BY THE COMPTROLLER GENERAL

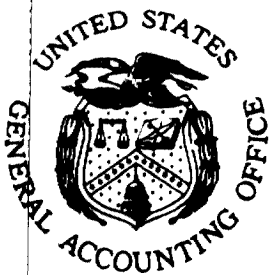
Report To The Congress

OF THE UNITED STATES

Natural Gas Plan Needed To Provide Greater Protection For High-Priority And Critical Uses

The Department of Energy should clearly communicate that its short-term program to encourage oil burning industries and utilities to switch to natural gas is not a departure from overall efforts to discourage the use of natural gas as a boiler fuel.

Natural gas supplies appear to be sufficient to support the program in the short term. However, GAO believes that greater assurance should be provided so that natural gas will be available for high-priority and critical uses over the mid- and long terms until substitutes are developed or the transition to alternates is feasible.



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

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

This report discusses natural gas legislation and programs implemented over the past decade and currently ongoing at the Federal, State, and local levels. It briefly highlights some of the shortcomings, inconsistencies, and incompatibilities between legislative intent and program implementation at the various levels. We performed this review because we believe greater assurance should be provided that natural gas will be available for high-priority and critical uses over the mid- and long terms.

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

Milton J. Socolar

Acting Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

NATURAL GAS PLAN NEEDED TO PROVIDE GREATER PROTECTION FOR HIGH PRIORITY AND CRITICAL USES

D I G E S T

The steady decline of natural gas supplies during the past decade has made it apparent that our conventional sources are being depleted, and that this fuel is a finite, nonrenewable natural resource. Federal natural gas legislation enacted during the 1970s clearly shows the Congress' intent to ensure the efficient use of this premium fuel over the long term. The National Energy Act of 1978 expressed a natural gas policy based on caution and constraint with respect to the consumption of and dependence on natural gas.

EFFICIENT USE OF NATURAL GAS CLOUDED BY "GAS-FOR-OIL" PROGRAM

The direction of the Nation's natural gas use policy is clouded by the Department of Energy's (DOE's) "short-term" program to encourage oil burning industries and utilities to switch to natural gas. The use of natural gas as a boiler fuel has historically been considered an inefficient use of this resource.

The objective of this gas-for-oil program initiated by DOE in 1978 was to hold down oil imports by using the temporary natural gas "bubble," or deliverability surplus immediately, rather than to wait for oil burning facilities to be remodeled so they could burn coal. Unless extended, the program will expire May 1981.

Although the gas-for-oil program is attractive from the standpoint of reduced oil dependency, it could signal a departure from Federal programs to phase out the inefficient use of natural gas and erode the credibility of such programs. If interpreted that way, existing and potential users of natural gas are likely to

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pay little attention to the longer term goals in making their capital investment and fuel use decisions. The resultant increased usage will mean greater dependence on a nonrenewable premium fuel. (See pp. 13 to 15.)

Various natural gas forecasts indicate that for the remainder of this century natural gas supplies will continue the steady decline begun in 1973. These forecasts signify that the long-term availability of natural gas supply for high-priority and critical uses is an issue in need of attention.

PREVIOUS FEDERAL EFFORTS TO IMPLEMENT GAS USE POLICY HAD LIMITED SUCCESS

The Federal Government has had very limited success in previous attempts to restrict consumption and growth in the natural gas market through means of a coal conversion program and an end-use curtailment policy. A misunderstood natural gas policy will only add to the difficult task of assuring the efficient use of natural gas over the long term.

Over the past decade, diverse and conflicting natural gas policies and strategies were implemented at the State and local levels and by interstate pipeline companies. The motivating force behind these policies has generally been the economic self-interest and local needs of these market sectors rather than any national policy on the use of natural gas.

GAO reviewed the natural gas policies in nine States. Iowa and Minnesota had no curtailment policy or controls; as a result, the local utility companies under their jurisdiction were free to develop any plan they saw fit. The utility company plans, in some instances, generally followed their pipeline supplier's end-use scheme. Some of the plans, however, were quite vague.

Maryland, Ohio, and Tennessee, issued no curtailment guidelines for utility companies under their jurisdiction, but approved end-use curtailment plans on a case by case basis. Consequently, each utility company devised its own curtailment scheme based on its particular needs and conditions.

In Florida, the State commission directed utilities to file curtailment plans and suggested they follow the Federal priority-of-service categories, but approved the utilities' plans whether or not such priorities were followed.

Each of the three remaining States, Pennsylvania, North Carolina, and California, had developed a single statewide curtailment plan that local utilities were required to adopt and follow. These State plans, however, differed from Federal priorities. (See p. 18.)

As a result of Federal jurisdictional limitations and the wide variation in State and utility company curtailment schemes, the final use of natural gas did not necessarily conform to the Federal prioritized system of curtailment. Federal authority to control or regulate natural gas did not extend beyond delivery to utility companies.

Jurisdictional limitations also have an impact on Federal efforts to control the attachment of new customers because many States allowed growth to take place during the same period that the Federal Government was discouraging new attachments. (See p. 19.)

Of the 22 utility companies included in GAO's review, 18 were seeking new customers, primarily residential and small commercials. Many of the utility companies, in the States with no policy or guidelines governing new hookups, had self-imposed a variety of volumetric restrictions on attachment of new customers. (See p. 20.)

At the end-use level GAO found that 75 of the 78 large industrial end-users contacted had installed an alternate fuel capability as a result of prior natural gas shortages. Ten which had switched to oil were continuing to use this fuel to satisfy contractural commitments in order to maintain the business relationships built up with fuel oil suppliers.

Only 22 of the 78 end-users believed that future natural gas supplies would be adequate while 20 expressed the opposite view. Nine end-users said they would use natural gas as long as it was available while 16 of those who preferred natural gas intended to remain flexible in order to use natural gas or an alternate fuel depending on cost and availability. (See p. 21.)

GAO reviewed the growth and new hookup policies of three interstate natural gas pipeline companies and noted that as of May 1979, all three were permitting their distributors to attach new customers, yet, two were still curtailing gas supplies to the distribution companies they served. One company was no longer curtailing and did not expect to in the future.

Although two of the three companies were encouraging attachment of high priority customers, neither was promoting gas for industrial boiler fuel use. They believed this use should be restricted. One company considered the current use of natural gas in boilers as short sighted with potentially dangerous impacts on long-term supplies. (See pp. 20 and 21.)

RECOMMENDATIONS

The Secretary of Energy should take the lead and work with the Chairman of the Federal Energy Regulatory Commission to develop a

plan to provide greater assurance that natural gas supplies will be available for high priority and critical uses in the mid- and long terms, until substitutes are developed or the transition to alternates is feasible.

The plan should be built on an analysis of natural gas supply and demand scenarios assuming various physical, institutional, and regulatory impacts, and their effect on end-users at the national, State, and regional levels. The plan should include a determination of Government actions and contingency measures needed which will assure the availability of natural gas for high priority and critical uses.

DOE and the Commission should solicit the cooperation of and work closely with the States to achieve the plan's objectives.

Also, the Secretary and the Chairman should clearly communicate that the gas-for-oil program is temporary and should not be interpreted as a departure from overall Federal efforts to encourage the efficient use of natural gas. (See p. 24.)

AGENCY COMMENTS AND OUR EVALUATION

GAO provided a draft copy of its report to DOE and the Federal Energy Regulatory Commission for review, and both agencies responded with comments. (See apps. I and II.)

DOE took the position that adequate mechanisms exist to ensure that high-priority natural gas users are protected during periods of shortage. GAO disagrees. It says that the existing mechanisms serve only to alleviate an immediate short-term crisis and give little attention to assuring adequate supplies of natural gas for high priority and critical uses over the mid- and long terms.

FERC's comments discussed the Commission's statutory authority, mandated responsibilities, and its current policy toward the gas-for-oil program. However, the comments did not specifically address the report's recommendation. tions.

Contents

ABBREVIATIONS

AGA	American Gas Association
CTC	Columbia Gas Transmission Corporation
DOE	Department of Energy
ERA	Energy Regulatory Administration
ESECA	Energy Supply and Environmental Coordination Act
FERC	Federal Energy Regulatory Commission
FPC	Federal Power Commission
GAO	General Accounting Office
Mcf	thousand cubic feet
MFBI	Major Fuel Burning Installation
NEA	National Energy Act
NNG	Northern Natural Gas Company
Tcf	trillion cubic feet
TRANSCO	Transcontinental Gas Pipeline Corporation

CHAPTER 1

INTRODUCTION

Natural gas provides a significant percentage of all energy produced and consumed domestically. It accounts for 35 percent of energy produced and 25 percent of energy consumed. Natural gas is consumed in over half of all residences and commercial establishments. It is transmitted to more than 45 million customers representing 160 million consumers. Nearly 40 percent of all energy consumed by industry and agriculture is provided by natural gas.

The Nation has a large financial commitment to natural gas with a total utility industry and consumer equipment investment of over $100 billion. Half of this investment was used to establish a natural gas transmission system which consists of over 1 million miles of underground gas pipelines and mains extending throughout the United States.

The inadequacy of natural gas supplies, which was highlighted in 1971 and continued sporadically throughout the rest of the 1970s, brought into focus the important role played by this energy source and the problem faced by this Nation.

THE NATURAL GAS SHORTAGE PROBLEM

The Nation's natural gas problem during much of the 1970s was one of inadequate supply in the interstate market. Before this period, the growing demand for natural gas was primarily satisfied by supplies that were dedicated to the interstate market. During the early part of the decade, interstate pipelines found their existing reserves of natural gas inadequate to meet firm contractual commitments to their customers. This finding marked the beginning of natural gas curtailment along interstate pipelines. Moreover, as curtailments were beginning, the amount of natural gas produced annually was reaching its highest level. In 1973, natural gas production peaked at 22.7 trillion cubic feet (Tcf). Since reaching its peak, natural gas supplied to consumers has trended downward.

The potential adverse impacts of the supply deficiency were offset to some extent by conservation and fuel switching by consumers, and through the operation of curtailment programs established by Government bodies. Offsetting of the potential adversity of the supply deficiency evolved around protecting the critical needs for natural gas that existed and still exist in the residential, small commercial, and industrial markets. The needs of residential and small commercial consumers are critical because of the (1) size of these markets, (2) use made of natural gas--primarily space heating-by both markets, and (3) their inability to easily switch to an available alternate fuel.

The industrial sector, while using large quantities of gas for applications considered to be less efficient (boiler fuel), also has critical needs. These include the use of natural gas as a process fuel and as a feedstock.

Natural gas industry regulation initially concerned ways to alleviate the impacts of the supply deficiency but more recently included improving the supply-demand imbalance. The National Energy Act (NEA) of 1978, for example, provides incentives for increasing natural gas production while also authorizing programs intended to reduce and even eliminate the demands for natural gas. (See p. 9.)

OBJECTIVES, SCOPE, AND METHODOLOGY

This review was conducted to assess Federal natural gas policy in view of the supply and demand imbalance experienced by the interstate market during much of the 1970s. The objectives of this review were to (1) evaluate Federal efforts to alleviate the adverse effects of the imbalance between supply and demand; (2) identify prospective barriers that could impede Federal efforts to successfully implement natural gas policy; and (3) assess the policies and procedures implemented by selected States and companies involved with transporting, distributing, or consuming natural gas. Our review did not consider deregulation or pricing as alternatives to resolving the natural gas shortage problem.

We reviewed and analyzed the policies and programs implemented by the Federal Power Commission (FPC) and its successor agency the Federal Energy Regulatory Commission (FERC), the Department of Energy (DOE), 9 States, 22 utility companies and 78 natural gas users involved with transporting, distributing, or consuming natural gas. (See app. IV.) We also visited three interstate pipeline companies to obtain information regarding their policies and procedures governing the delivery and use of natural gas supplies. We interviewed Federal and State officials, representatives of pipeline and local utility companies, and industrial gas users to obtain information and documentation regarding the effect past shortages had on their natural gas supplies, policies, and programs.

We verified selected company data, however, we relied heavily on information and data analyses presented in other GAO reports concerning the production and consumption of natural gas over the short-, mid-, and long terms. These reports are identified by footnotes throughout the report. The results of our data analyses, oral interviews, and review and analysis of natural gas policies and programs implemented at the Federal, State, and local levels were combined into what we judged to be a reasonable basis for determining whether their approaches were consistent with national natural gas policy.

CHAPTER 2

THE NATURAL GAS PROBLEM AND THE FEDERAL RESPONSE

Natural gas shortages first occurred in 1971, and have continued sporadically each year, even though production continued to increase until 1973. From a high of 22.7 Tcf in 1973, natural gas production has dropped each year and totaled only 19.6 Tcf in 1979. Actually, indications of future supply shortages appeared in 1968, when for the first time, production exceeded discoveries added to proved reserves. Since 1968, average annual production has exceeded average annual discoveries added to proved reserves at a 2 to 1 ratio except for 1970 when the Prudhoe Bay reserves were initially included. Proved reserves which totaled about 293 Tcf in 1967 have declined to about 195 Tcf at the end of 1979.

The social and economic well being of the Nation is currently dependent on a continuing and adequate supply of natural gas. For those segments which depend on natural gas for heating and industrial purposes and for which there are no substitutes, the needs are critical.

Federal regulation of the natural gas industry has undergone a significant evolution since first implemented in 1938. Until the 1970s the Federal role dealt primarily with regulating the transportation and price of natural gas on the interstate system. With the advent of shortages, the Federal role was expanded in attempts to establish growth and use policies to reduce or prevent the adverse impacts of natural gas shortages. The Federal role was expanded and better defined with the establishment of DOE in 1977 and passage of the NEA of 1978.

THE NATURAL GAS PROBLEM: A DECADE OF SHORTAGE

The 1970s can be characterized as a decade of natural gas shortages. In 1971, interstate pipeline companies were, for the first time, unable to satisfy total demand, and production has fallen short of demand each year thereafter. This was true even in 1972 and 1973 when production was still increasing to the 22.7 Tcf high reached in 1973. Since then, annual production has been dropping about 3 percent each year and for 1979 totaled 19.6 Tcf.

An economic recession, warmer than normal winters and various Government programs offset the impacts that shortages would have caused under normal conditions. A

colder than normal winter in 1976-77, however, brought on a crisis which again emphasized the importance of natural gas and brought into sharper focus the natural gas problem. At the height of the crisis which occurred during the first week of February 1977, service to the residential sector was threatened in some areas of the Nation, and an estimated 1.2 million workers were idled. Again, much of the 1977 problem was overcome by the easing of the severely cold weather during the last half of February and the month of March. Subsequently, conservation, fuel-switching, and warmer than normal weather, along with Government programs, have worked to prevent a similar crisis. Yet, because of supply uncertainties and existing demand, the possibility of a reoccurrence has not been eliminated.

Conventional sources are being depleted

The conventional sources of natural gas are being depleted while critical needs for this energy source still exist. Since 1968, annual production has averaged about 20 Tcf while annual discoveries added to proved reserves have averaged close to 9 Tcf (excluding 1970 when the Prudhoe Bay resources were initially included). As a result, proved reserves have declined by one-third, dropping from 293 Tcf at the end of 1967, to 195 Tcf at the end of 1979.

In a recent report estimating the potential of oil and natural gas reserves available to the United States from Alaska, Canada, and Mexico, we concluded that U.S. natural gas production will continue to decline from 18.4 Tcf in 1980 to 16.8 Tcf in 1990 and still further to about 16.6 Tcf in 2000. 1/ This represents a decline in production at the rate of about 1 percent a year.

Outlook for unconventional gas sources is more optimistic

In an earlier report, we discussed the potential of unconventional sources of natural gas to help maintain overall domestic production levels as supplies from conventional gas resources decline. 2/ Our report concludes that oil imports could be reduced and domestic gas production increased if additional gas production is obtained

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1/"Oil and Natural Gas from Alaska, Canada, and Mexico-- Only limited help for U.S." (EMD-80-72, Sept. 11, 1980).

2/"Help for Declining Natural Gas Production Seen in the Unconventional Sources of Natural Gas" (EMD-80-8, Jan. 10, 1980).

from unconventional gas resources. Unconventional gas resources include Devonian shales, tight sands, coal bed methane, and methane from geopressured zones.

We reported that unconventional gas resources can contribute to future domestic supplies and help maintain overall production levels. Gas from eastern Devonian shale and western tight sands is the chief potential contributor to unconventional gas production in the midterm.

As much as 1 Tcf per year can be produced from Devonian shales in th 1990s according to a study prepared for DOE. 1/ This compares with current production estimated at about 0.1 Tcf a year. Current annual production from the tight sands areas is over 0.85 Tcf, and it has been estimated in the study that as much as 7.7 Tcf of natural gas could be produced annually from 14 of the 20 major identified basins by 1990. Just as with oil, however, economic and technical uncertainties must be resolved to realize this large an increase in production from these two sources.

Some coal bed methane production appears feasible with price decontrol, but further development and demonstration appear necessary to attract widespread industry or community interest. And due to the uncertainty of geopressured methane's potential, this resource is too speculative to depend on as a major contributor to the Nation's energy supplies at this time.

The 8.7 Tcf annual unconventional gas production forecasted for the 1990s represents a potential increase in domestic gas supplies of almost 45 percent of 1979 production. An increase in production of this magnitude, if realized, would be sufficient to replace the entire decline in conventional natural gas production, lock out all natural gas imports, and support better than a 2-percent growth rate in natural gas consumption. However, we believe such an increase in production is overly optimistic.

Natural gas imports

The current gap between domestic natural gas production and consumption is being filled by imports. Our recent analysis 2/ concluded that even if the United States were to hold natural gas consumption constant at the 1978 level

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1/Lewin and Associate, Inc., "Enhanced Recovery of Oil and Gas," Feb. 1978.

2/See footnote #1 on p. 4.

through 2000, dependence on natural gas imports would grow from about 5 percent to about 15 percent as a result of projected declining domestic production.

Alaska, Canada, and Mexico offer limited assistance in resolving our mid-term national energy problem in both oil and natural gas. In spite of the potential of Alaska, the United States must deal with declining domestic production of crude oil and natural gas through most of the 1980s and 1990s. We will have to work to conserve and increase our domestic production of oil and gas until long-range objectives of renewable and inexhaustible energy sources are attained. Supplemental sources from Canada and Mexico could offset part of the decline in domestic production through the 1980s. This would increase our dependency on imports, however, and the immediate problem facing the United States is how to keep our existing dependence from growing.

Critical needs exist in all sectors

As a result of the growth of the natural gas industry, critical needs exist for gas service in the residential, commercial, and industrial sectors. While alternate fuels can be substituted for some uses of natural gas, the critical needs are those for which alternates are not currently feasible due to physical, economical, or technical factors. The demand for natural gas service by the residential sector may be the most critical due to its size, the uses it makes of natural gas, and difficulty to switch to alternate fuels. When compared with the commercial and industrial sectors the residential sector is the lesser in terms of yearly consumption. Of the 14.7 Tcf of natural gas sold by the gas utility industry in the United States in 1978 the residential sector accounted for 5.1 Tcf. Yet, 42.2 million of the residences in the United States are served by natural gas. Of these, 36 million depend on natural gas for heating. Other important but less extensive uses of natural gas in residences include water heating and appliance operation. Consequently, the health and safety of a significant portion of the population depend on natural gas.

The residential sector's dependence on natural gas is increased by its need for uninterrupted service and its inability to easily switch to alternate fuels. When shortages began to occur and curtailment plans became necessary, the residential sector was given top priority because of these conditions.

The FPC stated in its Opinion No. 697:

> "residential and small commercial consumers must occupy the top priority because of the magnitude of the problems associated with conversions to alternate fuels by these consumers and because interruption of such service involves very real safety risks which cannot be accepted."

Conversion costs and environmental impacts are two of the problems anticipated if the residential sector is required to convert to alternate fuels. The safety risks referred to above pertain to the danger which would occur if gas service were temporarily interrupted. The loss of gas service on a system requires a house-to-house pilot light turn-on service by trained technicians.

Commercial service is defined by FERC as 1/

> "Service to customers engaged primarily in the sale of goods and services including institutions and local, State and Federal Government agencies for uses other than those involving manufacturing of electric power generation."

In 1978 the commercial sector consisted of 3.4 million customers and purchased about 2.5 Tcf of natural gas.

The commercial sector is similar in many respects to the residential sector as its primary use of natural gas is for heating. In many cases, it provides essential public services and is, therefore, important to the public welfare. And, like the residential sector, its size in terms of users by geographical area requires uninterrupted service. Adverse economic and environmental impacts would also result if this sector had to convert.

Industrial service is defined as 2/

> "Service to customers engaged primarily in a process which creates or changes raw or unfinished material into another form or product including the generation of electric power."

The industrial sector, consisting of about 189 thousand users, is the largest purchaser of natural gas, accounting for about 7 Tcf of the 14.7 Tcf sold by the gas industry during 1978.

The industrial sector, for several reasons, has been the first to be denied service during times of natural gas

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1/18 C.F.R. 2.78 (c)(2).
2/18 C.F.R. 2.78 (c)(3).

shortages. One reason is that the industrial sector uses large quantities of natural gas for applications such as boiler fuel for which alternate fuels are available. It was determined that the boiler fuel users could convert to alternates more economically, and that they would be better able to purchase and use pollution control equipment.

Certain industrial applications, however, are totally dependent on natural gas. These include uses of natural gas as process fuel and as a feedstock. The definition of feedstock gas is "* * *natural gas used as raw material for its chemical properties in creating an end product." Process gas is "* * *gas use for which alternate fuels are not technically feasible such as in applications requiring precise temperature controls and precise flame characteristics." 1/

THE FEDERAL RESPONSE--A HISTORY OF EVOLVING RESPONSIBILITIES

Federal regulation of the natural gas industry has undergone significant changes since being initiated in the late 1930s. Federal authority has been extended by court decisions and legislation from control over the prices charged and service provided by the interstate pipeline companies to the producer and encompasses the prices on both the interstate and intrastate systems. The establishment of DOE in 1977 and passage of the National Energy Act in 1978 increased the Federal authority to control the uses and prices of natural gas.

The Natural Gas Act of 1938

Federal regulation of the natural gas industry began with passage of the Natural Gas Act of 1938 (15 U.S.C. 717). The act created the Federal Power Commission (FPC) and made it responsible for regulating interstate pipelines, matching demand with supply, approving gas imports and exports, and for mandating service to areas unable to gain access to natural gas.

FPC responded to natural gas shortages early in 1971, when it ordered interstate pipeline companies to prepare and file individual plans for managing shortages. A variety of "curtailment" plans were submitted with each tailored to the sales and customer patterns of the individual pipelines.

The advent of natural gas shortages raised the issue of whether the Federal Government should regulate the price of natural gas sold in the interstate market.

1/18 C.F.R. 2.78 (c)(7) and (8).

Opponents of regulation contended that the price allowed was artificially low and therefore encouraged consumption and discouraged exploration. They asserted that the market could best allocate short supplies and that the resulting higher prices would stimulate exploration and new supplies. Proponents of regulation contended that the rate of return allowed was adequate to encourage new development and that the desire to defeat regulation led producers to withhold supplies.

Whatever the cause, the quantity of natural gas made available to the interstate market did not keep pace with the quantity made available to the intrastate market. To illustrate, during the 1971-75 period, interstate marketed production declined by 15.6 percent while the intrastate marketed production declined by only 4.8 percent. And further, American Gas Association (AGA) and FPC statistics for the same period indicated that an average of 90 percent of new gas reserve additions were dedicated to the intrastate market.

FPC undertook a number of programs intended to reverse the continuing decline in deliveries to the interstate market. FPC actions included (1) raising the price interstate pipeline companies could pay producers, (2) permitting interstate companies to make limited-term emergency purchases from the intrastate market in excess of the nationwide ceiling rate, (3) permitting high priority industrial users experiencing servere curtailments to purchase gas directly from producers at prices that could exceed the nationwide ceiling rate, and (4) instituting the advance payment program which permitted interstate pipelines to provide interest free loans to producers for use in the exploration, development, and production of natural gas.

The FPC was abolished on October 1, 1977, pursuant to DOE Organization Act of 1977 (42 U.S.C. 7101). FPC's responsibilities under the Natural Gas Act of 1938, in general, were transferred to DOE's Federal Energy Regulatory Commission (FERC). Two major purposes behind the establishment of DOE were to (1) help achieve effective management of the Federal Government's energy function and (2) formulate and implement a national energy policy to deal with the short-, mid-, and long-term energy problems of the Nation. The subsequent National Energy Act provided a framework for energy policy.

The National Energy Act of 1978

Five energy bills were enacted into law on November 9, 1978, which together are commonly referred to as the NEA of 1978. These acts are: the Natural Gas Policy Act of 1978,

the National Energy Conservation Policy of 1978, the Powerplant and Industrial Fuel Use Act of 1978, the Public Utilities Regulatory Policies Act, and the Energy Tax Act of 1978. The overall purpose of the NEA was to start this Nation toward energy independence by providing a framework for

--increasing the supply of or reducing the demand for scarce, nonrenewable energy resources, namely oil and gas;

--increasing the use of abundant domestic fuels (coal); and

--developing and transitioning to renewable energy sources.

Various segments of the NEA specifically address the natural gas situation. The act clearly indicates recognition of the importance of natural gas to the Nation, the limitations and uncertainties of existing and future supplies, and the need for actions and measures to both increase supplies and reduce consumption.

The Natural Gas Policy Act of 1978 (92 Stat. 3350)--remedied the supply distortion caused by the two market system; provided incentives for increased exploration and drilling; and provided a system of safeguards to protect high-priority users.

A supply distortion occurred under the two-market system when the price of natural gas in the intrastate market exceeded the regulated price in the interstate system. In the absence of price controls, the intrastate market was able to out-bid the interstate market for shrinking supplies. The result was that while service was being expanded or at least maintained by the intrastate system, curtailments and fuel switching was occurring on the interstate market increasing the demand for and dependence on foreign imports. The Natural Gas Policy Act addressed these problems by bringing the intrastate market under Federal jurisdiction and by prescribing a schedule for deregulating the price of natural gas by 1985. Deregulation was deemed necessary to provide incentives for drilling and exploring. Gradual deregulation was to soften the inflationary impacts of increasing natural gas prices.

The act continues to include residential and small commercial consumers as high-priority users. Their supplies are protected by the emergency provisions of the act whereby the President could declare an emergency and reallocate natural gas supplies.

Their costs were to be protected by the act's incremental pricing provisions whereby a portion of the higher cost of gas was to be absorbed by the industrial users.

The National Energy Conservation Policy Act of 1978 (92 Stat. 3206)--was passed "* * * to reduce the growth in demand for energy in the United States, and to conserve nonrenewable energy resources produced in this nation * * *." The act provided for energy audits of residential and public buildings to identify conservation and solar application possibilities; weatherization grants for low income homes; loan programs for solar heating and cooling, and conservation applications; and grant programs to improve energy efficiency in schools and hospitals. In passing the act, the Congress recognized the need for making the most efficient use of domestically produced nonrenewable energy sources (namely oil and gas) in order to sustain economic growth without increasing the Nation's dependence on foreign sources, and consequently, its vulnerability to interruptions.

The Powerplant and Industrial Fuel Use Act of 1978 (92 Stat. 3289)--was passed in recognition of the continuing need for a program to expand the use of coal as a primary energy source for existing and new powerplants and major fuel burning installations. A coal conversion program was initially implemented pursuant to the Energy Supply and Environmental Coordination Act (ESECA) of 1974 (88 Stat. 246). The 1978 Fuel Use Act was intended, among other things,

> "* * * to streamline the regulatory process and to improve dramatically the program's effectiveness in reducing consumption of oil and gas in utility and industrial boilers as a result of the increased use of alternate fuels such as coal."

A major problem with the ESECA coal conversion program was that the Federal Goverment had to individually identify new oil or gas burning units before ordering the use of coal or alternates. Under the Fuel Use Act, the burden was shifted to the owners and the use of gas or oil becomes illegal under certain provisions of this act unless an exemption is granted. For example, new electric powerplants and new major fuel burning installations are prohibited from using natural gas or oil as a primary energy source. The act also prohibits existing powerplants and major fuel burning installations from using natural gas or oil as a primary energy source

on or after January 1, 1990. 1/ However, the Fuel Use Act provides for both temporary and permanent exemptions from these prohibitions justified on the basis of environmental regulations, site limitations, system reliability, cost, or other special circumstances. The Fuel Use Act became effective on May 8, 1979.

The Public Utility Regulatory Policies Act (92 Stat. 3117) and the Energy Tax Act of 1978 (92 Stat. 3174)--while not specifically addressing the natural gas problem do contain provisions and incentives intended to reduce the demand for natural gas. The Public Utility Regulatory Act, for example, was based on the principle that utility rates should be structured in a manner that would encourage conservation; efficient use of facilities and resources; and equitable rates to customers. The Energy Tax Act provides a multitude of tax provisions as incentives to reduce consumption of the Nation's nonrenewable energy resources.

1/The extent to which these prohibitions apply to the respective facilities is prescribed in sections 201, 202, 301, 302, and 303 of the act.

CHAPTER 3

NATURAL GAS PROGRAMS INCOMPATIBLE WITH LEGISLATIVE INTENT AND LONG-TERM GOALS

Federal natural gas legislation over the past decade clearly shows the Congress' intent to ensure the efficient use of this premium fuel over the long term. This was generally viewed to mean discouraging use by "low-priority" categories of users such as industrial and commercial boiler fuel users. Natural gas programs implemented at the Federal and State levels, however, have not always been compatible with this intent. These programs have raised questions regarding their consistency with and impact on natural gas policy goals over the mid- and long terms. For example, in reaction to the Nation's increasing dependency on oil imports and a temporary natural gas deliverability surplus, the Federal Government has over the past 2 years promoted natural gas market expansion in all categories of use. Likewise, many States historically have allowed utilities flexibility in the attachment of new customers and new gas loads in all categories regardless of the priority of usage.

Although we do not take issue with the gas-for-oil program because of its favorable impact on reducing oil imports, it could nevertheless signal a departure from Federal programs to phase out the inefficient use of natural gas and erode the credibility of such programs. If interpreted that way, existing and potential users of natural gas are likely to pay little attention to the longer term goals in making their capital investment and fuel use decisions. The resultant increased usage will mean greater dependence on a nonrenewable premium fuel.

FEDERAL NATURAL GAS POLICY AND PROGRAMS

Since 1978, DOE has been encouraging increased consumption of natural gas supplies. In November 1978, the former Secretary of Energy announced that oil burning industries and utilities would be urged to switch to natural gas instead of converting quickly to coal as required by the Fuel Use Act. The objective of this gas-for-oil program was to hold down oil imports by using the temporary natural gas "bubble," or deliverability surplus immediately, rather than to wait for facilities to be remodeled so they could burn coal.

In addition to encouraging utility and industrial users to switch to gas, DOE, in January 1979, sent letters to State regulatory commissions encouraging them to lift

any existing restrictions and to promote the use of natural gas by new residential customers.

In contrast, Federal energy policy over the past decade has been directed at the efficient use of the Nation's declining energy resources, particularly natural gas. Through the implementation of this policy, the Government attempted to restrict consumption and growth in the natural gas market. The Government attempted to restrict consumption by implementing a coal conversion program that was statutorily mandated and to restrict growth by developing and implementing an end-use curtailment policy. However, the success of these attempts was limited.

Potential over-commitment to current objectives may inhibit long-term gas use goals

The decision to implement a short-term gas-for-oil program was, in effect, a complete departure from DOE's established long-term policy to conserve natural gas supplies and to phase out the inefficient use of natural gas as a boiler fuel. Although this gas-for-oil program is justified considering this Nation's pressing need to reduce oil imports, its implications need to be fully explored and communicated to impacted parties to ensure that erroneous "signals" are not sent out which might have an impact on Federal mid- and long-term gas policy goals.

Although FERC's Order implementing the gas-for-oil program clearly stated that it was a temporary program, it has already been extended twice. Furthermore, the Special Rule, Docket No. ERA-R-79-1, issued April 4, 1979, by DOE establishing this program indicates that it could be extended for up to 5 years.

By encouraging greater consumption of natural gas, particularly in the face of steadily declining supplies, DOE is taking risks which need careful consideration. Such a program of increased usage could have long-term implications for dependence on a scarce premium fuel. The longer such a program is continued, the greater the risk that participants will assume that it is here to stay. One such instance has already occurred. A gas producer told FERC, during an informal public conference in April 1980 on the availability and pricing of natural gas, that if the program were terminated this year, 50 percent of his gas production would have to be closed down because he had entered into a large sales contract with a utility in accordance with provisions of the gas-for-oil program. FERC officials expressed their concern that if the rest of industry reacts in the same way,

FERC could get "locked into" the program whether it wanted to or not. Despite this concern, the program was extended to May 31, 1981. In extending this program, FERC stated that fuel oil users do not represent a permanent addition to the natural gas market, and many participating end-users had previously used natural gas prior to earlier periods of curtailment.

Past programs to restrict gas consumption and growth have had limited success

In contrast to current policy, past Federal energy policy was directed at restricting consumption and growth in the natural gas market. As previously mentioned, the Government attempted to restrict consumption by implementing a coal conversion program that was statutorily mandated and to restrict growth by developing and implementing an end-use curtailment policy. The limited success of these efforts is discussed below.

The coal conversion program

The basis for the policy to restrict consumption was embodied in the Energy Supply and Environmental Coordination Act of 1974 (ESECA). This act provided the Government the authority to issue orders prohibiting existing powerplants and major fuel burning installations (MFBI) from burning natural gas as a primary energy source. Under this act, the Government could have also required a new powerplant or MFBI to be designed and constructed with the capability to use coal. The Government's authority to issue orders under ESECA expired on December 31, 1978.

We reviewed the coal conversion program and reported 1/ little had been accomplished during the program's first 3 years of operations. Few conversion orders were ever made final and the program's Administrator acknowledged that the gas and oil savings resulting from the program were negligible. The recent Powerplant and Industrial Fuel Use Act of 1978 was intended to alleviate the problems confronting DOE in ordering conversion.
(See p. 11.)

The natural gas curtailment policy

FPC's, the predecessor agency of FERC, efforts to implement a national natural gas curtailment policy met with limited success. This policy was established in the early 1970s to minimize the impact of natural gas shortages.

1/Letter report to the Committee on Energy and Natural Resources, United States Senate (EMD-77-66, Sept. 16, 1977).

The key element of this policy was an end-use strategy. The end-use strategy was an attempt to allocate available supplies to those users solely dependent on natural gas, at the expense of those users who could more easily use alternate or substitute fuels. FPC ordered the interstate pipelines to prepare and submit plans for managing shortages. A variety of "curtailment" plans were submitted with each tailored to the sales and customer patterns of the individual pipeline.

To achieve uniformity, FPC issued order 467-B, in March 1973, which required interstate pipelines to curtail service in accordance with a predetermined priority or end-use-system. The end-use strategy was designed to assure that when demand exceeded supply, availability of natural gas supplies would first be provided to high priority users. (See app. III for the priority-of-delivery categories.)

FPC experienced numerous problems in attempting to implement a uniform curtailment policy. A majority of the plans submitted were only given interim approval pending the resolution of differences. Moreover, one interstate pipeline's curtailment plan, given permanent status by FPC, was overturned by a Federal Court of Appeals on the basis that (1) the data base was outdated and (2) the plan did not take into account that some customers were totally dependent on the interstate pipeline while other customers purchase gas from other pipelines able to supply higher percentages of demand.

A bigger problem, however, was the fact that the States, not FPC, controlled the actual end-use of most natural gas supplies. Consequently, the State agencies could not be required to adopt FPC's end-use policy. FPC did, however, solicit the cooperation of these agencies in adopting similar curtailment plans.

Our review of the regulatory agencies in nine States showed that most had approved utility company plans that generally followed the basic curtailment principles prescribed by FPC. The final use of the natural gas did not, however, necessarily conform to FPC's end-use policy. This occurred because the States elected to allow the utilities flexibility which, in their opinion, resulted in a more equitable response to local economic conditions than if FPC's system had been rigidly adhered to. As a result, the final allocation of gas among end-users often proceeded, in a manner very different from that intended by FPC.

In developing its end-use curtailment policy, FPC also attempted to discourage growth by requiring pipelines

to limit their deliveries to local distribution companies to an amount of gas not to exceed the amount that was delivered during a fixed historical base period. However, FPC's lack of authority again stymied its efforts because distributors' actions in attaching new customer loads were controlled by State policies.

Various studies showed that new customers were continually being added by gas utility companies across the country. AGA reported that, during 1978, gas utilities nationwide had a net gain of 501,000 customers, primarily high priority--a 1-percent increase over 1977. A June 1976 study by the National Association of Regulatory Utility Commissioners 1/ showed that attachment of new customers and new gas loads had continued during a period of increasing curtailments by interstate pipeline companies. The study indicated that even with some State moritoriums on new hookups, 56 percent (270 out of 480) of the major distribution companies were attaching new customers. These companies did business in 41 of the 48 States for which the data were reported. Furthermore, the study showed that these attachments were taking place in all end-use categories, although the highest percentage was in the high-priority residential and small commercial sectors.

The FPC staff believed that the fixed based period used in the curtailment policy allowed a utility company to add new customers within certain broad constraints. This was deemed possible because a utility company's supplemental supplies, acquired after the fixed base period usage volume was specified, were not taken into account in determining subsequent allocations under a pipeline company's curtailment plan.

DIVERSE AND CONFLICTING POLICIES IMPLEMENTED AT STATE AND LOCAL LEVELS AND BY INTERSTATE PIPELINE COMPANIES

Over the past decade, diverse and conflicting natural gas policies and strategies were implemented at the State and local levels and by interstate pipeline companies. The motivating force behind these policies has generally been the economic self-interest and local needs of these market

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1/NARUC at the request of FPC surveyed State Commissions to obtain information on their policies with respect to the attachment of new customers and gas loads.

sectors rather than any national policy on the use of natural gas.

State regulatory agencies and utility companies

In the absence of uniform end-use curtailment plans by interstate pipelines and Federal control extending to the end-users, State policies have varied widely among the nine States visited, ranging from no policy or controls to very strong mandates regulating curtailment of end-users by local utility companies.

Two States of the nine States we reviewed, Iowa and Minnesota, had no curtailment policy or controls, and as a result, the local utility companies under their jurisdiction were free to develop any plan they saw fit. The utility company plans, in some instances, generally followed their pipeline supplier's end-use scheme. Some of the plans, however, were quite vague.

Three States, Maryland, Ohio, and Tennessee, issued no curtailment guidelines for utility companies under their jurisdiction, but approved end-use curtailment plans on a case by case basis. Consequently, each utility company devised its own curtailment scheme based on its particular needs and conditions.

In one State, Florida, the commission directed utilities to file curtailment plans and suggested they follow Order 467-B priority-of-delivery categories. The commission, however, approved the utilities' curtailment schemes whether or not they followed Order 467-B.

Each of the three remaining States, Pennsylvania, North Carolina, and California, had developed a single statewide curtailment plan that local utilities were required to adopt and follow. These State plans, however, differed from the 467-B scheme. One plan was closely aligned with the five priority end-use curtailment scheme of that State's major pipeline supplier. The second State plan had seven priorities and the third State plan had been changed to a nine priority scheme to align it more closely with Order 467-B. Even in this case, however, some priority categories remained distinctly different from the FPC categories.

As a result of FPC's jurisdictional limitations and the wide variation in State and utility company curtailment schemes, the final use of natural gas did not necessarily

conform to FPC's prioritized system of curtailment under Order 467-B.

Jurisdictional limitations also impacted on FPC efforts to control the attachment of new customers. New customer attachment policies were generally controlled at the State level. This is demonstrated by the fact that while DOE's encouragement to attach new customers only began in early 1979, many States had been allowing growth to take place during the same period that FPC was discouraging new attachments. An April 1978 report by Merril Lynch, Pierce, Fenner & Smith, Inc., on State restrictions on new gas customers, showed for example, that only 4 out of the 48 contiguous States and the District of Columbia, were not allowing any new residential hookups. Forty-four allowed commercial attachments, 30 allowed new industrial attachments, and 29 States allowed new hookup in all 3 categories.

State involvement varied from weak to strong in controlling utility company growth practices. Four of the States visited, Florida, Iowa, Minnesota, and Tennessee, had no policy or guidelines governing new hookups or growth; therefore, any new restrictions would have to be self-imposed at the discretion of individual utility companies and possibly their pipeline suppliers. Four other States, Pennsylvania, North Carolina, Maryland, and Ohio, were involved in approving new hookups in response to request initiated by individual utility companies. Each State, however, imposed as a prerequisite to approval, a variety of conditions such as a 10-year supply/demand projection; volume restrictions on growth; limitations on number of customers by category; and energy efficiency and insulation standards. Until September 1978, the ninth State, California, had imposed a statewide ban on new nonresidential service that exceeded certain consumption levels; however, residential and small commercial customer hookups were never banned in this State even at the height of the natural gas shortage. The five States involved in regulating new hookups were granting approval for new attachments. Two had removed all restrictions although one still required their approval before utilities attached customer using 300 Mcf/day.

State utility commissions have apparently not hesitated to allow new hookups if gas supplies are proved to be available. For example, one State commission decided that for even a possible short-term excess in supply, it was clearly in the public interest to add industrial and large commercial customers because they are curtailable. It also approved attachment of new residential customers on the premise that given the capacity to serve, a public utility is duty bound to use that capacity without discrimination.

Of the 22 utility companies included in our review, 18 were seeking new customers, primarily residential and small commercials, although low-priority customers using up to 300 Mcf/day were also being sought. Many of the utility companies, in the States with no policy or guidelines governing new hookups, had self-imposed a variety of volumetric restrictions on attachment of new customers.

Interstate pipeline companies

In our review of the growth and new hookup policies of Transcontinental Gas Pipe Line Corporation (TRANSCO), Columbia Gas Transmission Corporation (CTC) and Northern Natural Gas Company (NNG), we noted that as of May 1979, all three were permitting their distributors to attach new customers, yet, two (TRANSCO and NNG) were still curtailing gas supplies to the distribution companies they served.

Both TRANSCO and CTC were actively encouraging their distribution companies to seek growth and unrestricted attachment of new high-priority customers. TRANSCO, however, was still reporting curtailments of about 35 percent of total customer contract demand. CTC was no longer curtailing and did not expect to in the near future. Neither pipeline was promoting gas for industrial boiler fuel use, believing this use should be restricted. TRANSCO considered the current policy encouraging the use of natural gas for boiler fuel as short sighted with potentially dangerous impacts on long-term supplies.

NNG, while not actively encouraging new attachments, believes the distribution companies they serve should be able to hookup new customers within existing firm entitlements. NNG has continued to curtail customers' demands primarily because its pipeline capacity limits its gas delivery ability.

TRANSCO was projecting a 15-percent increase in its available supply for 1979 as compared to 1978. After another slight increase in 1980, TRANSCO expects its supply to remain constant through 1984-85. It expects to meet demand, including new hookups during this period. After 1985, however, TRANSCO is projecting its supply to decrease, a trend which it expects nationwide.

Although CTC has projected a continuing increase in total available gas through 1987 nationally, its own future supply picture is somewhat bleaker. Its 10-year projection of deliveries from its 5 nonaffiliate pipeline

suppliers shows an unabated downward trend even when considering additions of nonhistoric supplies from such sources as Mexico and Alaska. CTC's own source projections to meet anticipated growth in demand beyond 1983 also included potential nontraditional supply sources.

NNG's supply projection shows a downward trend after 1982 for their total system (NNG officials believe the current increased availability of gas supplies is only a temporary condition resulting from price deregulation). Their projected decrease in supply is mitigated somewhat through supply additions expected from Canada; however, NNG does not yet have final approval for acquiring this gas.

End-users

At the end-user level we found that 75 of the 78 industrial end-users we contacted had installed an alternate fuel capability. Ten which had switched to oil were continuing to use this fuel to satisfy contractual commitments in order to maintain the business relationships built up with fuel oil suppliers.

Only 22 of the 78 believed that future natural gas supplies would be adequate while 20 expressed the opposite view. Nine end-users said they would use natural gas as long as it was available while 16 of those who preferred natural gas intended to remain flexible in order to use natural gas or an alternate fuel depending on cost and availability.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Natural gas supplies over one-fourth of this Nation's energy. It is used by residential, commercial, and industrial sectors, and these sectors have uses which currently cannot be served by alternate fuel due to physical, economical, and technical constraints. Supply shortages which occured in the early 1970s and continued to varying degrees throughout the decade demonstrated the importance of natural gas to the social and economic well-being of this Nation. Shortages have threatened service to the residential sector, caused schools and businesses to close, and idled workers. More importantly, from a policy standpoint, these shortages brought into focus the fact that the conventional sources of natural gas were being depleted and the realization that natural gas was a finite, natural resource. These conditions would appear to dictate the establishment of a plan to ensure the efficient use of this domestic fuel.

More recently, the Nation's natural gas problem was addressed by the NEA of 1978. It eliminated the two market system; provided for price deregulation and incremental pricing; established a uniform, across-the-board curtailment scheme; and provided for conservation and fuel-switching programs. In general, the NEA expressed a natural gas policy based on caution and constraint with respect to the consumption of and dependence on natural gas. It recognized the fact that (1) natural gas was an important source of energy for this Nation; (2) certain users were solely dependent on natural gas at this time; (3) natural gas was now a limited, nonrenewable resource; and (4) natural gas should, therefore, be protected until the transition to other energy sources is feasible.

The need to reduce this Nation's demand for and dependence on foreign imports is without question, a high priority. This has been demonstrated time and again during the 1970s, most recently by the Iranian crisis. DOE's short-term approach has been to encourage increased natural gas consumption and to promote market expansion in order to reduce the current and future demand for oil.

Although we do not take issue with the "gas-for-oil" program because of its favorable impact on reducing oil imports, we believe that it could nevertheless signal a departure from Federal programs to phase out the inefficient use of natural gas and erode the credibility

of such programs. If interpreted that way, existing and potential users of natural gas are likely to pay little attention to the longer term goals in making their capital investment and fuel use decisions. The resultant increased usage will mean greater dependence on a nonrenewable premium fuel.

The Government responded to natural gas shortages by developing and implementing its curtailment policy. This policy is primarily based on a prioritized end-use strategy which becomes effective only on interstate pipelines experiencing natural gas supply shortages. Under this policy, uses which are considered to be the most inefficient are not permanently denied service. It is a crisis management policy which provides no long-term protection against the premature depletion of the natural gas resource base.

Nevertheless, the Government has promoted expansion in the high priority market by encouraging the attachment of new residential users. This expansion locks in critical uses and creates a greater demand for future long-term supplies. Because of the reliance being placed on future supplies and the uncertainty associated with these supplies, we believe that DOE needs to provide greater assurance that supplies will be available over the mid- and long terms for high-priority and critical uses.

RECOMMENDATIONS

We recommend that the Secretary of DOE take the lead and work with the Chairman, FERC, to develop a plan to provide greater assurance that natural gas supplies will be available for high priority and critical uses in the mid- and long-terms, until substitutes are developed or the transition to alternates is feasible.

The plan should be built on an analysis of natural gas supply and demand scenarios assuming various physical, institutional, and regulatory impacts and their effect on end-users at the national, State, and regional levels. The plan should include a determination of Government actions and contingency measures needed to better protect high priority and critical uses over the mid- and long terms.

The Department and the Commission should solicit the cooperation of and work closely with the States to achieve the plan's objectives.

Also, the Secretary and the Chairman should clearly communicate that the gas-for-oil program is temporary and should not be interpreted as a departure from overall Federal efforts to encourage the efficient use of natural gas.

AGENCY COMMENTS AND OUR EVALUATION

We provided a draft copy of our report to DOE and FERC for review, and both agencies responded with comments (see apps. I and II). Their comments and our evaluation are summarized below.

DOE took the position that adequate mechanisms exist to ensure that high-priority natural gas users are protected during periods of shortage. DOE said that it has seen no convincing evidence that the short-term use of natural gas to displace fuel oil will adversely affect long-term natural gas supplies. The Department also stated that by creating an incentive for expanded exploration and development, the Department's oil displacement program may have an additional beneficial effect of increasing long-term supplies.

We disagree. It is our view that the existing mechanisms serve only to alleviate an immediate short-term crisis, but give little attention to assuring adequate supplies for high priority and critical uses over the mid- and long terms. Also, we do not contend that the oil displacement program has adversely affected long-term supplies, but only that it could do so if it is interpreted as a departure from Federal programs to phase out the inefficient use of gas. Further, we fail to see how a "short-term" oil displacement program could have any significant beneficial effect on long-term supplies through expanded exploration and development, unless the program is perceived as a "permanent" fixture, as we fear it may be.

Contrary to DOE's statements, we believe that DOE's policy aimed at using coal and renewable alternate fuels rather than natural gas in low priority industrial and electric utility uses is appropriate.

DOE contends that its January 1979 letter to State public utility commissioners recommending the lifting of the moratorium on new residential hookups did not encourage widespread increases in natural gas demand in high-priority markets. We believe, however, that such a formal recommendation, regardless of the underlying reason, provided considerable incentive for pipelines and distribution companies to seek new residential hookups, thus encouraging an increase in high priority demand.

DOE states that its current natural gas curtailment program and the emergency provisions of the NGPA of 1978 are adequate mechanisms for protecting high priority users during periods of shortage. Such mechanisms, however, are geared to addressing short-term crisis-type situations, which are

exactly the types of situations we believe could be avoided, or at least minimized, with better mid- and long-term planning.

DOE wrongly implies that we favor a policy of reserving all gas supplies for high-priority customers and denying gas to low-priority users capable of using fuel oil. We merely pointed out that although promoting the unrestricted use of gas is attractive from the standpoint of reducing oil imports, it could signal a departure from Federal programs to phase out the inefficient use of natural gas and erode the credibility of such programs. If that happens, existing and potential users of natural gas are likely to pay little attention to the longer term goals in making their capital investment and fuel use decisions. The resultant increased usage will mean greater dependence on a nonrenewable premium fuel.

FERC's comments discussed the Commission's statutory authority, mandated responsibilities, and its current policy toward the gas-for-oil program. However, the comments did not specifically address the report's recommendations.

Department of Energy
Washington, D.C. 20585

DEC 23 1980

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

Dear Mr. Peach:

This letter provides the Department of Energy's comments on the GAO draft report entitled "Availability of Natural Gas Supply for High-Priority and Critical Uses Should Receive More Attention."

The report alleges that the Department's natural gas policies are inconsistent and that a strategy for protecting high-priority customers must be developed. For example, at page i, the report states that "[t]he direction of the nation's natural gas use policy is clouded by DOE's short-term program to encourage oil burning industries and utilities to switch to natural gas," and at page ii, "[a] misunderstood natural gas policy will only add to the difficult task of assuring the efficient use of natural gas over the long-term."

Contrary to the report's conclusions, the Department remains committed to the use of coal and renewable alternate fuels in low-priority industrial and electric utility uses, both in the short and long-term. We have vigorously worked to convert existing coal-capable industrial and electric utility boiler fuel users to the use of coal. In addition, under the Powerplant and Industrial Fuel Use Act of 1978 (FUA), new boiler fuel facilities must be built capable of burning coal or another alternate fuel.

At the same time, however, the United States faces a severe over-dependence on foreign oil supplies. The result has been occasional shortfalls in our supplies of crude oil and refined products and a chronic deleterious effect on our Nation's financial strength. In light of this need to reduce our dependence on imported petroleum, the Department has been encouraging the short-term use of natural gas by industrial and utility users who would otherwise use fuel oil. Because there has been a surplus deliverability of natural gas caused for the most part by conservation, relatively warm weather, and passage of the NGPA which facilitated the movement of gas supplies from the intrastate into the interstate market, a substantial amount of fuel oil has been displaced since the Department's oil displacement program began.

The Department has not supported even the near-term use of natural gas to displace oil where the user has the option to use coal. For example, in issuing temporary public interest exemptions to powerplants to displace oil under the FUA and certifications of eligible natural gas use for the Order No. 30 program, the Department requires that the natural gas used will be displacing only fuel oil, and not coal. It also requires that any fuel oil displaced by this gas will not be used to displace coal. Moreover, we have made it clear to low-priority users of natural gas to displace fuel oil that this is a short-term program and that users should retain their capability to use another fuel, in case natural gas supplies are curtailed.

The Department is confident that our encouragement of the short-term use of natural gas by low-priority facilities will not adversely affect high-priority gas users who must be protected. The Department's Order No. 30 program is directed towards the use of gas to displace oil used by low-priority industrial and powerplant boiler fuel users and requires the interruption of these users' own purchased gas supplies if the natural gas system transporting this gas cannot meet all of its customers' requirements. As for those low-priority users that are using gas purchased from their traditional suppliers to displace oil, including those with temporary public interest exemptions from the FUA, they would be the first to be curtailed under their suppliers' curtailment plans during gas shortages in order to protect the high-priority users.

At page iii, the draft report states "as a result of the Federal jurisdictional limitations and the wide variation in state and utility company curtailment plans the final use of natural gas [does] not necessarily conform to the Federal prioritized system of curtailment." That statement is correct. However, in our experience, curtailment plans initiated at the State or company level, which are the plans that actually affect the end-users, almost always provide preferential treatment or protective provisions for high-priority users at the expense of boiler-fuel use.

The report also implies that the Department is encouraging widespread increases in natural gas demand in high-priority markets, citing a January 1979 letter from former Secretary Schlesinger to state public utility commissioners. The letter, however, only recommended, from a national economic standpoint, that moratoria on new natural gas residential hookups be lifted. The Department at no time has encouraged distributors or pipelines to take on new high-priority loads where they do not have adequate supplies to protect them.

APPENDIX I

In addition, the Notice of Proposed Rulemaking Concerning Review and Establishment of Natural Gas Curtailment Priorities for Interstate Pipelines, issued by the Economic Regulatory Administration on June 24, 1980 (45 FR 45098, July 2, 1980), states that the natural gas requirements in curtailment plans for high-priority users are to be determined using a fixed historic base period. These requirements are the volumes of natural gas that a customer of an interstate pipeline is entitled to under the pipeline's curtailment plan and form the basis for allocating natural gas during shortages. As the draft GAO report recognizes at page 20, using the volumes from a fixed base period as the criteria for the allocation of natural gas by pipelines during curtailment means that a distribution company customer may upgrade high-priority loads only through other means, such as obtaining supplemental supplies and building storage facilities.

Furthermore, if conventional curtailment plans fail to protect high-priority natural gas users during natural gas shortages, additional protection can be provided under Title III of the Natural Gas Policy Act of 1978 (Pub. L. 95-621), which states in Section 301 that "[T]he President may declare a natural gas supply emergency . . . if he finds that a severe natural gas shortage endangering the supply of natural gas for high-priority users exists or is imminent in the United States or any region thereof." Sections 302 and 303 of the NGPA provide emergency purchase and emergency allocation authorities, respectively, to be used for protection of high-priority users which are defined as residential, small commercial and any use of natural gas the curtailment of which would endanger life, health or maintenance of physical property. The Economic Regulatory Administration on December 1, 1980, issued a notice of proposed rulemaking setting out standby procedures to implement the NGPA authorities in the event of a severe natural gas emergency (45 FR 81012, December 8, 1980).

The GAO report at certain points implies that lower priority users should never be served with natural gas and that, perhaps, all gas should be reserved for high-priority or essential users that are not capable of using another fuel. However, many gas companies use the low-priority gas customers' supplies for load balancing which not only lowers the overall cost of gas supplies to all customers, but also protects service to high-priority customers. By curtailing low-priority users who switch to alternate fuels during periods of supply shortages, such as the winter heating season, additional gas supplies are made available for the higher priority customers.

APPENDIX I

Given the uncertainty about future natural gas supplies due to varying supply forecasts, the Department's policy should be flexible enough to deal with a variety of future circumstances. A policy of reserving all gas supplies for high-priority customers and denying gas to low-priority users capable of using fuel oil could substantially increase our dependence on foreign oil. This practice could be costly if the current surpluses of gas continue to be available at oil-equivalent or lower prices. Furthermore, if markets for gas supplies are not provided when gas is available, it may create a disincentive for further exploration and development activities by gas producers. This type of policy could, therefore, result in delayed recovery or nondevelopment of some natural gas resources and adversely affect our long-term supply situation.

In conclusion, it is the position of the Department that adequate mechanisms exist to ensure that high-priority natural gas users are protected during periods of shortage. Furthermore, we have seen no convincing evidence that short-term use of natural gas to displace fuel oil will adversely affect long term natural gas supplies. In fact, by creating an incentive for expanded exploration and development, the Department's oil displacement program may have an additional beneficial effect of increasing long term supplies.

Sincerely,

P. Marshall Ryan
Controller

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

DEC 4 1980

MEMORANDUM TO: J. Dexter Peach, Director
Energy and Minerals Division
U.S. General Accounting Office

FROM : William G. McDonald
Executive Director

SUBJECT : Draft Report, "Availability of Natural Gas Supply for High Priority and Critical Uses Should Receive More Attention"

As we pointed out in our formal discussions with GAO staff about the report, the FERC is required to review continuously the adequacy of natural gas supplies controlled by interstate natural gas pipeline companies. Most of the existing or proposed activities of these pipelines are subject to the continuing jurisdiction of the Commission and invariably involve questions of the adequacy of the existing and future natural gas supplies. Pipelines file periodic reports with the Commission detailing committed natural gas supplies. The Commission's statutory authority under both the Natural Gas Act of 1938 and the Natural Gas Policy Act of 1978 contains specific references to the need to protect gas service to existing customers, including high-priority, residential, small commercial and other critical uses. The Commission has ongoing programs to discharge its statutory responsibility.

The Commission's current policy towards the gas-for-oil program is contained in its series of orders in Docket No. RM79-34, Transportation Certificate for Natural Gas for the Displacement of Fuel Oil, Order No. 30. The latest order in the series, Order No. 30-E, provides for termination of the current program on May 31, 1981. A copy of the order is attached. This order contains the expression of Commission policy regarding this program and also incorporates the public comments of parties to the rulemaking proceeding.

Attachment

APPENDIX II

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

REHEARING
FUEL OIL DISPLACEMENT

Before Commissioners: Charles B. Curtis, Chairman;
Georgiana Sheldon, Matthew Holden, Jr.,
George R. Hall and J. David Hughes.

Transportation Certificate for Natural Gas for the Displacment of Fuel Oil	)))	Docket No. RM79-34

ORDER NO. 30-E

ORDER GRANTING REHEARING IN
PART AND DENYING REHEARING IN PART
AND AMENDING REGULATIONS

(Issued September 26, 1980)

I. PROCEDURAL HISTORY

On August 15, 1980, the Federal Energy Regulatory Commission (Commission) issued Order No. 30-D, 1/ which extended through May 31, 1981, the Commission's program for authorizing transportation of natural gas to replace the consumption of fuel oil by designated end users. Prior to the issuance of Order No. 30-D, the regulations implementing the fuel oil displacement program provided in §284.206 that volumes of natural gas transported in fuel oil displacement transactions would not be considered in future curtailment plans. 2/ Order No. 30-D eliminated this provision's effect on volumes delivered after September 1, 1980.

1/ 45 Fed. Reg. 56046 (August 22, 1980).

2/ Order No. 30-D amended § 284.206 of the regulations to read:

> All volumes of natural gas purchased prior to September 1, 1980, by an eligible user and transported by an interstate pipeline pursuant to this subpart shall not be considered as either a natural gas supply or market in a determination of an interstate pipeline's customers' requirements for present or future allocations of natural gas during periods of natural gas curtailment.

DC-C-35

APPENDIX II

Consolidated Edison Company of New York (Con Ed) and Public Service Electric and Gas of New Jersey (PSE&G) filed requests for a stay of the amendment to § 284.206 pending rehearing of Order No. 30-D. We granted the stay by order issued on August 29, 1980. 3/ On September 5, 1980, Brooklyn Union Gas Company (Brooklyn Union) filed a petition for rehearing of the August 29, order granting the stay.

Petitions for rehearing of Order No. 30-D were filed by Consolidated Gas Supply Corporation (Con Gas), Con Ed, the Department of Energy (DOE), National Gas & Oil Corporation and Ohio Producers (Ohio Group), Orange and Rockland Utilities, Inc. (O&R), the Process Gas Consumers Group (PGCG), and PSE&G. On August 26, 1980, Congressman John D. Dingell petitioned the Commission to reconsider Order No. 30-D.

The pleadings which remain outstanding in this docket allege two grounds for error: whether the fuel oil displacement period should have been extended from September 1, 1980 to May 31, 1981, and whether the curtailment protection provisions of § 284.206 should apply during the extension. Upon consideration of these petitions, we deny rehearing on the first issue and grant rehearing on the second.

II. EXTENSION OF ORDER NO. 30

The PGCG opposes the nine-month extension. 4/ Congressman

3/ 45 Fed. Reg. 60418 (September 12, 1980)

4/ Order No. 30-D extended the program by amending the definition of the "fuel shortage emergency period" to extend through May 31, 1981. Despite the name of this term, the Commission does not explicity find that a fuel shortage emergency exists during this extension period. That term is a carryover from the original rule and was retained for purposes of convenience.

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Dingell also expresses concerns and urged reconsideration of the extension.

Both PGCG and Congressman Dingell question whether adequate gas supplies exist to support the nine-month extension. The PGCG notes that some interstate pipelines project a degree of curtailment during the coming winter, and suggests that the current gas supply outlook may not justify the nine-month extension.

The Commission has been sensitive to this concern throughout the Order No. 30 program, and has established safeguards to ensure that any volumes of gas transported under the Order No. 30 program are, in fact, surplus supplies. In the case of sales by interstate pipelines who must obtain a certificate for such transactions, the presiding administrative law judge must inquire as to whether no other natural gas company seeks to purchase the gas for its own system supply. 5/ In the case of sales by intrastate pipelines and local distribution companies, the appropriate state commission has the opportunity to prevent the transaction if the gas is necessary to alleviate curtailment within the state. 6/ Finally, once a transaction has commenced, either the Governor of a state or the Commission may terminate the sale. 7/ Given these safeguards, it is unlikely that Order No. 30 sales will be made by systems experiencing a serious threat of curtailment.

5/ 18 C.F.R. § 284.208(d)(2)(i).

6/ 18 C.F.R. § 284.202(b)(2).

7/ 18 C.F.R. § 284.205(d)(2) and (3).

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Instead of causing curtailment, the Commission expects that the Order No. 30 program will afford certain gas users a means of minimizing the impact of any regional curtailment which may occur this winter. Under the program, an end-user facing curtailment from traditional suppliers may purchase gas from sellers who have a temporary surplus. Thus, the program provides those end-users which might be affected by any regional shortage with the opportunity to obtain supplies from other areas.

PGCG further argues that gas supplies are a finite resource, that gas reserves and production have significantly declined over the last decade, and that the Order No. 30 program accelerates this decline because it encourages unnecessary consumption of gas.

The Natural Gas Policy Act of 1978 (NGPA) 15 U.S.C. §§ 3301-3432, attempts to reverse the decline in production and reserves by providing producers with incentives for new exploration and development. The rapid increase in natural gas supplies which has occurred since enactment of the NGPA indicates to the Commission that the downward trend has abated and that statutes and regulatory policies can significantly effect development of new natural gas reserves. The Order No. 30 program is, in fact, designed to affect gas markets so as to preserve incentives for further development of gas reserves.

Recently most interstate pipelines have been in a position to meet all their customers' requirements. The extensive take-or-pay commitments undertaken by many major interstate pipelines discourages them from contracting for new reserves. Therefore, the current softness in demand tends to discourage further exploration and development efforts.

One benefit of the Order No. 30 program has been that it has helped absorb this temporary surplus and therefore has minimized the negative effect of the surplus upon the development of new reserves. The PGCG incorrectly characterizes the extension of Order No. 30 as a wasteful "burn-gas-to-get-gas" program which discourages conservation in order to create a market for new production. The Commission does not agree. While the Order No. 30 program does provide a market for excess supplies, the program is tailored to permit these supplies to reduce fuel oil consumption. These fuel oil users do not represent a permanent addition to the natural gas market, and many of the participating end-users had previously used natural gas prior to earlier periods of curtailment. By targeting the gas to fuel oil users, the consumption of the gas furthers the national objective of decreasing our dependence upon imported oil and oil products.

Given the need for a policy that accommodates excess current deliverability while maintaining an environment encouraging producer development of long-term supplies, the Commission has exercised its discretion to create a carefully controlled market for otherwise surplus gas supplies.

Congressman Dingell also expresses concern that Order No. 30 transactions may effectively use imported natural gas to displace less expensive residual fuel oil in many instances. Should this be the case, the nation's balance of payments would be negatively effected and the nation's imported energy dependence would not be changed.

The Commission understands and has fully considered this problem. In seeking public comment on whether to extend Order No. 30 last May, the Commission specifically addressed the issue of whether the regulations should limit the program to purchasers backing out high quality (low sulfur residual and No. 2 distillate) fuel oil. Such a limitation would have resolved Congressman Dingell's concern. However, the Commission decided not to so confine the program.

Two factors underlie this decision. First is the fact that many pipelines are out of curtailment. Many pipelines have demonstrated excess deliverability. It therefore appears feasible for the nation to displace imported oil with domestic natural gas. If the United States' gas markets work with any rationality, pipelines with excess deliverability will reduce to as low as possible their takes of high priced imported gas. This appears to be happening. For this reason, it is unrealistic to regard imported gas as a current source of supply for Order No. 30 transactions.

However, even if a convincing showing could be made that pipelines were taking imported gas in order to facilitate Order No. 30 transactions, the Commission nonetheless might permit such gas to displace low quality fuel oil. The Commission and the Economic Regulatory Administration of the Department of Energy (ERA) would have to determine, on a case-by-case basis, whether the relative price of the imported gas supply over the oil being displaced is so excessive as to render the transaction inconsistent with the

public interest. Factors such as the relatively more secure character of imported Canadian and Mexican gas supply, and the nation's relatively smaller overall dependence on imported gas as compared with oil, could warrant upon further examination paying a higher price for imported gas and using that gas to back out expensive imported residual oil.

Because imported gas and oil supply prices can change rapidly, the point raised by Congressman Dingell deserves continued examination. The Commission expects that the ERA will monitor the status of gas and oil imports with care during the remaining eight months of the Order No. 30 program. In response to the monitoring, the Commission is prepared to exercise its termination authority if conditions so warrant.

III. CURTAILMENT CONSEQUENCES

Con Ed and Con Gas allege that the amendment to § 284.206, which has the effect of limiting the curtailment protection provision to volumes delivered prior to September 1, 1980, subjects to cancellation Con Ed's outstanding contractual relationships with its suppliers of gas under Order No. 30. The concerns of Con Ed, Con Gas, and PSE&G are based upon the fact that Order No. 30 end-uses have traditionally been assigned a low priority in end-use curtailment plans. If the Commission were to implement fixed base period curtailment plans in the future, which based the allocation of natural gas upon the amount of gas used during a time period when an Order No. 30

customer was using gas rather than fuel oil, Con Ed and PSE&G fear that Order No. 30 volume would be included in the curtailment data. If such short-term sales were included, then the distributor serving the Order No. 30 customer would be curtailed based upon a greater proportion of low-priority load than is in fact usually served by its system. Thus, if Order No. 30 volumes are not correctly reflected in base period data, a distributor's short-term participation in Order No. 30 might subject it to greater risk of curtailment over the life of a new curtailment plan. Con Ed and the Ohio Group also state that the rulemaking procedure did not afford adequate notice of the amendment to § 284.206, and that Order No. 30-D failed to explain adequately the reasons for the amendment.

The DOE believes that the elimination of the § 284.206 curtailment immunity provision is unwarranted and may substantially reduce the effectiveness of the program. In addition, O&R argues that the amendment to § 284.206 is inconsistent with a Federal Power Commission order which excluded O&R's short-term supplies from its curtailment profile.

In contrast, Brooklyn Union, which requested the amendment to § 284.206 in its written and oral comments, argues that the provisions of § 284.206 could be used by participants in Order No. 30 sales to the detriment of those pipeline customers who decline to participate in the program. Thus, Brooklyn Union asserts that parties would attempt to use § 284.206 as a "sword" rather than a "shield" in any future curtailment plan. Brooklyn Union has noted that curtailment policy is in a state of transition

and that the exact wording of § 284.206 may not be well-suited for approaches adopted in the future. Hence, Brooklyn Union fears that § 284.206 could be misapplied in the case where a distributor's low priority markets would have been included in a curtailment profile in the absence of Order No. 30 purchase. Similarly, problems could arise when a seller attributes particular supplies to Order No. 30 transactions.

Because the Commission does not wish to disturb existing contractual relationships between fuel oil users and sellers under the Order No. 30 program, § 284.206 shall be amended to apply to the remaining months of the program's duration. However, the Commission notes that the text of § 284.206 will inevitably be subject to interpretation when implementing new interstate pipeline curtailment plans. When such questions of interpretation arise, the Commission intends to prevent § 284.206 from being used to increase curtailment allocations as a result of participation in the Order No. 30 program. Thus, Brooklyn Union's concerns can be met through the careful implementation of any new curtailment plans.

IV. THE STAY OF § 284.206

Brooklyn Union's petition for rehearing of the August 29 order granting a stay also bears on the curtailment question. Brooklyn Union alleged that the Commission erred by acting on Con Ed's request for stay prior to the time specified in § 1.9(a) for filing answers to a complaint or a petition. The Commission believes that

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the Con Ed or PSE&G pleadings were in the nature of motions. Since provisions of § 1.9(a) are limited to complaints and petitions, it does not apply in this case. 8/ Thus, the Commission did not err in acting upon Con Ed's motion within 10 days from the time it was filed. Furthermore, given the Commission's decision to reinstitute the protections of § 284.206 to volumes delivered after September 1, 1980, Brooklyn Union's grievance is moot. Accordingly, Brooklyn Union's September 5, 1980, petition for rehearing shall be denied.

Similarly, the petition of PSE&G seeking stay of § 284.206 is moot as a result of the action taken in the August 29 order and this order.

V. SUMMARY OF AMENDMENTS AND EFFECTIVE DATE

Subpart F of Part 284 is amended in only two respects: by correcting a clerical error in § 284.202, and by eliminating a provision in §284.206, which was stayed and never placed into effect.

Because these amendments do not change any effective provision of the Order No. 30 program, good cause exists to waive the 30 days prior notice requirement of 5 U.S.C. § 553(d) and to make this rule effective immediately.

(Natural Gas Act, 15 U.S.C. § 717-717w; Natural Gas Policy Act of 1978, 15 U.S.C. § 3301-3432; Department of Energy Organization Act, 42 U.S.C. § 7101-7352; E.O. 12009, 42 FR 46267)

8/ See 18 C.F.R. § 1.9(c).

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The Commission Orders:

(A) The applications for rehearing of Order No. 30-D filed by Con Ed, Con Gas, DOE, O&R, Ohio Group, and PSE&G are granted with respect to § 284.206 of the Commission's regulations.

(B) In all other respects, the petitions for rehearing are denied.

(C) In consideration of the foregoing, Part 284 of Chapter I, Title 18, Code of Federal Regulations, is amended, as set forth below, effective immediately.

By the Commission.

(S E A L)

Lois A. Cashell

Lois D. Cashell,
Acting Secretary.

APPENDIX III

FEDERAL POWER COMMISSION

PRIORITY-OF-SERVICE CATEGORIES

FOR NATURAL GAS USE

ORDER 467-B

1. Residential, small commercial (less than 50 Mcf on a peak day).

2. Large commercial requirements (50 Mcf or more on a peak day), firm industrial requirements for plant protection, feedstock and process needs, and pipeline customer storage injection requirements.

3. All industrial requirements not specified in other categories listed below.

4. Firm industrial requirements for boiler use at less than 3,000 Mcf per day, but more than 1,500 Mcf per day, where alternate fuel capacities can meet such requirements.

5. Firm industrial requirements for large volume (3,000 Mcf or more per day) boiler fuel use, where alternate fuel capabilities can meet such requirements.

6. Interruptible requirements of more than 300 Mcf per day, but less than 1,500 Mcf per day, where alternate fuel capabilities can meet such requirements.

7. Interruptible requirements of intermediate volumes (from 1,500 Mcf per day through 3,000 Mcf per day) where alternate fuel capabilities can meet such requirements.

8. Interruptible requirements of more than 3,000 Mcf per day, but less than 10,000 Mcf per day, where alternate fuel capabilities can meet such requirements.

9. Interruptible requirements of more than 10,000 Mcf per day where alternate fuel capabilities can meet such requirements.

Source: 18 CFR 2.78(c), 1975.

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STATE AGENCIES, UTILITY COMPANIES, AND NATURAL GAS END-USERS CONTACTED

California
- State Agencies
  - California Public Utilities Commission
  - California Energy Commission
  - California Air Resources Board
- Public Utility Companies
  - Pacific Gas and Electric Company
  - Southern California Gas Company
- Natural Gas Users
  - U.S. Borax
  - Kaiser Steel
  - Canner Steam
  - Kerr McGee
  - University of California, Los Angeles
  - Owens Illinois
  - Del Monte

Florida
- State Agencies
  - Public Utility Commission
  - State Energy Office
- Public Utility Company
  - Florida Gas Company
  - Peoples Gas System, Inc.
- Natural Gas Users
  - Golden Gem Growers
  - Hi-Acres Concentrate
  - Owens Illinois Glass
  - Sikes Corporation
  - IMC Phosphate
  - Florida Steel
  - Thatcher Glass Manufacturing

Iowa
- State Agencies
  - State Commerce Commission
  - Energy Policy Council
- Public Utility Companies
  - Iowa Public Service Company
  - Interstate Power Company
- Natural Gas Users
  - Farmers Grain Dealers
  - Farmland Industries
  - Boone Valley Cooperative
  - Terra Chemical

Clinton Corn Processing
Roth Packing
Hawkeye Chemical
Libby Owens Ford
Northern States Portland Cement

Maryland

State Agencies
Public Service Commission
State Department of Natural Resources

Public Utility Companies
Washington Gas Light Company
Baltimore Gas and Electric Company

Natural Gas Users
Harry R. Campbell Co.
Carr-Lowery
Landover Mall
Good Samaritan Hospital
Kaiser Aluminum
A & P Tea
American Can
Kennecott
Roper-Eastern
Amstar

Ohio

State Agencies
Public Utility Commission of Ohio
Ohio Department of Energy

Public Utility Companies
Columbia Gas of Ohio, Inc.
East Ohio Gas Company
Cincinnati Gas and Electric Company

Natural Gas Users
Battelle memorial Institute.
Ohio State University
Ross Laboratories
St. Regis Paper
Armco
Celotux
Monsanto
TRW/TAPCO
Lake Erie Asphalt
Scott and Fitzer
Superior Brand Meats
Tyland
E.F. Hauserman

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Minnesota
- State Agencies
  - Public Service Commission
  - State Energy Agency
- Public Utility Companies
  - Minnesota Gas Company
  - Northern States Power Company
- Natural Gas Users
  - Cargill
  - Honeymead Products
  - Processed Potatoes
  - Rohr Malting
  - Land O' Lakes
  - Archer Daniel Midland
  - Erie Mining

North Carolina
- State Agencies
  - North Carolina Utilities Commission
  - State Department of Commerce
- Public Utility Companies
  - Piedmont Natural Gas Company
  - North Carolina Natural Gas Company
  - City of Rocky Mount (Municipal)
- Natural Gas Users
  - Boren Clay Products
  - Carolina Paperboard
  - Great Lakes Carbon
  - R. J. Reynolds
  - American Bakeries
  - Burlington Industries

Pennsylvania
- State Agencies
  - Public Utility Commission
  - Governor's Energy Council
- Public Utility Companies
  - UGI Corporation
  - Peoples Natural Gas Company
  - Carnegie Natural Gas Company
- Natural Gas Users
  - Mack Truck
  - Harrisburg State Hospital
  - Dart Container
  - Metropolitan Edison
  - Bethlehem Steel
  - U.S. Steel
  - Duquense University
  - Bellefield Boiler Plant

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Conrail
Pittsburgh Cut Flowers

Tennessee
State Agencies
Public Service Commission
State Energy Authority
Public Utility Companies
Nashville Gas Company
Chattanooga Gas Company
United Cities Gas Company
Natural Gas Users
Middle Tennessee Mental Health Institute
Vanderbilt University
Aveo Aerostructures
Werthan Industries
Middle Tennessee State University
Reilfoot Packing
Goodyear Tire and Rubber
Central Soya
Combustion Engineering

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