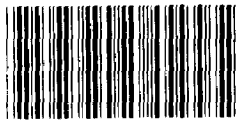
BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Changes In Natural Gas Prices And Supplies Since Passage Of The Natural Gas Policy Act Of 1978



The Natural Gas Policy Act of 1978 was intended to stimulate production and exploration for reserves by permitting producers higher prices for natural gas. This congressionally requested study assesses the extent of changes in natural gas prices, availability of supplies, and reserves since passage of the act.

Natural gas distributors included in a nationwide sample raised consumer prices an average of 33 percent from 1978 to the first quarter of 1980, while the Consumer Price Index increased only 21 percent. Most of the increase above the Consumer Price Index resulted from rising producer prices. Such increases are expected to continue.

It is too early for the act to have had much effect on natural gas reserves. But major producers surveyed increased exploration and drilling as the prices of both natural gas and oil increased. Production increased 1.6 percent in 1979 and available supplies appear adequate. Proven reserves continued to decrease in 1979, but at a slightly slower pace.

EMD-81-73
JUNE 4, 1981

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-202708

To the President of the Senate and the
Speaker of the House of Representatives

This report provides information on the changes in natural gas supplies and prices since enactment of the Natural Gas Policy Act of 1978. It was prepared at the request of Senator James Sasser, then Chairman, Subcommittee on Intergovernmental Relations, Senate Committee on Governmental Affairs. However, because of the wide interest in the subject, he agreed that the report should be addressed to the entire Congress.

Copies of this report are being sent to the Secretary of Energy and the Acting Chairman, Federal Energy Regulatory Commission.

John D. Heller

Acting Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

CHANGES IN NATURAL GAS PRICES AND SUPPLIES SINCE PASSAGE OF THE NATURAL GAS POLICY ACT OF 1978

D I G E S T

Through the Natural Gas Policy Act of 1978, the Congress intended to stimulate production and exploration for reserves by permitting producers higher prices for gas from areas where production was previously not economic and for gas produced from new wells. The act eliminated the price disparity between the natural gas sold in interstate and intrastate commerce by subjecting both to Federal regulations.

It also provided for monthly price increases and for gradual deregulation of natural gas prices. Existing legislation provides for most natural gas prices to be deregulated by 1985. (See p. 1).

This report evaluates the impact of the act on

--natural gas prices, particularly at the end user level, and

--new natural gas reserves and production.

To measure fully the act's impact would have entailed comparing conditions as they are to an estimate of conditions as they would have been absent the act. The lack of sufficient data on many factors that should be measured, and the assumptions which would have to be made about regulatory actions absent the act, made this approach impractical. (See pp. 2 to 4.)

Consequently, GAO limited the review to obtaining industry attitudes, data on prices charged, and data on supplies and industry activities. GAO obtained the information from

--54 producers which in 1979 produced about 48 percent of country-wide production,

--22 pipelines which in 1979 handled about 76 percent of country-wide production, and

--67 distributors which in 1979 handled about 37 percent of country-wide production. (See p. 3.)

CHANGES IN PRICES

Natural gas prices have increased substantially since enactment of the Natural Gas Policy Act of 1978. The natural gas distributors GAO surveyed reported that consumer prices during the first quarter of 1980 were 72 cents per 1,000 cubic feet (or about 33 percent) higher than average 1978 prices. If consumer price increases had followed the general inflationary trend, as measured by the Department of Labor's Consumer Price Index, the natural gas increases would have averaged about 46 cents per 1,000 cubic feet. (See p. 5.)

About 40 cents of the increase resulted from higher prices the act permits producers to charge for the natural gas and 32 cents was from increases in pipeline and distributor costs and profits which the act did not directly affect. Producer prices increased about 45 percent, or about 24 percent more than general prices as measured by the Consumer Price Index. The post-1978 increases added about $2.3 billion to gross revenues of the surveyed producers. Pipeline and distributor costs and profits increased only 3 percent more than the Index. The increases added about $4.6 billion to the gross revenues of the surveyed distributors. (See pp. 5 to 9.)

Price increases occurred in every section of the lower 48 states. The information GAO obtained from the producer and pipeline companies showed that the producers charged the maximum prices allowed for the vast majority of gas produced. Pipeline and distributor companies for the most part charged the price increases to their customers through purchased gas adjustments. (See pp. 6 to 11.)

GAO was unable to determine what portion of the price increases was directly attributable to the act. Although prices rose faster

after 1978, they were consistently above the inflationary trend shown by the Consumer Price Index during the 3 years 1976-1978. During that period, the price of gas sold intrastate was increasing, and the Federal Energy Regulatory Commission allowed increases in gas sold interstate. Thus, an estimate of prices absent the act would have to be based largely on speculation regarding the Commission's actions if the act had not been passed. (See pp. 7 to 11.)

Consumers should expect natural gas prices to continue to climb over the next several years. Data obtained from the producers shows that during 1979 gas subject to the incentive provisions of the act accounted for only 18.5 percent of production. This ratio will increase as output from old wells declines and is replaced by higher priced output from new wells. Most of the surveyed pipeline and distributor companies expect the increases to continue. (See p. 12.)

CHANGES IN SUPPLIES

Producers GAO surveyed reported production figures for the period 1975 through 1979 increased about 1.6 percent in 1979, reversing a historical decline in annual production. Through 1979, however, production continued to outpace additions to proven reserves, and, therefore, reserves continued the post-1975 decline, but at a somewhat slower pace.

Current supplies of natural gas were generally adequate and most of the surveyed pipeline and distributor companies were trying to increase deliveries. The producers, pipelines, and distributors were generally optimistic that the act's incentives would increase supplies through 1990.

All of the surveyed distributors were accepting new customers, as were about one-half of the pipelines. However, four of the 22 pipelines were attempting to reduce deliveries. Seventy-five percent of the producers, all of the pipelines, and 84 percent of the distributors believe that the act improved availability of natural gas. (See p. 15.)

Although it is too soon for the act to have much effect on proven reserves, about 4 percent of the producers in the survey expected their reserves to decrease between 1980 and 1990 time frame, while the vast majority expected them to increase or hold their own. (See pp. 16 to 17.)

About 80 percent of the producers stated that, because of the act, they had increased leasing, geophysical activities, and drilling of exploratory and developmental wells. According to country-wide data published by the Petroleum Information Corporation and the American Gas Association, seismic activity was up in 1979, and it accelerated during the first quarter of 1980. Land leasing increased by 6.2 percent and seismic crews increased from about 352 in 1978 to 471 during the first quarter of 1980. These data relate to both natural gas and oil, and the rising prices of both undoubtedly contributed to the increased activity. (See pp. 18 to 19.)

Much of the intensified seismic activity and drilling must be attributed to the increased prices of domestic oil. Sixty percent of surveyed producers stated that their emphasis on oil has actually impeded their natural gas exploration and development activities since passage of the act. These companies continued to drill substantially more developmental oil wells than gas wells, thus increasing production from already-discovered oil reserves. In 1980, they also drilled more exploratory oil wells than exploratory gas wells for the first time in 6 years. Although oil drilling activity has significantly increased, associated natural gas (found with the crude oil) remains at about 20 percent of total natural gas production. (See p. 14.)

AGENCY COMMENTS

GAO requested both the Federal Energy Regulatory Commission and the Department of Energy to comment on a draft of this report. The Commission, by letter dated May 1, 1981, provided written comments (See appendix II), and on May 5, 1981, the Department of Energy provided oral comments.

The Commission supported GAO's findings based on the source data submitted by producers, pipelines,

and distributors. However, the Commission believed that more than two years are needed to measure the true effect of the act on exploration, development, and revenues. It suggested that GAO update its survey to include more current information.

GAO recognizes that the information available to date does not allow for full measurement of the effect of the Natural Gas Policy Act of 1978, but it does provide a reasonably current assessment of the extent of changes in natural gas prices, availability of supplies, and reserves following its enactment.

GAO considered the Department of Energy's oral comments which were technical and clarifying in nature and made changes deemed appropriate in preparing this report.

Contents

ABBREVIATIONS

BTU	British Thermal Unit
DOE	Department of Energy
FERC	Federal Energy Regulatory Commission
GAO	General Accounting Office
MCF	1,000 Cubic Feet

GLOSSARY

Exploratory well	a well drilled in unproven territory, an area from which there is no current production
Developmental well	a well drilled in an area of proven production
Production	natural gas that is removed from its original state and available for use
Associated natural gas	natural gas which is in contact with crude oil in the reservoir and is produced in conjunction with crude oil
Non-associated natural gas	natural gas not in contact with crude oil in the reservoir; not a mixture of oil and gas as in the case of associated gas
Reserves	natural gas that is recoverable under current technology and anticipated economic conditions
Geophysical Activity	evaluation of inter-earth structures for potential well drilling sites

CHAPTER 1

INTRODUCTION

The Natural Gas Policy Act of 1978 changed Federal regulation of the natural gas industry. The act permits producers and pipeline companies to charge higher prices for gas produced at new wells, stripper wells, and wells of high cost which are more than 15,000 feet in depth. In addition, the act provides for regulation of previously unregulated intrastate sales. The inclusion of intrastate natural gas (gas produced and sold within state boundaries) was designed to establish a single natural gas market rather than the previously competing interstate and intrastate markets. The higher prices offer incentives for drilling submarginal natural gas fields and natural gas from stripper wells. In addition to immediate price increases, the act provides for gradually decreasing Federal regulation of natural gas prices.

The Congress passed this legislation because of the need to reverse a trend which began in the early 1970s when demand for natural gas in the interstate market started to exceed supply. Natural gas prices in the intrastate market began to rise faster than the federally approved rates for the interstate market. Thus, it became more lucrative for producers to sell their gas intrastate. The lower prices in the interstate market continued to increase demand but did not encourage producers to explore and find new gas supplies. As a result, consumption exceeded new natural gas discoveries and reduced domestic natural gas reserves. Between 1956 and 1970, exploratory drilling dropped by more than 50 percent and proven natural gas reserves in the lower 48 States dropped from about 23 times the annual production rate to about 9.7 times the annual production rate. With less drilling, more consumption, and a price disparity between the interstate and intrastate markets, a major shortage in natural gas supplies developed.

The act affects the prices charged by all segments of the natural gas industry: producers, who find and produce the gas; pipeline companies, who transport the gas from the producing areas to localized markets; and distributors, who deliver the gas to the consumers. The Federal Energy Regulatory Commission (FERC) regulates producer and interstate pipeline prices. State commissions and the Department of the Interior assist FERC by determining which of the various pricing categories apply to the gas produced at each well. State commissions regulate wells on private land, and the U.S. Geological Survey is concerned with wells on Federal land. Distributor prices, although exempt from Federal jurisdiction, are regulated by State public utility commissions. However, increases in natural gas prices which distributors pay to pipelines are

generally passed on to consumers in the form of purchased gas adjustments which do not require commission actions.

Consumers are divided into residential, commercial, and industrial classes, and each class pays a different price for natural gas.

OBJECTIVES, SCOPE, AND METHODOLOGY

The former Chairman, Subcommittee on Intergovernmental Relations, Senate Committee on Governmental Affairs, requested that we evaluate the impact of the Natural Gas Policy Act of 1978 on

--natural gas prices, particularly at the end user level, and

--new natural gas reserves and production.

We tested the extent of changes in natural gas prices, availability of supplies, and reserves following its enactment. As agreed with the former Chairman's office, this approach is the most practical of the alternatives we considered to inform the Congress of the extent of price increases permitted by the act and to determine whether it has encouraged production and reserve development.

To measure fully the act's impact would have required a different methodology. For example, measuring its effect on prices entails a comparison of current and future prices absent the act with actual prices under the act. Furthermore, the discovery of new reserves is a long-term effort, so we expected that much of the act's impact on reserves would not yet be discernable. Because of the insufficient data on the many factors involved in measuring impact and the need for assumptions about FERC's actions absent the act, we concluded that this approach was not practicable.

Accordingly, we limited the review to surveying industry attitudes, and obtaining data on prices charged and on supplies and activities. We examined FERC's records and obtained additional data as well as industry views through questionnaires. To develop the questionnaires, we conferred with representatives of selected producer, pipeline, and distributor companies; and before mailing the questionnaires, we pretested the questionnaires with additional industry representatives to make sure that there was a common understanding of the questions and that the data requested was generally available. We mailed the questionnaires to

--71 producers selected on the basis of FERC data showing them to be the largest in the United States,

--24 of the largest interstate pipeline companies, and

--73 distributor companies serving sizable urban communities in 49 of the 50 States and the District of Columbia. 1/

Seventeen of the 71 major producers did not respond, although we followed up our initial request with several telephone calls and correspondence. However, 92 percent of both the pipeline and distributor companies responded. The respondents included

--54 producers which in 1979 produced about 10 trillion cubic feet, or about 48 percent of country-wide production,

--22 pipelines which in 1979 handled 15 trillion cubic feet, 2/ or about 76 percent of country-wide production, and

--67 distributors which in 1979 handled 7 trillion cubic feet, or about 37 percent of country-wide production.

The data obtained does not comprise statistically valid random samples; therefore, generalizations could result in significant error. However, it provides information on a sizable portion of the gas produced and sold. Distributors provided price information for all sections of the United States, except Hawaii.

We compared the data reported by 30 of the respondents, which we selected at random, to records regularly maintained by the companies but did not audit the companies' records. With few exceptions, the data submitted by questionnaire agreed with the data in the companies' records. We also tested the reasonableness of the overall results by comparing them with similar data in other reports, such as those of the American Gas Association and the Petroleum Information Corporation.

We analyzed the responses to measure the extent of consensus among the respondents and to determine the trends in price, production, exploration, and development for the period 1975 through the first quarter of 1980. We also analyzed price increases to identify amounts attributable to wellhead prices and to costs and profits added by the pipelines and distributors. We compared these

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1/Hawaii was not included in the sample due to low use of natural gas.

2/This amount includes an undetermined amount of inter-pipeline sales.

amounts to general price increases indicated by the Department of Labor's consumer price index to determine how much natural gas prices had increased in relation to the Consumer Price Index rate of inflation. When the data showed increased production and exploration activity, we tried to determine whether this could be attributed solely to rising oil prices, to the Natural Gas Policy Act of 1978, or to both.

CHAPTER 2

SUBSTANTIAL INCREASES IN NATURAL GAS PRICES

Natural gas prices have increased substantially since enactment of the Natural Gas Policy Act of 1978. During the first quarter of 1980, the surveyed natural gas distributors charged consumers 1/ an average of $2.92 per 1,000 cubic feet (MCF). This is 72 cents per MCF (or about 33 percent) more than average 1978 prices. About 40 cents of the increase resulted from higher prices the act permits producers to charge and 32 cents from increases in pipeline and distributor costs and profits which the act did not directly affect. Producer prices increased about 45 percent, or about 24 percent more than general prices as measured by the Consumer Price Index. Pipeline and distributor costs and profits increased only 3 percent more than the Index.

The act established a complex pricing structure for producers. Four of the pricing categories encourage production from new and high cost wells and from stripper wells. The four categories and the average prices the surveyed producers charged for each category in 1979 follow:

Pricing category	Average price	Description
102	$2.44	New natural gas and certain natural gas from the Outer Continential Shelf
103	2.32	Natural gas from new, onshore production wells
107	3.57	Natural gas from high-cost wells deeper than 15,000 feet. (Deregulated one year after the act became effective)
108	2.77	Natural gas from stripper wells

The act also provides for monthly price adjustments for most pricing categories based on the Gross National Product implicit price deflator. The producer and pipeline responses

1/Residential, commercial, and industrial.

showed that the producers charged the maximum prices allowed for the vast majority of gas produced. 1/

The pipelines and distributors passed the increased cost of purchased gas along to their customers through general rate increases and purchased gas adjustments. Pipelines apply for general rate increases to FERC and distributors to State public utility commissions which review the justifications for the increases and allow them where merited. Purchased gas adjustments provided for in the pipelines' and distributors' published tariffs allow automatic increases in prices to reflect changes in the cost of gas. Information from both pipelines and distributors showed that they were recovering the increased cost of purchased gas through these adjustments.

Increases in natural gas prices are expected to continue over the next several years, a view confirmed by most officials of the surveyed distributor and pipeline companies. The act permits higher prices for new wells, so the average price should rise as gas produced at wells developed after the act becomes a greater part of the total gas produced. After 1985, when most Federal price regulation is scheduled to end, the price of natural gas will depend more on supply and demand which will be influenced by the price of competing fuels. Through March 1980, the price of #2 fuel oil, the most logical competing fuel, was far too high to dampen the price of natural gas and was expected to increase.

CONSUMER PRICE INCREASES

We were unable to determine what portion of the price increases resulted directly from the act. Although prices have risen faster since 1978, they increased substantially during 1976, 1977, and 1978 before its enactment. During that 3-year period, FERC allowed producers and pipeline companies to increase prices for natural gas sold interstate, and Federal regulations did not cover prices for gas sold intrastate. Under these circumstances, the increases in natural gas prices were consistently above general price increases indicated by the Consumer Price Index as shown in the following charts.

A comparison of the average price increase from 1978 through the first quarter of 1980 with the increase in the Consumer Price Index follows:

1/GAO is currently making a review of FERC implementation and enforcement of the Natural Gas Policy Act of 1978 pricing provisions. FERC's actions concerning enforcement and determination of well category may impact on gas prices and supplies.

	1978 prices	1st Qtr. 1980 prices	Price increase	Consumer Price Index increase(CPI)	Increases above CPI
			----------Percent----------		
Producer prices	$ .88	$1.28	45	21	24
Pipeline and distributor costs and profits	1.32	1.64	24	21	3
Consumer prices	$2.20	$2.92	33	21	12

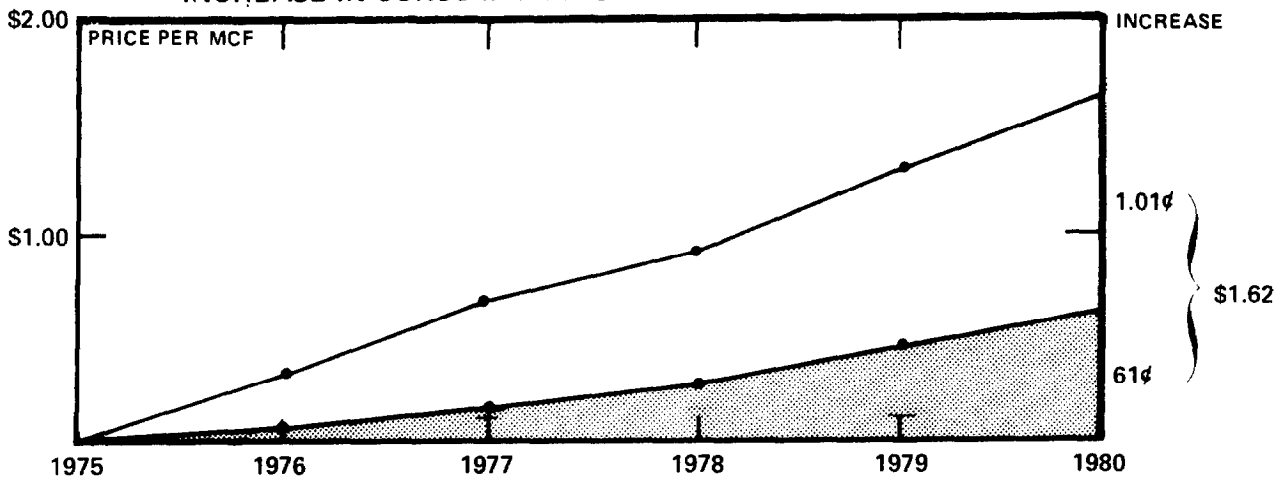
The surveyed distributor prices charged to residential, commercial, and industrial consumers rose in every section of the lower 48 States. The following table compares composite averages of 1978 prices with prices charged during the first quarter of 1980 in each section. (See map on p. 10.)

Section	Prices per MCF 1st quarter 1978	1980	Increase
Major gas producing States 1/	$2.00	$2.46	$.46
Midwest	2.27	3.02	.75
Southeast	2.04	2.83	.79
West	1.96	2.73	.77
Northeast	2.89	3.62	.73
Overall	2.20	2.92	.72

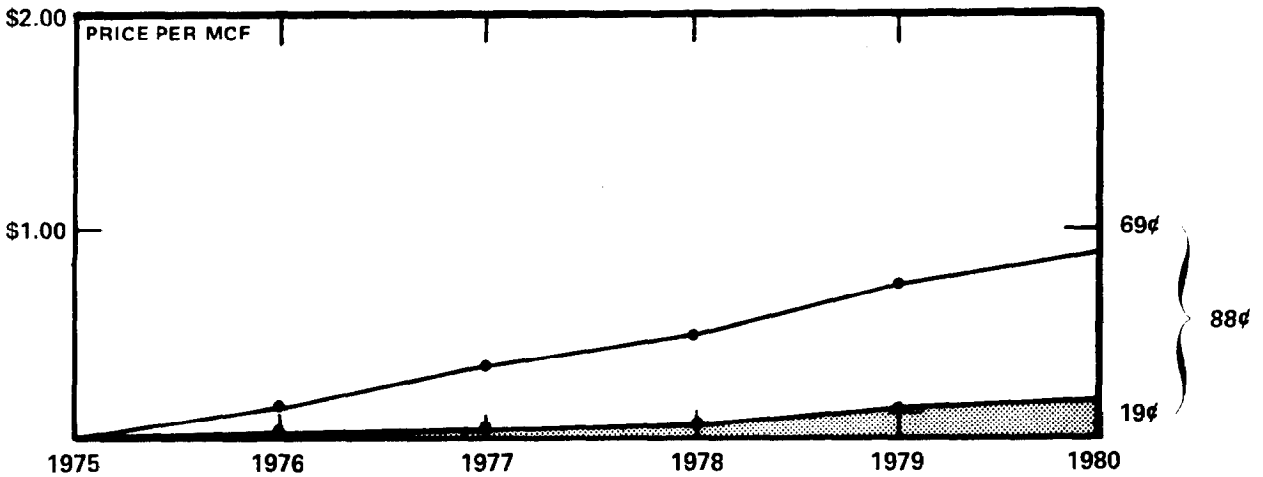
We did not ascertain specific reasons for the variances by section. Such variances could result from a variety of factors such as distances over which the gas must be transported and actions of public utility commissions on distributors' applications for rate increases. The average for the major producing States was particularly affected by a provision of the act which permits these states to prescribe lower prices for gas produced within their boundaries. Oklahoma, Kansas, and New Mexico enacted legislation prescribing prices lower than the maximum permitted under the act.

1/The major producing States are Kansas, Oklahoma, Texas, New Mexico, and Louisiana.

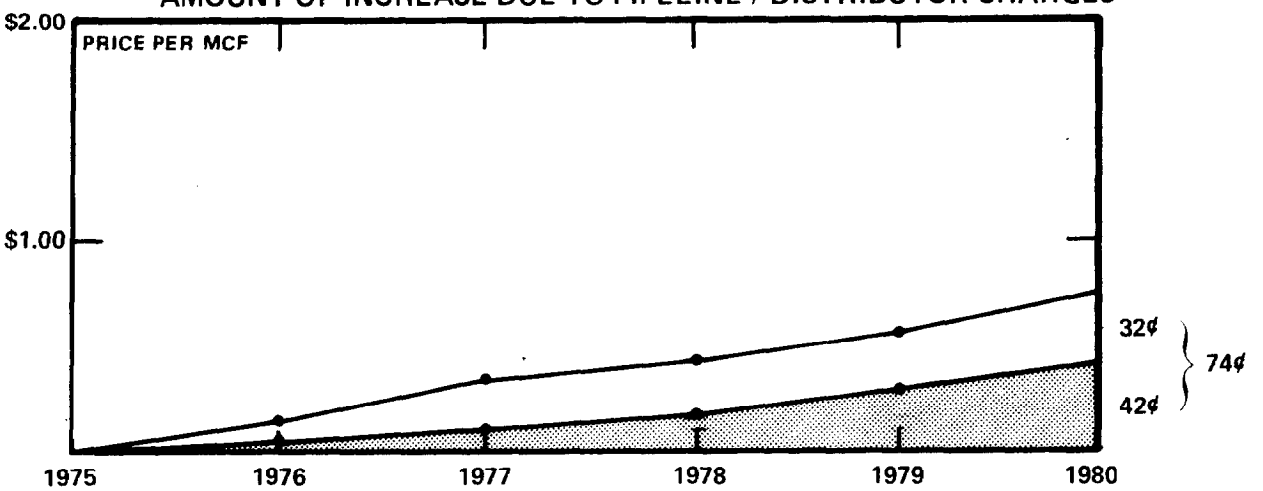
INCREASE IN CONSUMER PRICES 1975 THROUGH 1ST. QTR. 1980



AMOUNT OF INCREASE DUE TO WELLHEAD COST OF NATURAL GAS



AMOUNT OF INCREASE DUE TO PIPELINE / DISTRIBUTOR CHARGES



INCREASE ABOVE RATE OF INFLATION

RATE OF INFLATION PER CONSUMER PRICE INDEX

As shown by appendix I, the overall average increases for each class of consumer were:

Consumers	1978	Prices per MCF 1st quarter 1980	Increase
Residential	$2.41	$3.04	$.63
Commercial	2.26	3.04	.78
Industrial	1.93	2.68	.75

The overall increase for the consumers served by these distributors, which handle about 37 percent of the Nation's natural gas, is about $4.6 billion a year as shown below. For the average residential consumer this is an increase of about $68 a year.

Consumers	Number of consumers (millions)	1979 volumes sold (MMCF)	Total increase (millions)
Residential	25.8	2,780	$1,751
Commercial	1.9	1,319	1,029
Industrial	.1	2,491	1,868
Total			$4,648

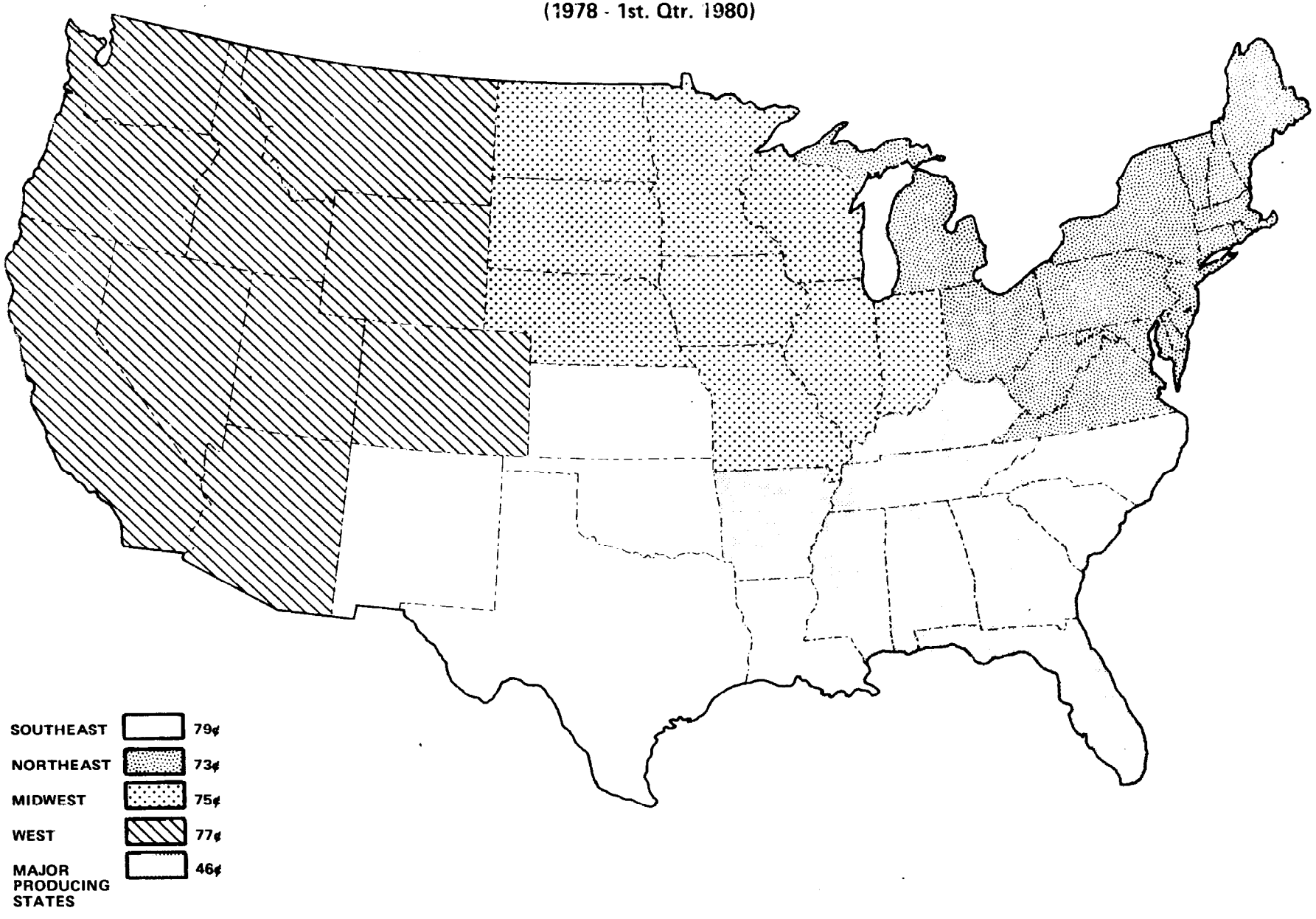
INCREASES IN PRODUCER PRICES

Producer prices increased by 220 percent from 1975 through March 1980. During that period, the prices received by the producers in our survey increased from an average of 40 cents per MCF in 1975 to an average of $1.28 per MCF in March 1980. Increases after 1978 were 100 percent of 1975 prices including 40 percent during the first quarter of 1980. As shown in the following table, however, the prices increased every year both before and after the enactment of the Natural Gas Policy Act of 1978.

Year	Average price per MCF	Percent of increase
1975	$ .40	Base year
1976	.56	40.0
1977	.75	47.5
1978	.88	32.5
1979	1.12	60.0
(1st qtr.) 1980	1.28	40.0
Total increase	$ .88	220.0

We were unable to explain fully the 120 percent increase during the 3 years 1976, 1977, and 1978. As

AREA PRICE INCREASES PER MCF
(1978 - 1st. Qtr. 1980)



shown on page 6, however, the then uncontrolled price of gas sold intrastate was rising, and FERC in biennial reviews allowed increases in producer prices to recover increased production costs.

Estimates of the dollar impact of the act

We know of no reliable way to estimate the total dollar impact of the Natural Gas Policy Act of 1978. Prior to the act, FERC reviewed and adjusted interstate prices biennially. Any estimate of how prices would change absent the act would necessarily include an assumption with respect to what action FERC would have taken in its biennial reviews.

In November 1979, FERC estimated the first year's impact at about $1.8 billion for about 9.66 billion MMBTU 1/ or roughly one-half of total annual production. This estimate was based on information obtained from 19 pipeline companies when the Commission asked them to estimate the differences between prices allowed under the act and prices absent the act. Automatic increases in natural gas prices were expected to continue absent the act, but the differences did not assume any biennial review by FERC.

Increases in the price of natural gas during 1979 added about $2.3 billion to the gross revenues of the producers included in the sample, which produced about 9.65 billion MMBTU, a volume comparable to that included in the Commission's estimate. As shown in the table on page 9, however, average wellhead prices increased from 13 cents to 19 cents per MCF a year during 1976, 1977, and 1978, or an average of about 16 cents a year. Under the assumption that prices would have increased at about this rate with no changes in the law, the producers' revenues would have increased about $1.5 billion during 1979, even if the act had not been in effect. Thus, under this assumption, the 1979 impact on this volume which is about 48 percent of total production was about $800 million.

We were unable to account fully for the $500 million difference between the $2.3 billion increase and the $1.8 billion impact estimated by FERC. However, the Commission's estimate was based on data from pipelines and ours from producers, many of whom were undoubtedly different from those supplying the pipelines included in the Commission's study. Moreover, our study has shown that pipelines do not acquire all of their gas from producers. Many of the

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1/British thermal unit, or the amount of heat required to raise the temperature of 1 pound of water one degree Fahrenheit. MMBTU is one million BTUs. An MCF of natural gas provides 1,021,000 BTUs.

pipelines in our sample buy gas from other pipelines.

PRICING OUTLOOK

Consumers should expect natural gas prices to continue to climb over the next several years as gas from new and high-cost wells becomes a greater part of total production.

Information obtained from the producers shows that about 18.5 percent of their 1979 production was priced under the incentive pricing categories. This percentage will increase as production from old wells declines and more new wells are developed. Since the maximum allowable prices are substantially higher than the first quarter 1980 average, wellhead prices will probably continue to increase. The act also provides for monthly price adjustments for most pricing categories based on the Gross National Product implicit price deflator.

Most of the pipelines and distributors surveyed expected the act's pricing provisions to result in price increases through 1990 as the table below shows.

	Percent of responses	
Increases expected	Pipelines	Distributors
Little or no change	--	7.7
Some or moderate	17.3	35.0
Great or very great	69.5	54.3

Although consumer gas prices had risen substantially, they were still a bargain in relation to number 2 fuel oil--the most logical competing fuel. The average and highest natural gas consumer prices per MMBTU reported by the surveyed distributors are compared with number 2 fuel oil below. As shown, natural gas prices have considerable room to advance before fuel oil becomes competitive. Moreover, the price of fuel oil is expected to increase.

	Prices per MMBTU 1st quarter 1980		
	natural gas		
	Highest consumer prices	Average consumer price	Number 2 fuel oil (note a)
Residential	$5.31	$2.98	$6.79
Commercial	5.15	2.98	6.79
Industrial	4.64	2.62	6.79

a/Prices are as reported by the Department of Energy.

EFFECTS OF INCREMENTAL PRICING ON INDUSTRIAL CONSUMERS

The Natural Gas Policy Act of 1978 requires the FERC to implement an incremental pricing program under which designated industrial users of natural gas must pay a surcharge to absorb the higher deregulated prices of natural gas.

To ascertain whether these higher prices had reduced industrial natural gas sales, we asked the distributor and pipeline companies to identify any losses of customers and the volumes of sales lost.

The overall effect was found to be relatively minor. Thirteen of the 22 pipeline companies reported they were selling natural gas to industrial consumers subject to incremental pricing and two reported ten industrial consumers lost with annual usage of 6,400,000 MCF. These losses were about .03 percent and .97 percent, respectively, of the two pipelines' total sales.

Fifty-seven of the 67 distributors said they were selling natural gas to industrial consumers subject to incremental pricing provisions. 1/ Seven reported they had either lost industrial consumers or experienced reduced sales amounting to 9,978,000 MCF a year or .4 percent of the total industrial sales of the distributors in our survey. Although this loss is relatively small in total, the losses ranged from 4 percent to 29 percent of the industrial sales of individual companies as shown in the following table:

Customers Lost By Distributors

Number of consumers lost	MCF of sales lost	Percent of company's industrial sales
0	1,000,000	12
1	600,000	4
3	1,000,000	20
2	530,000	29
0	1,300,000	4
5	5,000,000	17
1	548,000	18

1/A detailed assessment of the Natural Gas Policy Act of 1978 incremental pricing provision is contained in GAO report (EMD-80-74), dated September 4, 1980.

CHAPTER 3

PRODUCTION AND RESERVES

Production of natural gas by the surveyed producers increased about 1.6 percent in 1979, reversing a decline from 1975 through 1978. Current supplies of natural gas were generally adequate, and most of the surveyed pipeline and distributor companies were trying to increase deliveries. The producers, pipelines, and distributors were generally optimistic that the act's incentives would increase supplies through 1990. Through 1979, however, consumption continued to outpace additions to proven reserves, and reserves continued their decline but at a somewhat slower pace.

Seismic and drilling activity increased sharply in 1980. Much of this activity must be attributed to the increased prices of domestic oil. Sixty percent of surveyed producers stated that their emphasis on oil has actually impeded their natural gas exploration and development activities since passage of the act. While these companies continued to drill substantially more developmental oil wells than gas wells, for the first time in 6 years they drilled more exploratory oil wells than exploratory gas wells (see graph on page 20). Although oil drilling activity has significantly increased, associated natural gas (gas found with crude oil) remains at about 20 percent of the total natural gas production.

PRODUCTION

In 1979, natural gas production increased over that of the previous year. Although the increase was only 1.6 percent, it reversed the historical decline since 1973. The sampled producers reported the following production during the period 1975 through 1979.

Natural Gas Production
(trillion cubic feet)

Year	Production	Percent changes
1975	10.128	--
1976	9.857	-2.7
1977	9.596	-2.6
1978	9.308	-3.0
1979	9.455	+1.6

Several of the respondents did not show what portion of their production was not associated with oil wells. Those who did showed that about 80 percent was not associated throughout the 5-year period.

The data from our sampling is in general agreement with that of the American Gas Association. The Association shows a 3 percent increase in production in 1979 and a reduction for each of the prior years as shown below:

Natural Gas Production
(trillion cubic feet)

Year	Production	Percent changes
1975	19.719	--
1976	19.542	-0.9
1977	19.447	-0.5
1978	19.311	-0.7
1979	19.910	+3.1

AVAILABILITY OF SUPPLIES

The survey responses indicated that current supplies of natural gas were generally adequate. Every distributor included in our sample was accepting new residential and commercial customers, and all but three were accepting new industrial customers. Several interstate pipelines were also seeking new customers. Thirteen of the 22 included in our sample reported that they were attempting to increase natural gas deliveries; however, four were attempting to curtail deliveries, and the remaining five were neither attempting to curtail nor increase deliveries. Three of the four pipelines attempting to curtail gas deliveries stated that their systems were not adequate to meet current demand. The other pipeline said its curtailment of gas deliveries was the result of a gas shortage. Eighty-five percent of the producers reported supplies equal to or in excess of demand.

Response	Producers	Pipelines	Distributors
	Percent		
Supplies exceed demand and seeking new customers	51	56	100
Supplies and demand about equal	34	22	---
Supplies less than demand and curtailing customers	15	22	---

A vast majority of the industry representatives we contacted believe the act to have improved current natural gas supplies. When asked whether the act had helped or hindered availability of current supplies, all of the pipelines, 84 percent of the distributors, and 75 percent of the producers felt that the act had resulted in at least some improvememt. Similar opinions were expressed about the act's anticipated impact between now and 1990. The following table shows their collective responses.

Impact	Period			
	1979	1980-82	1983-84	1985-90
	Percent			
Substantial or some positive impact	79.0	82.5	89.7	85.6
Little or no impact	17.0	14.3	6.3	10.4
Some negative impact	4.0	3.2	4.0	4.0

We asked the distributor and pipeline companies to estimate the extent that customer demand, availability of supplies, and capacity of delivery systems would limit their ability to increase natural gas sales. As shown in the following table, they identified demand as the most important constraint.

Response	Insufficient demand	Available supplies	System capacity
	Percent		
Great to very great extent	59	43	12
Some to moderate extent	26	26	30
Little or no extent	15	31	58

RESERVES

Although the amounts the surveyed producers added to reserves in 1979 were about 2.7 percent greater than in 1978, reserves continued their decline but at a somewhat slower rate. It is too soon, however, for the act to have had much effect on reserves, because proving gas reserves typically requires from 2 to 5 years. The producers surveyed were optimistic that reserves would hold their own or increase, particularly between 1980 and 1990. Their expectations are tabulated below.

Period	Percentage of producers expecting			
	Increases	Little or no change	Decreases	No opinion
1978 - 1979	56	31	4	9
1980 - 1982	67	21	4	8
1983 - 1984	77	11	4	8
1985 - 1990	71	15	4	10

As indicated, expectations for increasing reserves are highest during 1983 and 1984, approximately 5 years after passage of the act.

The producers surveyed steadily added to reserves from 1975 through 1979, but the additions were less than production and the reserves continued to decline.

Year	Reserves		
	Depletions	Additions	Net decrease
	(trillion cubic feet)		
1975	10.128	3.957	6.171
1976	9.857	4.874	4.983
1977	9.596	6.724	2.872
1978	9.308	6.941	2.367
1979	9.455	7.131	2.324

EXPLORATION AND DEVELOPMENT ACTIVITIES

Of the 54 producers which responded to our survey, 48 reported that the act had encouraged exploration and development. Forty-three stated that because of the act they had increased their

--purchasing of leases for potential well drilling sites,

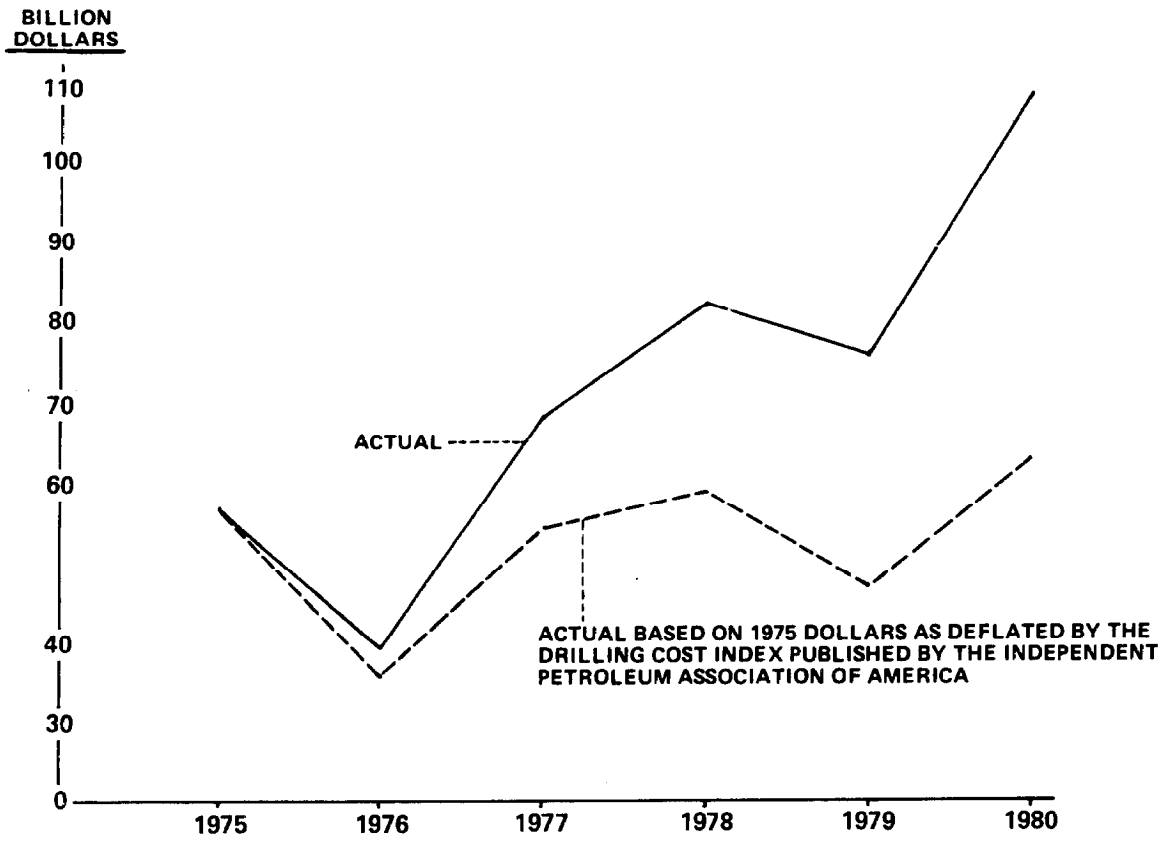
--participating in geophysical activities,

--drilling of exploratory wells, and

--drilling of developmental wells.

These statements were consistent with data they submitted on budgeted expenditures for exploration and development. As shown by the following chart, after a decrease in 1979, the budgeted amounts increased sharply to their highest point in 1980--both in terms of actual dollars and in 1975 dollar equivalents.

PRODUCER EXPLORATORY AND DEVELOPMENT BUDGETS



Leasing and geophysical activities

We did not ask the producers to quantify their leasing and geophysical activities, but we did ask to what extent the Natural Gas Policy Act of 1978 incentive prices encouraged such activities. About 80 percent of the producers stated that, because of the act, they had increased leasing, geophysical activities, and drilling of exploratory and developmental wells. Data obtained from publications of the Petroleum Information Corporation and the American Gas Association shows that nationwide Federal gas and oil leases under the supervision of the U.S. Geological Survey increased about 6.2 percent during 1979, and that the number of seismic crews increased from about 352 in 1978 to 471 in the first quarter of 1980. Although this data generally supports the surveyed producer statements, the available data relates to both natural gas and oil. Since the prices of both have increased, both logically contributed to increased activity.

Exploratory and developmental drilling

The surveyed producers drilled 360 more natural gas wells during 1979 and 1980 than in the two previous years. The increase included 521 developmental wells but 161 fewer exploratory wells. The number of exploratory wells increased slightly in 1980 following a decrease in 1979. The percentages in the following table show factors which the sampled producers identified as hindrances to their drilling activities following passage of the act.

Factor	Has hindered	Has not hindered	No response
	Percent		
Difficulty in negotiating lease agreements	59	33	8
Availability of:			
equipment	75	17	8
personnel	75	17	8
capital	48	44	8
Increased emphasis on oil	61	29	10
Other	15	--	85

Most of the producers expected the act's incentives would increase their drilling activities during

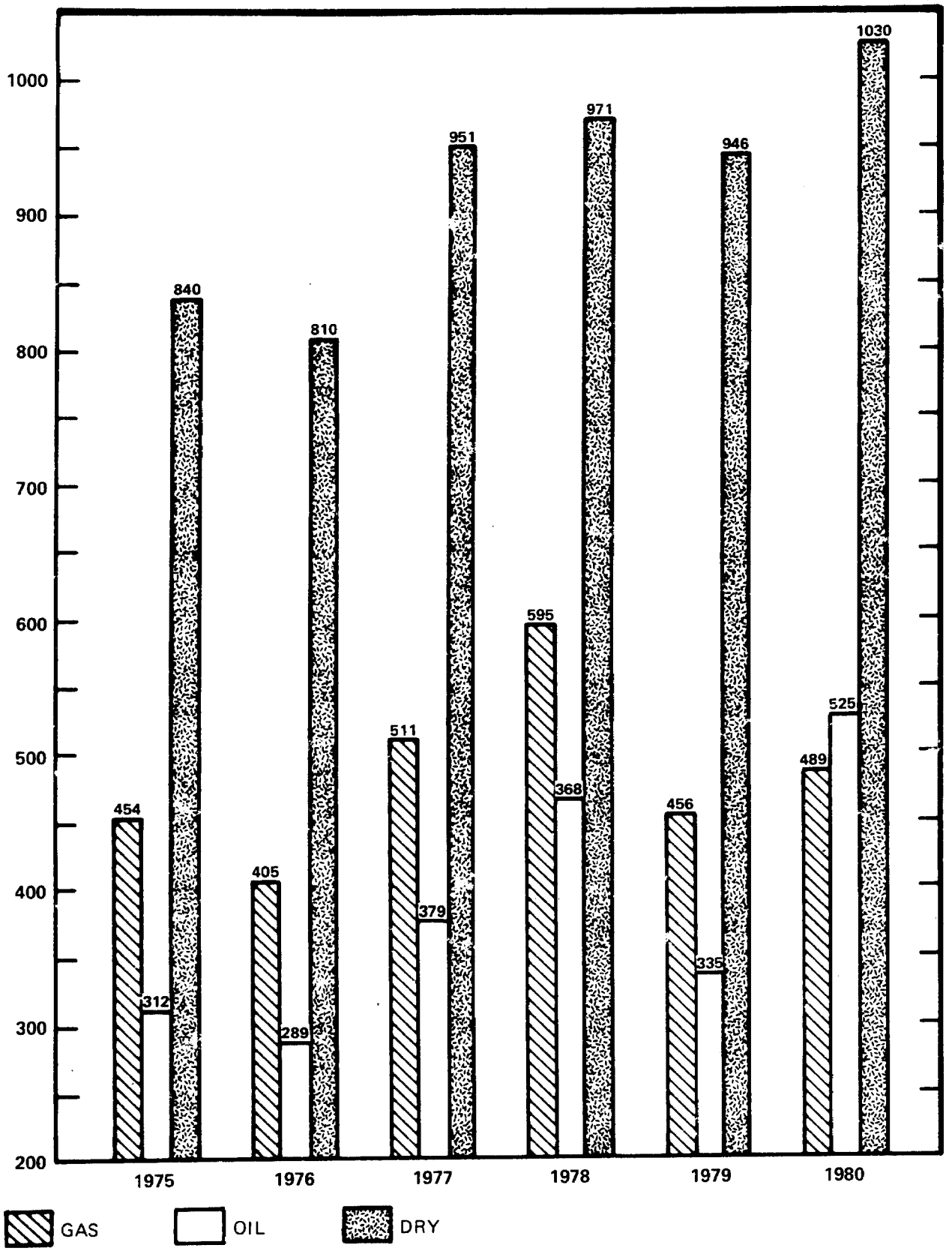
--1980-82 93 percent of respondents,
--1983-84 91 percent of respondents, and
--1985-90 83 percent of respondents.

The charts on pages 20 and 21 show the producers' data for both gas and oil wells completed during the 6 years 1975 through 1980. As indicated by the charts, about 52 percent of the successful exploratory wells completed during 1979 and 1980 were gas wells, whereas 70 percent of the developmental wells were oil wells.

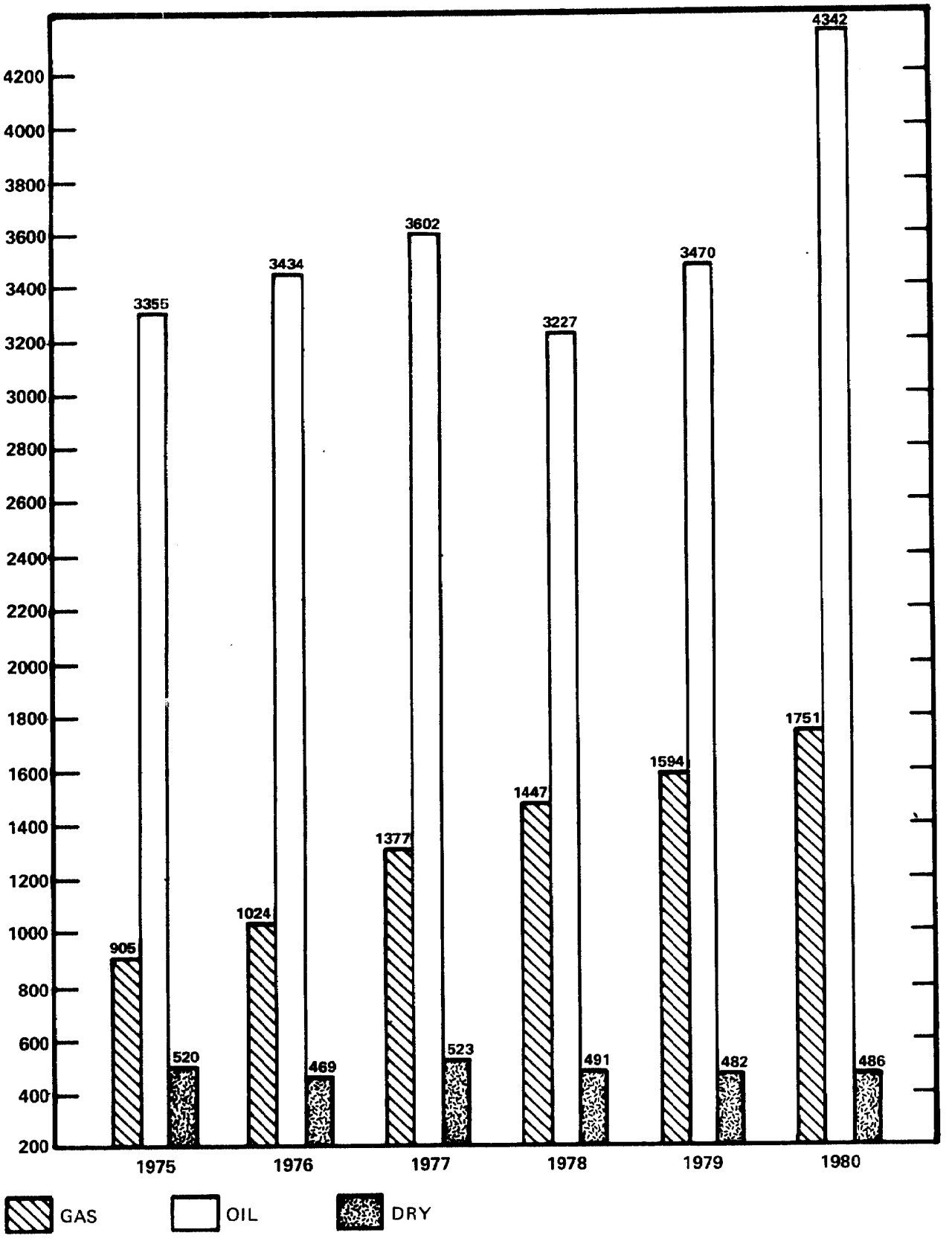
Producers classify each well as gas or oil after it is completed on the basis of which commodity predominates in the well's production. However, the producers' geologists assured us that they know before drilling which is more likely. It follows that the mix of developmental and exploratory wells is due largely to deliberate choices by drillers. Accordingly, we believe that the mix results from a combination of factors including

--the general adequacy of current supplies of natural gas which has lessened the demand for increased production,

NUMBER OF EXPLORATORY WELLS
DRILLED (1975-1980)



NUMBER OF DEVELOPMENTAL WELLS
DRILLED (1975-1980)



--the shortage of domestic supplies of oil which, along with increased prices, makes increased oil production more profitable, and

--the higher prices which the act permits for natural gas produced from new fields plus the need for new reserves to meet long-term consumer demand. Additional support for this factor is a 1979 increase of 5 percent in the number of wells completed below 15,000 feet. Producer prices have been decontrolled for such wells which are almost sure to be gas wells.

AGENCY COMMENTS

We requested that FERC and DOE comment on a draft of this report. FERC, by letter dated May 1, 1981, provided written comments (See appendix II), and on May 5, 1981, DOE provided oral comments.

The Commission supported our findings based on the source data submitted by producers, pipelines, and distributors. However, the Commission believed that more than two years are needed to measure the true effect of the act on exploration, development, and revenues. It suggested that we update our survey to included more current information.

We recognize that the information available to date does not allow for full measurement of the effect of the Natural Gas Policy Act of 1978, but it does provide a reasonably current assessment of the extent of changes in natural gas prices, availability of supplies, and reserves following its enactment.

We have considered DOE's oral comments which were technical and clarifying in nature and have made such changes as we deemed appropriate when preparing this report.

CONSUMER PRICES BY REGION

	1978	1st Quarter 1980	Percent of Increase
RESIDENTIAL			
Major gas producing States	$2.25	$2.66	18
Midwest	2.44	3.21	32
Southeast	2.34	3.01	29
West	1.97	2.66	35
Northeast	3.24	3.81	18
Overall	2.41	3.04	26
COMMERCIAL			
Major gas producing States	$2.24	$2.68	20
Midwest	2.25	3.01	34
Southwest	1.99	2.90	46
West	2.08	2.85	37
Northeast	2.75	3.62	32
Overall	2.26	3.04	35
INDUSTRIAL			
Major gas producing States	$1.78	$2.22	25
Midwest	1.99	2.75	38
Southeast	1.79	2.63	47
West	1.88	2.77	47
Northeast	2.37	3.29	39
Overall	1.93	2.68	39

APPENDIX II

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON 20426

IN REPLY REFER TO:

MAY 1 1981

Mr. J. Dexter Peach
Director, Energy and Minerals Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

In response to your request for a review of "Changes in Natural Gas Prices and Supplies Since Passage of the Natural Gas Policy Act of 1978," the Federal Energy Regulatory Commission supports your findings based on source data obtained from producers, pipelines and distributors. However, we believe that it will take more than the two years since the Natural Gas Policy Act was enacted to measure the true effect of the Act on exploration, development and revenues. It is also recommended that GAO update the survey and obtain more current information. We have no substantive disagreement with your report.

Sincerely,

William G. McDonald
Executive Director

cc:
G.Elsken, GAO

APPENDIX III

U.S. GENERAL ACCOUNTING OFFICE

SURVEY OF THE IMPACT OF
THE NATURAL GAS POLICY ACT OF 1978 ON DISTRIBUTORS

Introduction

The purpose of this questionnaire is to assess the impact of the Natural Gas Policy Act of 1978 on natural gas prices, production and reserves.

This survey is being conducted by the U.S. General Accounting Office, an agency of the Congress with responsibility for Congressional oversight of all Federal expenditures and regulatory activities. Your response is extremely important to the success of our effort.

Please return the completed questionnaire in the enclosed self-addressed envelope within 10 days if possible. If you have any questions, please call Virgil Schroeder or Gary Nelson at (405) 231-4489. Thank you for your cooperation and assistance.

NOTE: (MCF should be measured at 14.73 psia at 60°F.)

1. In your opinion, to date, how much positive or negative impact, if any, has NGPA had on the amount of natural gas available to your company? (Check one.)

   1. ☐ Substantial positive impact
   2. ☐ Some positive impact
   3. ☐ Little or no impact
   4. ☐ Some negative impact
   5. ☐ Substantial negative impact

2. In your opinion, how much positive or negative impact, if any, will NGPA have on the amount of gas available to your company during each of the following periods? (Check one for each.)

	1 Substantial positive impact	2 Some positive impact	3 Little or no impact	4 Some negative impact	5 Substantial negative impact
1. 1980 - 1982					
2. 1983 - 1984					
3. 1985 - 1990					

3. Is your company currently accepting new customers in each of the following customer categories? (Check one for each.)

	1 Accepting new customers	2 Not accepting new customers
1. Residential		
2. Commercial		
3. Industrial		
4. Other (specify) _____		

4. If you are currently accepting new customers to what extent, if at all, do you feel each of the following factors will limit the amount of additional gas your company delivers? (Check one for each. If not accepting new customers skip to question 5.)

	1 Little or no extent	2 Some extent	3 Moderate extent	4 Great extent	5 Very great extent
1. Availability of natural gas					
2. Level of demand for natural gas					
3. Your company's delivery system					
4. Other (specify) _____					

APPENDIX III

5. By approximately what percentage has the total cost of all natural gas purchased by your company increased during the past 18 months? (Enter percentage; if none, enter 0.)

_____% increase during past 18 months

6. Of the increase reported in question 5 above, about what percentage do you feel was directly attributable to NGPA? (Enter percentage. If none, enter 0.)

_____% of increase attribute to NGPA

7. Since passage of NGPA, about what percentage of all natural gas price increases your company has incurred has been: a) passed on to your customer in the form of Public Utility Commission (PUC) approved rate increases; b) passed on to customers in the form of purchased gas adjustments; or c) absorbed by your company? (Enter percentage for each; if none, enter 0.)

_____% passed on in form of PUC rate increases

_____% passed on in form of purchased gas adjustments

_____% absorbed by company

100% - of natural gas price increases incurred by your company since NGPA passage.

8. To what extent, if at all, do you feel NGPA will increase the prices you pay supplier(s) for natural gas during each of the following periods? (Check one for each.)

	Little or no extent 1	Some extent 2	Moderate extent 3	Great extent 4	Very great extent 5
1. 1980 - 1982					
2. 1983 - 1984					
3. 1985 - 1990					

9. To what extent, if at all, do you feel NGPA will contribute to increased gas prices for residential, commercial and industrial customers during the period from 1980 through 1982? (Check one for each.)

	Little or no extent 1	Some extent 2	Moderate extent 3	Great extent 4	Very great extent 5
1. Residential					
2. Commercial					
3. Industrial					

10. To what extent, if at all, do you feel NGPA will contribute to increased gas prices for residential, commercial and industrial customers during the period from 1983 through 1984? (Check one for each.)

	Little or no extent 1	Some extent 2	Moderate extent 3	Great extent 4	Very great extent 5
1. Residential					
2. Commercial					
3. Industrial					

11. To what extent, if at all, do you feel NGPA will contribute to increased gas prices for residential, commercial and industrial customers during the period from 1985 through 1990? (Check one for each.)

	Little or no extent 1	Some extent 2	Moderate extent 3	Great extent 4	Very great extent 5
1. Residential					
2. Commercial					
3. Industrial					

12. Is your company selling natural gas to industrial customers that are subject to the incremental pricing provisions of NGPA currently in effect? (Check one.)

    1. ☐ Yes
    2. ☐ No

13. Do you feel you have lost any industrial customers as a result of the incremental pricing provisions of NGPA? (Check one.)

    1. ☐ No
    2. ☐ Uncertain
    3. ☐ Yes - If yes, please enter below an estimate of the number of customers lost and the total MCF of natural gas these customers used on an annual basis.

    _____ customers lost

    _____ total MCF natural gas used annually by these customers

14. How many industrial, commercial, residential and other meter customers did you have on the last day of each of the following years? (Enter numbers.)

Calendar Year or Fiscal Year Ending	Number Customers				
	Industrial	Commercial	Residential	Other(s)	Total
1980 (1st quarter)					
1979					
1978					
1977					
1976					
1975					

15. How many MCF of natural gas did you sell to industrial, commercial, residential and other customers during each of the following years? (Enter MCF.)

Calendar Year or Fiscal Year Ending	MCF Sold To				
	Industrial	Commercial	Residential	Other(s)	Total Sold
1980 (1st quarter)					
1979					
1978					
1977					
1976					
1975					

QUESTION 16 IS ON PAGE 4.

APPENDIX III

16. Please enter below the average price per MCF charged your industrial, commercial and residential customers during each year listed and the average costs (average city gate cost, average distribution cost, average total tax cost and average earnings) that sum to the average price charged.

NOTE: IN REPORTING AVERAGE TAX PER MCF INCLUDE ALL TAXES WHICH ARE PART OF COST PASSED ON TO CUSTOMERS.

INDUSTRIAL CUSTOMERS

Calendar Year or Fiscal Year Ending	Aver. Price Per MCF	=	Aver. Cost City Gate Per MCF	+	Average Distribution Costs Per MCF	+	Aver. Total Taxes Per MCF	+	Average Earnings Per MCF
1980 (1st quarter)									
1979									
1978									
1977									
1976									
1975									

COMMERCIAL CUSTOMERS

Calendar Year or Fiscal Year Ending	Aver. Price Per MCF	=	Aver. Cost City Gate Per MCF	+	Average Distribution Costs Per MCF	+	Aver. Total Taxes Per MCF	+	Average Earnings Per MCF
1980 (1st quarter)									
1979									
1978									
1977									
1976									
1975									

RESIDENTIAL CUSTOMERS

Calendar Year or Fiscal Year Ending	Aver. Price Per MCF	=	Aver. Cost City Gate Per MCF	+	Average Distribution Costs Per MCF	+	Aver. Total Taxes Per MCF	+	Average Earnings Per MCF
1980 (1st quarter)									
1979									
1978									
1977									
1976									
1975									

17. In your opinion, what factors excluding NGPA, if any, have had a positive impact on natural gas production in the U.S.?

Comments

18. If you have any additional information which you feel is relevant to the preceding questions, or if you have any comments about the NGPA please enter them below.

U.S. GENERAL ACCOUNTING OFFICE

SURVEY OF THE IMPACT OF
THE NATURAL GAS POLICY ACT OF 1978 ON PIPELINES

Introduction

The purpose of this questionnaire is to assess the impact of the Natural Gas Policy Act of 1978 on natural gas prices, production and reserves.

This survey is being conducted by the U.S. General Accounting Office, an agency of the Congress with responsibility for Congressional oversight of all Federal expenditures and regulatory activities. Your response is extremely important to the success of our effort.

Please return the completed questionnaire in the enclosed self-addressed envelope within 10 days, if possible. If you have any questions, please call Virgil Schroeder or Gary Nelson at (405) 231-4489. Thank you for your cooperation and assistance.

NOTE: (MCF should be measured at 14.73 psia at 60°F.)

1. In your opinion, to date, how much positive or negative impact, if any, has NGPA had on the amount of natural gas available to your company? (Check one.)

   1. ☐ Substantial positive impact
   2. ☐ Some positive impact
   3. ☐ Little or no impact
   4. ☐ Some negative impact
   5. ☐ Substantial negative impact

2. In your opinion, how much positive or negative impact, if any, will NGPA have on the amount of gas available to your company during each of the following periods? (Check one for each.)

	1 Substantial positive impact	2 Some positive impact	3 Little or no impact	4 Some negative impact	5 Substantial negative impact
1. 1980 - 1982					
2. 1983 - 1984					
3. 1985 - 1990					

3. Is your company currently curtailing, or attempting to increase the amount of natural gas delivered? (Check one.)

   1. ☐ Curtailing amount of natural gas delivered
   2. ☐ Attempting to increase the amount of natural gas delivered
   3. ☐ Neither curtailing or attempting to increase the amount of natural gas delivered.

4. If you are attempting to increase or curtail the amount of gas you currently deliver about what percentage of your current annual gas deliveries are you attempting to increase or curtail for the next 12 month period? (Enter appropriate percentage. If not attempting to increase or curtail skip to question 5.)

   _____% of current annual amount delivered attempting to increase

   _____% of current annual amount delivered attempting to curtail

5. If your company is attempting to increase the amount of gas delivered to what extent, if at all, do you feel each of the following factors will limit the amount of additional gas you deliver during the next 2 years? (Check one for each.)

	1 Little or no extent	2 Some extent	3 Moderate extent	4 Great extent	5 Very great extent
1. Availability of natural gas					
2. Delivery capacity					
3. Level of demand					
4. Other(s) (specify) _____ _____					

APPENDIX IV

6. By approximately what percentage has the total cost of all natural gas purchased by your company increased during the past 18 months? (Enter percentage; if none, enter 0.)

_____% increase during the past 18 months

7. Of the increase reported in question 6 above, about what percentage do you feel was directly attributable to NGPA? (Enter percentage; if none, enter 0.)

_____% of increase attributable to NGPA.

8. To what extent, if at all, do you feel NGPA will increase the prices you pay producers for natural gas supplies during each of the following periods. (Check one for each.)

	To little or no extent (1)	To some extent (2)	To moderate extent (3)	To great extent (4)	To very great extent (5)
1. 1980 - 82					
2. 1983 - 84					
3. 1985 - 90					

9. Consider all gas qualifying for NGPA prices your company has purchased to date. For about what percentage of this gas have you paid the following prices? (Enter percentage; if none, enter 0.)

% Of NGPA Gas Purchased To Date	Price Paid
_____%	Maximum allowable
_____%	90% or more of maximum
_____%	Less than 90% of maximum

100% of NGPA gas purchased to date.

10. Is your company directly selling natural gas to industrial customers that are subject to the incremental pricing provisions of NGPA? (Check one.)

1. ☐ Yes
2. ☐ No

11. Do you feel you have lost any direct industrial customers as a result of the incremental pricing provisions of NGPA currently in effect? (Check one.)

1. ☐ No
2. ☐ Uncertain
3. ☐ Yes - If yes, please enter below an estimate of the number of customers lost and the total MCF of natural gas these customers used on an annual basis.

_____customers lost

_____total MCF natural gas used annually by these customers

---

12. For each price category listed below enter: a. the volume of gas your company purchased from others since passage of NGPA; b. the average price paid for this purchased gas, c. the volume of gas produced by your company since passage of NGPA, and d. the average price obtained for gas produced by your company

Price Category	a. MCF Purchased From Others Since NGPA Passage	b. Average Price Per MCF Paid For Purchased Gas	c. MCF Produced By Your Company Since NGPA Passage	d. Average Price Per MCF Obtained For Produced Gas
102				
103				
104				
105				
106				
107				
108				
109				

APPENDIX IV

13. For each year listed below please enter:

(a) the average wellhead price your company paid for natural gas per MCF

(b) the average cost of transportation from wellhead to city gate per MCF

(c) the average tax per MCF (include all taxes which are part of costs passed on to distributors)

(d) the average margin (profit/loss) per MCF

(e) the average price charged distributors per MCF at city gate

NOTE: The average price charged distributors should equal the sum of all costs reported.

Calender Year Or Fiscal Year Ending	a.) Aver. Wellhead Price Per MCF		b.) Average Transportation Cost Per MCF		c.) Aver. Tax Per MCF		d.) Aver. Margin Per MCF		e.) Aver. Price Charged Dist.
1980 (1st quarter)		+		+		+		=	
1979		+		+		+		=	
1978		+		+		+		=	
1977		+		+		+		=	
1976		+		+		+		=	
1975		+		+		+		=	

14. In your opinion, what factors excluding NGPA, if any, have had a positive impact on natural gas production in the U.S.? (If you feel there are no other factors enter none.) -

Comments

15. If you have any additional information which you feel is relevant to the preceding questions or if you have any comments about the NGPA please enter them below.

APPENDIX V

U.S. GENERAL ACCOUNTING OFFICE

SURVEY OF THE IMPACT OF
THE NATURAL GAS POLICY ACT OF 1978 ON PRODUCERS

Introduction

The purpose of this questionnaire is to assess the impact of the Natural Gas Policy Act of 1978 on natural gas prices, production and reserves.

This survey is being conducted by the U.S. General Accounting Office, an agency of the Congress with responsibility for Congressional oversight of all Federal expenditures and regulatory activities. Your response is extremely important to the success of our effort.

Please return the completed questionnaire in the enlcosed self-addressed envelope within 10 days, if possible. If you have any questions, please call Virgil Schroeder or Gary Nelson at (405) 231-4489. Thank you for your cooperation and assistance.

NOTE: (MCF should be measured at 14.73 psia at 60°F.)

1. To what extent, if at all, have the NGPA incentive prices encouraged the following natural gas exploration and development activities by your company? (Check one for each.)

	To a very great extent 1	To a great extent 2	To a moderate extent 3	To some extent 4	To little or no extent 5
1. Lease purchases					
2. Exploratory well drilling activities					
3. Development well drilling activities					
4. Geophysical activities					
5. Other (specify) _____ _____					

2. To date, to what extent, if at all, has NGPA increased or decreased the number of exploratory and developmental natural gas wells drilled by your company? (Check one for each.)

	Greatly increased 1	Somewhat increased 2	Little or no effect 3	Somewhat decreased 4	Greatly decreased 5
1. Exploratory wells					
2. Developmental wells					

3. In your opinion, to what extent, if at all, will NGPA increase or decrease the number of exploratory and developmental natural gas wells your company will drill during each of the following periods? (Check one for each.)

	Greatly increase 1	Somewhat increase 2	Little or no effect 3	Somewhat decrease 4	Greatly decrease 5
1. 1980 - 82					
2. 1983 - 84					
3. 1985 - 90					

4. To date, what effect, if any, has NGPA had on the amount of natural gas produced by your company? (Check one.)

1. ☐ Substantial increase in production
2. ☐ Some increase in production
3. ☐ Little or no change
4. ☐ Some decrease in production
5. ☐ Substantial decrease in production

APPENDIX V

5. In your opinion, to what extent, if at all, will NGPA increase or decrease the amount of natural gas produced by your company during each of the following periods? (Check one for each.)

	Greatly increase 1	Somewhat increase 2	Little or no effect 3	Somewhat decrease 4	Greatly decrease 5
1. 1980 - 82					
2. 1983 - 84					
3. 1985 - 90					

6. To what extent, if at all, has each of the following factors hindered natural gas exploration and development activities by your company since passage of NGPA? (Check one for each.)

	To a very great extent 1	To a great extent 2	To a moderate extent 3	To some extent 4	To little or no extent 5
1. Negotiation of lease agreements					
2. Availability of equipment					
3. Availability of personnel					
4. Availability of needed capital					
5. Increased emphasis on oil exploration/ development					
6. Other (specify) _____ _____ _____					

7. For about what percentage of the natural gas sold by your company under NGPA have you obtained the following prices? (Enter percentage; if none, enter 0.)

% Gas Sold Under NGPA	Price Obtained
_____ %	Maximum allowable price
_____ %	Near maximum (90% of maximum allowable price)
_____ %	Less than 90% of maximum allowable price
100 %	

8. To date, what effect, if any, has NGPA had on your company's domestic natural gas reserves? (Check one.)

1. ☐ Substantial increase in reserve
2. ☐ Some increase in reserve
3. ☐ Little or no effect
4. ☐ Some decrease in reserve
5. ☐ Substantial decrease in reserve

9. In your opinion, to what extent, if at all, will NGPA increase or decrease your company's domestic natural gas reserves during each of the following periods? (Check one for each.)

	Greatly increase 1	Somewhat increase 2	Little or no effect 3	Somewhat decrease 4	Greatly decrease 5
1. 1980 - 82					
2. 1983 - 84					
3. 1985 - 90					

10. Which of the following statements best describes your company's current supply ot natural gas? (Check one.)

1. ☐ Supply far exceeds demand
2. ☐ Supply somewhat exceeds demand
3. ☐ Supply about equal to demand
4. ☐ Demand somewhat exceeds supply
5. ☐ Demand far exceeds supply

APPENDIX V

11. Is your company's current supply of natural gas greater, less than or equal to supplies of 5 years ago? (Check one.)

1. ☐ Much greater
2. ☐ Somewhat greater
3. ☐ About equal
4. ☐ Somewhat less
5. ☐ Much less

12. In your opinion, to date to what extent, if at all, has NGPA increased or decreased the nations supply of natural gas? (Check one.)

1. ☐ Greatly increased
2. ☐ Somewhat increased
3. ☐ Little or no effect
4. ☐ Somewhat decreased
5. ☐ Greatly decreased

---

13. How many net working interest gas, oil, and dry exploratory wells did your company drill in the U.S. during each of the following calendar years? (Enter number; if none, enter 0.)

Calendar Year	Number Net Interest Exploratory Wells		
	GAS	OIL	DRY
1980 (first quarter)			
1979			
1978			
1977			
1976			
1975			

14. How many net working interest gas, oil, and dry developmental wells did your company drill in the U.S. during each of the following calendar years? (Enter numbers; if none, enter 0.)

Calendar Year	Number Net Interest Developmental Wells		
	GAS	OIL	DRY
1980 (first quarter)			
1979			
1978			
1977			
1976			
1975			

15. How many BCF of non-associated and associated natural gas was produced by your company in the U.S. during each of the following calendar years? (Enter BCF.)

Calendar Year	BCF Produced		
	Non-Associated	Associated	Total
1980 (first quarter)			
1979			
1978			
1977			
1976			
1975			

APPENDIX V

16. Based on your estimates, by how many net BCF did your company's year end domestic natural gas reserves increase or decrease for each of the following calendar years?

Calendar Year	BCF Reserve Increase	BCF Reserve Decrease
1979 vs 1978		
1978 vs 1977		
1977 vs 1976		
1976 vs 1975		
1975 vs 1974		

17. What was the average wellhead price received by your company per MCF of domestic natural gas sold during each of the following calendar years? (Enter average price per MCF.)

Calendar Year	Average Price Per MCF
1980 (first quarter)	
1979	
1978	
1977	
1976	
1975	

18. Consider all wells your company has applied for a NGPA price determination to date (per FERC Form 121 whether approval has been obtained or not). For each price category listed below please enter the average wellhead price per MCF and the estimated volume of gas to be sold (per FERC Form 121) for these wells.

Price Category	Current Average Price Per MCF	Estimated MCF To Be Sold
102	$	
103	$	
107	$	
108	$	

19. What was your company's natural gas exploration and development budget for the following years? (Enter amount.)

Calendar or Fiscal Year	Budget
1980	$
1979	$
1978	$
1977	$
1976	$
1975	$

APPENDIX V

20. In your opinion, what factors excluding NGPA, if any, have had a positive impact on natural gas production in the U.S.?

Comments

21. If you have any additional information which you feel is relevant to the preceding questions, or if you have any comments about the NGPA, please enter them below.

APPENDIX VI

United States Senate

COMMITTEE ON
GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON
INTERGOVERNMENTAL RELATIONS
(202) 224-4718
WASHINGTON, D.C. 20510

July 25, 1979

Mr. Elmer B. Staats
Comptroller General of the
United States
U.S. General Accounting Office
441 G Street, NW
Washington, D. C. 20548

Dear Elmer:

On November 9, 1978, the Natural Gas Policy Act (NGPA) was signed into law. Title I of the NGPA prescribes well-head ceiling prices for natural gas which are considerably higher than interstate natural gas prices were prior to the NGPA. The intent behind increasing these prices was to provide an incentive to natural gas producers to increase discoveries and production, thereby increasing our supply of natural gas.

Hearings held earlier this year before the Subcommittee on Intergovernmental Relations, which I chair, indicated that the NGPA has caused consumer prices to rise by as much as 20 percent without any marked increase in natural gas production. We would like for you to ascertain, on a sample basis, the impact of the NGPA on

--natural gas prices, particularly at the end-user level, and

--new natural gas reserves and production.

We would like these impacts to be shown as of one year after the enactment of the NGPA.

We understand from discussions with your Energy and Minerals Division staff that they plan to initiate an assignment reviewing the implementation of the NGPA'a natural gas pricing provisions beginning in November, 1979. In order to avoid duplication of effort, you could incorporate the work we are requesting into your planned assignment. We understand that the target issuance date for a report to Congress on these matters is the fourth quarter of fiscal year 1980.

If you have any questions, please call Andy Wolfson of the Subcommittee staff on 224-4718.

With best wishes, I am

Sincerely,

Jim Sasser
Chairman, Subcommittee on
Intergovernmental Relation

(308524)

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