestern Pipeline Company, and the California Public Utilities Commission. We will also make copies available to others upon request.

J. Dexter Peach
Director

GENERAL ACCOUNTING OFFICE
REPORT TO CONGRESSMAN
GEORGE MILLER, et al., AND
SENATOR ALAN CRANSTON

# NATURAL GAS PRICE INCREASES IN LOS ANGELES

## D I G E S T

Natural gas prices in the Los Angeles, California area increased, on average, $2.03 per thousand cubic feet, or 61 percent, from the year ending April 1981 to the year ending April 1983. GAO analyzed the factors responsible for these increases at the request of Congressman George Miller and 11 cosigners and Senator Alan Cranston. (See p. 3.)

The Southern California Gas Company (SoCal) is the distributor that sells gas to consumers in the Los Angeles area. Its major suppliers are El Paso Natural Gas Company, Transwestern Pipeline Company, Pacific Interstate Transmission Company, and Pacific Lighting Gas Supply Company. GAO obtained and analyzed information primarily from these companies as well as the California Public Utilities Commission. (See pp. 1 through 4.)

SoCal is regulated by the California Commission as is Pacific Lighting Gas Supply, which is an intrastate pipeline company. The other three major suppliers--El Paso, Transwestern, and Pacific Interstate--are interstate pipeline companies subject to regulation by the Federal Energy Regulatory Commission. (See pp. 1 through 3.)

## AN OVERVIEW OF PRICE INCREASES

Retail prices in Los Angeles consisted primarily of three major components: (1) the cost of gas purchased by the pipeline suppliers, (2) the pipeline companies' costs to transport gas from producing areas to SoCal's distribution area, and (3) SoCal's cost to distribute gas throughout the Los Angeles area. (See p. 40.)

The cost per thousand cubic feet to an average Los Angeles consumer increased $2.03, from $3.35 to $5.38 between 1981 and 1983. The increases were due to the cost of purchased gas (72 percent), transmission costs (11 percent), and distribution costs (16 percent). (See pp. 40 and 41.)

INCREASES IN GAS PURCHASE COSTS

SoCal's pipeline suppliers obtained gas from three basic sources--domestic producers, other pipeline companies, and imports. Domestic gas production is subject to federal price controls established under the Natural Gas Policy Act of 1978. The act established a series of maximum lawful prices for numerous categories of gas, depending on when and where the gas was found, when it was contracted for, and other factors. Gas purchased from other interstate pipelines is also subject to federal regulation. (See pp. 29 through 32.)

Prices for gas imported from Mexico and Canada are established at the border by agreement with the exporting country. During the period studied this price was about $5.00 per thousand cubic feet. (See pp. 37 and 38.)

The pipeline companies' average cost of gas per thousand cubic feet to Los Angeles consumers increased $1.46, from $2.14 to $3.60 between 1981 and 1983. This increase was due to (1) the depletion of old and less expensive domestic reserves and the addition of new and higher cost reserves, (2) price increases permitted under federal regulation, (3) increased imports of relatively expensive Canadian natural gas, and (4) the reclassification of gas reserves from one pricing category to another. (See pp. 31 through 41.)

INCREASE IN TRANSMISSION COSTS

SoCal's pipeline suppliers' rates were designed to permit recovery of purchased gas costs and transmission expenses and to earn a fair and reasonable rate of return on their net investment. The amounts that were considered fair and reasonable were subject to review and regulation by the appropriate regulatory body. (See pp. 14 and 20.)

The pipeline companies' average transmission costs per thousand cubic feet increased $0.22, from $0.35 to $0.58 from April 1981 to April 1983. In 1983 these costs per thousand cubic feet ranged from the $0.33 charged by Pacific Lighting Gas Supply for intrastate transmission of gas to the $2.44 charged by Pacific Interstate for transporting gas from the Canadian border. The largest single factor influencing these cost increases was the cost of gas used in pipeline company operations. (See pp. 20 and 40.)

Transmission cost increases per unit of gas were due in part to lower sales. Although sales may expand or contract, many transmission costs remain relatively unchanged. Because sales decreased during the period, transmission costs had to be borne by fewer units. (See pp. 21 and 22.)

INCREASES IN DISTRIBUTION COSTS

SoCal's rates to its customers varied depending upon end use: residential, small commercial and industrial, large industrial, and electric utility. These rates were, in the aggregate, designed to permit SoCal to recover its purchased gas costs and distribution expenses and to earn a fair and reasonable rate of return on its net investment. (See pp. 6 and 13.)

SoCal's largest cost was the cost of gas it purchased from its four major pipeline suppliers. From April 1981 to April 1983, the average cost per thousand cubic feet increased $1.70, from $2.63 to $4.33. Purchased gas costs per thousand cubic feet ranged in 1983 from the $3.94 paid El Paso to the $7.41 paid Pacific Interstate. Despite this disparity in gas supply costs, SoCal's purchases from El Paso declined while purchases from Pacific Interstate increased. This was due to (1) an overall decrease in gas consumption and (2) contractual purchase requirements, which limited SoCal's control over the amounts purchased from individual suppliers. (See pp. 13 through 15.)

SoCal's distribution costs per thousand cubic feet increased $0.33, from $0.72 to $1.05 from April 1981 to April 1983. The two largest increases (both $0.07) in SoCal's operating budget occurred in marketing and net operating

revenue. The marketing cost increases were due to energy conservation programs mandated by the California Commission. The increase in net operating revenue was due to SoCal's interest payments on debts and obligations. Lower sales volumes also spread SoCal's fixed costs over fewer units thereby increasing average unit costs. (See pp. 15 and 16.)

## COMPANY COMMENTS

GAO obtained written comments from SoCal on behalf of itself, Pacific Interstate, and Pacific Lighting Gas Supply; El Paso; and Transwestern. (See apps. I, II, and III, respectively). Each of the companies generally commented that GAO's analysis was thorough, objective, and accurate. GAO did not seek written comments from any federal agency. (See p. 5.)

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## ABBREVIATIONS

| | |
|---|---|
| Bcf | billion cubic feet |
| FERC | Federal Energy Regulatory Commission |
| GAO | General Accounting Office |
| Mcf | thousand cubic feet |
| Mmcf | million cubic feet |
| NGPA | Natural Gas Policy Act of 1978 |
| PGA | Purchased Gas Adjustment |
| PLGS | Pacific Lighting Gas Supply Company |
| SoCal | Southern California Gas Company |

# CHAPTER 1

## INTRODUCTION

Increases in natural gas prices have significantly affected the consumers of gas, the companies that supply them, and the government agencies that regulate such sales. Consumers seek relief from higher fuel bills. The companies face declining consumption because of higher prices, conservation, and alternative fuel sources. The regulatory agencies try to balance the interests of gas suppliers and users. There has been continuing debate among the Congress, the administration, and the industry generally over what the national policy toward natural gas should be. The Congress is currently considering proposals to change federal regulation of natural gas pricing.

## STRUCTURE OF THE NATURAL GAS INDUSTRY

Natural gas accounted for nearly 25 percent of the energy consumed in the United States in 1983. Overall, about 95 percent of this gas was produced domestically; the remaining gas was imported from Algeria, Canada, and Mexico.

Gas is used throughout the economy. Nationwide, industry accounted for about 36 percent of all gas used in 1983, more than any other sector. Residences accounted for about 29 percent, where gas was the fuel used most often for home heating. The others were electric utilities (19 percent) and commercial establishments (16 percent).

The natural gas industry is comprised of three sectors--distribution, transmission, and production--which are physically interconnected by a network of pipelines and mains throughout the nation. Companies in the various sectors may also be related through corporate affiliations.

End-users typically buy their natural gas from the almost 1,600 distribution companies throughout the nation. They are usually local public utilities, serving a specific market area and under the jurisdiction of a state or local regulatory body. The Southern California Gas Company (SoCal) is the only gas distributor for Los Angeles, California, and the principal distributor for southern California. SoCal provides about 52 percent of the state's gas requirements. Its operations are regulated by the California Public Utilities Commission (hereafter referred to as the California Commission).

SoCal applies to the California Commission for a general rate case every 2 years; it files for adjustments to its purchased gas costs twice a year. Hearings are conducted by the California Commission for both the general and purchased gas adjustment cases. At the general rate hearing, the California Commission generally determines the total revenue the distributor needs to collect from its customers in return for the service it is

providing. It then decides how to allocate the revenue requirements among the distributor's various classes of customers and devises a rate structure or rate design. At the purchased gas adjustment hearing, the California Commission determines the additional revenue needed to cover gas costs at forecasted sales levels. Since purchased gas costs account for the majority of SoCal's revenue needs, rate design issues are generally more fully developed in these proceedings which are held every 6 months.

Distributors buy most of their natural gas from transmission, or pipeline, companies which transport gas from producing areas to consuming areas. SoCal buys gas from El Paso Natural Gas Company (El Paso), Transwestern Pipeline Company (Transwestern), Pacific Interstate Transmission Company (Pacific Interstate), and Pacific Lighting Gas Supply Company (PLGS). PLGS is an intrastate pipeline subject to state regulation. El Paso, Transwestern, and Pacific Interstate are 3 of the 139 interstate pipeline companies which are regulated by the Federal Energy Regulatory Commission (FERC).

In accordance with FERC regulations, interstate pipelines are required to make a full cost supported rate filing at a minimum of once every 3 years, establishing new rates or supporting the continuance of the rates currently in effect. Such a filing is subject to full review and adjustments by FERC. In addition to this requirement, the interstate pipelines are also required to file, pursuant to established time schedules,[1] adjustments to the then rates in effect reflecting changes in their purchased gas costs. The purchased gas adjustment (PGA) filing requirement was established in 1972 and was intended to slow down the number of major rate increase applications being filed and to allow the pipelines to keep pace with the then rapidly increasing cost of gas supplies.

El Paso and Transwestern submit a PGA filing semi-annually to become effective on April 1 and October 1. The Northwest Division of Pacific Interstate--which purchases natural gas from Canada--does not have a purchased gas adjustment clause in its tariff but pays a pre-set price on a current monthly basis at the border for gas volumes actually taken and transports those volumes through certain FERC-approved portions of the Alaskan Natural Gas Transportation System. PLGS submits its filings jointly with SoCal to the California Commission on a semi-annual basis.

Pipeline companies obtain the gas they transport from producers, other pipelines companies, foreign sources, and their own production. Producers are thousands of large, medium, and small companies which explore for, drill for, and produce gas.

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[1]For a more detailed discussion of the regulatory relationship between interstate pipelines and FERC see Pipeline Purchases of High-Cost Natural Gas: Extent and Contested Issues (EMD-82-53, Apr. 6, 1982).

All domestic production is subject to federal price regulation.[2] Texas, Louisiana, Oklahoma, New Mexico, and Kansas--in descending order--accounted for about 87 percent of domestic production in 1982.

El Paso and Transwestern obtain nearly all of their gas supplies from fields in New Mexico, Oklahoma, and Texas. Pacific Interstate primarily imports natural gas from Canada. Although PLGS purchases small quantities of California gas from onshore and offshore production, it primarily buys gas from Transwestern, transports this gas from the California border to Los Angeles, and resells it to SoCal. SoCal itself makes direct purchases of gas periodically, such as from Pacific Gas and Electric Company, another California distributor.

Companies from the three sectors of the natural gas industry may be connected through common corporate structure. For example, the Pacific Lighting Corporation is the parent company of SoCal, Pacific Interstate, and PLGS, as well as companies engaged in the exploration and development of natural gas. According to its annual report to the California Commission, PLGS is a public utility engaged in acquiring, compressing, transporting, storing, and exchanging natural gas, and selling natural gas for resale exclusively to SoCal. SoCal provides all necessary labor, other than certain administrative personnel, to conduct the company's operations. This makes PLGS unique among pipelines discussed in this report. More will be said about this in chapter 4. El Paso, one of the largest pipeline companies in the United States, also produces gas both on its own and through affiliated production entities. Transwestern is a subsidiary of Texas Eastern Transmission Corporation, another pipeline company. Texas Eastern also owns some gas reserves; however, Transwestern has some very small amounts of affiliated production.

## OBJECTIVES, SCOPE, AND METHODOLOGY

This report was prepared in response to separate, but similar, requests from Congressman George Miller and Senator Alan Cranston. Congressman Miller's letter of October 15, 1982, cosigned by 14 other Members of the House of Representatives, asked us to report to them on various aspects of natural gas pricing, supplies, and regulation.[3] Based on this letter and subsequent agreements with the requestors' offices, we

--issued a report Natural Gas Price Increases: A Preliminary Analysis (GAO/RCED-83-76, Dec. 9, 1982);

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[2]Federal ceilings limit the prices that may be paid for almost all domestic production, but prices for a small proportion are not controlled. Production may also be subject to regulation at the state level, with respect to prices and levels of production.

[3]This report is addressed to Congressman Miller and the 11 cosigners from California.

--briefed Congressman Miller's office on various aspects of the natural gas industry and issues relating to recent price increases;

--prepared this report; and

--are evaluating how effectively FERC reviews certain natural gas pipeline company rate filings.

Subsequently, Senator Cranston's letter of July 21, 1983, expressed interest in our ongoing study in Los Angeles and asked that we amplify on the effect of purchased gas costs on end user prices. Based on that letter and subsequent agreements with his office, we

--briefed the Senator's office on pricing of natural gas in Los Angeles and surrounding areas and

--prepared this report.

This report is one of a series of case studies of why natural gas prices increased in five cities around the country. Our objective was to identify factors which contributed to increases in the prices paid by consumers for natural gas service between April 1981 and April 1983 in Los Angeles.

We relied largely on information furnished us by the distributor and pipeline companies, and the staff of the state commission. We did not independently verify the accuracy of any of this data. The financial data in this report are not adjusted for inflation. We did not evaluate the appropriateness or effectiveness of actions taken by any government agency or private party, nor do we make recommendations.

This report is based in part on previous GAO work in the natural gas area. The GAO reports which we used include Natural Gas Price Increases: A Preliminary Analysis (GAO/RCED-83-76, Dec. 9, 1982); Information on Contracts Between Natural Gas Producers and Pipeline Companies (GAO/RCED-83-5, Feb. 22, 1983); and State and Local Responses to Natural Gas Price Increases (GAO/RCED-83-142, Apr. 25, 1983).

Quantities of natural gas are often measured on the basis of volume. Frequently used measures include thousand cubic feet (Mcf) and billion cubic feet (Bcf). Alternatively, gas may be measured on the basis of heat content, in terms of British thermal units. A million British thermal units are approximately equivalent to an Mcf. For ease of presentation, we used only volume measures of natural gas in this report.

The information in the ensuing chapters of this report is organized to follow the Los Angeles natural gas consumer's dollar from the burner tip through the distributor and the pipeline to the producer.

--Chapter 2 provides a profile of Los Angeles' gas users and rates.

--Chapter 3 discusses the Los Angeles distributor's operations and expenses.

--Chapter 4 discusses the transmission of natural gas to Los Angeles.

--Chapter 5 discusses the sources and costs of natural gas for Los Angeles.

--Chapter 6 presents an overview of price changes in Los Angeles.

Except as noted, this review was conducted in accordance with generally accepted government auditing standards. It was performed during the period from May 1983 through December 1983.

## COMPANY COMMENTS

GAO obtained written comments from SoCal on behalf of itself, Pacific Interstate, and PLGS; El Paso; and Transwestern. Each of the companies generally commented that our analysis was thorough, objective, and accurate. No company offered any substantive criticism.

Each company, noting the complexities of the situation we analyzed, elaborated on the factors which helped to stabilize gas prices subsequent to the time period we studied. In addition, SoCal explained certain factors relating to the operating costs of its affiliates, Pacific Interstate and PLGS. Transwestern also offered additional clarifications and perspectives regarding some of the data included in the study. None of these comments warranted any changes in the report. SoCal's, El Paso's, and Transwestern's comments are contained in appendices I, II, and III, respectively. GAO did not seek written comments from any federal agency because the report contains no analysis, conclusions, or recommendations about any actions by a federal government agency.

# CHAPTER 2

## NATURAL GAS CUSTOMERS AND RATES IN LOS ANGELES

SoCal served about 3.9 million customers in April 1983, of which almost 95 percent were residential; however, of SoCal's 717 Bcf of retail gas sales for the year ending April 1983, 63 percent were sold to nonresidential customers. The California Commission is responsible for setting rates on natural gas that are just and reasonable to both SoCal and its customers. This chapter gives a profile of SoCal's customer classes and rate structures, and discusses the extent of end-user[1] rate increases over the years ending April 1981 and April 1983.

## GAS SALES AND CUSTOMER CLASSES

SoCal groups its customers into four major classes: residential, small commercial and industrial, large industrial, and electric generation. SoCal's customers purchased nearly 824 Bcf of natural gas during the year ending April 1983, of which almost 107 Bcf of natural gas was sold wholesale to San Diego Gas and Electric Company and the city of Long Beach for resale to their customers. Residential sales accounted for approximately 268 Bcf of the 717 Bcf in retail sales; utility electric generation, 234 Bcf; large industrial, 127 Bcf; and small commercial and industrial, 87 Bcf. In terms of total retail sales volumes to final customers, residential sales represented 37 percent; electric generation sales, 33 percent; small commercial and industrial sales, 19 percent; and large industrial sales, 12 percent. (See table 1.)

[1]An end-user is a company or person who actually uses the gas. In addition to end users, SoCal also sells gas to San Diego Gas and Electric Company and the city of Long Beach for resale.

Table 1

Number of Retail Customers and Relative Share of Consumption by Customer Class as of April 1983

| Customer class | Number of customers | Fuel source | Relative share of consumption ---percent---- |
|---|---|---|---|
| Residential | 3,696,412 | gas | 37 |
| Small commercial and industrial | 208,313[a] | gas | 19 |
| Large industrial | 900[a] | gas or oil | 12 |
| Electric utility | 6 | gas or oil | 33 |
| Total | 3,905,631 | | 100 |

[a]Estimated by SoCal.

Source: SoCal.

The costs of serving each customer class differ. Because residential customers generally are widely dispersed, use relatively small amounts of gas, but need peak amounts during cold periods, serving them is usually more costly per unit of gas than serving industrial users, which have a relatively stable demand for gas and take it in large quantities.

The California Commission shifted a part of the costs which would otherwise be carried by the residential class to the commercial and industrial classes. In California, the three largest gas distributors collect less per Mcf from residential users on average than from commercial and industrial users. SoCal received an average $4.40 per Mcf in calendar year 1982 from residential users; $5.05 per Mcf from commercial users; and $5.19 per Mcf from industrial users (including electric generation customers).

Distribution companies usually offer residential customers firm service, which provides assured gas availability, and offer large commercial and industrial customers interruptible service, which permits interruptions of service. However, in the state of California, distributors are required to place customers under an end-use priority system, whereby firm and interruptible classifications are no longer applicable and all classes are subject to curtailment. Residential customers are assigned the highest priority, followed by commercial and industrial customers. The lowest priority is assigned to utility electric generating plants.

## REGULATION AND THE RATE STRUCTURE

In Los Angeles, the setting of rates within a class of customers is based on the amount of natural gas used. As usage increases, the price per unit may remain constant or increase. A flat rate structure is one that prices all gas consumption at the same price per unit. An inverted or increasing block rate structure increases the unit price as consumption increases.[2] There may also be other considerations in the setting of rates, such as location or seasonal variation. Sometimes a distributor may add a service or customer charge to cover certain fixed costs. SoCal levies a monthly customer charge of $3.10 on each residential user, $5.00 to $15.00 on each commercial and industrial user, and $100.00 on each utility electric generating customer.

### Residential Rate Structure

California distributors such as SoCal are required by law to have an inverted or increasing rate structure for residential users to encourage energy conservation, and to establish a "lifeline" allowance and rate.[3] The lifeline rate applies to Tier I or the lowest block of the increasing block rate structure. Under this program, distributors charge a relatively low price for minimum quantities of gas for basic residential uses such as space heating, water heating, cooking, and gas drying. These minimum quantities of gas vary according to climate and

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[2]An example of an inverted block rate structure is California's residential rate structure which is comprised of three tiers. Tier I allows for a certain quantity of gas to be purchased at a certain rate. Tier II allows for an additional quantity of gas to be purchased at a slightly higher rate. Tier III allows for any additional gas to be purchased at a higher rate than Tier II.

[3]The lifeline program was amended to continue as an energy baseline program. As amended by Chapter 1541 of the California Statutes of 1982, the law provides for a "baseline quantity" or block of natural gas for residential customers set at from 60 to 70 percent of average residential consumption during the winter heating season. The baseline rate applies to the first block of an increasing block rate structure and is set from 15 to 25 percent below the system average rate. The California Commission may establish a rate less than 15 percent below the system average to ensure that a distributor's revenue requirements are met and to prevent increases in rates for low priority users which may switch to other fuels. The Commission will implement these provisions at the first general rate proceeding decided on or after January 1, 1984, with an effective date not earlier than January 1, 1985. Until that time, the current lifeline allowance will continue. According to SoCal officials, the new baseline rate will be considered in the next general rate hearing.

season. For example, SoCal allows about 8 Mcf in the first tier and 10 Mcf in the second tier during its winter season from November through April but only about 3 Mcf in each tier during the summer season.

The Tier I, or lifeline block, is priced below the system's average cost of gas. The California Commission has set SoCal's lifeline rate at about 85 percent of the system average rate and Tier III at about $1.00 per Mcf above Tier II, which is a rate designed to recover SoCal's revenue requirements. Table 2, page 11, contains a schedule of end-user rates for retail customer classes. SoCal officials told us that about 75 percent of the residential sales are at the lifeline rate.

## Commercial and Industrial Rate Structures

Whereas SoCal's residential rates are based on an increasing block rate, its small commercial and industrial rates and large industrial rates are based on a flat or level rate where the price per unit is the same regardless of the level of consumption. The rates for small commercial and industrial users are established in such a way as to conform to the Tier II residential rate. These users have a priority lower than residential consumers. They typically do not have alternative fuel burning capability.

SoCal had about 900 large industrial customers which had dual fuel capability and could switch quickly from natural gas to an alternate fuel. For these industrial customers, the primary alternate fuel was low sulfur (0.5 percent sulfur maximum) residual fuel oil, although some customers may use distillate fuel oil, propane, or--air quality standards permitting--high-sulfur residual fuel oil. Large industrial users are assigned a priority lower than residential and small commercial and industrial users. Rates to large industrial users are therefore lower than rates to the other customer classes described above (residential lifeline rates excepted).

## Electric Utility Rate Structure

Although SoCal had only six electric utility customers in 1983, they accounted for 33 percent of SoCal's retail sales volume. Like large industrial customers, electric utilities have dual fuel capability and can switch quickly to an alternate fuel (primarily very low sulfur residual fuel oil). Such switching may occur, either on a temporary or permanent basis, if and when the price of natural gas approaches or exceeds the energy equivalent price of alternative fuels. When such switching occurs and causes a loss of sales, the remaining customers must carry a greater share of the distributor's fixed operating costs. SoCal estimated that in August 1982 a loss of 25 percent of its lower priority customer load would mean an estimated $130 million in lost contributions to fixed costs that would have to be borne by residential and small commercial and industrial customers.

To reduce the loss of gas sales resulting from the decision to switch fuels by two of its principal electric utility customers accounting for more than 90 percent of SoCal's electric generating load, SoCal applied to the California Commission to set utility rates comparable to alternate fuel rates. One electric utility customer which used up to 60 million cubic feet (Mmcf) per day testified before the Commission that by mid-January 1983 the price of low sulfur residual fuel oil was at least $3.00 per barrel below the equivalent cost of gas, and by the end of the month, that difference was about $5.00 per barrel.

In February 1983, the California Commission granted on a temporary basis SoCal's requested rate design for electric utility customers indexing their base rate to residual fuel oil prices, adjustable twice a month. In May 1983, the Commission agreed to continue the rate mechanism for electric utility customers and it also implemented an episode day[4] rate which approximated SoCal's average retail rate. On an episode day declared by the South Coast Air Quality Management District, electric utilities are prohibited from burning oil if gas is available. The episode day rate is fixed by the California Commission. On nonepisode days, the price to electric generating customers is indexed to reflect the posted price per British thermal unit for low sulfur residual fuel oil. In early May 1983 the nonepisode rate for electric utilities was $4.46 per Mcf and the episode rate was $5.95 per Mcf. The average rate was $4.83 per Mcf.

END-USER RATES

SoCal's customers experienced a wide range of rate increases from April 1981 to December 1983. (See table 2 below.) The small commercial and industrial class rates rose about 109 percent, from $3.60 per Mcf to $7.54 per Mcf. Rates for electric utility customers rose by 61 percent overall, although the implementation of an episode day rate created a two part rate structure. Percentage increases in the residential class varied among the three tiers. The largest increase occurred in Tier II, followed by the lifeline tier, and Tier III.

[4]Episode days, as designated by the South Coast Air Quality Management District, are based on the content of various contaminants in the air.

Table 2

Comparison of SoCal's Rates per Mcf

| Class | Apr. 1, 1981 | Apr. 1, 1983 | Dec. 1, 1983 | Percentage increase between Apr. 1981 and Dec. 1983 |
|---|---|---|---|---|
| Residential | | | | |
| Tier I (Lifeline) | $2.59 | $4.43 | $4.88 | 88 |
| Tier II | 3.60 | 6.51 | 7.54 | 109 |
| Tier III | 5.05 | 7.56 | 8.59 | 70 |
| Small commercial and industrial | 3.60 | 6.51 | 7.54 | 109 |
| Large industrial | 3.78 | 5.94 | 5.94 | 57 |
| Electric utility generation [a] | 3.68 | 5.94 | 5.94 | 61 |

[a]A flexible (nonepisode day) rate was instituted in May 1983 for electric utilities. The cost per Mcf ranged from $4.41 to $5.15.

SOURCE: SoCal.

The wide variation in percentage increases among classes reflects in part the shifting of SoCal's fixed costs to the residential and small commercial and industrial classes, in light of industrial load loss and the potential for further industrial load loss.

According to a SoCal spokesperson, SoCal did not anticipate further rate increases until October 1984. SoCal officials attributed this in part to the additional revenue collected from electric utility customers under the higher episode day rate. They said, in addition, that stable oil prices and improved economic conditions minimized loss of industrial sales.

## SUMMARY

Almost 95 percent of SoCal's customers are residential. However, they represented only 37 percent of SoCal's total revenues in 1982, compared to 45 percent from electric utilities and other large industrial sales. Electric utilities alone account for 33 percent of SoCal's revenues. Over 900 of SoCal's large volume customers can switch from natural gas to residual fuel oil when the prices warrant. If load loss occurs, the remaining customers may carry a greater share of the system's fixed costs.

In response to actual lost electric utility gas sales, the California Commission permitted SoCal to implement a rate indexed to fuel oil prices, adjustable twice a month. SoCal was also permitted to charge its electric utility customers a higher rate on episode days (days in which contaminants in the air reached a specified level).

State law requires California distributors to provide a residential lifeline rate. This provision allows residential users a minimum quantity of natural gas at below system cost, and successively higher prices as use increases.

SoCal's customers experienced a wide range of price increases from April 1981 through December 1983, ranging from about 57 percent for large industrial customers to 109 percent for certain residential and small commercial and industrial customers. These percentage increases generally reflect the shift of the fixed costs away from the electric utility and industrial customers (which are capable of switching to an alternate fuel when prices are comparable to those of natural gas) to the remaining customers.

# CHAPTER 3

## DISTRIBUTION OF NATURAL GAS IN LOS ANGELES

SoCal incurs various expenses in the distribution of gas to its customers. These expenses include SoCal's cost of gas and the cost of distribution (such as storage, transmission, marketing services, depreciation, and taxes). SoCal was permitted to recover the cost of interest it paid on its debts and to earn a reasonable rate of return on its investment. These latter two factors made up its net operating revenue. This chapter describes these costs and shows how they changed between April 1981 and April 1983. It also describes SoCal's rate of return.

Costs are expressed in terms of dollars per Mcf to facilitate comparative analysis. The data presented in this report generally pertain to the years ending April 1981 and April 1983 which hereafter are frequently referred to simply as 1981 and 1983 respectively.

## SOURCES AND COSTS OF GAS

The largest cost incurred by SoCal, the total cost of gas it purchased, exceeded 80 percent of its total costs. SoCal purchased its natural gas primarily from three interstate pipeline companies--El Paso, Transwestern,[1] and Pacific Interstate, and one intrastate pipeline company, PLGS. SoCal also purchased relatively small amounts from other sources such as Pacific Gas and Electric Company, another California distribution company. The quantity purchased and the average unit cost of the gas varied among these sources.

According to California Commission records, SoCal purchased approximately 921 Bcf and 859 Bcf of natural gas during the years ending April 1981 and April 1983 respectively. During the same period, the proportion of purchases among SoCal's pipeline suppliers shifted as well. (See table 3.) Purchases from El Paso and Transwestern, SoCal's two cheapest suppliers, declined while purchases from Pacific Interstate and PLGS increased.

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[1]Transwestern sold gas to PLGS which purchased, transported and stored gas--from Transwestern as well as federal offshore and California sources--within California for resale exclusively to SoCal. For purposes of this study, Transwestern is treated hereafter as a direct supplier to SoCal. SoCal transports all gas purchased from El Paso from the California border itself.

Table 3

SoCal's Gas Purchases by Major Supplier for Years Ending April 1981 and April 1983

| Source | April 1981 Quantity[a] --(Bcf)- | April 1981 Cost (per Mcf) | April 1983 Quantity[a] --(Bcf)- | April 1983 Cost (per Mcf) |
|---|---|---|---|---|
| El Paso | 590.0 | $2.42 | 493.4 | $3.94 |
| Transwestern | 244.8 | 2.61 | 230.5 | 4.21 |
| Pacific Interstate PLGS | 5.2 | 4.77 | 64.7 | 7.41 |
| | 273.5 | 2.92 | 289.4 | 4.32 |

[a]Volumes are not additive because PLGS' volumes include volumes purchased from Transwestern and resold to SoCal. These volumes account for over 94 percent of SoCal's purchased gas volumes in each of the 2 years studied.

Sources: El Paso, Transwestern, SoCal, and California Commission.

SoCal paid more for gas it purchased from each of its suppliers in 1983 than it paid in 1981. SoCal officials told us that the average price of its natural gas purchases from all sources rose from $2.63 per Mcf in 1981 to $4.33 per Mcf in 1983. This amounted to a 65 percent increase. A more detailed discussion on each individual supplier and its respective costs is included in chapter 4.

Terms of trade between SoCal and its suppliers are not established by direct negotiation between the parties. Instead, interstate pipeline sales to distributors are governed by tariffs approved by FERC; intrastate pipeline sales to California distributors are governed by rates established by the California Commission. Distributors become involved in the processes for setting these tariffs by petitioning the appropriate regulatory body. Generally, gas is sold to California distributors at rates established to allow recovery of direct expenditures--such as the cost of the natural gas they buy from producers--and to earn a fair and reasonable rate of return on their pipelines and other investments.

Gas rates paid by a distributor, such as SoCal, to a pipeline company usually consist of two general charges: demand and commodity. A demand charge is a fixed monthly charge. The commodity charge is a variable charge based on the volume of gas actually taken by the distributor. Some companies have take-or-pay provisions in their purchase contracts which require payment

for volumes of gas during a month or year whether used or not. A makeup period for gas paid for but not consumed is usually provided for in take-or-pay contracts. A minimum bill clause in a rate schedule provides that the charge for a prescribed period shall not be less than a specified amount.

SoCal's purchases from its natural gas pipeline suppliers were based on contract requirements. According to SoCal officials, amounts over and above these contract requirements were purchased from the cheapest source possible, El Paso. SoCal was effectively obligated to buy about 30 percent[2], or 528 Mmcf per day, from El Paso. El Paso and its California customers recently agreed to a 60 percent minimum bill for a limited term, subject to FERC final determination.

Contract obligations with Transwestern required SoCal to purchase 91 percent of deliverable volume, or 683 Mmcf per day. SoCal is required to purchase 40 percent of the annual contract volume from Pacific Interstate through October 1984, at which time the percentage reverts to 85 percent of the contract volume. Because SoCal is PLGS' only customer, everything PLGS purchases is resold to SoCal.

All of these various contract agreements provided for tariffs that were reflected in SoCal's fixed costs as well as its variable costs. They essentially require SoCal to pay a minimum fee regardless of the amount of gas taken. This in turn ensures that SoCal's suppliers will have a cash flow to meet some of their present financial needs.

## DISTRIBUTION COSTS

In addition to the cost of purchased gas, SoCal incurred additional costs in distributing gas to its customers. These included storage, transmission, marketing, distribution, and customer services; administration; depreciation; and taxes. Table 4 below shows how all of these costs, added to net operating revenue, equaled the average cost of gas purchased by SoCal's customers.

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[2]SoCal was obligated to buy 90 percent of a specified volume of gas. However, this required volume was reduced, and when combined with other discretionary purchases from El Paso, yielded an effective take obligation of 30 percent.

Table 4

SoCal's Expenses and Income for Years Ending April 1981 and April 1983

| | Apr. 1981 | Apr. 1983 | Difference | Increase |
|---|---|---|---|---|
| | (per Mcf) | | | -percent- |
| Operating expenses: | | | | |
| Gas purchases | $2.63 | $4.33 | $1.70 | 65 |
| Storage | 0.02 | 0.04 | 0.02 | 100 |
| Transmission | 0.03 | 0.04 | 0.01 | 33 |
| Distribution | 0.11 | 0.15 | 0.04 | 36 |
| Customer services | 0.07 | 0.11 | 0.04 | 57 |
| Marketing[a] | 0.03 | 0.10 | 0.07 | 233 |
| Administration | 0.12 | 0.15 | 0.03 | 25 |
| Depreciation | 0.08 | 0.09 | 0.01 | 13 |
| Taxes (federal, state and other) | 0.16 | 0.19 | 0.03 | 19 |
| Total[b] | $3.24 | $5.20 | $1.96 | 60 |
| Interest | 0.01 | 0.08 | 0.07 | 700 |
| Net income | 0.10 | 0.10 | - | - |
| Net operating revenue | 0.11 | 0.18 | 0.07 | 64 |
| Average cost to all customers | $3.35 | $5.38 | $2.03 | 61 |

Source: SoCal.

[a]Includes about $60 million in programs such as solar, weatherization, and other conservation efforts initiated during the two periods. This was mandated by the California Commission.

[b]Components may not add to total because of independent rounding.

All of SoCal's cost categories increased but by varying amounts. Some cost categories were relatively stable and increased very little, such as depreciation. Other cost categories which were more subject to inflationary pressures such as interest, or which result from external forces, such as marketing, increased more. Marketing cost increases were required by the California Commission because it instituted solar, weatherization, and other conservation programs during the period studied. None of the cost categories compared in size, however, to the cost of gas which accounted for $1.70 per Mcf of the total operating expense increases of $1.96 per Mcf. All other operating costs accounted for only $0.26 per Mcf of the total operating expense increase experienced by SoCal.

## NET OPERATING REVENUE

SoCal's net operating revenue was comprised of two items: interest due on debts and net income. (See table 4 above.) SoCal's net operating income in 1981 was $0.11 per Mcf, and in 1983 it was $0.18 per Mcf. The increase in net operating revenue was due to increased interest payments made by SoCal on its debts and obligations. Interest amounted to $0.01 per Mcf in 1981, but it increased to $0.08 per Mcf in 1983.

SoCal's net income in both 1981 and 1983 amounted to $0.10 per Mcf. Projected net income may be computed by applying the specified rate of return authorized by the California Commission to the rate base (net or depreciated investment). This projected net income is then divided by the estimated sales to obtain the authorized net income on a per unit basis. Generally the rate base represents the amount of property used and useful (less depreciation) in public service and may provide for the inclusion of a working capital allowance or deductions. Table 5 below shows each of these rate base items and SoCal's net investment in each. As shown in the table, SoCal's authorized rate of return was not always realized.

The composition of SoCal's rate base and its authorized and realized rates of return are also shown in table 5. The most valuable item is SoCal's plant and work in progress which increased by $253 million. On the other hand, its reserve for depreciation grew by $111.4 million thereby reducing its rate base by an equivalent amount. For 1980 and 1982, SoCal did not realize the rate of return authorized by the California Commission. SoCal officials attributed inflation and high interest rates, and their impact on operating costs, for the lower return than that authorized by the Commission.

Table 5

SoCal's Rate Base and Rate of Return on Rate Base for Years Ending April 1981 and April 1983

| Rate base components | Net investment | | | Increase (decrease) |
|---|---|---|---|---|
| | Apr. 1981 | Apr. 1983 | Difference | |
| | (millions) | | | (percent) |
| Gas plant and work in progress | $1,708.8 | $1,961.8 | $253.0 | 15 |
| Materials and supplies | 13.8 | 17.3 | 3.5 | 25 |
| Current gas stored and prepaid | 62.8 | 98.1 | 35.3 | 56 |
| Working cash | 24.5 | 18.5 | (6.0) | (24) |
| Reserve for depreciation | (646.6) | (758.0) | (111.4) | 17 |
| Other | (13.6) | (21.3) | (7.7) | 57 |
| Total | $1,149.6 | $1,316.4 | $166.8 | 15 |

| Rate of return on rate base | Calendar Year[b] | |
|---|---|---|
| | 1980 | 1982 |
| | (percent) | |
| Realized | 6.97 | 9.76 |
| Authorized | 9,73 | 10.75 |

[a]Components may not add to total because of independent rounding.

[b]Rates of return were available for calendar years only.

Source: SoCal.

SUMMARY

SoCal's operating expenses increased from $3.24 per Mcf to $5.20 per Mcf from 1981 to 1983. Over 85 percent of this increase was attributable to natural gas purchases. In 1983 SoCal purchased its gas from three interstate pipelines--El Paso, Transwestern (via PLGS), and Pacific Interstate--and one intrastate pipeline, PLGS. Unlike the other pipelines, Pacific Interstate imports most of its gas from Canada. The average unit cost of gas varied among these sources. In 1983, SoCal paid an average $3.94 per Mcf to El Paso, $4.21 per Mcf to Transwestern, $7.41 to Pacific Interstate, and $4.32 to PLGS. The average unit cost of gas for all SoCal's purchases rose 65 percent over the 2-year period ending April 1983.

SoCal has various contractual agreements with its pipeline suppliers, but generally it is required to take a minimum amount

of gas based on an actual volume or a percentage of deliverable volume. SoCal was effectively obligated to buy about 30 percent of a certain volume of gas from El Paso in 1983. SoCal was required to buy 91 percent of deliverable volume from Transwestern and 40 percent (85 percent in October 1984) of the annual contract volume from Pacific Interstate. SoCal was PLGS' only customer and bought all of the gas that PLGS purchased.

SoCal's net operating revenue, comprised of interest and net income, increased 64 percent from 1981 to 1983 as shown on table 4 on page 16. This was due primarily to interest expense increases. Net income remained at $0.10 per Mcf over the 2-year period.

## CHAPTER 4

## TRANSMISSION OF NATURAL GAS TO LOS ANGELES

The cost of gas sold to SoCal by each pipeline supplier was based on the cost of the purchased gas and the cost of transmission, both of which were subject to regulatory review.

The cost of transmission for each pipeline supplier was comprised of (1) the expenses associated with transporting the gas from the field to the distributor and (2) an allowance for net income. Because each pipeline had its own sources of gas at various locations, the cost of transmission varied from one pipeline to another as shown in table 6 below. This chapter describes the cost of transmission of natural gas to Los Angeles. Chapter 5 describes and analyzes the purchase of gas from producers and suppliers affecting Los Angeles.

Table 6

Transmission Cost of Gas by Major Pipeline Supplier for Years Ending April 1981 and April 1983

| Pipeline company | April 1981 | April 1983 |
|---|---|---|
| | (per Mcf) | |
| El Paso: | | |
| Average transmission expense | $0.29 | $0.37 |
| Net income | 0.04 | 0.06 |
| Average transmission cost | $0.33 | $0.43 |
| Transwestern: | | |
| Average transmission expense | $0.44 | $0.60 |
| Net income | 0.08 | 0.10 |
| Average transmission cost | $0.52 | $0.70 |
| Pacific Interstate: | | |
| Average transmission expense | $0.20 | $2.34 |
| Non-operating company losses | (0.98) | - |
| Net income | 0.98 | .10 |
| Average transmission cost | $0.20 | $2.44 |
| PLGS: | | |
| Average transmission expense | $0.20 | $0.25 |
| Net income | 0.04 | 0.08 |
| Average transmission cost | $0.24 | $0.33 |

Sources: El Paso, Transwestern, and SoCal.

The table clearly shows that the source of the gas has direct impact on the cost of transmission. El Paso, Transwestern and PLGS purchased gas from predominantly domestic supply sources located in the southwestern United States. These supply sources appear to minimize transportation costs. PLGS' transmission cost was cheaper than the other pipeline companies largely because it restricts its activity to southern California. Pacific Interstate's transmission costs on the other hand reflected the longer transportation distances required to get Canadian gas to market.

TRANSMISSION COMPANY EXPENSES

A company's transmission expenses include labor costs, utility gas,[1] depreciation, interest, taxes and other nonlabor expenses incurred by the company in transporting gas from the field to the distributor.

El Paso's transmission expenses over the 2-year period rose from $0.29 per Mcf to $0.37 Mcf or 28 percent. The cost of gas used by the pipeline increased the most (30 percent) from $0.23 per Mcf to $0.30 per Mcf. However, each major cost component increased significantly in relative terms. The reason that El Paso's total transmission expense did not rise as much overall as its several components was that it had a significant increase in income from natural gas liquids which acted as an offset to its expense items. Due to the decontrol of butane and gasoline on January 1, 1980, and propane on January 1, 1981, El Paso's sales of these by-products from its owned production increased dramatically. By FERC order it was required to credit these revenues to its cost of transmission so that the benefits of price decontrol of natural gas were passed on to El Paso's customers.

El Paso's transmission expenses for the 2-year period are shown in table 7 below.

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[1]Gas used by the pipeline company, often referred to as utility gas, is used primarily to drive the compressors which serve to maintain the gas pressure within the pipeline during transmission.

Table 7

Transmission Expenses Underlying El Paso's Sales Rates to SoCal for Years Ending April 1981 and April 1983

| Expense | April 1981 (per Mcf) | April 1983 (per Mcf) |
|---|---|---|
| Labor | $0.11 | $0.17 |
| Cost of gas used by company | 0.23 | 0.30 |
| Depreciation, amortization and depletion | 0.05 | 0.07 |
| Interest | 0.03 | 0.06 |
| Taxes | 0.07 | 0.10 |
| Other[a] | (0.20) | (0.33) |
| Total | $0.29 | $0.37 |

aIncludes revenues from sale of liquids extracted from gas production which are credited to the company's transmission costs and serve to reduce overall gas cost.

Source: El Paso.

El Paso represents the largest source of relatively cheap gas for Los Angeles consumers; however, the volume of gas it supplied to SoCal declined from 590 Bcf in 1981 to 493.4 Bcf in 1983 because it was used as the swing supplier. The swing supplier is the supplier that provides gas required by the distributor after the distributor has made all of its required purchases from other suppliers. According to El Paso, this caused its operating costs to increase considerably. On a daily basis, El Paso's delivered gas volumes varied by as much as a billion cubic feet. This affects El Paso's daily operating costs. More gas is needed to operate the compressors when delivery volumes are erratic as opposed to when delivery volumes are relatively constant.

On a longer term basis, fixed costs are allocated over fewer units when El Paso's total sales volume decreases. In 1981 El Paso sold 590.0 Bcf to SoCal. By 1983 this sales volume declined to 493.4 Bcf--a decrease of 16 percent. This decrease left El Paso with idle transmission capacity which had fixed costs associated with it.

Transwestern is SoCal's next largest interstate pipeline supplier. As shown in table 8 below, most aspects of Transwestern's transmission expense during the 2-year period

rose. Transmission expenses went from $0.44 per Mcf to $0.61 per Mcf resulting in an overall increase of 39 percent. As in the case of El Paso, the greatest cost increase took place in the cost of the gas used by the utility in its own operations rising from $0.09 per Mcf to $0.14 per Mcf (56 percent). Moreover, all aspects of Transwestern's transmission expenses increased except for its interest expenses which remained constant. Transwestern, like El Paso, sold less gas to SoCal in 1983 (230.5 Bcf) than it did in 1981 (244.8 Bcf). The loss in sales volume, though not as great as El Paso's, still had the effect of increasing the per unit costs for Transwestern's customers in 1983.

Table 8

Transmission Expenses Underlying Transwestern's Sales Rates to SoCal for Years Ending April 1981 and April 1983

| Expense | April 1981 (per Mcf) | April 1983 (per Mcf) |
|---|---|---|
| Labor | $0.05 | $0.08 |
| Cost of gas used by company | 0.09 | 0.14 |
| Depreciation, amortization, and depletion | 0.08 | 0.11 |
| Interest | 0.02 | 0.02 |
| Taxes | 0.09 | 0.11 |
| Other operating and maintenance, or nonlabor expenses | 0.11 | 0.15 |
| Total[a] | $0.44 | $0.60 |

[a]Components may not add to total because of independent rounding.

Source: Transwestern.

Pacific Interstate, an affiliated company of SoCal, is SoCal's third largest interstate pipeline supplier. It supplied SoCal with 64.5 Bcf in 1983, almost all of which was imported from Canada. The average transmission expense for Pacific Interstate in 1983 was $2.34 per Mcf. (See table 9 below.) All of its gas in 1981 (5.2 Bcf), however, was produced domestically in the southwestern United States and its transmission expense was $0.20 per Mcf. The substantial difference in transmission expense may be attributed primarily to the account for cost of gas used by utility. This account includes rents and fees paid by Pacific Interstate to other pipelines which transport its gas.

Table 9

Transmission Expenses Underlying Pacific Interstate's Sales Rates to SoCal for Years Ending April 1981 and April 1983

| Expense | April 1981 (per Mcf) | April 1983 (per Mcf) |
|---|---|---|
| Labor | $ - | $0.01 |
| Cost of gas used by company | 0.20 | 2.12 |
| Depreciation, amortization, and depletion | - | 0.07 |
| Interest | - | 0.10 |
| Taxes | - | 0.01 |
| Other | - | 0.02 |
| Total[a] | $0.20 | $2.34 |

aComponents may not add to total because of independent rounding.

Source: Pacific Interstate.

The $2.44 per Mcf addition ($2.34 plus net income of $0.10) to the $4.97 per Mcf cost of gas produced a delivered cost of $7.41 per Mcf. This means that almost one-third of the Los Angeles city gate2 price for Canadian gas is the cost of transporting the gas from the border. This is a substantially higher expense, due in large part to the longer transportation distance, than that incurred by SoCal's other pipeline suppliers. The $2.12 per Mcf cost of the gas used in transmission by Pacific Interstate is the largest single factor contributing to this price differential, and it represents 91 percent of the total transmission expenses of $2.34 per Mcf.

PLGS, like Pacific Interstate, is also a SoCal affiliate. During 1981, PLGS sold 273.5 Bcf to SoCal and its transmission expenses were $0.21 per Mcf. In 1983 it sold 289.4 Bcf to SoCal and its transmission expense was $0.24 per Mcf. PLGS purchased a relatively small amount of gas from nearby federal offshore sources and from California onshore producers. The bulk of its gas, however, was purchased from Transwestern at the California border, shipped to Los Angeles and sold to SoCal.

PLGS' transmission expense for the two years studied is shown in table 10 below.

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2The city gate is the location at which ownership of the gas changes from pipeline supplier to distributor.

Table 10

Transmission Expenses Underlying PLGS' Sales Rates to SoCal for Years Ending April 1981 and April 1983

| Expense | April 1981 (per Mcf) | April 1983 (per Mcf) |
|---|---|---|
| Labor | $ - | $0.01 |
| Cost of gas used by company | 0.03 | 0.02 |
| Depreciation, amortization, and depletion | 0.03 | 0.04 |
| Interest | 0.10 | 0.08 |
| Taxes | 0.05 | 0.09 |
| Total | $0.21 | $0.24 |

Source: SoCal.

As noted on page 3, PLGS's only labor costs were for administrative personnel; its other labor costs were incurred and paid by SoCal. While PLGS' costs as shown above reflect a general increasing trend, they are unique compared to those of the other pipeline companies because of the affiliated relationship and the intrastate nature of its activity.

## TRANSMISSION COMPANY NET INCOME

In addition to its transmission expense a pipeline supplier is permitted to charge an allowance for net income.[3] This net income figure derives principally from the FERC or California Commission authorized rate of return on company investment in capital assets, often referred to as the company's rate base. Having established the total authorized return on investment, the company and the regulatory body project the total expected sales for the forthcoming year. The total authorized return on investment and the expected sales figures are then used to develop the amount per unit of gas sold that will be added to the customers' bills to provide for the company's income or earnings. If the projections are not accurate, the company may earn more or less than its authorized rate of return. Authorized and actual rates of return for each pipeline were available on a calendar year basis only. Table 11 shows these rates for 1980, 1981, and 1982. The net income per Mcf for each pipeline company is shown in table 6 on page 20.

[3]This is the only authorized source of net income for the pipeline companies. Transmission costs as well as purchased gas costs are all passed on to customers without any allowance for net income.

Table 11

SoCal's Pipeline Suppliers' Rate of Return on Rate Base by Calendar Year

| Pipeline company | 1980 | | 1981 | | 1982 | |
|---|---|---|---|---|---|---|
| | Actual | Authorized | Actual | Authorized | Actual | Authorized |
| | (percent) | | | | | |
| El Paso | 10.88 | 11.65 | 12.36 | 12.32 | 12.83 | 13.21 |
| Transwestern | 10.85 | 10.75 | 10.85 | 10.75 | 11.53 | 15.75[a] |
| Pacific Interstate | [b] | [b] | 7.58 | 15.50 | 21.40[c] | 17.17 |
| PLGS | 9.35 | 9.35 | 10.75 | 10.75 | 10.75 | 10.75 |

[a]Rate being collected during time period subject to refund based on outcome of rate case pending before FERC.

[b]Not available because company did not exist.

[c]FERC subsequently ordered Pacific Interstate to make a refund thereby reducing this rate of return.

Sources: El Paso, Transwestern, Pacific Interstate, and PLGS.

El Paso's net income for the year ending April 30, 1981, amounted to $0.04 per Mcf or $37 million. For the year ending April 30, 1983, El Paso received $0.06 per Mcf or $56 million. El Paso's net income amounted to 1.7 and 1.5 percent of its $2.42 per Mcf and $3.94 per Mcf sales price (see table 3 on p. 14) to SoCal in each year respectively. Its actual rate of return, however, was less than the rate of return authorized by FERC in calendar years 1980 and 1982 but slightly more in 1981, as shown in table 11.

Transwestern's net income for the year ending April 30, 1981, was $0.08 per Mcf or $23.3 million. For the year ending April 30, 1983, Transwestern received $0.10 per Mcf or $26.5 million. Transwestern's net income amounted to 3.1 percent of its average $2.61 per Mcf sales price (see table 3 on p. 14) in 1981 and 2.4 percent of its $4.21 per Mcf sales price in 1983. Its actual rate of return exceeded the allowable rate of return by a small amount in calendar years 1980 and 1981 but fell considerably short of its allowable rate of return in calendar year 1982.

Pacific Interstate's net income for the year ending April 1981 was $5.1 million or $0.98 per Mcf. Pacific Interstate also had a nonoperating company loss of $0.98 per Mcf in 1981. (See table 6 on p. 20.) In the year ending April 1983, Pacific Interstate's net income was $6.7 million or $0.10 per Mcf. Its net income as a percent of its $4.77 per Mcf sales price (see table 3 on p. 14) was 20.5 percent in 1981 and 1.3 percent in

1983. Pacific Interstate's authorized rate of return was the highest of all four pipeline suppliers in 1981 and 1982. It did not realize its authorized rate in calendar year 1981 but exceeded its authorized rate in calendar year 1982 with a 21.4 percent rate of return.[4]

PLGS' net income in 1981 was $11.3 million or $0.04 per Mcf. In 1983, PLGS' net income was $22.3 million or $0.08 per Mcf. Its net income as a percent of its $2.92 per Mcf sales price (see table 3 on page 14) was 1.4 percent in 1981 and 1.9 percent in 1983. PLGS was the only company to earn its authorized rate of return consistently. As shown in table 11 above, that rate was 10.75 percent in calendar years 1981 and 1982 and 9.35 percent in calendar year 1980.

SUMMARY

The source of the purchased gas had a direct bearing on the transmission cost charged by each pipeline supplier. The cost of transporting Canadian gas by Pacific Interstate in 1983 was $2.44 per Mcf while the cost of transporting gas from the California border to Los Angeles by PLGS was $0.33 per Mcf in 1983. The cost of transporting gas largely from the southwestern United States in 1983 to the California border was $0.43 per Mcf and $0.70 per Mcf for El Paso and Transwestern respectively.

Pipeline suppliers are permitted to add a certain amount for transmission expenses and net income to their cost of purchased gas. These additional expenses include the pipelines' labor costs, depreciation, utility gas costs, interest, taxes, and other non-labor expenses. The average transmission expense in 1983 was $0.37 per Mcf for El Paso, $0.60 per Mcf for Transwestern, $2.34 per Mcf for Pacific Interstate, and $0.25 per Mcf for PLGS. All of these transmission expenses increased from 1981 to 1983; however, with PLGS excepted, the largest cost increase among the various transmission expense components was the cost of gas used in operations. Net income is arrived at by adding an amount based on a percentage of the pipeline's rate base (net capital investment) to each unit of gas sold. In 1983, net income was $0.06 per Mcf for El Paso, $0.10 per Mcf for Transwestern, $0.10 per Mcf for Pacific Interstate, and $0.08 per Mcf for PLGS.

While each company was authorized a certain rate of return, the companies sometimes exceeded this allowance, sometimes fell short and sometimes achieved the authorized rate of return. Only PLGS consistently achieved its authorized rate of return. The authorized rates of return in 1982 ranged from a high of

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[4]FERC subsequently ordered Pacific Interstate to make a refund, thereby reducing this rate of return.

17.17 percent for Pacific Interstate to a low of 10.75 percent for PLGS. Pacific Interstate's actual rate of return of 21.4 percent in 1982 was the highest among all of the companies.

# CHAPTER 5

## NATURAL GAS PURCHASES AFFECTING LOS ANGELES

The purchased costs of natural gas by pipeline companies were the single largest component of the end-users' price in Los Angeles. Purchased gas costs were also the largest source of price increases paid by Los Angeles natural gas consumers. Los Angeles' pipeline suppliers--El Paso, Transwestern, Pacific Interstate, and PLGS--purchased gas from numerous sources at varying prices. The average purchase cost for all four pipelines increased from $2.15 per Mcf in 1981 to $3.23 per Mcf in 1983. This chapter discusses their sources of natural gas purchases and the prices they paid for gas in 1981 and 1983.

## SOURCES AND PRICES OF NATURAL GAS PURCHASES

El Paso, Transwestern, Pacific Interstate, and PLGS purchased their gas from domestic producers, other pipelines, foreign sources, or some combination thereof. Domestic producers include both affiliated and non-affiliated producers.[1] Foreign sources include Mexican and Canadian gas suppliers. Table 12 below shows the sources of these pipelines' gas purchases and the average unit price for the years ending April 1981 and April 1983. Both El Paso and Transwestern purchased the overwhelming majority of their natural gas from non-affiliated domestic producers. Pacific Interstate had purchased almost all of its gas since October 1981 from Canadian suppliers and PLGS purchased most of its gas from Transwestern at the California border.

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[1]Affiliated producers are producers which are owned in whole or in part by the pipeline company, the pipeline's parent company, or another related company.

Analysis of table 12 yields three factors which have affected natural gas prices in Los Angeles. The first is that the source of the gas has a definite bearing on the price Los Angeles consumers will pay. The purchased gas cost in 1983 ranged from a low of $2.46 per Mcf and $2.79 per Mcf that El Paso paid other pipelines and non-affiliated producers, respectively, to the approximate $5.00 per Mcf all three interstate pipeline companies paid for imported gas. In general, imports were the highest priced source of gas even though they comprised a very small amount of El Paso's and Transwestern's total purchases. El Paso and Transwestern had contracts to purchase Mexican gas while Pacific Interstate imported gas from Canada. While imported gas prices increased only slightly over the 2-year period, these cost figures do not reflect the total cost of imports to the Los Angeles consumer since transportation costs add over $2.40 to the unit cost for Canadian imports. As shown in table 12, El Paso secured the cheapest gas overall at $2.84 per Mcf in 1983. Transwestern's price averaged $3.32 per Mcf; PLGS' price averaged $3.99 per Mcf and Pacific Interstate paid $4.97 per Mcf.

The second factor affecting gas prices to Los Angeles gas consumers was the change in prices paid by SoCal's major suppliers from 1981 to 1983. The average purchase price of natural gas supplied SoCal by all four pipelines (exclusive of exchanges and PLGS purchases of gas from Transwestern) was $2.14 per Mcf in 1981. By 1983 the average price had increased 68 percent to $3.60 per Mcf. In addition to the purchases shown in table 12, SoCal made some small direct purchases of gas from Pacific Gas and Electric Company, California's other major gas distributor.

The third factor was the shift in volumes of gas purchased by SoCal. SoCal's purchased gas volume declined over the 2-year period. Consequently, the volume of gas supplied by each interstate pipeline supplier likewise decreased with one exception--Pacific Interstate. Its volume of purchases increased significantly over the study period--from 5.2 Bcf to 64.7 Bcf. SoCal officials explained that although it was company policy as well as a regulatory requirement to purchase the least cost gas available, contractual obligations dictated minimum purchases from each pipeline supplier. These minimum purchases dictated SoCal's purchasing patterns. SoCal was, therefore, obligated to reduce its purchases mostly from El Paso, its cheapest supplier.

The following detailed analysis of these prices and volume changes, by source of purchased gas within each company, provides helpful insights into Los Angeles' gas price increases.

Both El Paso and Transwestern purchased less old gas and more new and high-cost gas in 1983 than they did in 1981. Transwestern's purchases of old gas dropped 43 percent and El Paso's old gas purchases dropped 37 percent during the 2-year period. In contrast, Transwestern's purchases of new and high cost gas increased 72 percent while similar purchases by El Paso increased 38 percent during the same 2-year period.

As noted on page 31 the average purchase price per Mcf for the four pipelines together increased $1.46, or 68 percent, for the 2 year period. Excluding PLGS' purchases from Transwestern:

--The price increase alone (if the purchased volumes of each domestic gas price category remained constant) was $0.39 per Mcf.

--The volume increase alone (if the cost of each category of domestic gas remained constant) was $0.51 per Mcf.

Thus, changes in the volumes of domestic gas purchased had a greater effect on the average purchase price than did changes in the price of various categories of domestic gas.[3] This example illustrates the effect of the NGPA pricing structure of wellhead prices from 1981 to 1983.

Many factors have contributed to the decline in old gas purchases.[4] Two pipeline companies--El Paso and Transwestern--provided over 85 percent of SoCal's gas for the 2 years studied. Old gas purchases were a significant category of gas purchases for both these companies. The prices for the old gas categories were the lowest ceiling prices among the NGPA price categories. Over the 2-year period, the volume of old gas decreased considerably. This old gas appeared to be replaced by new and high cost gas as well as imports (the latter through Pacific Interstate).

El Paso's old gas supplies declined from 537.5 Bcf to 339.2 Bcf, or about 37 percent (see table 13 below), while its volumes of some new (section 102) and high-cost (section 107) gas increased from 45.3 Bcf to 159.5 Bcf (about 250 percent) and from 32.1 Bcf to 82.6 Bcf (about 150 percent) respectively. The cost of the old gas was $1.09 per Mcf in 1981. The price of replacement gas in 1983 was $3.90 to $5.78 per Mcf for section 102 gas and section 107 gas, respectively. Despite these significant shifts from cheap gas to higher priced gas, El Paso remained SoCal's cheapest supplier of gas.

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[3]The remainder of the price increase ($0.56 per Mcf) is accounted for by combinations of price and volume changes as well as other causes. The relative effect of volume changes exceeds that of price changes in these combinations also.

[4]For more detailed explanations see Natural Gas Price Increases: A Preliminary Analysis (GAO/RCED-83-76, Dec. 9, 1982).

its daily production. This 20 percent is comprised of production which cannot be curtailed because of state law and regulation. Examples of such production include associated gas, casinghead gas, residue gas,[5] or gas from wells which would be damaged by flow reduction.

Another reason for El Paso's decline in old gas purchases was because producers reclassified gas from one price category to another. Producers are authorized under the NGPA to charge the highest price permissible under law if the gas qualifies for more than one category. El Paso officials cited as an example that some producers filed for and obtained authorization to reclassify a substantial number of low producing wells in the section 104 category to the higher priced section 108 category.

Transwestern, like El Paso, experienced a decline in its old gas purchases. Its old gas volumes declined from 161.8 Bcf in 1981 to 91.6 Bcf in 1983 (over 40 percent in 2 years), while its volumes of new section 102 and section 107 high-cost gas increased from 33.1 Bcf to 57.0 Bcf (about 70 percent) and from 3.0 Bcf to 50.3 Bcf (about 1570 percent), respectively. (See table 14 below.)

[5]Associated gas is gas production taken from an oil and gas producing well that is predominantly a gas well while casinghead gas is production taken from an oil and gas producing well that is predominantly an oil well. Residue gas is pipeline quality gas produced by an extraction or treatment plant after removal of contaminants, such as water and carbon dioxide, and liquids, such as butane and propane.

with their suppliers and (2) exercising market out provisions[6] in contracts for high-cost, deep, and tight sands gas. Neither Pacific Interstate nor PLGS purchased significant volumes of gas from domestic producers.

## Gas Purchases from Other Pipelines

As previously shown in table 12 (page 30), three of the four pipelines purchased substantial amounts of natural gas from other pipeline suppliers. El Paso's purchases from other pipeline companies went from 166.0 Bcf at $2.46 per Mcf in 1981 to 49.7 Bcf at $2.46 per Mcf in 1983 (about 70 percent volume decrease). In 1983 this was one of the cheapest sources of gas available to SoCal. Transwestern's purchases from other pipelines declined from 67.5 Bcf at $2.94 per Mcf to 66.4 Bcf at $3.55 per Mcf (a 2 percent volume decrease) during the same time period. PLGS' other pipeline purchases (including gas purchased from Transwestern) increased from 273.5 Bcf at $2.68 per Mcf to 289.4 Bcf at $3.99 per Mcf (a 6 percent volume increase) during the 1981 to 1983 time period. Pacific Interstate had no purchases from other pipelines that were not imports.

Agreements between pipelines may include minimum bill provisions stipulating minimum purchases on a daily or annual basis. El Paso had only a few minimum bill provisions among its many pipeline suppliers, with varying conditions. Transwestern had no minimum bill levels; its purchases from pipeline sources were on an interruptible basis.

All of PLGS' natural gas came from other pipeline suppliers, most of which was supplied by Transwestern. As described earlier on page 15, the requirement for Transwestern purchases was a 91 percent minimum bill. PLGS also purchases, through affiliated pipeline entities, some small amounts of offshore production subject to take-or-pay levels ranging from 85 to 95 percent. It had no such obligations with its onshore California producers.

## Natural Gas Imports

El Paso, Transwestern, and Pacific Interstate obtained varying amounts of imported natural gas under various contract conditions. The prices for imported Canadian and Mexican gas were established at the border by agreement with the exporting country. During the period studied, the price for imported gas from Canada and Mexico was about $5.00 per Mcf (see table 12 on p. 30).

Both El Paso and Transwestern purchased gas from Mexico under contracts which contain take-or-pay provisions. Both companies

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[6]A market out provision allows a buyer of natural gas to offer the seller a lower price than the contractually established price under certain explicit conditions.

pipelines, and foreign sources. Both El Paso and Transwestern purchased most of their gas from non-affiliated domestic producers. Pacific Interstate purchased almost all of its gas from Canadian suppliers in 1983. In general, imports were the highest priced source of gas in 1983. The average purchase price for all four pipelines increased from $2.15 per Mcf in 1981 to $3.23 per Mcf in 1983 (a 50-percent increase).

Domestic purchases at the wellhead were subject to NGPA pricing categories. These ranged from $0.30 per Mcf for some section 104 gas to $5.85 per Mcf for some section 107 gas in April 1983. Both Transwestern and El Paso purchased less old gas and more new and high-cost gas in 1983 than they did in 1981. Transwestern attributed this shift to the natural decline of its reserves. El Paso said that depletion through normal consumption primarily accounted for the decline in old gas supplies, with reclassification of gas from one category to another being a secondary factor. Neither Pacific Interstate nor PLGS purchased significant volumes of gas directly from domestic producers in 1983.

El Paso, Transwestern, and PLGS purchased some gas from other pipeline suppliers. El Paso had only a few minimum bill provisions or purchase obligations with its pipeline suppliers, while Transwestern had none. Pacific Interstate had an 85 percent minimum bill (due to its imports) which was reduced to 40 percent until October 1984. PLGS had a 91-percent minimum bill with Transwestern.

El Paso, Transwestern, and Pacific Interstate purchased imported gas under varying contract conditions. This gas was the most expensive source of gas for all three interstate pipelines. El Paso and Transwestern reduced their volumes of gas purchased from Mexico, but Pacific Interstate increased its Canadian purchases considerably, increasing the average purchase price of gas purchased by SoCal.

In the year ending April 30, 1981, SoCal charged its customers $0.72 per Mcf for its services, and it paid $2.63 per Mcf for gas purchased from pipeline suppliers (see table 4 on page 16). Its cost of service rose 46 percent (to $1.05 per Mcf) over the 2-year period.

The four pipeline companies--El Paso, Transwestern, Pacific Interstate, and PLGS--paid an average of $2.16 per Mcf for the year ending April 30, 1981.[2] Two years later the same pipelines were paying 68 percent more, or $3.60 per Mcf, for their purchased gas. The average transmission costs charged by the pipeline companies were $0.35 per Mcf in 1981, but 2 years later they were charging 66 percent more, or $0.58 per Mcf. Thus, the $2.03 increase for the 2-year period was comprised of $1.46 (72 percent) for the cost of gas, $0.23 (11 percent) for the pipelines' transportation costs, $0.33 (16 percent) for the distributor's costs, and $0.01 for other costs.

During the year ending in April 1981, the cost to the pipelines to secure gas for Los Angeles constituted 64 percent of the average price of gas sold in Los Angeles (before local taxes), the transmission cost was another 10 percent, and the distribution cost was 22 percent. By 1983, 2 years later, the proportions had shifted slightly to 67 percent for the cost of gas, 10 percent for the cost of transmission, and 20 percent for the cost of distribution.

While each sector's costs increased considerably, the relative amounts each sector contributed to the final cost shifted slightly toward an increase in the cost of gas itself. In absolute terms, however, the cost of gas contributed to 72 percent of the total price increase realized by the average gas consumer in Los Angeles.

The dominant reason for the increase in gas costs was the decline in the amount of old, low-cost gas. To replace depleted reserves, the pipeline companies typically replaced old-gas reserves with new or high-cost gas reserves. Because the states in which the bulk of Los Angeles' gas originated required production on a ratable basis, it was not possible, according to the affected pipeline companies, to produce disproportionately more low-cost old gas or even reduce their take-or-pay exposure through an uneven allocation of their production requirements among respective producers. Other reasons for the increase in gas costs were the increase in Canadian imports, the reclassification of gas in the low-cost categories to higher cost categories, and the escalation of prices allowed each NGPA category under law.

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[2]Purchased gas cost does not include PLGS purchases from Transwestern since this would include the same gas twice in the calculation.

APPENDIX I

SOUTHERN CALIFORNIA GAS COMPANY

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FREDERICK E JOHN
Vice President

MAILING ADDRESS BOX 3249 TERMINAL ANNEX, LOS ANGELES, CALIFORNIA 90051

May 7, 1984

James Duffus, III
Senior Group Director
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Duffus,

We appreciate the opportunity to review and comment on your draft report on "Natural Gas Price Increases in Los Angeles". This response is a consensus of the members of our staffs who provided the information requested by Mr. Robert Andros, of your office. It also reflects the views of senior management of Pacific Lighting Corporation, Southern California Gas Company, Pacific Lighting Gas Supply Company, and Pacific Interstate Transmission Company.

To expedite our response, Sam Sokolow of Southern California Gas Company, coordinator of our contacts with your office on this report, collected comments from various Pacific Lighting company staff members and telephoned them to Robert Andros on April 30. The discussion between Mr. Sokolow and Mr. Andros covered all the items that in our opinion needed correction or clarification. Therefore, this written response is intended to confirm and reiterate those comments in just a few key areas.

The report covers the subject quite thoroughly, detailing all the factors that have contributed to the increases in natural gas prices to our customers in southern California. The report correctly highlights the fact that the major cause of the increases from April 1981 to April 1983 was the increase in the cost of gas itself, as charged by the producers to our major suppliers, El Paso Natural Gas Company and Transwestern Pipeline Company.

There are, however, areas in the report that, in our opinion, need further clarification and elaboration. First is the area of increases by component, as shown in Chapter 6, on pages 50 and 51. This is a comparison of costs per Mcf for 1981 and 1983, for cost of gas, transmission costs, distribution costs, and other costs. This chapter does not mention a critical element that affects distribution cost per Mcf, namely the difference in volumes sold in those years. In 1983 we sold 824 Bcf (see page 8 of report) but in 1981 we sold 857 Bcf (not shown in report), a difference of 33 Bcf. (Most of this load loss occurred in the large industrial class.) The total distribution cost in

Again, thank you for the opportunity to comment on this draft of the report. I hope our comments, by telephone and in this response, are helpful. Please let me know if we can be of further help.

Sincerely yours,

SS:fg

cc: Messrs. R. J. Hohne
H. L. Lepape
R. M. McIntyre
R. W. McKinney
J. R. Rensch

**TRANSWESTERN**
**Pipeline Company**
A TEXAS EASTERN COMPANY

GEORGE H EWING
PRESIDENT
AND
CHIEF EXECUTIVE OFFICER

May 14, 1984

Mr. Robert Andros
General Accounting Office
100 Indiana Avenue, N. W.
Room 308
Washington, D.C. 20001

Dear Bob:

Thank you for the opportunity to comment on the GAO's draft report "Natural Gas Price Increases in Los Angeles". In general, I believe the report accurately sets forth many of the basic facts underlying reasons for gas cost increases in Los Angeles over the past couple of years.

I would, however, offer the following clarifying comments:

- The Summary states that the average cost of gas of four pipelines increased 47% over the two (2) year period. Here, and on the Summary Figure 1, the percentage increase due to the extraordinary Canadian Import amounts should be set out separately. This will provide a more revealing picture of the normal gas purchase operations inasmuch as Canadian gas purchases caused a disproportionately large increase due to the high Canadian border price and transportation charges during the period.

- The Section, Gas Purchases from Domestic Producers, sets out affiliated producers as a separate item for cost increases. I would point out that the pipelines flow through gas purchase costs without profit. The cause for changes in the cost of affiliated gas is the same as all other NGPA gas.

- Transwestern's gas purchase data is identical to its PGAs filed on the indicated dates. Prices are thus annualized 12 month-ended periods.



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## Table 12

### Pipeline Companies' Sources for Natural Gas Purchases, By Volumes[a] and Prices

| Source of gas | El Paso April 1981 Volume (Bcf) | El Paso April 1981 Price (per Mcf) | El Paso April 1983 Volume (Bcf) | El Paso April 1983 Price (per Mcf) |
|---|---|---|---|---|
| Domestic producers: | | | | |
| Non-affiliated purchases | 885.6 | $1.86 | 818.9 | $2.79 |
| Affiliated purchases | 21.6 | 2.59 | 24.4 | 4.06 |
| Other pipeline companies | 166.0 | 2.46 | 49.7 | 2.46 |
| Imports | 16.2 | 4.91 | 14.3 | 5.04 |
| Total[b] | 1,089.4 | $2.08[c] | 907.2 | $2.84[c] |
| | **Transwestern** | | | |
| Domestic producers: | | | | |
| Non-affiliated purchases | 258.5 | $1.81 | 231.4 | $3.18 |
| Affiliated purchases | 1.8 | 1.84 | 0.7 | 2.73 |
| Other pipeline companies | 67.5 | 2.94 | 66.4 | 3.55 |
| Imports | 10.0 | 4.92 | 9.9 | 5.11 |
| Total | 337.8 | $2.13[c] | 308.4 | $3.32[c] |
| | **Pacific Interstate** | | | |
| Domestic producers: | | | | |
| Non-affiliated purchases | - | - | - | - |
| Affiliated purchases[d] | 5.2 | 4.57 | - | - |
| Other pipeline companies | - | - | - | - |
| Imports | - | - | 64.7 | 4.97 |
| Total | 5.2 | $4.72[c] | 64.7 | $4.97[c] |
| | **Pacific Lighting Gas Supply** | | | |
| Domestic producers: | | | | |
| Non-affiliated purchases | - | - | - | - |
| Affiliated purchases | - | - | - | - |
| Other pipeline companies | 273.5 | 2.68 | 289.4 | 3.99 |
| Imports | - | - | - | - |
| Total | 273.5 | $2.68[c] | 289.4 | $3.99[c] |
| Average for all pipeline companies | | $2.15[c] | | $3.23[c] |

[a]These are total annual purchases for each pipeline company, not limited to sales to SoCal.

[b]Components may not add to total because of independent rounding.

[c]Weighted average.

[d]Gas produced under California's Gas Exploration and Development Adjustment Program. This gas was acquired by Pacific Interstate's Southwest Division and transported through Transwestern's pipeline system. This program has since been discontinued. In 1983 insignificant volumes were produced under this program.

Sources: El Paso, Transwestern, Pacific Interstate, and PLGS.

## Gas Purchases from Domestic Producers

Natural gas purchased directly from domestic producers is subject to the Natural Gas Policy Act of 1978 (NGPA).[2] The act established eight major categories of natural gas, based on such factors as when and where the gas is discovered and produced with ceiling prices for each category or subcategory of gas. Under the NGPA, ceiling prices for most categories increase monthly at the rate of inflation; however, for certain categories of gas the price increases more rapidly. As a result, ceiling prices ranged, in January 1984, from $0.30 per Mcf for some section 104 gas to $5.85 per Mcf for some section 107 gas; one subcategory of section 107 gas is deregulated.

Pipelines purchase gas produced within various NGPA categories at various prices. Of SoCal's total gas purchases, 85 percent originated with El Paso and Transwestern. El Paso purchased 93 percent and Transwestern 75 percent of their gas from domestic producers for the year ending April 1983. These direct purchases from domestic producers were subject to the NGPA ceiling prices.

The domestic purchases of El Paso and Transwestern, respectively by NGPA category and price for non-affiliated purchases, are shown in tables 13 (p. 34) and 14 (p. 36). Affiliated purchases generally increased the overall cost of gas to the pipelines; however, the volumes of affiliated purchases were so small relative to total purchases that the price changes on a unit cost basis were insignificant.

---

[2]The NGPA's definitions of the major price categories are complicated. The following definitions are general descriptions only. Section 102 covers gas from new onshore reservoirs, new wells at a minimum distance or depth from an existing well, and certain Outer Continental Shelf reservoirs. Section 103 covers gas from new wells less than a minimum distance or depth from an existing well. Section 104 covers gas from wells dedicated to interstate commerce as of the date of enactment of NGPA. Section 105 covers gas under existing intrastate contracts as of enactment. Section 106 covers gas under "rollover contracts," both inter- and intrastate; such a contract is entered into on or after the date of enactment for gas that was subject to an earlier contract that expired at the end of a fixed term. Section 107 covers high-cost natural gas, from wells at a depth of 15,000 or more feet and three other sources specified in the act or from other sources determined by FERC to present extraordinary costs or risks. Section 108 covers gas from "stripper" wells producing less than 60 Mcf per day under normal conditions or more than 60 Mcf per day due to enhanced recovery techniques. Section 109 covers gas not covered by any other price provision.

Table 13

El Paso's Non-Affiliated Natural Gas Wellhead Purchases, By Volumes and Prices for Years Ending April 1981 and April 1983

| Category of gas | April 1981 Volume -(Bcf) | April 1981 Price (per Mcf) | April 1983 Volume -(Bcf) | April 1983 Price (per Mcf) |
|---|---|---|---|---|
| Old gas | | | | |
| Sections 104 and 106 | 537.5 | $1.09 | 339.2 | $1.16 |
| New gas | | | | |
| Section 102 | 45.3 | 3.20 | 159.5 | 3.90 |
| Section 103 | 200.7 | 2.86 | 192.5 | 3.32 |
| Section 108 | 29.8 | 3.49 | 19.9 | 4.35 |
| Section 109 | 40.2 | 2.34 | 24.2 | 2.56 |
| High-cost gas | | | | |
| Section 107 | 32.1 | 4.50 | 82.6 | 5.78 |
| Other | | | | |
| Section 105 | - | - | 0.9 | 3.88 |
| Total[a] | 885.6 | $1.86[b] | 818.9 | $2.79[b] |

[a]Components may not add to total because of independent rounding.

[b]Weighted average.

Source: El Paso.

According to El Paso, the cause for its decline in old gas purchases was due principally to the natural depletion of its reserves through consumption. Each pipeline has, under contract, reserves of gas which it attempts to maintain. El Paso has a reserve of 15 years worth of production at current rates. As this gas is consumed or depleted, El Paso replaces it with the cheapest available gas it can purchase in order to maintain this reserve/production ratio. Because old gas was becoming scarcer, El Paso's reserve buildup came from new and high-cost gas reserves.

According to El Paso officials, it was the company's policy to schedule all dedicated supplies for production on a ratable basis across its entire system. This policy is designed to comply with contractual commitments as well as state law and regulation while allowing each producer an equal opportunity to participate in El Paso's market. This means, for example, that if El Paso's customers drop their consumption by 20 percent, El Paso must reduce purchases by 20 percent from each producer--and not just from the cheapest or most expensive producers. This practice of "ratable takes" is followed by El Paso on all but 20 percent of

Table 14

Transwestern's Non-Affiliated Natural Gas Wellhead Purchases[a], By Volumes and Prices for Years Ending April 1981 and April 1983

| Category of gas | April 1981 Volume -(Bcf) | April 1981 Price (per Mcf) | April 1983 Volume -(Bcf) | April 1983 Price (per Mcf) |
|---|---|---|---|---|
| Old gas | | | | |
| Section 104 | 161.8 | $0.97 | 91.6 | $1.10 |
| New gas | | | | |
| Section 102 | 33.1 | 3.16 | 57.0 | 4.11 |
| Section 103 | 47.6 | 2.75 | 36.2 | 3.22 |
| Section 108 | 0.8 | 3.23 | 2.0 | 4.07 |
| High-cost gas | | | | |
| Section 107 | 3.0 | 6.24 | 50.3 | 5.51 |
| Other | | | | |
| Section 312 | 20.7 | 2.57 | - | - |
| Total[b] | 267.0 | $1.75[b] | 237.1 | $3.11[b] |

[a]These figures represent purchases. Sales volumes for 1981 and 1983 were 258.5 Bcf and 231.4 Bcf due to shrinkage during transmission. As a result of this shrinkage, sales prices during 1981 and 1983 increased to $1.81 per Mcf and $3.18 per Mcf, respectively.

[b]Weighted average.

Source: Transwestern.

The primary reason for the increase in Transwestern's gas costs relates to the normal replacement of price-regulated old gas with new gas. As Transwestern's two major old gas supply areas in the Permian Basin and Panhandle areas of Texas experienced natural reserve declines in the last decade, supplies were obtained from other pipelines and imports from Mexico. Transwestern's gas reserve life is 4.6 years. Transwestern's recent gas acquisition program has increased supplies from field sources under long-term firm contracts, thereby reducing the company's dependence on short-term interruptible supplies (largely from other pipelines). Although the acquisition cost of field supplies was generally below the cost of pipeline supplies, field acquisition costs escalated faster as Transwestern replaced depleting lower cost field supplies with new higher cost field gas.

During the first part of 1983, El Paso's and Transwestern's overall purchased gas volumes declined due to lower market demand. Both companies responded by (1) attempting to renegotiate contracts in an effort to lower prices and gain more flexibility

were required to take a minimum of 60 percent of their respective total contract volumes. El Paso's system-wide purchases of Mexican imports ranged from 16.2 Bcf to 14.3 Bcf and Transwestern's from 10.0 Bcf to 9.9 Bcf from 1981 to 1983 respectively. SoCal and hence Los Angeles consumers received only a fraction of these imported volumes because El Paso and Transwestern suppied other areas besides southern california. These purchase agreements did not contain market-out clauses whereby, under certain stipulated conditions, the pipelines could offer producers a lower contract price than the contractually established price.

Pacific Interstate imports Canadian gas purchased by Northwest Alaskan from Pan-Alberta Gas Limited. Pacific Interstate purchases of Canadian gas ranged from none in 1981 to 64.7 Bcf in 1983. This volume represented a temporary minimum purchase obligation of 40 percent; however, this minimum obligation will be returned to its original level of 85 percent in October 1984 when the current agreement expires and the original agreement is once again in force. All of Pacific Interstate's imported gas was sold to SoCal.

The price of Mexican and Canadian imports did not change materially during the 2-year period (about $5.00 per Mcf); however, the increased volume of Canadian imports through Pacific Interstate into the Los Angeles area had the effect of increasing prices to consumers. Both El Paso and Transwestern reduced the volumes of purchased gas from Mexico during the period in question. Due in large part to the transportation costs involved, the cost of delivered Canadian gas in Los Angeles in October 1983 was $8.83 per Mcf.

While the price of imported natural gas increased only modestly from April 1981 to April 1983, the large increase in purchases by Pacific Interstate produced a measurable impact on the average purchase price of the gas supplied the Los Angeles area. In April 1981, the average purchase price of gas for all four pipelines was $2.15 per Mcf. We factored into the price only the changes due to Canadian imports in 1983 to determine what impact imports had on the average total purchase price. The change in Canadian imports alone increased the total average price per Mcf by 12 cents (ignoring transmission costs from the border which added another 12 cents).[7]

SUMMARY

El Paso and Transwestern, which supplied 85 percent of SoCal's gas in 1983, purchased their gas from domestic sources including affiliated and non-affiliated producers and other

[7]These calculations were based on the assumption that the volume of Canadian imports would have been purchased from El Paso.

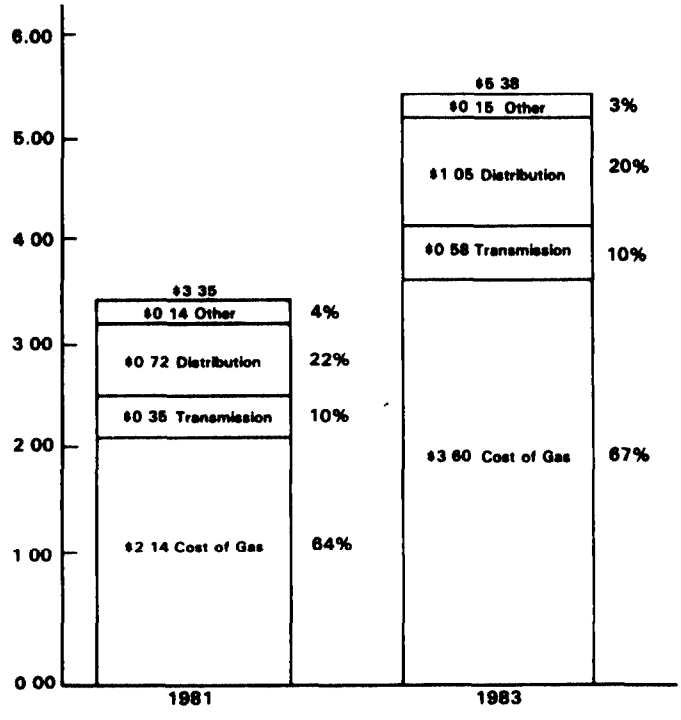
## CHAPTER 6

## OVERVIEW OF PRICE CHANGES IN LOS ANGELES

For the year ending April 30, 1983, the average Los Angeles consumer of natural gas paid $5.38 per Mcf, which was $2.03 per Mcf, or 61 percent, higher than the gas price 2 years earlier when the average sales price of natural gas was $3.35 per Mcf. This price increase may be broken down into four parts--cost of gas, transmission, distribution, and other costs[1]--as shown in the following figure.

**Figure 1**

**Average Los Angeles End-User Cost of Gas per Mcf by Component Parts for the Years Ending April 1981 and April 1983**




[1]Other costs include such factors as exchange gas, SoCal purchases from sources other than the four pipelines studied, gas placed in and/or taken from storage, and differences in accounting procedures.

A SoCal spokesperson told us that SoCal expected no further rate increases through October 1984, in part because of the additional revenue SoCal has received from the high number of episode days when utility electric generating customers are charged a higher rate. In addition, stabilized oil prices and improved economic conditions minimized further loss of industrial sales.

APPENDIX I



dollars in 1983, as in any year, would have been the same no matter how much gas we sold. But the distribution cost per Mcf would have been lower if we had sold more gas. For example, had we sold the additional 33 Bcf, the distribution cost per Mcf would have been about 13% lower, $0.90 rather than $1.02. Thus, volume sold is a key item in the determination of the cost per Mcf and should not be left out of a discussion of price changes.

There is a repeated reference to the high cost of Canadian gas transported by Pacific Interstate. Though Pacific Interstate had been supplying gas to the southern California market since 1976 under the terms of a state approved exploration and development program, the Canadian supplies are a significant volume increment. This supply was planned and designed during the gas shortage of 1976 and 1977; the cost is higher than El Paso or Transwestern gas, though it compares favorably with some section 107 gas. The relatively high per unit transportation cost for this gas reflects both the newness of the pipeline facilities, which are still largely undepreciated, and the limited export commitments provided by Canada which have forced the sponsors to recover their facilities costs in a relatively short period of time. This situation is a good example of the advantages of hindsight vs. foresight. The pipeline system was authorized by FERC as part of the overall "prebuild" of certain portions of the Alaska Natural Gas Transportation System but must now be amortized on the basis of shorter term export supplies. Further, when the system began operating on October 1, 1981, interest rates were at historically high levels; the interest component included in the Pacific Interstate cost of service is 17.83%.

There are several other aspects of the Pacific Interstate's Northwest Division which make a comparison between Pacific Interstate and mature pipelines such as Transwestern and El Paso, impossible. Moreover, since Pacific Interstate's Northwest Division operation did not commence until October 1, 1981, there can be no meaningful comparison of the prices paid for this source of supply for the periods April 1, 1981 and April 1, 1983. It should be noted that the commodity portion of Pacific Interstate's cost of Canadian imports has come down over your study period, from $4.97 per Mcf in April 1, 1983 to $4.40 per Mcf in mid-1983.

The last area of comment is the potential confusion created by treating Pacific Lighting Gas Supply Company (PLGS) as a transmission company somewhat equivalent to El Paso or Transwestern. PLGS, like SoCalGas, is regulated by the California Public Utilities Commission, and for ratemaking purposes is an integral part of the Pacific Lighting Utility System. PLGS is not just an intrastate transmission company; PLGS also owns most of the storage facilities used to meet SoCalGas' seasonal fluctuations.

APPENDIX II

The El Paso Company

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WASHINGTON D C 20036

PHONE 202 429 2600

May 14, 1984

Mr. James Duffus, III
Senior Group Director
United States General Accounting Office
100 Indiana Avenue, NW
Washington, D.C. 20548

Dear Mr. Duffus:

El Paso Natural Gas Company is pleased to comment on the draft report entitled Natural Gas Price Increases In Los Angeles. El Paso Natural Gas Company supplies approximately 50 percent of the natural gas consumed in the state of California and approximately 55 percent of that consumed in the Los Angeles area. Natural gas supplied by El Paso for this market is delivered and sold to Southern California Gas Company, the local distribution company, at the Arizona-California border.

El Paso historically has been and continues to be the lowest cost interstate pipeline supplier of natural gas to the California market. El Paso's objective is to maintain gas sales rates which would permit all El Paso supplied gas to be successfully marketed in competition with alternative fuels, primarily low sulphur fuel oil in California, and with gas supplied to California by other interstate pipelines, both domestic and Canadian. Significantly, El Paso has maintained a stable sales rate for gas sold to Southern California Gas Company since October 1, 1982. This rate stability has been achieved from four principal actions: (i) foregoing collection of "unpaid accruals" in its PGA rate increases; (ii) exercising market-out clauses in gas purchase contracts on three occasions; (iii) continuing reductions in personnel and other operating expenses; and, (iv) renegotiating gas contracts to include a market-out clause, and to decrease take-or-pay obligations.

We congratulate the GAO for its thorough and objective study of this issue and are appreciative of this opportunity to comment.

Sincerely,

A.M. Derrick

A.M. Derrick
Sr. Vice President

APPENDIX III



Transmission Company Net Income. The development of net income for this study is dependent in large measure on the method used to allocate total Corporate Interest and Taxes to the regulated portion of the Corporation. The Net Incomes on Table 11 and in the text are quite likely all developed using different allocation procedures and as such could be of extremely limited usefulness.

Finally, I would point out that gas cost increases have moderated dramatically recently due to actions taken by pipelines as gas prices reached market clearing levels in industrial markets in many areas of the country including California.

Yours truly,

George H. Ewing

George H. Ewing

(308556)

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