

DOMESTIC OIL & GAS INITIATIVE

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December 6, 1993

MEMORANDUM FOR Vice President Al Gore
Lloyd Bentsen, Secretary of Treasury
Ron Brown, Secretary of Commerce
Mack McLarty, Chief of Staff
Carol Rasco, Domestic Policy Council
Bob Rubin, National Economic Council
Laura Tyson, Council of Economic Advisors
Bill Burton, Staff Director to Chief of Staff

FROM: Bill White

SUBJECT: MEETING ON OIL PRICES

I am forwarding to you the attached material as background for the NEC meeting to discuss oil prices tomorrow afternoon. I have enclosed a one-page "Highlights of the Oil Price Book". The "Briefing Book on Impact of a Dramatic Oil Price Decrease" will be given to you tomorrow.

In overview, the oil price decline of recent months is not as extreme as the decline of 1986. As a result, the economic benefits and costs are not as dramatic. Nonetheless, the impacts of low oil prices are similar and can be fairly characterized as follows:

- National economic growth will be stronger. Sustained low oil prices will have a net positive impact on the economy in terms of GDP and job growth.
- Consumers and energy intensive industries will benefit from lower energy prices.
- The natural gas and oil industry and associated service industries will lose jobs. These job losses will be concentrated in the nation's gas and oil producing States. The technology base will continue to decline.
- Low energy prices reduce inflationary pressures.
- U.S. gas and oil production will decline.
- Oil imports, specifically from the Persian Gulf producers, will increase, both for the United States and the world..

Specific Impacts of Lower World Oil Prices
(Assumes \$16.43 per barrel in year 2000, 1991 Dollars)

- Gross Domestic Product averages \$33 billion higher each year.
- Net employment increases by 400,000 to 500,000 jobs.
 - Direct losses in oil and gas production: 60,000 to 90,000
 - Indirect losses in support industries: 132,000 to 198,000
 - U.S. job gains from lower energy prices: 0.6 to 0.8 million
- Domestic oil production is expected to decrease in 2000 drops by 1 million barrels per day compared to current baseline projections. Oil consumption rises by 2.1 million barrels per day. Oil imports increase by more than 3 million barrels per day to 64 percent of total oil consumption.
- On the lower oil price path, natural gas production in 2000 is 15.8 TCF rather than the previous baseline estimate of 19.2 TCF, a reduction of 12 percent. Consumption closely follows production rates.
- Expected growth of renewable and alternative fuels lags at lower oil prices. However, both sources still increase compared to current levels. At lower oil prices, renewables growth is 29 percent rather than 31 percent over the decade of the 1990s.
- With low oil prices, carbon emissions rise by 61 million metric tons in excess of the baseline forecast.

Office of Economic Analysis
December 6, 1993

Highlights of Oil Price Book

- Oil prices have been historically volatile. Sharp price movements within short periods are not uncommon.
- The volume of oil imports from the Persian Gulf increased from 90 million barrels in 1985 to more than 600 millions barrels in 1989--an increase of more than 500%. This trend will continue.
- In 1986 prices fell more than 50% in six months. Oil patch states were hurt economically; bank capital and real estate values declined.
 - Exploration declined by 50%; independents were hurt.
 - Domestic oil consumption rose; refining and marketing fared well.
 - Lower oil prices reduced inflation and interest rates, and helped extend the already mature economic expansion for 3 additional years.
- 1993 differs from 1986. To date, oil prices have declined about 20% in 8 months.
 - So far, the 1993 price decline is smaller and less sudden than the 1986 drop. Because of this, the impacts on the economy and oil production are similarly smaller.
 - The economy of the Southwest is far more diversified than it was in 1986. An oil price decrease will hurt the oil patch, but not as much as in 1986.
- Lower oil prices, even at \$15 per barrel, will increase GDP and employment from projected levels of a year ago.
 - But low oil prices reduce U.S. oil and gas production,
 - Increase oil imports, and
 - Increase domestic energy consumption, and
 - Increase air emissions.
- National economic growth will be stronger, with particular advantages to transportation, paper, primary metals, petrochemicals, and cement and glass.
- A decrease in oil prices will also put downward pressure on the prices of natural gas and other fuels. Low prices will reduce expected levels of natural gas production. This will limit the capability of natural gas to penetrate new and existing stationary source markets and to replace oil in the transportation markets.

- Natural gas penetration into new and existing markets will decline.
- Expanding use of renewable and alternative fuels will be slowed.
- Air emissions will increase.

cc: Sylvia Matthews

THE WHITE HOUSE

WASHINGTON

October 29, 1993

To: Distribution

Cc: Bob Rubin
Bo Cutter
Bill White
Kyle Simpson

From: Heather Ross

Subject: DOE Domestic Natural Gas and Oil Initiative

The NEC will convene a deputies meeting on Wednesday, November 3, from 2:00 to 3:30 pm in the Roosevelt Room of the White House to consider DOE's Domestic Natural Gas and Oil Initiative.

The initiative is described in a policy statement and an implementation plan, both of which are enclosed. These documents reflect the review of an interagency working group of affected agencies.

To accommodate everyone in the Roosevelt Room, each agency is asked to keep its attendance to two representatives. Please call Gaylen Barbour, 456-2802, for clearance into the White House.

**DEPUTIES MEETING
NATURAL GAS & OIL INITIATIVE
NOVEMBER 3, 1993
2:00 - 3:00 p.m.
ROOSEVELT ROOM**

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**DOMESTIC NATURAL GAS AND OIL INITIATIVE
POLICY STATEMENT
Revised October 28, 1993**

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DOMESTIC NATURAL GAS AND OIL INITIATIVE

I. INTRODUCTION

Earlier this year Secretary Hazel R. O'Leary announced that the Administration would develop a "plan that will lead to expanded opportunities for domestic gas and oil producers." The Secretary noted that "the end goal of this project will be to develop new and expanded opportunities for jobs in the domestic gas and oil industries, while fostering a climate which will increase production from domestic resource bases and reduce our reliance on foreign oil."

A viable and productive domestic gas and oil industry is essential to our shared national goals of increased trade, national security, and environmental preservation. Even with the aggressive increases in energy efficiency and new sources of supply -- increases the nation must strive to achieve -- a sound economic future requires an investment in our domestic gas and oil industry. By learning to use our gas and oil resources more productively and efficiently, we will preserve worldwide skill and product export opportunities that are vital to our economic future and our leadership role around the world.

This document summarizes the intent of the Domestic Natural Gas and Oil Initiative, which is to develop an effective approach for maintaining the viability of the American gas and oil industry without compromising economic efficiency or environmental quality. We fully recognize that this Initiative is only one part, but an important part of the Administration's energy, economic, and environmental policies. In total, these policies reflect the need for job creation and security, global competitiveness, preservation of the environment, improved energy efficiency, and national security. The Administration has developed, and will continue to develop, initiatives that reflect these priorities.

To cite just a few related examples:

- The Clean Car Initiative is dedicated to working with the automobile industry to develop a fuel efficient car, in order to reduce our long-run dependence on oil and associated greenhouse gas emissions.
- The Climate Change Action Plan represents the Administration's plan for reducing the growth of gases linked to global warming, primarily via increased energy efficiency actions.
- The Natural Gas Utilization Initiative is focusing the Department of Energy's research and development efforts on new and more efficient types of natural gas end-use technologies, such as fuel cells and natural gas appliances.

- The Clean Cities Program and the Federal Fleet Conversion Task Force are working to accelerate the introduction of low-pollution, alternative fuel vehicles into our urban transportation markets;
- The Renewable Fuels Programs are a continuing coordinated effort of the Departments of Energy and Agriculture to explore with industry the cost-effective and environmentally beneficial utilization of agricultural and forestry resources in the manufacture of biofuels and their chemical co-products (e.g. ethanol, methanol, fuel additives, and biodiesel) for transportation and the generation of electricity for utility applications.

In addition to these initiatives, the Department of Energy, the Federal Energy Regulatory Commission (FERC), and other Federal agencies are in the midst of implementing the Energy Policy Act and many other new programs and policies that affect transportation and energy use.

All of these efforts, and many more to follow, affect the nation's gas and oil producers and consumers. However, these efforts stop short of examining issues unique to the exploration, production, and refining of domestic gas and oil resources and the particular economic and energy issues posed by our increasing reliance on imported oil.

The purpose of this Initiative is to address these issues in the context of the array of new Federal policies. Moreover, the global economic and political environment has changed so much in the past few years that the effects of our petroleum dependence on domestic economic activity may need to be restudied.

Two key overarching goals of the Initiative are enhancing the efficiency and competitiveness of the U.S. industry and reducing the trend towards high imports. Most of our economic competitors strongly encourage petroleum conservation -- often through imposition of high consumption taxes -- in part to reduce their vulnerability to price shocks and supply interruptions. Americans have preferred to find other strategies to address these problems. As a complement to these efforts, we propose additional policies to strengthen exploration and production of domestic gas and oil resources in a cost-effective, pro-competitive manner.

The Initiative was developed by working with stakeholders and various Federal agencies with significant energy responsibilities. Figure 1 summarizes the three major elements of the Initiative:

- (1) to increase domestic gas and oil production and environmental protection through the advancement and dissemination of new exploration and production (E&P) technology;
- (2) to stimulate markets for natural gas and enhance its feasibility as a substitute for imported oil; and
- (3) to streamline and improve communication and government decisionmaking.

In addition to these three elements, the Department of Energy will undertake a broad new study, coordinated by the National Economic Council and the National Security Council of the costs and benefits of increased petroleum imports. This study will form the basis for additional actions, if any, found to be warranted under the study.

In assembling the Initiative, the Department has sought to achieve the specific objectives without sacrificing other paramount national interests, such as deficit reduction, economic growth and environmental protection. Wherever possible, the tactics and actions under the initiative take advantage of market forces, and also seek to achieve a cooperative and efficient balance between the public and private sectors and between Federal and State governments.

Figure 1

10/25/93

Domestic Natural Gas and Oil Initiative Roadmap

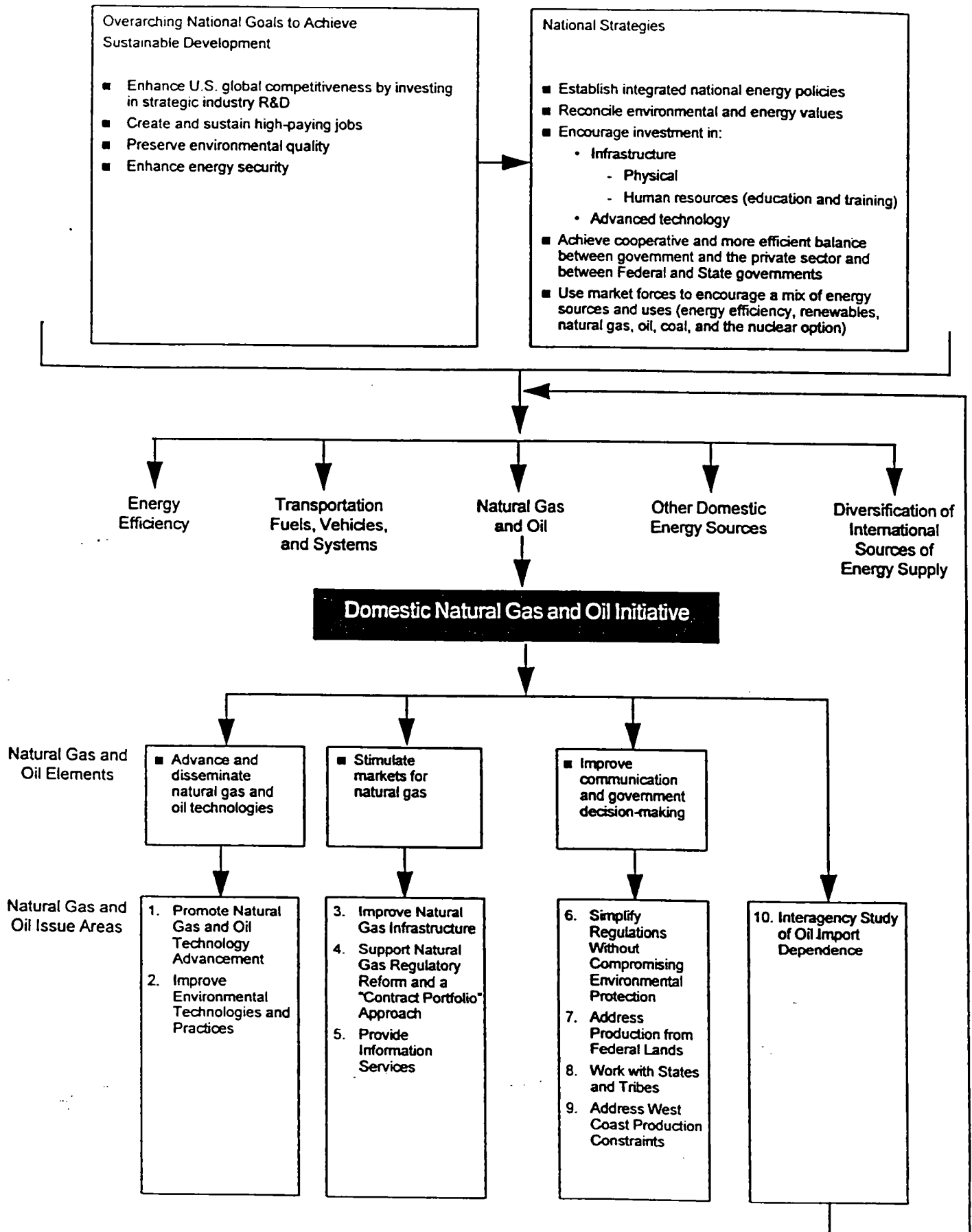
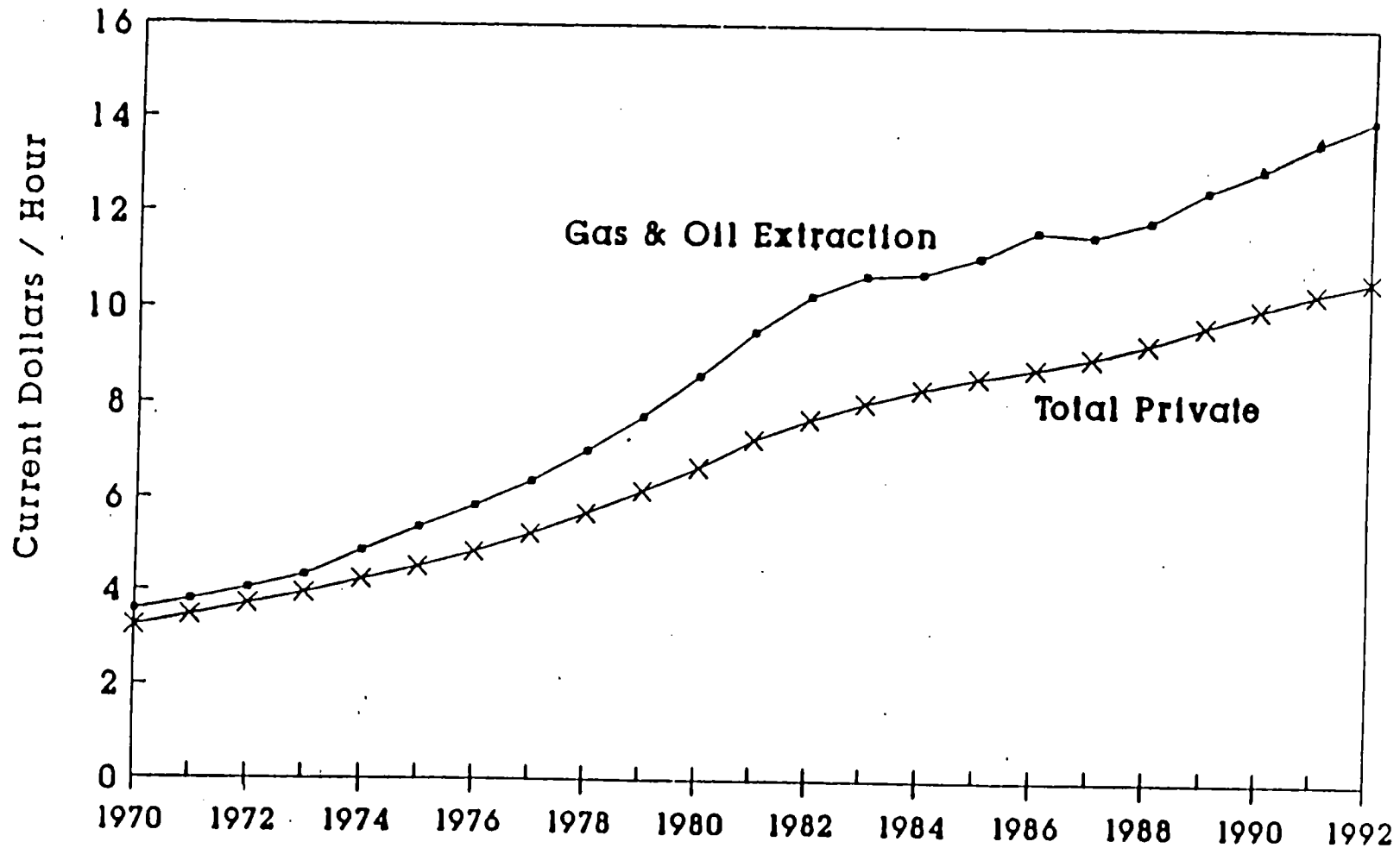


Figure 2. Average Hourly Earnings for
the Gas & Oil Extraction Industry



Source: Energy Information Administration

II. THE NEED FOR ACTION

A. The Worldwide and Domestic Importance of Natural Gas and Oil

Natural gas and oil will remain critical elements in every nation for the foreseeable future. In 1990, United States consumers spent over \$300 billion on gas and oil--5.5 percent of Gross Domestic Product (GDP).¹ Gas and oil supply 99.9 percent of transportation fuel needs (almost entirely oil); 75 percent of industrial needs;² 61 percent of residential and commercial needs and 13 percent of electric utility needs.³

In the rest of the world, natural gas and oil are equally important, or, in some cases, even more important commodities, than in the United States. Gas and oil consumption represent 61% of total energy consumed worldwide in 1991.⁴ Because of the developing world's enormous appetite for energy, gas and oil are likely to play an ever-increasing economic role. In addition, global warming concerns may cause an even larger shift towards gas, and possibly oil, than might otherwise occur.

By any standard, the domestic gas and oil industry remains an important source of capital formation, technological development, and employment in the American economy. In 1990 the industry invested \$21.0 billion⁵ in infrastructure. The gas and oil industry, including the associated service industries, account for nearly 380,000 American jobs. Though this represents a relatively small fraction of the total U.S. work force, Figure 2 demonstrates that these jobs pay wages 30 percent above those of the average American worker, thus representing the sort of high-skill, high-value jobs America needs.⁶ Identification of hydrocarbon deposits far underground requires much training and application of advanced technologies.

¹Source: Energy Information Administration; The Annual Energy Review 1992. U.S. Department of Energy, Table 3.8, page 85.

²Includes non-utility electric generation, independent power producers, feedstocks and other industry users.

³Source: Energy Information Administration; The Annual Energy Review 1992. U.S. Department of Energy, Table 3.7, p. 83.

⁴Energy Information Administration, International Energy Annual, 1991, Table ES2, page XVI.

⁵Source: Survey of Oil and Gas Expenditures 1990, American Petroleum Institute, November 1991, Table II, page 2.

⁶Source: Bureau of Labor Statistics, Department of Labor; Current Employment Statistics Survey.

B. Maintaining Our Lead in Gas and Oil Exploration and Extraction Technologies Will Benefit the Nation

Improving Technology, Productivity and Competitiveness

The American people are looking to this Administration to pursue public policies which help the private sector generate production of high-wage jobs and a secure economic future for American citizens. The American public and their government increasingly understand that the citizens of this country compete internationally for jobs, for investment, and for economic growth. Success in that competition will depend, in part, on an explicit strategy that emphasizes improvement in American technology and competitiveness.

The U.S. gas and oil industry is in transition. Most major domestic oil companies have shifted a larger share of their exploration operations abroad. Independent producers play an increasing role in finding and extracting domestic gas and oil. Natural gas is an abundant and underutilized domestic resource which can be substituted for oil and has many environmental and economic benefits. Furthermore, the U.S. has large remaining resources of oil, but they require advanced, relatively high-cost technologies to locate and extract.

It is beyond question that natural gas and petroleum will remain critical materials in the world economy for the foreseeable future. Increasing scarcity anywhere in the world will increase the value of exploration and production skills that reduce the cost, or increase the availability of, natural gas and petroleum.

The gas and oil industry relies upon advanced technology, in which American firms traditionally have led the world. Modern gas and oil exploration and production represent the quintessential "high tech" industry. In fact, many foreign nations, such as the former Soviet states, desire to apply our expertise and technology in the extraction of their resources. However, the number of trained young people in the United States entering the gas and oil business has shrunk to a small fraction of what it used to be.

As in many other industries, worldwide competition in extraction and exploration is fierce and increasing. If domestic producers are to continue to provide a substantial portion of U.S. oil needs, and compete in world oil markets, new and advanced technologies must be developed and widely applied. New technologies will also be vital in developing our abundant domestic natural gas resources to meet the widely-expected increased levels of demand.

In the long run, increased productivity of the American gas and oil industry will create jobs for Americans. First, by keeping U.S. technologies "on the cutting edge," we ensure that they are the technologies of choice worldwide, thereby maintaining and

expanding technology export opportunities and export-related jobs. Second, increased productivity can make more of a domestic energy resource economically available, ultimately allowing expanded domestic production and increased employment.

Revolutionary technologies that use state-of-the-art computer mapping of the sub-surface for exploration and production are being enhanced and developed in the gas and oil industry today. A case in point is known as three dimensional (3-D) seismic surveying. This procedure provides high-resolution images of subsurface gas and oil deposits, thus enabling more efficient exploration and development. Success using this approach has been documented by many companies. An example is in the Bay Marchand field in Louisiana (See Figure 3). Prior to 3-D utilization, production in this field had declined to 18,700 barrels per day in November 1985. Using 3-D technology, the decline in production was reversed and output more than doubled, rising to 45,200 barrels per day in April 1991. Other case studies suggest that, where new undrilled reservoir prospects lie adjacent to producing fields, the discovery success rate can be improved by as much as 50 percent through use of 3-D and other technologies.

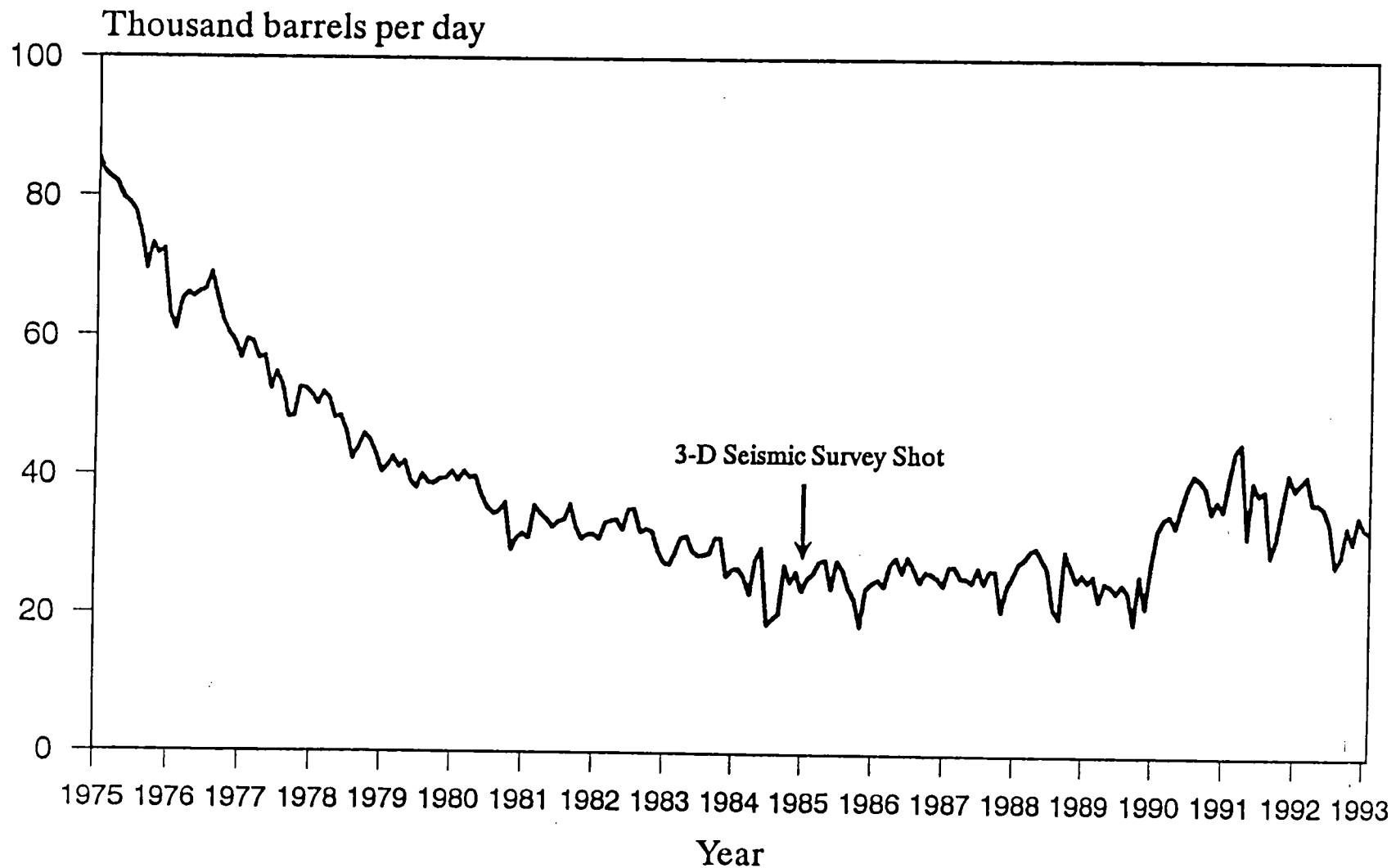
Independent producers, integrated major producers, and the gas and oil service industry believe that these technologies hold great promise for expanding production from our domestic resources. Furthermore, these technologies have great potential for developing gas and oil resources abroad, thus representing a significant export opportunity and allowing a diversification of international supply.

American industrial competitiveness will depend on improvements in productivity and technology equal to or better than that of other nations. The gas and oil industries are poised to research and adopt new methods of exploration and extraction that will allow us to expand our economically recoverable domestic resource base without compromising environmental quality. Increased reliability of subsurface mapping means fewer dry holes and increased reserves. If we develop and deploy these new procedures in a domestically-based industry, the U.S. will lay claim not only to increased energy production, but also technologies that can be marketed to our trading partners abroad.

Preserving Worldwide Environmental Quality

As we move toward the twenty-first century, our nation must reduce its dependence on fossil fuels, minimize wastes, preserve our water resources, and protect sensitive environments. This Administration will assert world leadership on such issues. The policies that encourage gas and oil exploration and production will be pursued with these environmental goals in mind and with the understanding that energy and environmental objectives are compatible. In doing so, the U.S. will be setting an international standard for environmental sensitivity in the natural gas and oil industries.

Figure 3. Bay Marchand Field
Monthly Average Production History
1975-Early 1993



Source: Dwight's Energydata, Inc. via Energy Information Administration.

III. THE DOMESTIC GAS AND OIL INITIATIVE

As mentioned in the introduction, the Domestic Gas and Oil Initiative has three principle elements:

1. Increase gas and oil production and environmental protection through the advancement and dissemination of technology;
2. Stimulate markets for natural gas; and
3. Improve communication and government decisionmaking.

In the remainder of this section, each of these elements is discussed and described. An implementation plan, making use of stakeholder and other agency comments to date, is currently being developed to address these elements.

Element 1. Advancement and Dissemination of Natural Gas and Oil Technologies

Advanced computing technologies are revolutionizing the search for gas and oil. In some areas, for example, advanced computing technologies have allowed for the direct detection of natural gas through the analysis of seismic data.

American national defense labs--specifically Los Alamos, Sandia, and Livermore--historically have created the demands which spurred the development of cutting-edge computer technologies. America has made a major investment in applying the scientific capability of the National Laboratories to the development of world-class modeling capabilities. National Laboratory scientists and facilities can and do model complex subsurface conditions for both underground nuclear testing and some current gas and oil projects.

The gas and oil industry is poised to realize enormous benefits from the advanced exploration and production techniques. To take maximum advantage of these opportunities, the Administration proposes an industry driven Advanced Computational Technology Initiative to enhance joint government/industry/university research, development, and deployment efforts on advanced computing problems related to exploration and production. These efforts will build on the longstanding leadership of the United States in developing and marketing new computer technologies and applications, and will help to maintain a strong U.S. position in this critical, high-wage field.

To meet this objective, the DOE shall expand its oil R&D program to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment. This will be accomplished through accelerating field demonstrations; conducting in-depth evaluations of selected past and ongoing industry projects to pinpoint important unsolved problems; disseminating more complete information on technology developments; conducting field-based reservoir characterization and innovative recovery process experiments; and expanding supporting research to address industry-identified needs.

The President directed his Administration to work together for the benefit of the American people and for the environment. Domestic gas and oil producers face increasing costs of compliance with environmental regulations. To help reduce the costs of meeting environmental objectives, the DOE, with the assistance of the Environmental Protection Agency, the Office of Environmental Policy, the Office of Science and Technology Policy and the Department of the Interior, will coordinate environmental research related to the gas and oil industry and will consult with industry as necessary on energy related R&D issues. The Initiative will also create an environmental technology demonstration and technical assistance program and develop specific studies and demonstrations, such as an examination of the feasibility of significantly increasing the amount of lubricating oil that is recycled in the United States and exploring the Federal role in oil spill clean-up R&D.

The Administration also proposes to stimulate development of a nationwide technology transfer network and assistance program. Technology transfer efforts will be especially important in encouraging the 8,000 independent operators in the U.S. to adopt innovative exploration and production methods. Historically, these operators have led the exploration of our domestic resource base. Two-thirds of these independents have fewer than 20 employees and cannot individually finance large, long-term R&D programs.⁷ Smaller independents have expressed strong interest in organizing themselves to better disseminate technology.

Due to the increased upfront costs associated with new technologies such as advanced computing, some independents have formed associations that reduce the costs of gaining access to new technologies. By familiarizing individual firms and these associations with new technologies developed by both industry and government, technology transfer efforts can make a critical contribution.

Finally, and in conjunction, the Department of the Treasury and the Department of Energy are reviewing the tax treatment of geological and geophysical expenditures in relation to certain advanced exploration and production techniques. By encouraging the

⁷Source: Department, of Commerce, Bureau of the Census, 1987 Census of Mineral Industries, MIC 87-1-13A, Table 1, page 13A-5.

use of the most advanced technologies for gas and oil production and environmental compliance, the proposed Initiative will bolster technical progress; and create high-wage employment for United States citizens. Thus, advanced gas and oil extraction technologies represent a natural part of the Administration's technology strategy.⁸ Ultimately, investments in technology represent investments in people. Only superior skills of American workers will keep the domestic gas and oil industry at the forefront of international competition for advanced seismic exploration services.

Element 2. Stimulate Markets for Natural Gas

As the President has stated, the substitution of domestically-produced natural gas for energy purchased in the form of imported oil provides environmental, economic and national security benefits to the nation.

The remaining resource base for natural gas appears to be more abundant and cost-effective to tap than the remaining resource base for domestic oil. Independent studies indicate that the size of the gas resource base promises the extended availability of natural gas (Table 1). Figure 4 indicates that since 1987, gas and oil exploratory drilling yields have nearly doubled. Most of this increase in productivity represents the discovery of new gas reserves.⁹

The Federal Energy Regulatory Commission (FERC) has taken a number of dramatic actions intended to improve competition and service in the natural gas industry. These actions shall continue. The Administration recognizes the valuable contribution these efforts have made to expanding and improving natural gas markets. We also recognize the need to carefully target new policies in order not to jeopardize the progress made to date. President Clinton has directed the DOE to work with the FERC to continue to facilitate the implementation of reforms that will increase the availability and use of natural gas.

Our discussions with other agencies and the FERC have demonstrated that there is scope for additional activity that will complement and support the FERC's efforts. To ensure that the targeted efforts under this element work in concert with the FERC's activities, the Department of Energy and the FERC will establish an interagency working group that will meet on an ongoing basis to coordinate policy development and implementation. These meetings will be conducted so that infringement on either the FERC's, or the Department's rights and responsibilities under the law will not occur.

⁸President Clinton and Vice-President Gore, "Technology for America's Economic Growth: A New Direction to Build Economic Strength", February 22, 1993.

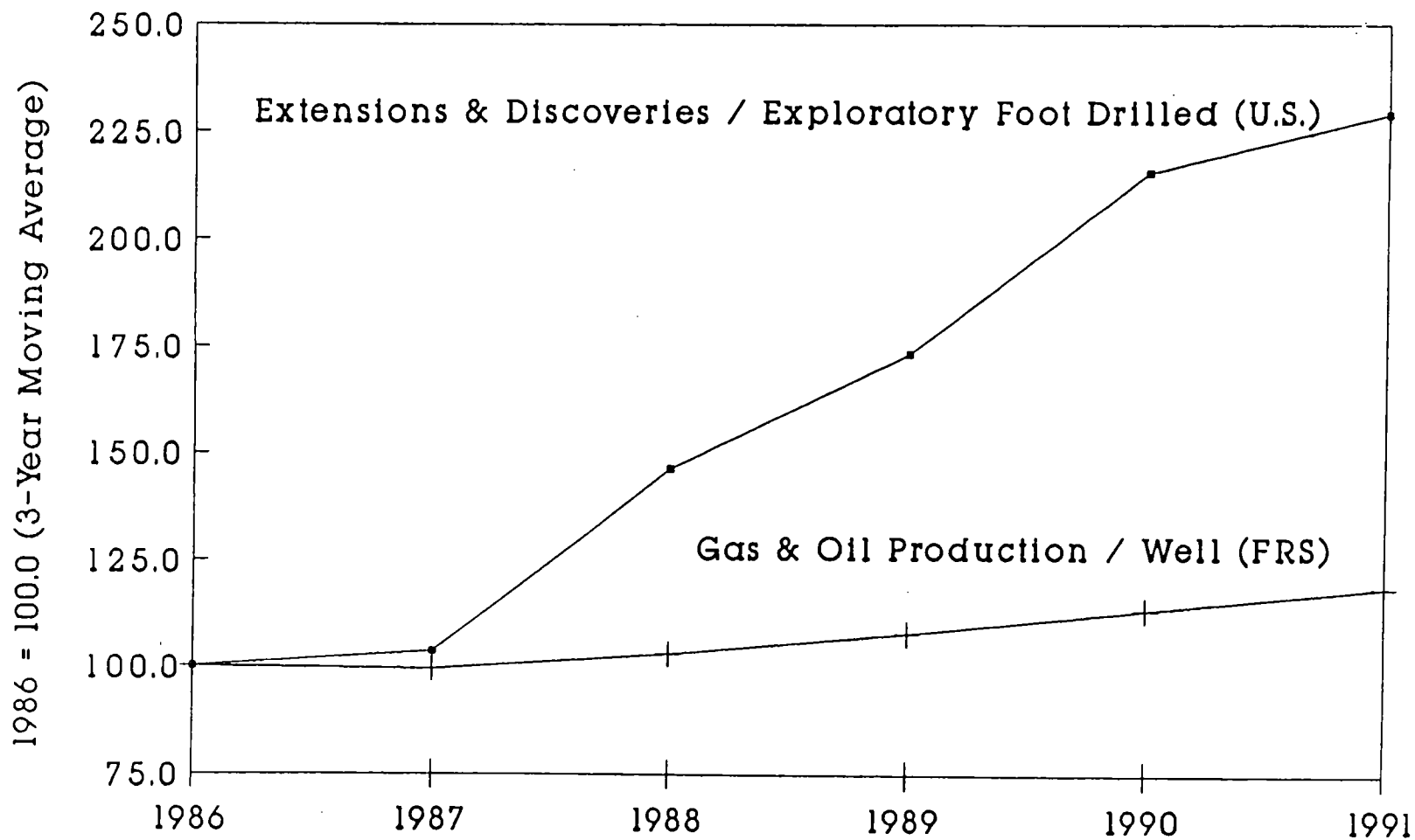
⁹Energy Information Administration; U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 1991, Figures 10 and 11, page 18..

**Table 1. Recoverable Resources in the Lower-48 States
Comparison to Other Estimates
(Trillion Cubic Feet)**

	National Petroleum Council 1992	Potential Gas Committee 1990	Gas Research Institute 1992	Energy Information Administration
Proved Reserves	160	160	160	160
Conventional Resources				
Reserve Appreciation	203	170	150	265
New Fields	413	491	394	327
Total Conventional Resources	616	661	554	592
Nonconventional Resources				
Coalbed Methane	98	88	110	90
Shales	57	---	123	30
Tight Gas	349	---	238	383
Other	15	---	32	---
Total Nonconventional Resources	519	88	503	503
Total Assessed Resource	1,295	749	1,047	1,095
Total Resource	1,295	909	1,207	1,255
Adjust to 1/1/91	---	---	---	35
Total Adjusted Resource	1,295	909	1,207	1,220

Source: National Petroleum Council, The Potential for Natural Gas in the United States, December 1992, Volume II - Source and Supply, page 37.

Figure 4. Indexes of Gas & Oil Productivity



Source: Energy Information Administration

The Climate Change Action Plan directs the DOE to accelerate the commercialization of high-efficiency gas technologies, such as fuel cells, through joint ventures with utilities, research organizations and technology developers to fund demonstrations and market entry initiatives.

In addition, the Administration is pursuing two coordinated efforts whose net effect will, we believe, accelerate the use of natural gas in transportation markets: (1) The Federal Fleet Conversion Task Force, a program designed to convert public and private fleets to alternative fuels, including natural gas, over the next few years and to coordinate efforts leading to alternative fuel refueling infrastructure development; and (2) The Clean Cities Program, an effort to coordinate state and local public and private alternative fuel vehicle market development. Efforts such as these will have a major impact on reducing imports, creating jobs and opening new markets for alternative motor vehicle fuels.

Improving The Natural Gas Deliverability Infrastructure

Efficient delivery of natural gas from the wellhead to the burner tip is dependent on a well-functioning physical infrastructure for gathering, transporting, storing, and distributing gas, and on an accurate and timely information infrastructure for monitoring natural gas supply and demand.

To help improve the physical infrastructure, the Administration will work with the FERC to remove barriers to environmentally sound construction of additional pipeline and storage facilities. To this end, the Office of Management and Budget has approved a proposal by FERC to implement a program that will allow applicants seeking certificate authority to construct new natural gas pipeline facilities to use third party contractors to do initial environmental analyses of their projects. This voluntary third party contracting program will enable the Commission to speed up the processing of certificate applications without compromising the environmental review requirements of the National Environmental Policy Act.

In addition, the Administration will encourage increased access to existing facilities; and accelerate the development and use of advanced technologies in natural gas storage and distribution.

The Administration will also support the industry's efforts to improve real-time capabilities for monitoring and modeling natural gas availability and flows, and to match gas storage to end-user requirements. Such efforts will be especially important in enabling greater use of natural gas in electric power generation.

The Department of Energy, the FERC, and other interested stakeholders will undertake further discussions of natural gas pipeline construction permitting and regulation. Staff level discussions of this topic by the Department of Energy/FERC working group will

also include the Departments of Agriculture and Interior as well as other key stakeholders.

Supporting Natural Gas Regulatory Reform and New Contracting and Hedging Mechanisms

Federal and State regulators should continue to promote a competitive industry structure. As noted above, changes under way in the private sector and industry restructuring prompted by the work of the FERC are already reducing the costs of information and transactions in natural gas markets.

At the State level, changes in regulations governing the distribution of natural gas and electricity can also lead to improved efficiency in energy use. DOE supports State efforts to revise electricity, gas, environmental, and energy conservation pricing policies and regulations that will help to clarify the true economic costs and lead to greater economic value and a cleaner environment. Recognizing the States' jurisdictional authority in this area, we seek a cooperative effort between State utility regulators and energy offices and DOE to help foster regulatory reforms that will:

(1) improve access to gas distribution facilities; (2) encourage efficient pricing for electricity and gas; (3) encourage the removal of fuel-specific subsidies that work against energy efficiency goals; (4) encourage cost-cutting by distributors; and (5) boost the use of natural gas transportation.

One of the most important topics for this State-Federal dialogue involves the use of an expanded portfolio of contracts for natural gas distribution companies and end users. New types of contracts and financial instruments can lead to improved gas availability and market performance, but only if all parties understand and utilize these new tools. DOE will expand its fact-based educational activities in these areas without attempting to prescribe specific state or customer contracting policies.

Providing information services

To facilitate all elements of this Initiative, and as a final implementation measure aimed at this objective, the Department will improve its ability to develop, collect, and disseminate information on natural gas deliverability and storage. To complement the proposed initiatives to improve natural gas deliverability and encourage regulatory reform, the DOE will enhance the capability of the Energy Information Administration (EIA) to collect these data, and will develop an Energy and Resources Mapping and Information System. EIA will work with other agencies and the private sector to provide a coordinating function and to avoid duplication while executing this task.

Element 3. Improve Communication and Government Decisionmaking, Including Issues of Production From Public Lands, and Investments in Environmental Improvements

The Report of the National Performance Review issues a challenge to Federal agencies to find new ways of problem-solving that emphasize collaboration, empowerment, and greater efficiency. The National Performance Review calls on Federal and State agencies to eliminate "regulatory overkill" and work together with greater coordination and flexibility.

This component of the Initiative contains six specific action areas created in the spirit of these Administration priorities. The six action areas are:

- (1) Various federal regulatory agencies and departments should streamline and simplify multi-jurisdictional, multi-layer, and overly complex regulatory processes, with no compromise in regulatory protection of the environment and the public interest ("eliminating regulatory overkill," in the words of the National Performance Review);
- (2) The Department of the Interior and the Department of Energy will review alternative policies to generate greater leasing interest in mature and deep water areas of the Western and Central Gulf of Mexico;
- (3) On a case-by-case basis, the Department of the Interior is committed to working with stakeholders at the state and local level to attempt to resolve issues of concern which have been raised in connection with the exploration and development of existing leases. Stakeholders, in some instances, may include local representatives of various federal agencies.
- (4) Various agencies and departments should work more closely and cooperatively with States and Tribes on gas and oil supply issues;
- (5) The Department of Energy will work with the FERC, the Justice

Department, the Department of Interior and the California Public Utilities Commission to ensure access to central California oil pipelines; and

- (6) The Department of Energy shall work with Congress, the Bureau of Land Management, and the Office of Management and Budget to prepare and implement a plan for production of the Naval Oil Shale Reserves.

"Eliminating Regulatory Overkill"

As in other industries, gas and oil producers have become subject to a vast number of overlapping, State and Federal environmental rules. As the Vice-President noted in the recent National Performance Review, these rules are usually created with the best of intentions. As the Vice-President further notes, it is time to "put aside our reverence for those good intentions" and focus on implementing regulatory protection with greater flexibility and efficiency.

Fortunately, a wealth of new regulatory solutions and processes are under development across the United States and around the world. Market-based and multi-media pollution control solutions are under development and in some cases a matter of law; Federal and State agencies are making increasing use of regulatory negotiations and formal collaborative processes; and agencies such as the Federal Energy Regulatory Commission are searching for self-enforcing, market-based processes that eliminate or reduce the need for formal hearings.

Encouraging progress has been made in this area in gas and oil production, as well as refining, but much more can be done. At Atlantic Richfield Corporation's Dauphin Island site in the Gulf of Mexico, early communication with State and local governments and the fishing community avoided unnecessary project delays and resulted in an environmentally superior and economically viable drilling project. In Pennsylvania, a collaborative process has been used to establish general National Pollution Discharge Emission System permits for stripper oil and marginal gas wells. At the Yorktown refinery in Virginia, the cooperation of Amoco and the Environmental Protection Agency led to unprecedented new information concerning the structure, effects, and compliance strategies associated with environmental rules.

These efforts suggest great promise, but more action is needed. To accelerate progress, we will:

- DOE and Federal Land Management Agencies will work cooperatively with States through organizations such as the Interstate Oil and Gas Compact Commission and the National Association of Regulatory Utility Commissioners and with Federal land management agencies to promote the streamlining and integration of State and Federal regulatory programs. The purpose of these concerted efforts will be to seek out and eliminate duplication in Federal and State regulatory programs, whether in the form of needless paperwork or duplicate permits or hearings. Wherever possible, one-stop permitting and market-based mechanisms will be encouraged.

- Enhance the capability of State and Federal governments to make improved regulatory decisions affecting the domestic gas and oil industry. This enhancement is designed to dovetail with the Administration's streamlined interagency regulatory review process, which also seeks to minimize interagency rule conflicts and incorporate tradeoffs between regulatory impacts.
- Demonstrate the feasibility of alternative approaches to environmental regulation that more accurately balance costs and benefits, promote rather than stifle technological innovation, and allow for compliance flexibility.
- Promote dialogue and build partnerships of industry groups, States, the public, and other interested parties dedicated to resolving disputes and balancing the energy, economic, and environmental objectives necessary for sustainable development.
- Establish a joint Department of Energy and Environmental Protection Agency working group to review the National Petroleum Council report on the future of U.S. petroleum refining. The working group will develop a strategy for maintaining a more viable domestic petroleum refining industry, including the examination of the feasibility of innovative, cost-effective approaches to regulating the refining industry.

Production From Federal Lands

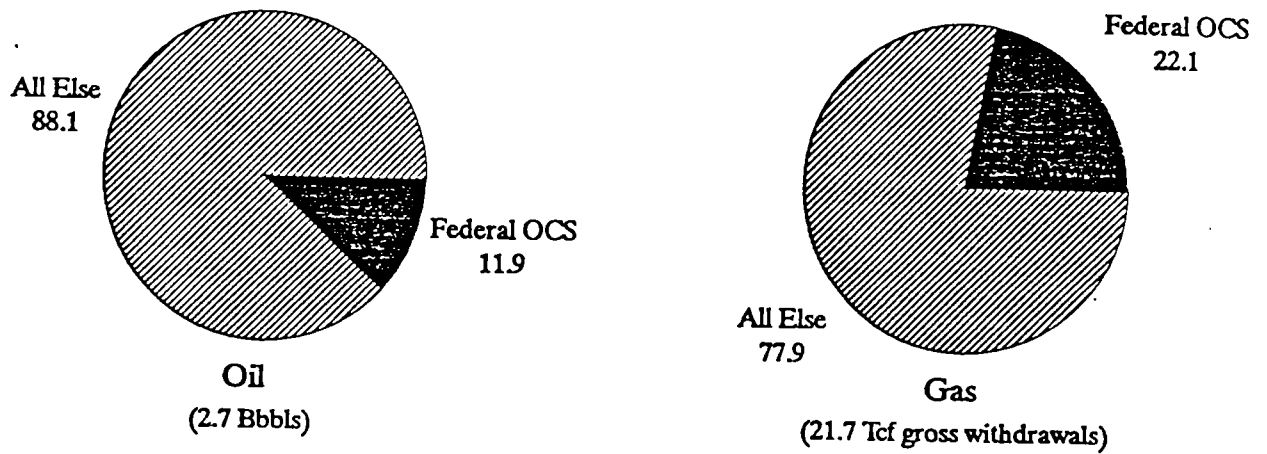
The Nation's public lands are one of its most precious resources, and it is entirely appropriate to safeguard and preserve these lands for future generations. However, with advanced technologies and careful extraction practices, it is not the case that our stewardship obligations are inconsistent with the extraction of subsurface resources.

Figure 5 shows the substantial percentage of gas and oil resources that underlie Federal waters. Federal lands comprise some 727 million acres of property onshore, nearly one-third the entire land area of the United States.¹⁰ The Outer Continental Shelf (OCS) also contains a vast resource of gas and oil restricted from development for economic reasons or due to executive and legislative moratoria.

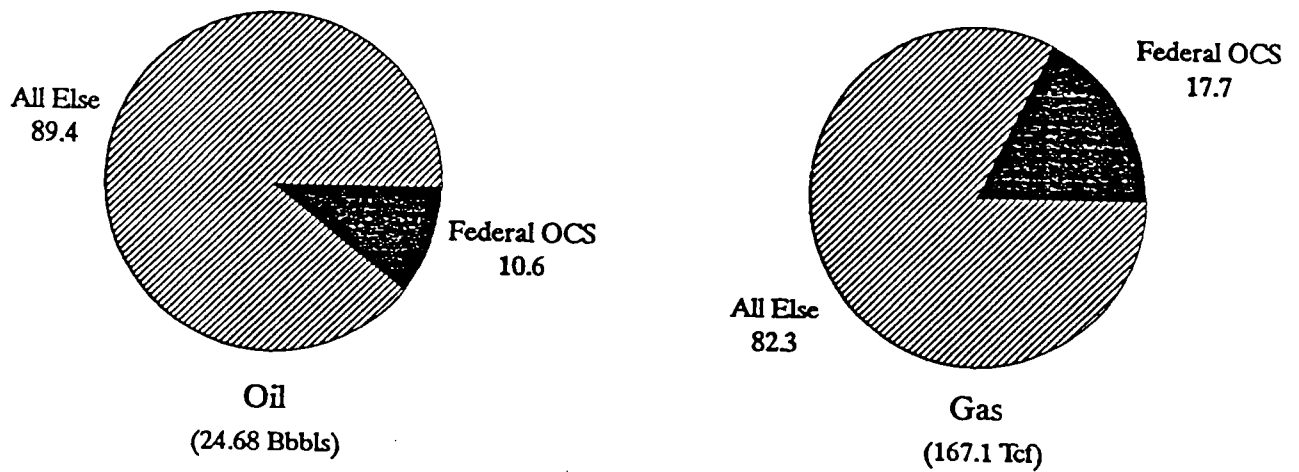
¹⁰Estimates of Undiscovered Conventional Resources of Oil and Gas for Federal Lands, and for Indian and Native Lands of the Continental United States, G. L. Dolton, R. F. Mast, R. A. Crovelli, U.S. Geological Survey Open-File Report 90-705, 1990. Table 2, page 10-12.

Figure 5. Federal Waters
(Percent of U. S. Total)

1991 Federal OCS Production



1991 Federal OCS Proved Reserves



Sources: Energy Information Administration and U. S. Department of Interior.

Incentives such as lower royalties should be considered for the deep water portions of the western and central Gulf of Mexico which would not be developed absent these incentives. In addition, the Department of Interior will continue to review its leasing policies in mature areas to ensure these policies are appropriate for changing economic and technological challenges.

The Department of the Interior, the Forest Service and the Department of Energy have established an informal interagency energy coordinating group. The group will assemble a full suite of technical and scientific issues to assist Department of the Interior in developing their leasing policies. However, access to frontier areas should be considered on a regional basis with the participation of local stakeholders. The Department of the Interior and Agriculture will continue to take the lead in these endeavors and in making the tough and very important decisions of whether to lease the Federal Lands they administer.

The U.S. leads the world in the development of environmentally effective technologies for exploration and development of gas and oil in frontier areas. We should retain this leadership not only for ourselves, but for the planet we share. This base of knowledge contributes to the tools available internationally for environmentally responsible gas and oil development, as other nations push offshore and into the Arctic.

Collaboration with States and Tribes

The States and Federal land management agencies bear a primary responsibility for regulating the gas and oil industry in the areas of resource conservation, environmental protection, and the use of natural gas. Ongoing federal interactions with State organizations, such as the Interstate Oil and Gas Compact Commission, the Ground Water Protection Council, the Energy Council, the National Governors' Association, the National Association of State Energy Offices and the National Association of Regulatory Utility Commissioners should be strengthened. The Federal government will work cooperatively with individual States to identify and resolve key issues constraining gas and oil supply at the State and regional levels.

As part of this Initiative, the Department will also forge new partnerships with Tribes to increase domestic gas and oil production on tribal lands. These partnerships will strive to recognize the importance of economic development, environmental preservation, and cultural sensitivity to tribal affairs.

Addressing West Coast Constraints

Crude oil production from the Alaskan North Slope (ANS) is likely to decline, leaving the West Coast once again a significant importer before the year 2000. To address this problem the Administration proposes to:

- Encourage oil pipeline access for non-integrated producers in California. Most, if not all, of these large pipelines should operate as common carriers by virtue of their settlements in long-standing lawsuits, or their use of rights-of-way granted under the Mineral Leasing Act. Free and open access to transportation assets in the State will help to increase production.
- Conduct a study on the advisability of removing the barriers to exporting crude oil from the Alaskan North Slope (ANS). If ANS production falls as projected in the late 1990's, Petroleum Administration for Defense District (PADD) V will again become permanently dependent on imported crude oil. However, permitting ANS exports may result in a tendency to reduce imports by stimulating production onshore in California. In addition to these issues, the study will examine how allowing the export of crude oil from the ANS would affect employment in the domestic Jones Act Fleet.

Prepare and Implement a Plan For Production of the Naval Oil Shale Reserves

The Naval Oil Shale Reserves represent a significant natural gas resource that is currently unavailable for production. The Department of Energy will characterize the production potential of the Reserves. In addition, the Department of Energy will work with the Department of Interior and the Office of Management and Budget to conduct

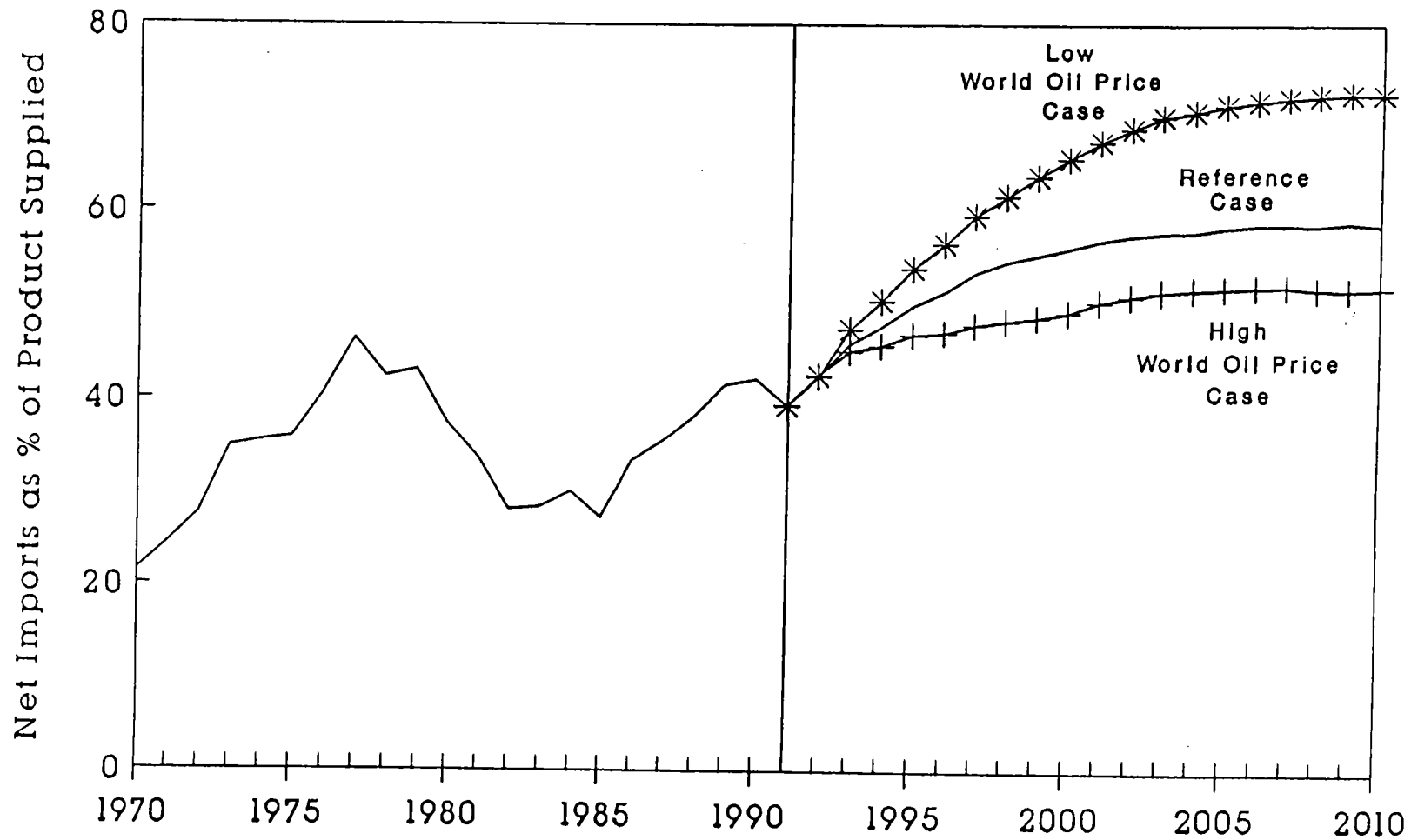
economic analysis of the options and to determine a plan for the best development of these government owned lands in an environmentally responsible manner that will maximize revenues to the Treasury.

This plan will use the considerable work that has already been done by the Department of Energy, the Bureau of Land Management, the Office of Management and Budget, and Congress. An aggressive timetable will be set for quick implementation of the plan.

IV. THE QUESTION OF OIL IMPORTS

Oil imports are critical to the U.S. economy. As a result, the possibility of the disruption of those oil imports remains a source of vulnerability for the economy. Figure 6 illustrates the trend in oil imports. The National Economic Council and the National Security Council will coordinate an interagency team headed by DOE to study the costs and benefits posed by oil imports. The team will review policy options to reduce the vulnerability inherent in oil use, which would not undermine our overall economy or violate trade agreements. The objective is to find new approaches that build on already successful energy security strategies, such as maintaining the Strategic Petroleum Reserve and effective multilateral cooperation. The study would link energy security with policy measures being considered to promote domestic supply, energy efficiency, and pollution reduction.

Figure 6. U.S. Dependence on Petroleum
Net Imports



Source: Energy Information Administration

V. SUMMARY AND CONCLUSION

The Administration has a goal of moving the U.S. economy away from rising reliance on imported oil. The achievement of this ambitious goal will require a coordinated strategy that ranges far beyond policies primarily directed at gas and oil supplies. We must continue to improve our energy efficiency, increase our use of renewable energy resources, increase the use of alternative fuels for transportation, diversify our international sources of supply, and develop new methods of production that promise to reduce costs, pollution and energy use simultaneously.

This coordinated strategy, in turn, must reconcile conflicts between the need for energy supply and environmental preservation. Confrontation predicated on the erroneous belief that these two goals are incompatible has led to much delay, litigation, and frustration, and has threatened to lock up valuable resources that could benefit the nation. While the nation must protect the environmental heritage we hand down to future generations, these values can and must become compatible with careful resource development.

Of equal importance, it is time to acknowledge the fact that the exploration and extraction of fuels is an economically strategic industry. American competitiveness depends on the skills and productivity of American workers. We cannot maintain our present technological and skill-based edge in the international energy markets without a viable domestic gas and oil industry in which to train and deploy workers. Similarly, we cannot increase our technological edge, nor exercise world environmental leadership, if we no longer invest in R&D and produce domestic energy resources in and environmentally sound manner. To safeguard our security, improve our technology and skill base, and exercise environmental leadership, domestic gas and oil supplies must remain a part of this fabric and a full-fledged contributor to the nation's economic future.

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**DOMESTIC NATURAL GAS AND OIL INITIATIVE
IMPLEMENTATION PLAN**

October 28, 1993

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ADMINISTRATIVE MARKING
INITIALS: DOB DATE: 9/5/13

INTRODUCTION

This Implementation Plan is a companion document to the Department of Energy's Domestic Natural Gas and Oil Initiative Policy Statement. In the Policy Statement, the Department establishes certain policies to continue and improve our technological superiority in the domestic natural gas and oil industries, streamline regulations without sacrificing environmental protection, and other measures to enhance economic security, create jobs, and safeguard the environment.

The Initiative groups these activities into four main elements:

ELEMENT I: ADVANCE AND DISSEMINATE GAS AND OIL TECHNOLOGIES

ELEMENT II: STIMULATE MARKETS FOR NATURAL GAS

ELEMENT III: IMPROVE COMMUNICATION AND GOVERNMENT DECISION MAKING

INTERAGENCY STUDY OF IMPACTS OF OIL IMPORTS DEPENDENCE

This Implementation Plan describes, in additional detail, actions the Department of Energy and other federal agencies will carry out to implement each of these elements. The Plan is divided into four sections, each devoted to an element. Each section lists the specific nature of the implementation activity, the agencies involved, and the extent to which additional legislation or executive action is required to carry out the specific action.

Table 1 provides a tabular summary and overview of all four elements of the Implementation Plan. The leftmost column of the table lists specific actions and the next three columns highlight the major contributors involved in action implementation. The rightmost column of the table contains specific agencies involved and other comments.

Table 1
Summary of Domestic Natural Gas and Oil Initiative Implementation Actions

Action	Solution Requires:			Comments All R&D actions require Congress to provide funds and agencies to implement programs.
	DOE Action	Action by Other Agencies	Legislative Action	
ELEMENT 1: ADVANCE AND DISSEMINATE GAS AND OIL TECHNOLOGIES				
1.0 Promote Gas and Oil Technology Advancement				
1.1 Develop Advanced Computational Technology Initiative	●			
1.2 Develop Natural Gas Advanced Rock Drilling Systems	●			
1.3 Develop a Commercialization Strategy for Natural Gas Technologies	●	●		DOD, State/Tribe
1.4 Stimulate Development of a Nationwide, Regionally Based Gas and Oil Technology Transfer Network and Assistance Program	●			
1.5 Fund Expanded Industry-Driven RD&D for Advanced Oil Recovery Technologies	●			
1.6 Conduct Advanced Geological Basin Analysis to Target Exploration for Bypassed Gas and Oil	●	●		DOI
1.7 Target a Research Program Specifically at the Everyday Problems of Small Gas and Oil Producers	●			
1.8 Promote Expenditures on Advanced Exploration and Production Computational Techniques and New Technologies Used in Exploration through Changes to Geological and Geophysical Expenses More Favorable Tax Credits	●	●	●	Treasury
1.9 Utilize the Naval Petroleum and Oil Shale Reserves for Advanced Technology Testing, Evaluation, and Training	●			
2.0 Improve Environmental Technologies and Practices				
2.1 Improve Environmental Compliance Technologies and Practices	●	●		EPA, DOI
2.2 Improve Coordination on Environmental Research	●	●		EPA, DOI, State/Tribe
2.3 Explore DOE's Role in Oil Spill R&D	●	●		DOT, DOI, OMB, State/Tribe
2.4 Study Used Oil Recycling	●	●		EPA, State/Tribe

Table 1
Summary of Domestic Natural Gas and Oil Initiative Implementation Actions

Action	Solution Requires:			Comments
	DOE Action	Action by Other Agencies	Legislative Action	
All R&D actions require Congress to provide funds and agencies to implement programs.				
ELEMENT II: STIMULATE MARKETS FOR NATURAL GAS				
3.0 Improve Natural Gas Infrastructure				
3.1 Upgrade State Production Data Collection and Reporting	●			State/Tribe Requires budgetary support for fiscal year 1994
3.2 Build a National Deliverability Capacity Model	●			Requires budgetary support
3.3 Enhance Real-Time Monitoring and Automated Systems	●			No regulatory action required due to Order 636 implementation
3.4 Build System for Assessing Underground Storage Operations	●			State/Tribe Requires budget support
3.5 Match Gas Storage to End-User Requirements	●			State/Tribe No regulatory action required. Budgetary requirement for full demonstration
3.6 Demonstrate Storage Revitalization Technology	●			State/Tribe No regulatory action required. Project requires budgetary approval with funding by GRI.
3.7 Improve Storage Effectiveness for Problem Fields	●			State/Tribe No regulatory action required, only budgetary
3.8 Strengthen and Expand the Current Clean Cities Program	●	●		EPA
4.0 Support Natural Gas Regulatory Reform and a "Contract Portfolio" Approach				
Reform Federal Rate Regulations				
4.1 Ensure Robust Secondary Markets for Pipeline Capacity	●	●		FERC EBB/EDI essential
4.2 Encourage Open Access to the Electric Transmission Grid	●	●		FERC
4.3 Expedite Construction of New Natural Gas Facilities	●	●		FERC, EPA
4.4 Develop Incentive-Based Rate Structures for Interstate Natural Gas Pipelines in Noncompetitive Markets	●	●		FERC

Table 1
Summary of Domestic Natural Gas and Oil Initiative Implementation Actions

Action	Solution Requires:			Comments All R&D actions require Congress to provide funds and agencies to implement programs.
	DOE Action	Action by Other Agencies	Legislative Action	
Reform State Rate Regulations				
4.5 Encourage Open Access for Gas Transporter through Distributor, to Resolve the "Contract Portfolio" Issue	●			State/Tribe
4.6 Promote the Use of Efficient Gas Pricing	●			State/Tribe
4.7 Encourage the End of Fuel-Specific Subsidies	●			State/Tribe
4.8 Promote Efficient Pricing of Electricity	●			State/Tribe
4.9 Foster the Use of Incentive Rate Design	●			State/Tribe
4.10 Encourage the Elimination of Regulations that Inhibit the Use of Natural Gas in Vehicles	●			State/Tribe States may have safety laws that need to be revised.
4.11 Encourage the Use of Natural Gas for Electric Generation	●	●		FERC, DOE, State/Tribe
5.0 Provide Information Services				
5.1 Develop an Energy and Resources Mapping and Information System (ERMIS)	●			State/Tribe Requires budgetary support
5.2 Enhance Energy Information Administration (EIA) Natural Gas Storage Data Collection	●			FERC, OMB, State/Tribe Requires OMB approval Requires budgetary support
5.3 Develop Contact Lists Readily Accessible to the Gas and Oil Industry	●	●		DOT, USDA, DOC, EPA, FERC, DOI, OMB, State/Tribe Requires participation by other agencies

Table 1
Summary of Domestic Natural Gas and Oil Initiative Implementation Actions

Action	Solution Requires:			Comments All R&D actions require Congress to provide funds and agencies to implement programs.
	DOE Action	Action by Other Agencies	Legislative Action	
ELEMENT III: IMPROVE COMMUNICATION AND GOVERNMENT DECISION-MAKING				
6.0 Simplify Regulations Without Compromising Environmental Protection				
6.1 Streamline State and Federal Regulation	●	●		EPA, DOI, DOT, USDA, State/Tribe
6.2 Expand Regulatory Impact Analyses — E.O. 12291 Improve Regulatory Cost/Benefit Assessments — EO 12866	●	●		EPA, DOI, DOT, USDA, OMB
6.2 6.3 Enhance State and Federal Regulatory Decision-Making Capability	●	●		EPA, DOI, State/Tribe
6.4 Provide Proactive Support to Legislative Processes	●	●		EPA, DOI, USDA, DOT, State/Tribe
6.3 6.4-6.5 Progress Beyond Command and Control Regulation	●	●	●	EPA, DOI, USDA, State/Tribe
6.4 6.5-6.6 Enhance Dialogue through Industry/Government/Public Partnerships	●	●		EPA, DOI, USDA, State/Tribe
6.5 6.6-6.7 Consider the Findings and Recommendations of the National Petroleum Council Report on U.S. Petroleum Refining	●	●		EPA
6.8 6.7-10.2 Enhance National Petroleum Council Scope	●			DOE
7.0 Evaluate Production from Access to Federal Lands				
7.1 Implement Federal Lands Working Group	●	●		USDA, DOI, State/Tribe
7.2 Develop Gas and Oil Resources of the Naval Oil Shale Reserves	●	●	●	DOI
7.3 Increase Production on the Deepwater Outer Continental Shelf (OCS)	●	●		DOI
7.4 Provide Incentives for Development of Marginal Prospects on the Gulf of Mexico Outer Continental Shelf (OCS)	●	●		DOI
7.5 Enhance Ability of Smaller Operators to Meet Outer Continental Shelf (OCS) Financial Requirements	●	●		DOI

Table 1
Summary of Domestic Natural Gas and Oil Initiative Implementation Actions

Action	Solution Requires:			Comments All R&D actions require Congress to provide funds and agencies to implement programs.
	DOE Action	Action by Other Agencies	Legislative Action	
8.0 Work with States and Tribes				
8.1 Work with States on the Domestic Natural Gas and Oil Initiative	●	●		State/Tribe, DOI, USDA
8.2 Increase Domestic Natural Gas and Oil Production and Environmental Protection of Tribal Lands	●	●		DOI, State/Tribe Requires additional funding
9.0 Address West Coast Production Constraints				
9.1 Open Access to Crude Oil Pipelines in California	●	●		DOI, DOJ, State agencies
9.2 Study Barriers to Export of Alaska North Slope Crude Oil	●	●		DOE, DOI, State/Tribe
10.0 Communicate the Strategic Role of the Gas and Oil Industry				
10.1 Develop and Implement a Public Awareness Program for Gas and Oil	—●—	—●—		DOL, DOI
10.2 Enhance National Petroleum Council Scope	—●—			
INTERAGENCY STUDY OF IMPACTS OF OIL IMPORT DEPENDENCE				
10.0 44.0 Interagency Study of Impacts of Oil Import Dependence				
10.1 44.1 Establish Interagency Oil Import Dependence Study Committee	●	●		NSC, NEC, CEA, Treasury, USTR, OMB, DOC, DOD, State/Tribe
10.2 44.2 Stabilize Prices with Government Fuel Expenditures	●	●	●	OMB, DOD, HHS Authorizing Legislation/program development

ELEMENT I: ADVANCE AND DISSEMINATE GAS AND OIL TECHNOLOGIES

Action Area 1: Promote Gas and Oil Technology Advancement

1.1 Develop an Advanced Computational Technology Initiative

DOE will pursue an Advanced Computational Initiative to enhance, apply, and transfer technologies developed within the Department's National Laboratories to improve the competitive stance of domestic gas and oil companies and to decrease the nation's dependence on foreign oil. This program will enable industry to capitalize on the capabilities of the National Laboratories in earth sciences, computer science, fluid dynamics, and mathematics. Driven by the needs of the domestic industry the Initiative will use advanced technologies, such as 3-D seismic and reservoir simulation, to integrate the fundamental geologic and engineering data and analyses required for the development of domestic gas and oil fields.

The first phase of the initiative will be organized under an expansion of the existing Petroleum Technology Partnership, currently operated for DOE's Office of Fossil Energy by Sandia and Los Alamos National Laboratories, with other National Laboratories being added the partnership. The Initiative will be driven by an industry forum which will review and prioritize all proposals.

1.2 Develop Natural Gas Advanced Rock Drilling Systems

DOE will initiate a comprehensive advanced drilling system development program to ensure future supplies of natural gas to the consumer at a reasonable price. Cost-effective drilling methods in medium- to hard-rock gas formations at current gas prices offers one of the most significant technological challenges for the domestic gas industries. The development of advanced underbalanced air drilling and high-efficiency drilling rig retrofit systems will result in more cost-effective development of gas supplies. DOE will initiate cost-shared development and field testing of these advanced drilling systems.

1.3 Develop a Commercialization Strategy for Natural Gas Technologies

DOE will develop, with input from industry and the DOE technology programs, department-wide policy guidelines and commercialization strategy for natural gas technologies for use in all sectors of the gas system, including (exploration and production), delivery and storage, end-use, environmental technologies. After policy guidelines and a commercialization strategy are developed, objectives and strategies for specific technology groups will be incorporated into the annual budgeting cycles.

1.4 *Stimulate Development of a Nationwide, Regionally Based Gas and Oil Technology Transfer Network and Assistance Program*

DOE will stimulate development of a comprehensive, nationwide technology transfer network and assistance program. The program will build on the strong core of gas- and oil-related technology transfer mechanisms already in place, including formal and informal efforts by industry, service companies, consultants, the Department of Energy and National Laboratories, other Federal and State agencies, and universities. It will encourage closer integration and coordination among existing technology transfer mechanisms and information networks, and further the development of new initiatives to meet client needs not adequately served under existing programs.

DOE will provide initial funding, on a cost-shared basis, for a focused and aggressive program to increase the availability and application of current information and technology throughout the domestic gas and oil industry. To the greatest extent possible, DOE will involve service companies, consultants, universities, the State Geological Surveys, other State agencies, professional societies, and existing consortia and industry associations in these programs, in order to take full advantage of existing networks and to encourage the formation of new networks. The program will also increase communication and interaction between the industry and the financial and environmental communities, and help disseminate the environmental compliance technologies discussed in other sections.

1.5 *Fund Expanded Industry-Driven RD&D for Advanced Oil Recovery Technologies*

DOE's existing program of cost-shared field demonstrations and supporting research will be expanded for a six-year period to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment. Currently, demonstration projects are selected in one new geologic class per year, with research funding at or below historical levels. The program will be expanded in four ways:

- Field demonstrations will be expanded to address two geologic classes per year.
- In-depth evaluations of past or ongoing projects will be done to (1) significantly increase information transfer on the most effective techniques for use under specific conditions, and (2) to define technological challenges for each class not currently being addressed.

- Field-based reservoir characterization and innovative recovery process experiments will be conducted, starting with the highest priority classes to refine advanced technologies tested in the laboratory.
- Supporting research will be expanded to address industry-identified needs.

1.6 *Conduct Advanced Geological Basin Analysis to Target Exploration for Bypassed Oil and Gas*

DOE will lead a vigorous geologic analysis of oil-bearing basins, in order to open up new paths for oil discovery and associated gas discovery. In mature regions, yet-to-be-discovered oil reservoirs tend to be relatively small and subtle features. The most effective way to find more of these reservoirs is through geologic analysis which extrapolates patterns and similarities from one geologically comparable basin to another. This analysis will require pulling together teams to integrate the skills of geologists, engineers, and other geoscientists from industry, States, the U.S. Geological Survey and other sources.

1.7 *Target a Research Program Specifically at the Everyday Problems of Small Gas and Oil Producers*

DOE will add a component to its oil research program which specifically addresses the technical needs of smaller independent oil and gas producers. Many simple, everyday technical problems, often associated with the operation of marginal wells, could benefit from a disciplined scientific approach using expertise currently available within the industry, DOE, the National Laboratories, and other research organizations and inventors. For example, introducing some basic computer analysis, scientific, or engineering analyses to independents has allowed them to solve problems at a lower cost. The effort will be a joint program of DOE's Office of Fossil Energy (FE) and Office of Energy Efficiency (EE), and will be designed to assemble and/or develop improved operating procedures, equipment modifications, and new equipment, and the necessary demonstration and marketing of cost-saving and regulation-meeting products to small gas and oil operators.

This program will not compete with service companies and consultants but rather use them to commercialize and disseminate the products. In particular, it will encourage procedure/product field demonstration and marketing/manufacturer links with product innovators/researchers and target operators.

1.8 Promote Expenditures on Advanced Exploration and Production Computational Techniques and New Technologies Used in Exploration through Changes to Geological and Geophysical Expenses More Favorable Tax Credits

This action will stimulate the development of advanced computational techniques (e.g. three-dimensional seismic mapping), horizontal drilling, and other technologies used in exploring for new gas and oil reserves. The tax code regarding ~~will be modified to allow expensing of all~~ geological and geophysical (G&G) costs ~~will be reviewed to determine the appropriate tax treatment of G&G costs.~~ (Currently, G&G costs for dry holes can be expensed, while G&G costs for successful wells must be capitalized.) Since G&G expenses are similar in many respects to intangible drilling costs, which can be expensed for tax purposes, similar treatment may be warranted.

Since the vast majority of gas and oil fields yet to be found in the U.S. will be small and/or subtle traps, finding costs are rising and such small fields are typically economically marginal. This incentive will encourage the use of existing technologies and the development of new technologies needed to improve exploration techniques and efficiencies to find the remaining reserves at the lowest cost.

1.9 Utilize the Naval Petroleum and Oil Shale Reserves (NPOSR) (NPR) for Advanced Technology Testing, Evaluation and Training

The NPR sites offer opportunities for advanced technology testing, evaluation and training in new oil field and environmental technologies. The NPR's Casper, Wyoming office is working closely with the Denver Regional Office of Energy Efficiency and Renewable Energy to establish an Advanced Technology Transfer and Training Center for the Rocky Mountain Region. This will be integrated with the National Technology Transfer Network and Assistance Program previously discussed in Action Area 1.4.

New applications that lead to increased production, lower operating costs and improved environmental compliance costs can be tested at the Naval Petroleum Reserve No. 3 (NPR-3) in Wyoming, which is owned and operated by DOE. These validated applications could be used in mature, marginally profitable oil fields, and transferred to newer fields, potentially increasing domestic oil production by prolonging the life of these oil fields. The Center will serve industry, DOE laboratories, and individual inventors through the Department's Energy Related Inventions Program. In addition, it will serve the academic and other communities, such as Indian tribal councils, by providing hands-on training opportunities for students and others who need oilfield experience.

Action Area 2: Improve Environmental Technologies and Practices

2.1 Improve Environmental Compliance Technologies and Practices

DOE will conduct an aggressive environmental technology development and demonstration program to enable the domestic gas and oil industry to more cost-effectively comply with rapidly evolving environmental regulatory requirements. A key objective will be to enhance the capability of gas and oil producers and refiners to reduce environmental compliance costs and liabilities, and to improve environmental performance.

The Department of Energy, in cooperation with the Environmental Protection Agency, the Department of the Interior, and others, will pursue the following activities:

- Develop a comprehensive strategy for improving environmental compliance technology and practices, including follow-up to the review of the National Petroleum Council report on the domestic refining industry discussed in Action Area 6.7 of Element III.
- Expand research to develop and field test more cost-effective environmental compliance technologies applicable to gas and oil exploration, production, and refining operations.
- Explore efforts to form "technology partnerships" between industry and the National Laboratories to address environmental issues specific to domestic gas and oil exploration, production, and refining operations.
- Support efforts by industry, government, and others to exchange technical information on the environmental aspects of oil and gas operations.
- Support individual company activities to establish programs to promote and institutionalize waste reduction.

2.2 Improve Coordination on Environmental Research Establish Environmental Research Advisory Committee(s)

DOE will work to improve coordination among industry, government, and others on environmental research and technology transfer activities related to oil and gas exploration, production, and refining. The Department will investigate mechanisms to improve coordination on oil and gas environmental research and technology transfer activities. This may entail ~~examining the feasibility of:~~

working cooperatively with non-profit organizations such as the Society of Petroleum Engineers, and the Ground Water Protection Council, among others, ~~the National Petroleum Refiners Association, and the Petroleum Environmental Research Forum~~ to improve coordination and technology transfer on specific research topics.

- ~~Establishing national and regional gas and oil environmental research advisory committees.~~

2.3 Explore DOE's Role in Oil Spill R&D

The Department of Energy will take a more active role in research and development efforts to improve technologies for preventing and managing oil spills. OPA 90 created the Interagency Coordinating Committee on Oil Pollution Research and identified DOE as a member. DOE will explore the potential for an appropriate contribution in oil spill R&D that will use the capability of the National Laboratories as well as coordinate with industry. This effort will be coordinated with the Coast Guard, as the lead agency for the Interagency Coordinating Committee on Oil Pollution Research, and the Minerals Management Service (MMS) of the Department of the Interior.

2.4 Study Used Oil Recycling

There are serious questions about the basic data that define the used oil problem: 20 year old data on generation factors, do-it-yourself oil changers recycling rates (no update since a 1981 DOE survey), and the prevalence of dumping used oil. Moreover, burning used oil release lead, cadmium and other metals into the atmosphere through space heaters that are not currently air pollution controlled.

DOE will conduct a study to consider various policy alternatives on the complex issue of recycling used lubricating oil. The study will examine alternatives, such as (1) better collection of data, including used oil reprocessing, rerefining, and disposal statistics; (2) estimates of damage from improper used oil disposal; (3) estimates of future oil recycling given current EPA rulings and projected oil prices; ~~(4) consultation with States to develop model State legislation if further recycling incentives are needed;~~ (5) and (4) research on how to remove or render harmless metals in used oil such as lead and cadmium. ~~;- and (6) analysis of possible additional Federal regulatory or legislative action.~~

ELEMENT II: STIMULATE MARKETS FOR NATURAL GAS

Action Area 3: Improve Natural Gas Infrastructure

3.1 Upgrade State Production Data Collection and Reporting

This initiative will endeavor to create a single information collection point in each State and to achieve information compatibility between States and the Federal government. This will be achieved by taking the following steps:

- Two or more States would join in cooperative demonstrations to upgrade their gas production systems to be compatible with the University of Oklahoma model with co-funding of hardware and software acquisition by DOE.
- Evaluation of the successful start-up of these initial systems would result in a plan for implementation of systems in all gas-producing States. Though not identical because of individual State needs, systems will be similar enough to assure complete compatibility among States.

3.2 Build a National Deliverability Capacity Model

This project will develop a model for estimating the capability of the United States to deliver natural gas to customers, linking wellhead productive capacity estimates with pipeline capacity on a State-to-State basis. This will be achieved by:

- A PC-based system developed for the analysis of domestic natural gas deliverability for use throughout DOE.
- A study using the PC-based system to determine the current capability, the impact of projected changes in supply and demand patterns, and planned pipeline expansion on the capability of the system.
- An annual EIA summary report on domestic natural gas deliverability capability, including presentation of the study.

3.3 Enhance Real-Time Monitoring and Automated Systems

This action will provide new and advanced technologies for use in the transportation of gas that will foster increased gas deliverability to customers, improved efficiency, reduced operating costs, and streamlined information gathering and dissemination on natural gas flow and pressure. The following steps will be taken:

- ~~In conjunction with~~ Facilitate the implementation of FERC Order No. 636, DOE, FERC and other interested executive branch agencies will consider enhancements to the operation of the ~~to develop a secondary market for capacity as a way to provide for an efficient and competitive environment and help reduce the overall cost to end-users of natural gas.~~
- Support the recommendations of the Natural Gas Council to develop a Gas

Industry Standards Board to develop a single national standard for the reporting of gas transactions at all U.S. pipeline delivery points via electronic bulletin boards standards that will permit more efficient market transactions.

- Initiate a series of surveys to determine the level of communication technology, both hardware and software, that the gas industry would require to develop and demonstrate this project on a regional basis.
- This action may involve special use of telecommunication facilities for data transmission, and therefore require prior approval by the FCC.

3.4 Build System for Assessing Underground Storage Operations

This project would develop an information system for evaluating domestic storage capacity and deliverability on a site-specific basis, documenting and assessing new technologies for developing and managing storage as well as the role of storage in meeting variable demand patterns. This will be achieved by taking the following steps:

- Establish a database of site-specific information on storage facilities including geographical and geologic information, capacity, operational information (number of wells, peak day deliverability), ownership data, and withdrawal and injection information on a monthly basis.
- Merge the database into the EIA Energy and Natural Resource Information Mapping System (ENRIMS) to allow cross-referencing with pipeline connections, pipeline capacity, and market information.
- Develop a PC-based system for evaluating changes and efficiency gains from the development and use of storage in the national natural gas delivery system.

3.5 Match Gas Storage to End-User Requirements

This effort will identify market areas where new and expanding natural gas capacity can meet increasing industrial and power generation demand. It will also establish proof-of-concept and subsequent field demonstrations of alternative storage methods and identify improvements in the system from the alternative storage reservoir to the burner tip. To achieve this, DOE will:

- Identify strategic market areas for new and growing natural gas capacity; identify, screen, and rank each possible underground reservoir for its potential and complete geologic modeling, engineering design, and cost-to-develop studies.
- Conduct a feasibility study of alternative gas storage methods such as tight and tight/fractured reservoirs; thin-bedded salt formations; and nonreservoir rock, chambers, and surface facilities.
- Conduct one or more field demonstrations near power generation facilities to increase the amount of gas dedicated to the power generation market.

3.6 Demonstrate Storage Revitalization Technology

To maintain the storage system capability and reduce overall storage costs, new and improved storage technologies and techniques must be developed. In order to do this, the following steps will be taken:

- Conduct a gas storage revitalization project to evaluate new/improved techniques, e.g., propellant fracturing, chemical treatment, and hydraulic stimulation methods for existing wells. Multiple candidate wells will be selected for field verification tests.
- Through cooperative DOE/Industry agreements, develop a methodology to improve storage field technology through geologic modeling and reservoir simulation studies of selected storage fields. Field development strategies would be investigated, such as increasing injection/withdrawal rates using horizontal wells and optimizing surface facilities for reducing development costs.

3.7 Improve Storage Effectiveness for Problem Fields

The Department of Energy (DOE) storage program will develop and demonstrate new and improved technologies for detecting and inhibiting gas migration from the storage area, as well as develop methodologies to reduce other costs associated with managing underground gas storage fields. In order to do this, DOE will take the following steps:

- Conduct gas migration study of problem fields followed by field verification tests to determine the effectiveness of horizontal wells, surfactant/foams, or other technologies to reduce the costs of gas migration.
- Perform a gas trapping study in aquifer storage fields.
- Implement field verification tests of methods to reduce gas migration and gas trapping.

3.8 Strengthen and Expand the Current Clean Cities Program

Perhaps in no other program is the federal/state/local government partnership with industry more evident than in the Clean Cities Program. This is an initiative developed by DOE as a way to accelerate the use of alternative fuels in transportation markets. Although the Energy Policy Act mandates the acquisition of large numbers of alternative fuel vehicles (AFVs) for government fleets, it did not provide an implementation framework. The Clean Cities commitment by DOE will develop the infrastructure necessary to respond to the Energy Policy Act's requirements **as well as** the goals of the Clean Air Act Amendments (CAAA), that is, cleaning up the dirtiest air in the most cost-effective way possible. DOE, EPA and its state and local partners will take the following action:

Currently, 20 areas have expressed an interest in being designated as a Clean City or State. Prior to such a designation, all participants are required to make certain commitments. The goal is to aggregate purchases of alternative fueled vehicles, to expand the infrastructure available and to encourage automobile manufacturers to build more varieties of vehicles. In this effort, DOE will: appoint a Federal coordinator specifically for the selected city; encourage the placement of as many Federal AFVs as possible in or near the selected city under the provisions of AMFA, CAAA, and EPACT; provide a hotline/clearinghouse for technical and other information; provide sources for training for coordinators, open fleet operators, and other participants; provide information and general assistance on public relations and promotional activities; and, conduct information exchange workshops for participating cities and potential participants.

Action Area 4: Support Natural Gas Regulatory Reform and a "Contract Portfolio" Approach

Reform Federal Rate Regulations: Actions 4.1 through 4.4

~~The Department of Energy will closely monitor Based on data developed from the experience of natural gas industry operations under FERC Order No. 636 in the 1993-94 winter hearing season.~~

~~Based on data developed from the initial implementation, DOE will work cooperatively with the FERC to undertake the following actions:~~

4.1 Ensure Robust Secondary Markets for Pipeline Capacity

~~The Department of Energy will examine the need to propose to FERC alternative ways to structure the secondary market for pipeline capacity, including curbs on any monopoly abuse that may be present in capacity resale markets and the way in which completed transactions will be posted. The efficient operation of the transportation market will discipline the price of delivered gas and allow firm customers to avoid some of the costs of excess capacity. A less constrained secondary market may require a new understanding of FERC's responsibilities under the Natural Gas Act. The Department of Energy will work with FERC on a rulemaking that will address ceilings on secondary transactions of pipeline capacity, the extent to which monopoly abuse may be present in capacity resale markets and the way in which completed transactions will be posted. This will provide greater latitude in the arrangement of these buy-sell transactions. This change will be dependent upon The development of mechanisms, such as Electronic Bulletin Boards and Electronic Data Interchanges, should that will make timely secondary market information available to all who use the pipeline system.~~

4.2 Encourage Open Access to the Electric Transmission Grid

The Energy Policy Act of 1992 set in motion a trend that is leading toward increased access to the electric transmission system and further competition in power generation. FERC has responded by issuing policies and inquiries into wholesale transmission pricing, regional transmission groups, and good faith requests for electric transmission, and the creation of a transmission data base. The DOE will work with FERC as it continues this process of establishing the rules which govern access to the wholesale electric transmission grid, including the promotion of regional transmission groups.

4.3 Expedite Construction of New Natural Gas Facilities

The DOE will work with FERC to draft generic rulemaking(s) as necessary to expedite natural gas pipeline certification. As an initial step, the Office of Management and Budget has approved a proposal by FERC to implement a program that will allow applicants seeking certificate authority to construct new natural gas pipeline facilities to use third party contractors to do initial environmental analyses of their projects. This voluntary third party contracting program will enable the Commission to speed up the processing of certificate applications without compromising the environmental review requirements of NEPA. Among other things, the rule will contemplate a negotiated rate mechanism whereby parties can get automatic FERC approval for new pipeline construction provided they have satisfied National Environmental Protection Act environmental regulations. The DOE, working with the FERC, the Environmental Protection Agency and other affected Federal agencies, will work to identify practices that can expedite the economic and environmental review process for new pipeline certification.

4.4 Develop Incentive-Based Rate Structures for Interstate Natural Gas Pipelines in Noncompetitive Markets

The Department of Energy (DOE) will work with FERC, the National Association of Regulatory Utility Commissioners (NARUC), and a group of State utility commissions on promulgating new rulemakings which divorce the pipelines' rates from their costs. The rulemaking would go beyond FERC's policy statement on incentive ratemaking in moving the pipeline industry toward a competitive environment. Among the incentive rate mechanisms which would be considered are indexes, price caps, bounded rates, and incentive rates of return. Regulation would cap prices, not profits. This idea of "decoupling" costs from rates is addressed in the Energy Policy Act of 1992 in looking at Integrated Resource Planning, and States are beginning to consider this issue more seriously. To the extent that a particular market can be shown to be workably competitive, DOE

~~will advocate market-based pricing.~~

The Department of Energy will work with FERC to develop new ratemaking approaches not based on an embedded cost of service. Pipelines, gas producers, and distribution companies can be encouraged to operate efficiently in the new competitive environment through incentive rate mechanisms, price cap regulation, or market-based rates, particularly where abuses of market power are not likely.

Reform State Rate Regulations Actions 4.5 through 4.10

4.5 Encourage Open Access for Gas Transporter through Distributor, to Resolve the "Contract Portfolio" Issue

The Department of Energy (DOE) will work in cooperation with the National Association of Regulatory Utility Commissioners (NARUC) and several State regulatory commissions to establish additional pilot regulatory programs in which nondiscriminatory access to the distribution system will be available to customers through third-party merchants. Through analysis and pilot programs with interested State commissions and utilities, DOE will provide States the tools to lessen State regulation over those services over which the distributor has no market power. During the pilot program, DOE will be able to monitor the changes that take place as a result of the reform. The results can then be used as a case study to show other States the value of the reform.

4.6 Promote the Use of Efficient Gas Pricing

This initiative will be carried out by working in cooperation with State regulators who are interested in making the suggested changes, but who do not necessarily have the required manpower or expertise to address marginal cost pricing. DOE will sponsor workshops, submit testimony, produce white papers, and make presentations at conferences supporting these reforms. In addition, DOE will survey some of the efficient pricing efforts in currently in place. Through analysis and pilot programs with interested State commissions and utilities, DOE will give States the tools to reshape gas pricing. During the pilot program, DOE will be able to monitor the changes that take place as a result of the reform. The results can then be used as a case study to help other States see the virtues of the reforms.

4.7 Encourage the End of Fuel-Specific Subsidies

The Department of Energy (DOE) will work cooperatively with State utility regulators, giving States the tools to evaluate integrated resource planning programs that consider electric, gas, and conservation measures simultaneously when determining the most efficient way to meet the needs of customers. This effort will be carried out by working with State regulators who are interested in making the suggested changes, but who do not necessarily have the required manpower or expertise. DOE will sponsor workshops, submit testimony, produce white papers, and make presentations at conferences supporting these reforms. During the pilot programs, DOE will be able to monitor the changes that take place as a result of the reforms. The results can then be used as a case study to help persuade other States of the importance of the reforms.

4.8 Promote Efficient Pricing of Electricity

This effort will be carried out by working with State regulators who are interested in trying marginal cost pricing in their jurisdiction, but do not necessarily have the required manpower or expertise. DOE will sponsor workshops, submit testimony, produce white papers, and make presentations at conferences supporting these reforms. Through analysis and pilot programs with interested State commissions and utilities, the Department will provide the States the tools to reshape electricity pricing. During the pilot program, DOE will be able to monitor the changes that take place as a result of the reform. The results can then be used as a case study to show other States the value of the reforms.

4.9 Foster the Use of Incentive Rate Design

This effort will be carried out by working cooperatively with State regulators who are interested in implementing the basic tenets of incentive ratemaking, but who may lack the required manpower or expertise. DOE will sponsor workshops, submit testimony, produce white papers, and make presentations at conferences supporting these reforms. Through analysis of the new proposals offered by utilities, and pilot programs with interested State commissions and utilities, the Department will make available to States the tools needed to apply incentive ratemaking to their specific situation. During the pilot program, DOE will be able to monitor the changes that take place as a result of the reforms. These results can then be used as a case study to impress on other States the virtues of the reforms.

4.10 Encourage the Elimination of Regulations that Inhibit the Use of Natural Gas in Vehicles

This initiative will be carried out by working cooperatively with State regulators and legislative representatives who are interested in making changes to allow greater use of natural gas vehicles. DOE will sponsor workshops, submit testimony before legislative and regulatory bodies, and make presentations at conferences supporting these reforms.

4.11 Encourage the Use of Natural Gas for Electric Generation

The largest potential gas market today is for the generation of electricity. It will require appropriate regulatory policies at both the Federal and State levels, fine tuning where necessary to take into account the legitimate needs of electric generators. The capacity release program under FERC's Order No. 636, for example, may lead to a more symbiotic relationship between Local Distribution Companies (LDCs) and their electric generator customers. DOE and FERC will work cooperatively with state regulators to ensure that regulatory policies at both the Federal and State levels appropriately encourage the use of natural gas by electric generators.

Action Area 5: Provide Information Services

5.1 Develop an Energy and Resources Mapping and Information System (ERMIS)

This initiative will enable the Department of Energy (DOE) to spatially analyze energy issues at a broad level in order to quickly understand and communicate to responsible parties the potential impact on energy activities of pending legislation, regulations, or policy decisions promulgated by Congress, other Government agencies, and the private sector, that have spatial implications. It will also provide a readily available system to provide consistent, coherent data and information to facilitate decision-making processes.

5.2 Enhance Energy Information Administration (EIA) Natural Gas Storage Data Collection

Under this option, the Energy Information Administration (EIA) of the Department of Energy would speed up the collection and publication of natural gas storage data from a monthly cycle to a weekly cycle, in order to enhance the efficiency of gas trading markets and of all energy users. EIA is already studying the efficacy of this option.

5.3 Develop Contact Lists Readily Accessible to the Gas and Oil Industry

Members of the oil and gas industry and the public often do not know whom to contact within the Federal government to have even their most basic questions answered. The lack of readily available answers can be costly to everyone. This initiative will establish a list within the Federal government for answers to such questions as where to apply for research and development funds, what are the current regulations governing waste water management, who issues site permits, etc. Such questions often arise during the exploration, development, and production of oil and gas and commercialization of new technologies. In order to do this buy-in from other Federal agencies, such as Department of Interior, Federal Energy Regulatory Commission, Environmental Protection Agency, will be obtained to prepare list of contacts, develop data base, and establish procedure for quarterly updates. The system will be advertised through Public Affairs and Energy Information Administration's marketing programs and marketing programs of other participating agencies.

ELEMENT III IMPROVE COMMUNICATION AND GOVERNMENT DECISION-MAKING

Action Area 6: Simplify Regulations Without Compromising Environmental Protection

6.1 Streamline State and Federal Regulation

DOE, working with States and other Federal and State agencies, will improve the efficiency and effectiveness of State and Federal regulatory programs and reduce undue burdens on the domestic gas and oil industry by improving coordination among regulatory agencies, eliminating redundant or unnecessary regulation, and avoiding duplication in State and Federal and State regulatory programs.

An interagency working group will be created with representatives from the Department of Energy, Environmental Protection Agency, Department of the Interior, Department of Transportation, Department of Agriculture, and other pertinent Federal agencies will convene to improve coordination on regulatory issues affecting gas and oil supply. DOE will also work cooperatively with States, through organizations such as the Interstate Oil and Gas Compact Commission, to (1) promote regulatory reform and improve the efficiency and effectiveness of State regulatory programs affecting the domestic gas and oil industry, and (2) expand opportunities for improved coordination between State and Federal regulatory agencies.

~~6.2 Improve Regulatory Cost/Benefit Assessments E.O. 12866~~ ~~Expand Regulatory Impact Analyses E.O. 12291~~

~~DOE and the Environmental Protection Agency, in conjunction with other Federal agencies, will revitalize an earlier initiative to require Federal agencies to consider impacts on energy supply as part of Regulatory Impact Analyses mandated under Executive Order (E.O.) 12291 for proposed legislation and regulations. Such analyses are required for "major" Federal actions, which are defined as those that will exceed \$100 million in cost to the U.S. economy. Current Office of Management and Budget guidelines for implementing E.O. 12291 do not require consideration of energy supply impacts.~~

~~DOE, in coordination with other appropriate Federal agencies such as the Environmental Protection Agency and the Department of the Interior, will work with the Office of Management and Budget to develop guidelines for considering impacts on U.S. gas and oil supply under Executive Order (E.O.) 12866 on Regulatory Planning and Review. Executive Order 12866 was signed by~~

~~President Clinton on September 30, 1993 and begins a program to reform and improve the Federal regulatory development process. Specifically, this action area will provide greater certainty of achieving balance among national economic, energy, and environmental objectives by requiring Federal agencies to consider impacts on U.S. gas and oil supply, as appropriate, when assessing the potential costs and benefits of proposed regulations under E.O. 12866.~~

6.2 6-3 Enhance State and Federal Regulatory Decision-Making Capability

DOE, and other Federal agencies, will work to enhance the capability of State and Federal governments to make better regulatory decisions affecting the domestic gas and oil industry. DOE will support research and other efforts to (1) increase the availability of sound technical information on the environmental risks associated with gas and oil operations, and the costs and benefits of alternative regulatory approaches; (2) make available and continue to utilize the unique capability of DOE for performing energy impact analyses to assist State and Federal decision-makers in assessing the impact of environmental and other regulatory actions on gas and oil supply; and (3) expand ongoing efforts by DOE and other Federal agencies to assist States with research and analysis, and improved data management to support risk-based regulatory decisions affecting the gas and oil industry.

6.4 ~~Provide Proactive Support to Legislative Processes~~

~~The Administration will provide proactive support to legislative processes, articulating the national energy policy implications of alternative legislative approaches. The focus will be on legislation being considered by Congress, but in some instances it may be appropriate to address actions being considered by State legislatures.~~

6.3 ~~6-4-6.5 Progress Beyond Command and Control Regulation~~

The Administration will develop alternative approaches to environmental regulation that balance the cost of regulation against realistic health and environmental risk, establish priorities among the various environmental protection programs in achieving goals, and promote innovative methods of achieving environmental objectives. A key objective is to hasten the evolution of the current regulatory framework affecting the domestic gas and oil industry from the traditional command-and-control approach to more innovative, cost-effective mechanisms that achieve the same or greater levels of environmental benefit.

6.4 ~~6.5-6.6~~ Enhance Dialogue through Industry/Government/Public Partnerships

The Administration will promote dialogue among industry, States, the public, and other interested parties to: (1) address regional environmental issues constraining U.S. gas and oil resource recovery; (2) avoid unnecessary delays in the regulatory permitting process; (3) resolve outstanding disputes concerning gas and oil development; and (4) accomplish dual objectives of environmental protection and energy development.

6.5 ~~6.6-6.7~~ Review Consider the Findings and Recommendations of the National Petroleum Council Report on U.S. Petroleum Refining

The Department of Energy (DOE) and the Environmental Protection Agency will establish a working group to review ~~will consider~~ the findings and recommendations of a two-and-one-half-year comprehensive study on the future of U.S. petroleum refining that was undertaken by the National Petroleum Council (NPC), an advisory committee to the Secretary of Energy¹. ~~The working group will develop a strategy for maintaining a more viable domestic petroleum refining industry. The strategy will be used to guide current efforts aimed at strengthening existing refining technology R&D programs, including the examination of the feasibility of innovative, cost effective approaches to regulating the refining industry.~~

DOE will host in the near term one or more seminars for the experts who prepared the NPC report to present the findings, and describe the basis of the analysis to interested stakeholders, government, and congressional staff.

6.6 ~~6.7-10.2~~ Enhance National Petroleum Council Scope

In renewing the NPC charter for an additional two-year term, DOE will increase the number of members, adding 15 to 20 from environmental organizations, public interest and consumer groups, and additional end-user groups (such as manufacturers). This will increase the total to approximately 30 who could bring a public/consumer/environmental perspective to the Council.

At the fall/winter meeting of the Council, the Secretary of Energy will formally commission a study of government/industry roles to (1) disseminate facts about the role of the gas and oil industry in the U.S. economy; (2) bring industry, government, and interest groups closer together where disagreements have created barriers to domestic production; and (3) identify ways to settle disputes without litigation.

¹ U.S. Petroleum Refining, National Petroleum Council, September 8, 1993.

Action Area 7: Evaluate The Effect of Access to Federal Lands

7.1 Implement Interagency Energy Coordinating Federal Lands Working Group

~~DOE is working with the Department of the Interior (DOI), the United State Forest Service, the Environmental Protection Agency, and others to establish a Federal Lands Working Group to ensure that national energy strategies are appropriately considered in leasing decisions related to Federal lands. Since access to frontier areas should be considered on a regional basis, DOE will participate with DOI in regional or subregional working groups to consider the technical and scientific issues involved in making decisions about access to these areas. A description of the scope of this process will be developed in a Memorandum of Understanding between the Departments. The Coordinating Group will work together to encourage gas production and to consider questions of access to public lands, lease buybacks, and revenue sharing.~~

DOE, the Department of the Interior (DOI), and the Department of Agriculture Forest Service have established an informal Interagency Energy Coordinating Group to ensure that national energy strategies are appropriately considered in leasing decisions related to Federal lands. The Coordinating Group will assemble a full suite of technical and scientific issues to assist DOI in developing their leasing policies. The Coordinating Group will work together to encourage gas production and to consider questions of access to public lands, lease buybacks, and revenue sharing. Access to frontier areas will be considered on a regional basis and local stakeholders will be involved on a case-by-case basis to attempt to resolve issues of concern in connection with gas and oil exploration and production.

7.2 Develop Gas and Oil Resources of the Naval Oil Shale Reserves

~~DOE will assess the gas and oil resources of the Naval Oil Shale Reserves and make the resources available for development as appropriate if legislative authority is obtained. The first phase of the program, begun in January 1993, will consist of (1) reprocessing seismic data that are available in the DOE archive; (2) acquiring additional, commercially available seismic data; and (3) producing an assessment of the gas and oil potential of Naval Oil Shale Reserves Nos. 1, 2, and 3. An aggressive timetable will be set for quick implementation of the plan.~~

7.3 Increase Production on the Deepwater Outer Continental Shelf (OCS)

The deepwater portions of the Gulf of Mexico represent one of the most promising exploration targets in the United States, but the economic and technological challenges are substantial. Legislation has been proposed that would provide incentives to encourage development in new deepwater areas.

DOE and the Department of the Interior are currently studying the issues related to these deepwater incentives. DOE and DOI have told Congress that they would support production incentives for non-moratoria OCS areas if appropriate distinctions are made between treatment of existing and potential future leases.

7.4 Provide Incentives for Development of Marginal Prospects on the Gulf of Mexico Outer Continental Shelf (OCS)

While there are bills before Congress to encourage leasing, exploration, and production from deep water Gulf of Mexico leases, these bills do not address the issue of encouraging exploration and production in the thousands of shallow water blocks in non-moratoria areas of the Gulf of Mexico outer continental shelf. Many of these blocks have not been exploited because the potential is small.

~~DOE, in conjunction with The Department of the Interior~~ In conjunction with DOE, will assess options incentives for development of marginal prospects (such as royalty relief) to determine the value of encouraging this shallow water development.

7.5 Enhance Ability of Smaller Operators to Meet OCS Financial Requirements

The Department of Energy and the Department of the Interior are studying the ~~effects on issues related to the loss of jobs and domestic gas and oil production represented by~~ smaller companies who will have difficulty meeting the latest financial requirements for operating on the Outer Continental Shelf (OCS).

The Minerals Management Service has recently published an Advanced Notice of Proposed Rulemaking (ANPR) raising the minimum threshold of financial responsibility for operators on the OCS from \$35 million to \$150 million. The ANPR process is expected to identify several possible options for addressing concerns about the requirements. DOE has asked the National Petroleum Council to quickly provide an analysis of the criteria published in the Advanced Notice of Proposed Rulemaking, as well as recommendations of alternatives to fulfill the intent of the legislation.

Action Area 8: Work With States and Tribes

8.1 Work with States on the Domestic Natural Gas and Oil Initiative

The Federal government will work cooperatively with States, particularly gas and oil producing States, to develop and implement the Domestic Natural Gas and Oil Initiative. States and Federal land management agencies have a primary role in regulating activities of the gas and oil industry relative to resource conservation, environmental protection, and the use of natural gas.

In June 1993, the Interstate Oil and Gas Compact Commission (IOGCC), the association of the governors of 29 gas and oil producing States established in 1935, passed a resolution that broadly supports the Domestic Natural Gas and Oil Initiative and urges member States to immediately make available all resources at their disposal to assist the Administration in developing workable energy policies.

8.2 Increase Domestic Natural Gas and Oil Production and Environmental Protection on Tribal Lands

DOE will help Tribes gain access to energy technology and environmental management assistance by (1) working with the Administration for Native Americans, Department of Interior agencies, the Council of Energy Resource Tribes, and other Native American organizations including individual Tribes to provide internship opportunities at the Strategic and Naval Petroleum Reserves, and to encourage maintenance and operations (M&O) contractors to do likewise; (2) support proposed projects by individual Tribes while developing appropriate information transfer components that will benefit other Tribes as well; (3) work with the Council of Energy Resource Tribes to build a management and technical foundation at the Tribal level; (4) seek opportunities to facilitate and enhance the evolving alliance between Tribes and industry; (5) exercise leadership within the Administration to support and encourage an expanded Bureau of Indian Affairs resource assessment program; and (6) continue to foster basic science and math education for Native American youth.

This action will deal directly with the issue of possible disproportionate environmental risks borne by minority/low-income populations.

Action Area 9: Address West Coast Production Constraints

9.1 Open Access to Crude Oil Pipelines in California

The DOE will work with the FERC, the Justice Department, and the California Public Utilities Commission to ensure fair tariffs for central California pipelines and with the Department of the Interior on enforcing the common carrier requirements of the Mineral Leasing Act.

9.2 Study Barriers to Export of Alaska North Slope (ANS) Crude Oil

The study by DOE will examine the economic, social, and environmental benefits and impacts of exporting ANS crude oil, including the relationship between ANS exports and investment in producing and upgrading onshore California heavy crude oils, and the effects on employment in the domestic Jones Act Fleet. The conclusions of this study will be available for discussions concerning the Export Administration Act, which is scheduled for renewal next year.

~~Action Area 10: Communicate the Strategic Importance of the Natural Gas and Oil Industry~~

~~10.1 Develop and Implement a Public Awareness Program for Gas and Oil~~

~~Public perceptions of the gas and oil industry have not kept pace with its changes during the last decade in which the industry has been devastated by recession. The Administration will work with Department of Labor to develop educational programs aimed at enhancing public understanding of the gas and oil industry, increase the public's awareness of the strategic importance of this industry in the United States economy through public information programs and outreach activities.~~

~~10.2 Enhance National Petroleum Council Scope~~

~~In renewing the NPC charter for an additional two year term, DOE will increase the number of members, adding 15 to 20 from environmental organizations, public interest and consumer groups, and additional end user groups (such as manufacturers). This will increase the total to approximately 30 who could bring a public/consumer/environmental perspective to the Council.~~

~~At the fall/winter meeting of the Council, the Secretary of Energy will formally commission a study of government/industry roles to (1) disseminate facts about the role of the gas and oil industry in the U.S. economy; (2) bring industry, government, and interest groups closer together where disagreements have created barriers to domestic production; and (3) identify ways to settle disputes~~

without litigation.

Action Area 10 44: Interagency Study of Impacts of Oil Import Dependence

10.1 44.4 Establish Interagency Oil Import Dependence Study Committee

The Domestic Natural Gas and Oil Initiative will initiate a review that will assess the economic, security, and environmental implications of rising U.S. oil import dependence. Analysis of the issue centers on questions of national security, costs and benefits to the economy and environment, reactions to these impacts, and the role of the Federal government in addressing the situation. The study will define and characterize the short- and long-term economic impacts associated with greater oil import dependence by the United States. This analysis will also include the effects of oil imports on U.S. employment and trade deficit.

This policy development initiative will be undertaken by an interagency committee, coordinated by the NEC and the NSC with DOE as the lead agency.

The interagency working group will first produce a work plan that will identify the issues to be examined, detail the resources to be provided by group-member agencies, outline the level of involvement by outside experts or institutions, determine the milestones, and describe the final product.

10.2 44.2 Stabilize Prices with Government Fuel Expenditures

The DOE in conjunction with other agencies will undertake a study to characterize and determine the utility of establishing a governmental program for hedging fuel purchases by the government. ~~This initiative will establish a governmental program that will~~ Such a program would be a counter-part to oil price hedging strategies with domestic oil producers. The price swaps will stabilize both the producers' production revenues and the government's outlays for fuel and fuel-related programs. The implementation team will include members from the Departments of Energy, Defense, and (perhaps) Health and Human Services, as well as agencies such as the Office of Management and Budget and the National Economic Council. ~~The team will:~~

- ~~• design the program structure so that it is budgetarily and organizationally consistent with governmental statutory and procedural restrictions (e.g., the program might be operated from a revolving fund);~~
- ~~• perform legal research to determine if the program requires special legislative authorities;~~

- ~~concomitant with the above, draft legislation granting authority for a pilot program that will involve making payment from the fund and receiving payments to the fund associated with hedging activities;~~
- ~~conduct studies that define the resource requirements of the program and describe the reporting and controls required; and,~~
- ~~design and conduct a producer outreach program that will recruit producers to the program through their lenders.~~

~~The planning phase of the project will be documented in a report that describes the program structure, strategy, resource requirements, and procedures.~~

October 25, 1993

To: Distribution

Cc. Bob Rubin
Bo Cutter
Bill White
Kyle Simpson

From: Heather Ross

Subject: DOE Natural Gas and Oil Initiative

Enclosed is a copy of DOE's revision based on the meeting of October 15th. Highlighting makes it easy to see changes that have been made. Handwritten notes are a few conforming edits on my part. A clean copy is in preparation by DOE for circulation to deputies prior to an NEC Deputies meeting early next week, exact time and place to be announced.

If you have any remaining concerns with this text, please let me know immediately. Deputies' circulation is scheduled for tomorrow. DOE promises a revised implementation plan for tomorrow as well.

~~**CONFIDENTIAL DO NOT DISCLOSE**~~

**DOMESTIC NATURAL GAS AND OIL INITIATIVE
POLICY STATEMENT**

Revised October 12, 1993

22



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DETERMINED TO BE AN
ADMINISTRATIVE MARKING
INITIALS: AOB DATE: 9/5/13

DOMESTIC NATURAL GAS AND OIL INITIATIVE

I. INTRODUCTION

Earlier this year Secretary Hazel R. O'Leary announced that the Administration would develop a "plan that will lead to expanded opportunities for domestic gas and oil producers." The Secretary noted that "the end goal of this project will be to develop new and expanded opportunities for jobs in the domestic gas and oil industries, while fostering a climate which will increase production from domestic resource bases and reduce our reliance on foreign oil."

A viable and productive domestic gas and oil industry is essential to our shared national goals of increased ~~economic~~ trade, national security, and environmental preservation. Even with the aggressive increases in energy efficiency and new sources of supply -- increases the nation must strive to achieve -- a sound economic future requires an investment in our domestic gas and oil industry. By learning to use our gas and oil resources more productively and efficiently, we will preserve worldwide skill and product export opportunities that are vital to our economic future and our leadership role around the world.

This document summarizes the intent of the Domestic Natural Gas and Oil Initiative, which is to develop an effective approach for maintaining the viability of the American gas and oil industry without compromising economic efficiency or environmental quality. We fully recognize that this Initiative is only one part but an important part of the Administration's energy, economic, and environmental policies. In total, these policies reflect the need for job creation and security, global competitiveness, preservation of the environment, improved energy efficiency, and national security. The Administration has developed, and will continue to develop, initiatives that reflect these priorities.

To cite just a few related examples:

- The Clean Car Initiative is dedicated to working with the automobile industry to develop a fuel efficient car, in order to reduce our long-run dependence on oil and associated green house gas emissions.
- The Climate Change Action Plan represents the Administration's plan for reducing the growth of gases linked to global warming, primarily via increased energy efficiency actions.
- The Natural Gas Utilization Initiative is focusing the Department of Energy's research and development efforts on new and more efficient

types of natural gas end-use technologies, such as fuel cells and natural gas appliances.

- The Clean Cities Program and the Federal Fleet Conversion Task Force are working to accelerate the introduction of low-pollution, alternative fuel vehicles into our urban transportation markets;
- The Renewable Fuels Programs are a continuing ^{coordinated} ~~joint~~ effort of the Departments of Energy and Agriculture to ~~explore develop and promote~~ with industry the cost-effective and environmentally beneficial utilization of agricultural and forestry resources in the manufacture of biofuels (e.g. ethanol, methanol, fuel additives, and biodiesel) for transportation and the generation of electricity for utility applications. ✓

In addition to these initiatives, the Department of Energy, the Federal Energy Regulatory Commission (FERC), and other Federal agencies are in the midst of implementing the Energy Policy Act and many other new programs and policies that affect transportation and energy use.

All of these efforts, and many more to follow, affect the nation's gas and oil producers and consumers. However, these efforts stop short of examining issues unique to the exploration, production, and refining of domestic gas and oil resources and the unique particular economic and energy issues posed by our increasing reliance on imported oil.

The purpose of this Initiative is to address these issues in the context of the array of new Federal policies. Moreover, the global economic and political environment has changed so much in the past few years that the effects of our petroleum dependence ~~on and loss of domestic economic activity may no longer be well understood~~ need to be restudied.

~~The~~ Two key overarching goals of the Initiative are enhancing the efficiency and competitiveness of the U.S. industry and ~~reducing the creation of high technology jobs and long-term economic opportunity and a reduction of the trend towards high imports.~~ Most of our economic competitors strongly encourage petroleum conservation -- often through imposition of high consumption taxes -- in part to reduce their vulnerability to price shocks and supply interruptions ~~and reduce the transfer of the purchasing power abroad.~~ Americans have preferred to find other strategies to address these problems. As a complement to these efforts, we propose additional policies to strengthen exploration and production of domestic gas and oil resources in a cost-effective, pro-competitive manner.

The Initiative was developed by working with stakeholders and various Federal agencies with significant energy responsibilities. Figure 1 summarizes the three major elements of the Initiative:

- (1) to increase domestic gas and oil production and environmental protection through the advancement and dissemination of new exploration and production (E&P) technology;
- (2) to stimulate markets for natural gas; and
- (3) to streamline and improve communication and government decisionmaking.

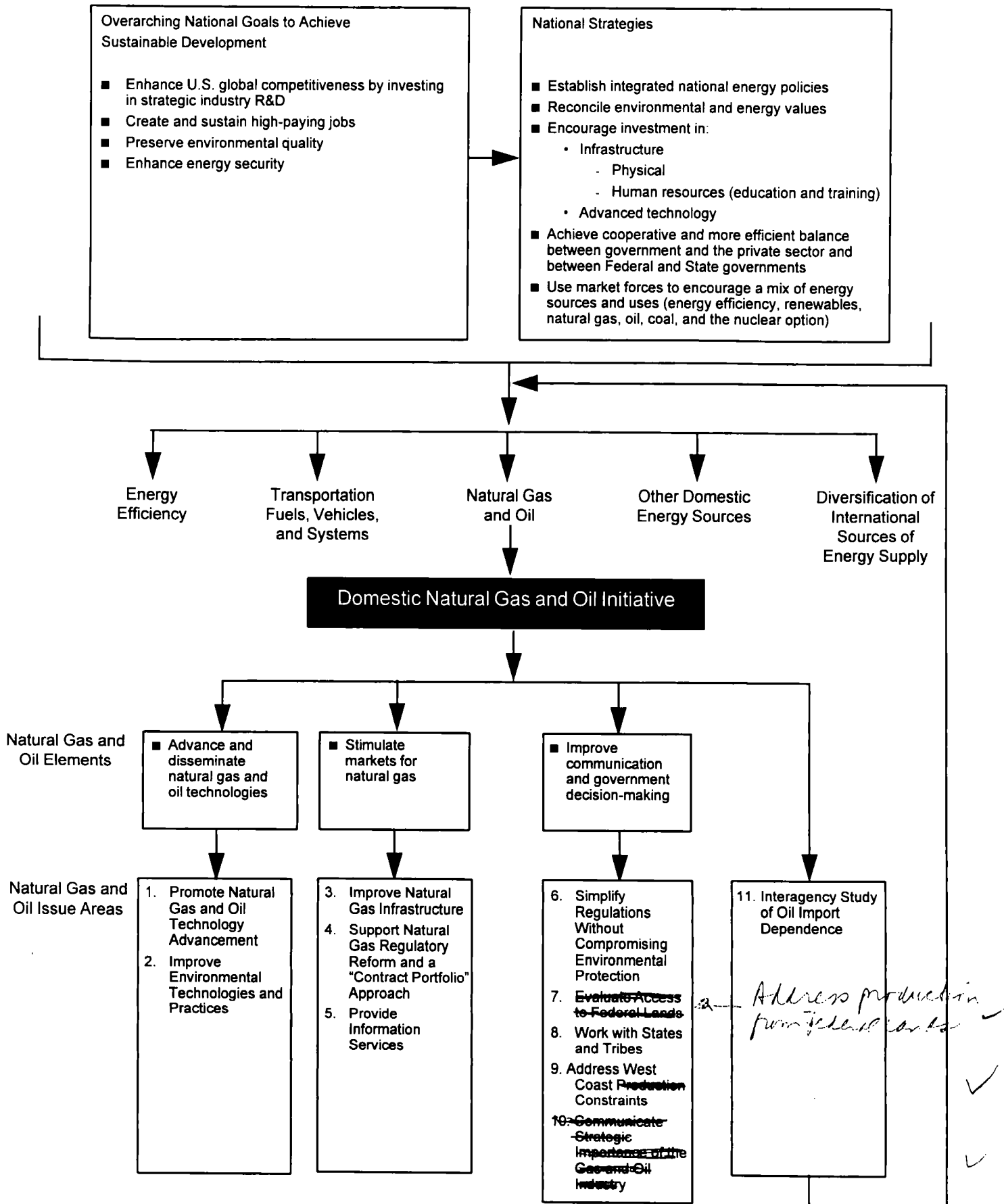
In addition to these three elements, the Department of Energy will ~~coordinate~~ undertake a broad new study, coordinated by the National Economic Council and the National Security Council of the ~~impacts costs and risks~~ benefits of increased petroleum dependence. This study will form the basis for ~~later~~ any additional actions found to be warranted under the study.

In assembling the Initiative, the Department has sought to achieve the specific objectives without sacrificing other paramount national interests, such as deficit reduction, economic stimulus and environmental protection. Wherever possible, the tactics and actions under the initiative take advantage of market forces, and also seek to achieve a cooperative and efficient balance between the public and private sectors and between Federal and State governments.

Figure 1

10/22/93

Domestic Natural Gas and Oil Initiative Roadmap



II. THE NEED FOR ACTION

A. The Worldwide and Domestic Importance of Natural Gas and Oil

Natural gas and oil will remain critical elements in every nation for the foreseeable future. In 1990, United States consumers spent over \$300 billion on gas and oil--5.5 percent of Gross Domestic Product (GDP).¹ Gas and oil supply 99.9 percent of transportation fuel needs (almost entirely oil); 75 percent of industrial needs;² 61 percent of residential and commercial needs and 13 percent of electric utility needs.³

In the rest of the world, natural gas and oil are equally important, or, in some cases, even more important commodities, than in the United States. Gas and oil consumption represent 61% of total energy consumed worldwide in 1991.⁴ Because of the developing world's enormous appetite for energy, gas and oil are likely to play an ever-increasing economic role. In addition, global warming concerns may cause an even larger shift towards gas, and possibly oil, than might otherwise occur.

By any standard, the domestic gas and oil industry remains an important source of capital formation, technological development, and employment in the American economy. In 1990 the industry invested \$21.0 billion⁵ in infrastructure. The gas and oil industry, including the associated service industries, account for nearly 380,000 American jobs. Though this represents a relatively small fraction of the total U.S. work force, Figure 2 demonstrates that these jobs pay wages 30 percent above those of the average American worker, thus representing the sort of high-skill, high-value jobs America needs.⁶ Identification of hydrocarbon deposits far underground requires much training and application of advanced technologies.

¹Source: Energy Information Administration; The Annual Energy Review 1992. U.S. Department of Energy, Table 3.8, page 85.

²Includes non-utility electric generation, independent power producers, feedstocks and other industry users.

³Source: Energy Information Administration; The Annual Energy Review 1992. U.S. Department of Energy, Table 3.7, p. 83.]

⁴Energy Information Administration, International Energy Annual, 1991, Table ES2, page XVI.

⁵Source: Survey of Oil and Gas Expenditures 1990, American Petroleum Institute, November 1991, Table II, page 2.

⁶Source: Bureau of Labor Statistics, Department of Labor; Current Employment Statistics Survey.

B. Maintaining Our Lead in Gas and Oil Exploration and Extraction Technologies Will Benefit the Nation

Improving Technology, Productivity and Competitiveness Preserving Gas and Oil Jobs for Long-term Economic Opportunity

The American people have given are looking to this Administration the pre-eminent task of redirecting public resources to help create to pursue public policies which help the private sector generate production of high-wage jobs and a secure economic future for American citizens. The American public and their government increasingly understand that the citizens of this country compete internationally for jobs, for investment, and for economic growth. Success in that competition will depend, in part, on an explicit strategy that emphasizes improvement in American technology and competitiveness.

The U.S. gas and oil industry is in transition. Most major domestic oil companies have shifted their exploration operations abroad. Independent producers play an increasing role in finding and extracting domestic gas and oil. Natural gas is an abundant and underutilized domestic resource which can be substituted for oil and has many environmental and economic benefits. Furthermore, the U.S. has large remaining resources of oil, but they require advanced, relatively high-cost technologies to locate and extract.

It is beyond question that natural gas and petroleum will remain critical materials in the world economy for the foreseeable future. Increasing scarcity anywhere in the world will increase the value of exploration and production skills that reduce the cost, or increase the availability of, natural gas and petroleum.

The gas and oil industry relies upon advanced technology, in which American firms traditionally have led the world. Modern gas and oil exploration and production represent the quintessential "high tech" industry. It is instructive to note that, when oil fires in Kuwait required unique firefighting skills, U.S.-based experts made important contributions to ending this economic and environmental nightmare. However, the number of trained young people in the United States entering the gas and oil business has shrunk to a small fraction of what it used to be.

As in many other industries, worldwide competition in extraction and exploration is fierce and increasing. If domestic producers are to continue to provide a substantial portion of U.S. oil needs, and compete in world oil markets, new and advanced technologies must be developed and widely applied. New technologies will also be vital in developing our abundant domestic natural gas resources to meet the widely-expected increased levels of demand.

In the long run, increased productivity of the American gas and oil industry will create jobs for Americans. First, by keeping U.S. technologies "on the cutting edge," we ensure that they are the technologies of choice worldwide, thereby maintaining and expanding technology export opportunities and export-related jobs. Second, increased productivity can make more of a domestic energy resource economically available, ultimately allowing expanded domestic production and increased employment.

Revolutionary technologies that use state-of-the-art computer mapping of the sub-surface for exploration and production are being enhanced and developed in the gas and oil industry today. A case in point is known as three dimensional (3-D) seismic surveying. This procedure can provides high-resolution images of subsurface gas and oil deposits, thus enabling more efficient exploration and development. Success using this approach has been documented by many companies. An example is in the Bay Marchand field in Louisiana (See Figure 3). Prior to 3-D utilization, production in this field had declined to 18,700 barrels per day in November 1985. Using 3-D technology, the decline in production was reversed and output more than doubled, rising to 45,200 barrels per day in April 1991. Other case studies suggest that, where new undrilled reservoir prospects lie adjacent to producing fields, the discovery success rate can be improved by as much as 50 percent through use of 3-D technology and other technologies.

Independent producers, integrated major producers, and the gas and oil service industry believe that these technologies hold great promise for expanding production from our domestic resources. Furthermore, these technologies have great potential for developing gas and oil resources abroad, thus representing a significant export opportunity and allowing a diversification of international supply.

American industrial competitiveness will depend on improvements in productivity and technology equal to or better than that of other nations. The gas and oil industries are poised to research and adopt new methods of exploration and extraction that will allow us to expand our economically recoverable domestic resource base without compromising environmental quality. Increased reliability of subsurface mapping means fewer dry holes and increased reserves. If we develop and deploy these new procedures in a domestically-based industry, the U.S. will lay claim not only to increased energy production, but also technologies that can be marketed to our trading partners abroad. ~~If we fail, the U.S. will likely be purchasing these technologies from other nations who recognized their strategic and economic value and had the courage to act.~~

Preserving Worldwide Environmental Quality

As we move toward the twenty-first century, our nation must reduce its dependence on fossil fuels, minimize wastes, preserve our water resources, and protect sensitive environments. This Administration will assert world leadership on such issues. The

policies that encourage gas and oil exploration and production will be pursued with these environmental goals in mind and with the understanding that energy and environmental objectives are compatible. In doing so, the U.S. will be setting an international standard for environmental sensitivity in the natural gas and oil industries. ~~that will demonstrate leadership and serve as a basis for environmental standards in other parts of the world.~~

III. THE DOMESTIC GAS AND OIL INITIATIVE

As mentioned in the introduction, the Domestic Gas and Oil Initiative has three principle elements:

1. Increase gas and oil production and environmental protection through the advancement and dissemination of technology;
2. Stimulate markets for natural gas; and
3. Improve communication and government decisionmaking.

In the remainder of this section, each of these elements ^{is} ~~are~~ discussed and described. An implementation plan, making use of stakeholder and other agency comments to date, is currently being developed to address these elements. ✓

Element 1. Advancement and Dissemination of Natural Gas and Oil Technologies

Advanced computing technologies are revolutionizing the search for gas and oil. In some areas, for example, advanced computing technologies have allowed for the direct detection of natural gas through the analysis of seismic data.

American national defense labs--specifically Los Alamos, Sandia, and Livermore--historically have created the demands which spurred the development of cutting-edge computer technologies. American taxpayers have invested many billions of dollars in applying the scientific capability of the National Laboratories to the development of world-class modeling capabilities. National Laboratory scientists and facilities can and do model complex subsurface conditions for both underground nuclear testing and some current gas and oil projects.

The gas and oil industry is poised to realize enormous benefits from the advanced exploration and production techniques. To take maximum advantage of these opportunities, the Administration proposes an industry driven Advanced Computational Technology Initiative to enhance joint government/industry/university research, development, and deployment efforts on advanced computing problems related to exploration and production. These efforts will build on the longstanding leadership of the United States in developing and marketing new computer technologies and applications, and will help to maintain a strong U.S. position in this critical, high-wage field. These efforts will be expanded in FY-95 to a total federal commitment of \$50 million, in addition to substantial funds from private enterprises.

To meet this objective, the DOE shall expand its oil R&D program to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment. This

will be accomplished through accelerating field demonstrations; conducting in-depth evaluations of selected past and ongoing industry projects to pinpoint important unsolved problems; disseminating more complete information on technology developments; conducting field-based reservoir characterization and innovative recovery process experiments; and expanding supporting research to address industry-identified needs.

The President directed his Administration to work together for the benefit of the American people and for the environment. Domestic gas and oil producers face increasing costs of compliance with environmental regulations. To help reduce the costs of meeting environmental objectives, the DOE, with the assistance of the Environmental Protection Agency, the Office of Environmental Policy, the Office of Science and Technology Policy and the Department of the Interior, will establish an industry-focused environmental research advisory board. ~~The express purpose of the Board will be to advise the government on energy related R&D issues, coordinate environmental research related to the gas and oil industry and will consult with industry as necessary on energy related R&D issues.~~ The Initiative will also create an environmental technology demonstration and technical assistance program and develop specific studies and demonstrations, such as an examination of the feasibility of significantly increasing the amount of lubricating oil that is recycled in the United States and exploring the Federal role in oil spill clean-up R&D.

The Administration also proposes to stimulate development of a nationwide technology transfer network and assistance program. Technology transfer efforts will be especially important in encouraging the 8,000 independent operators in the U.S. to adopt innovative exploration and production methods. Historically, these operators have led the exploration of our domestic resource base. Two-thirds of these independents have fewer than 20 employees and cannot individually finance large, long-term R&D programs.⁷ Smaller independents have expressed strong interest in organizing themselves to better disseminate technology.

Due to the increased upfront costs associated with new technologies such as advanced computing, some independents have formed associations that reduce the costs of gaining access to new technologies. By familiarizing individual firms and these associations with new technologies developed by both industry and government, technology transfer efforts can make a critical contribution. ~~to increasing domestic production and sustaining the viability of the domestic industry.~~

Finally, and in conjunction, the Department of the Treasury and the Department of Energy are reviewing the tax treatment of geological and geophysical expenditures in

⁷Source: Department, of Commerce, Bureau of the Census, 1987 Census of Mineral Industries, MIC 87-1-13A, Table 1, page 13A-5.

relation to certain advanced exploration and production techniques. ~~examining legislation that would permit domestic companies that employ certain advanced exploration and production (E&P) techniques to expense rather than amortize their geological and geophysical outlays.~~ By encouraging the use of the most advanced technologies for gas and oil production and environmental compliance, the proposed Initiative will bolster technical progress; and create high-wage employment for United States citizens, ~~and reduce the transfer of American purchasing power abroad.~~ Thus, advanced gas and oil extraction technologies represent a natural part of the Administration's technology strategy.⁸ Ultimately, investments in technology represent investments in people. Only superior skills of American workers will keep the domestic gas and oil industry at the forefront of international competition for advanced seismic exploration services. ✓

Element 2. Stimulate Markets for Natural Gas

As the President has stated, the substitution of domestically-produced natural gas for energy purchased in the form of imported oil provides environmental, economic and national security ~~unqualified~~ benefits to the nation. ~~Substitution of domestic gas for imported oil helps the environment and helps keep jobs at home.~~

The remaining resource base for natural gas appears to be more abundant and cost-effective to tap than the remaining resource base for domestic oil. Independent studies indicate that the size of the gas resource base promises the availability of natural gas ~~for several decades~~. Figure 4 indicates that since 1987, gas and oil exploratory drilling yields have nearly doubled. Most of this increase in productivity represents the discovery of new gas reserves.⁹ Extended ✓

*added to
substantiated
of fact
reg.* The Federal Energy Regulatory Commission (FERC) has taken a number of dramatic actions intended to improve competition and service in the natural gas industry. These actions shall continue. The Administration recognizes the valuable contribution these efforts have made to expanding and improving natural gas markets. We also recognize the need to carefully target new policies in order not to jeopardize the progress made to date. President Clinton has directed the DOE to work with the FERC to continue to facilitate the implementation of reforms that will increase the availability and use of natural gas.

⁸President Clinton and Vice-President Gore, "Technology for America's Economic Growth: A New Direction to Build Economic Strength", February 22, 1993.

⁹Energy Information Administration; U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 1991, Figures 10 and 11, page 18..

Our discussions with other agencies and the FERC have demonstrated that there is scope for additional activity that will complement and support the FERC's efforts. To ~~insure~~ ensure that the targeted efforts under this element work in concert with the FERC's activities, the Department of Energy and the FERC will establish an interagency working group that will meet on an ongoing basis to coordinate policy development and implementation. These meetings will be conducted so that infringement on either the FERC's, or the Department's rights and responsibilities under the law will not occur.

The Climate Change Action Plan directs the DOE to accelerate the commercialization of high-efficiency gas technologies, such as fuel cells, through joint ventures with utilities, research organizations and technology developers to fund demonstrations and market entry initiatives. ✓

In addition ~~to these Federal regulatory reform initiatives~~, the Administration is pursuing two coordinated efforts whose net effect will, we believe, accelerate the use of natural gas in transportation markets: (1) The Federal Fleet Conversion Task Force, a program designed to convert public and private fleets to alternative fuels, including natural gas, over the next few years and to coordinate efforts leading to alternative fuel refueling infrastructure development; and (2) The Clean Cities Program, an effort to coordinate state and local public and private alternative fuel vehicle market development. Efforts such as these will have a major impact on reducing imports, creating jobs and opening new markets for alternative motor vehicle fuels. ✓

Improving The Natural Gas Deliverability Infrastructure

Efficient delivery of natural gas from the wellhead to the burner tip is dependent on a well-functioning physical infrastructure for gathering, transporting, storing, and distributing gas, and on an accurate and timely information infrastructure for monitoring natural gas supply and demand.

To help improve the physical infrastructure, the Administration will work with the FERC to remove barriers to environmentally sound construction of additional pipeline and storage facilities. To this end, the Office of Management and Budget has approved a proposal by FERC to implement a program that will allow applicants seeking certificate authority to construct new natural gas pipeline facilities to use third party contractors to do initial environmental analyses of their projects. This voluntary third party contracting program will enable the Commission to speed up the processing of certificate applications without compromising the environmental review requirements of the National Environmental Policy Act.

In addition, the Administration will encourage increased access to existing facilities; and accelerate the development and use of advanced technologies in natural gas storage and distribution.

The Administration will also support the industry's efforts to improve real-time capabilities for monitoring and modeling natural gas availability and flows, and to match gas storage to end-user requirements. Such efforts will be especially important in enabling greater use of natural gas in electric power generation.

~~One topic ripe for discussion between~~ The Department of Energy, the FERC, Congress, and other interested stakeholders will undertake further discussions of natural gas pipeline construction permitting and regulation. Staff level discussions of this topic by ~~in~~ the Department of Energy/FERC working group will also include the Departments of Agriculture and Interior as well as other key stakeholders.

Supporting Natural Gas Regulatory Reform and New Contracting and Hedging Mechanisms

Federal and State regulators should continue to promote a competitive industry structure. As noted above, changes under way in the private sector and industry restructuring prompted by the work of the FERC are already reducing the costs of information and transactions in natural gas markets.

At the State level, changes in regulations governing the distribution of natural gas and electricity can also lead to improved efficiency in energy use. DOE supports State efforts to revise electricity, gas, environmental, and energy conservation pricing policies and regulations that will help to clarify the true economic costs and lead to greater economic value and a cleaner environment. Recognizing the States' jurisdictional authority in this area, we seek a cooperative effort between State utility regulators and energy offices and DOE to help foster regulatory reforms that will: (1) improve access to gas distribution facilities; (2) encourage efficient pricing for electricity and gas; (3) encourage the removal of fuel-specific subsidies that work against energy efficiency goals; (4) encourage cost-cutting by distributors; and (5) boost the use of natural gas transportation.

One of the most important topics for this State-Federal dialogue involves the use of an expanded portfolio of contracts for natural gas distribution companies and end users. New types of contracts and financial instruments can lead to improved gas availability and market performance, but only if all parties understand and utilize these new tools. DOE will expand its fact-based educational activities in these areas without attempting to prescribe specific state or customer contracting policies.

Providing information services

To facilitate all elements of this Initiative, and as a final implementation measure aimed at this objective, the Department will improve its ability to develop, collect, and disseminate information on natural gas deliverability and storage. To complement the proposed initiatives to improve natural gas deliverability and encourage regulatory reform, the DOE will enhance the capability of the Energy Information Administration (EIA) to collect these data, and will develop an Energy and Resources Mapping and Information System. EIA will work with other agencies and the private sector to provide a coordinating function and to avoid duplication while executing this task.

Element 3: Improve Communication and Government Decisionmaking, Including Issues of Access to Public Lands, and Investments in Environmental Improvements

The Report of the National Performance Review issues a challenge to Federal agencies to find new ways of problem-solving that emphasize collaboration, empowerment, and greater efficiency. The National Performance Review calls on Federal and State agencies to eliminate "regulatory overkill" and work together with greater coordination and flexibility.

This component of the Initiative contains ^{six}~~seven~~ specific action areas created in the spirit of these Administration priorities. The seven action areas are:

- ~~(1) The Department of Energy should improve the level of public awareness of the strategic role of the gas and oil industry;~~
- (1) ~~(2)~~ Various federal regulatory agencies and departments should streamline and simplify multi-jurisdictional, multi-layer, and overly complex regulatory processes, with no compromise in regulatory protection of the environment and the public interest ("eliminating regulatory overkill," in the words of the National Performance Review);
- (2) ~~(3)~~ The Department of the Interior and the Department of Energy will review alternative ~~shall initiate new~~ policies to generate greater leasing interest in mature and deep water areas of the Western and Central Gulf of Mexico;
- (3) ~~(4)~~ The Department of the Interior is initiating a regional process for examining Outer Continental Shelf (OCS) policy in certain frontier areas (the Arctic National Wildlife Refuge is not included). That process should include representation by the Department of Energy, the Environmental Protection Agency, and state and regional representatives of all significant stakeholders; On a case-by-case basis, the Department of

the Interior is committed to working with stakeholders at the local level to attempt to resolve issues of concern which have been raised in connection with the exploration and development of existing leases. Stakeholders, in some instances, may include local representatives of various federal and state agencies.

- (4) ~~(5)~~ Various agencies and departments should work more closely and cooperatively with States and Tribes on gas and oil supply issues;
- (5) ~~(6)~~ The Department of Energy will work with the FERC, the Justice Department, the Department of Interior and the California Public Utilities Commission to ensure access to central California oil pipelines; and shall ~~examine the costs and benefits of removing constraints on West Coast gas and oil production; and~~
- (6) ~~(7)~~ The Department of Energy shall work with Congress, the Bureau of Land Management, and the Office of Management and Budget to prepare and implement a plan for production of the Naval Oil Shale Reserves.

~~Better Understanding and Communication of the Strategic Value of the Gas and Oil Industry to the Nation~~

~~Public perceptions of the gas and oil industry have not kept pace with its changes during the last decade in which the industry has been devastated by recession. Further, the gas and oil industry has evolved into a business of high-tech, skilled, and educated professionals and is a far cry from the rough-and-tumble image formed many years ago. The government will play a role in increasing awareness of the strategic importance of this industry in the United States economy through public information programs and outreach activities.~~

~~Joint study with the Department of Labor on the maturing of the work force in the domestic industry, and the relatively few young people entering the industry from college or graduate school. Educated young people are the life blood of any business. Universities responsible for the education of young petroleum engineers, geologists, geophysicists, landmen, and chemical engineers oriented to refining have sharply cut back their programs for lack of interest. This trend cannot continue for decades if we are to maintain a viable domestic industry. The Department of Energy and Department of Labor should use the resources of the National Petroleum Council to study this problem, and possible long-term remedies including scholarships and work force planning strategies.~~

"Eliminating Regulatory Overkill"

As in other industries, gas and oil producers have become subject to a vast number of overlapping, ~~media-specific~~ State and Federal environmental rules. As the Vice-President noted in the recent National Performance Review, these rules are usually created with the best of intentions. As the Vice-President further notes, it is time to "put aside our reverence for those good intentions" and focus on implementing regulatory protection with greater flexibility and efficiency.

Fortunately, a wealth of new regulatory solutions and processes are under development across the United States and around the world. Market-based and multi-media pollution control solutions are under development and in some cases a matter of law; Federal and State agencies are making increasing use of regulatory negotiations and formal collaborative processes; and agencies such as the Federal Energy Regulatory Commission are searching for self-enforcing, market-based processes that eliminate or reduce the need for formal hearings.

Encouraging progress has been made in this area in gas and oil production, as well as refining, but much more can be done. At Atlantic Richfield Corporation's Dauphin Island site in the Gulf of Mexico, early communication with State and local governments and the fishing community avoided unnecessary project delays and resulted in an environmentally superior and economically viable drilling project. In Pennsylvania, a collaborative process has been used to establish general National Pollution Discharge Emission System permits for stripper oil and marginal gas wells. At the Yorktown refinery in Virginia, the cooperation of Amoco and the Environmental Protection Agency led to unprecedented new information concerning the structure, effects, and compliance strategies associated with environmental rules.

These efforts suggest great promise, but more action is needed. To accelerate progress, we will:

- Work cooperatively with States through organizations such as the Interstate Oil and Gas Compact Commission and the National Association of Regulatory Utility Commissioners to promote the streamlining and integration of State and Federal regulatory programs. The purpose of these concerted efforts will be to seek out and eliminate duplication in Federal and State regulatory programs, whether in the form of needless paperwork or duplicate permits or hearings. Wherever possible, one-stop permitting and market-based mechanisms will be encouraged.
- Enhance the capability of State and Federal governments processes. This enhancement is designed to dovetail with the streamlined interagency regulatory review process ~~the Administration is proposing,~~

✓

which also seeks to minimize interagency rule conflicts and incorporate tradeoffs between regulatory impacts.

- Demonstrate the feasibility of alternative approaches to environmental regulation that more accurately balance costs and benefits, promote rather than stifle technological innovation, and allow for compliance flexibility.
- Promote dialogue and build partnerships of industry groups, States, the public, and other interested parties dedicated to resolving disputes and balancing the energy, economic, and environmental objectives necessary for sustainable development.
- Establish a joint Department of Energy and Environmental Protection Agency working group to review the National Petroleum Council report on the future of U.S. petroleum refining. The working group will develop a strategy for maintaining a more viable domestic petroleum refining industry, including the examination of the feasibility of innovative, cost-effective approaches to an "environmentally invisible" refining industry.

~~Re-Examine Access to Production From Federal Lands~~

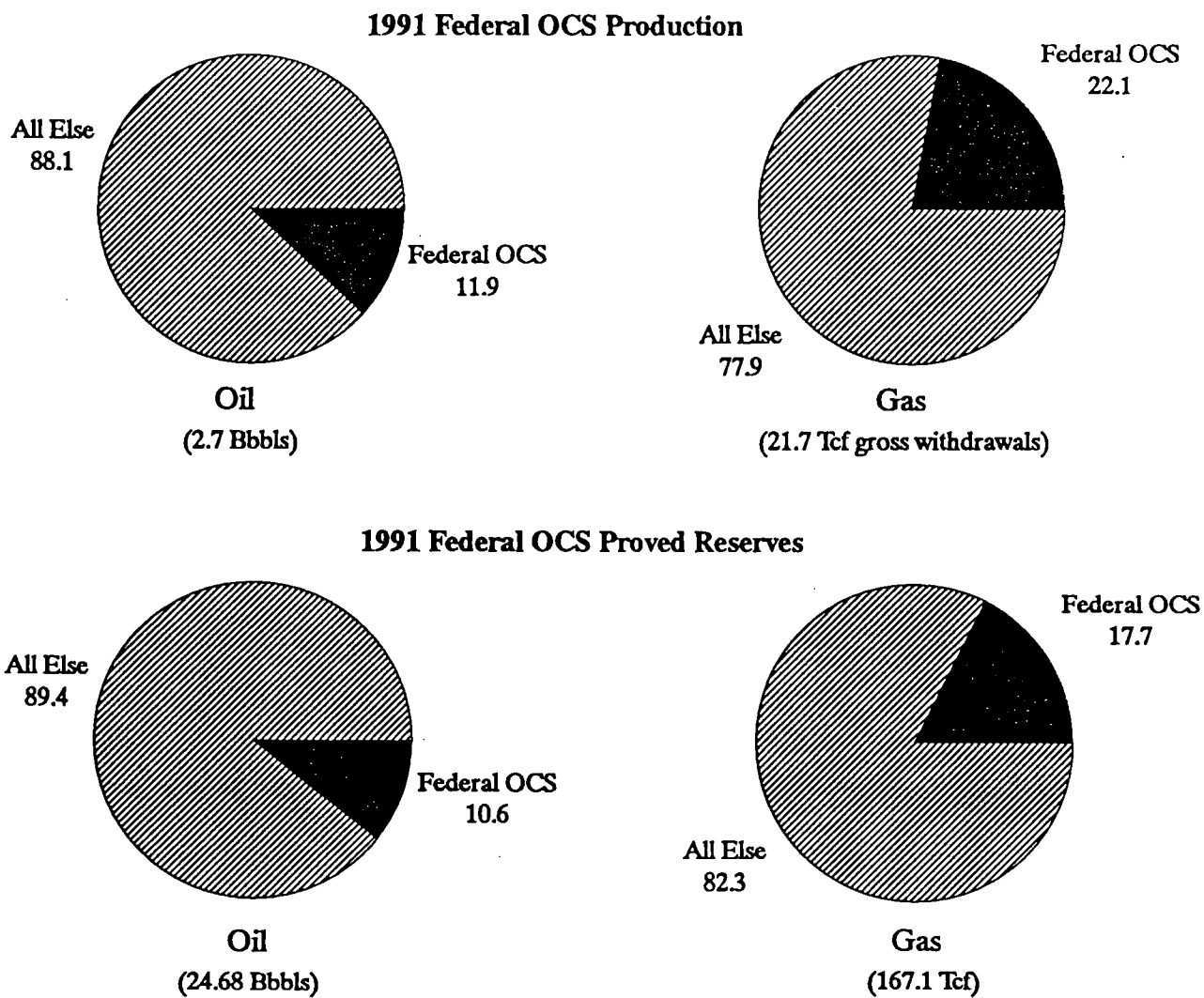
The Nation's public lands are one of its most precious resources, and it is entirely appropriate to safeguard and preserve these lands for future generations. However, with advanced technologies and careful extraction practices, it is no longer the case that our stewardship obligations are inconsistent with the extraction of subsurface resources.

Figure 5 shows the substantial percentage of gas and oil resources that underlie Federal lands and waters. Federal lands comprise some 727 million acres of property onshore, nearly one-third the entire land area of the United States.¹⁰ The Outer Continental Shelf (OCS) also contains a vast resource of gas and oil restricted from development for economic reasons or they are under executive and legislative moratoria.

~~With regard to the western and central Gulf of Mexico, incentives such as lower royalties should be considered to spur interest in tracts which are likely to contain reserves but have previously generated little interest. In addition, incentives should be~~

¹⁰Estimates of Undiscovered Conventional Resources of Oil and Gas for Federal Lands, and for Indian and Native Lands of the Continental United States, G. L. Dolton, R. F. Mast, R. A. Crovelli, U.S. Geological Survey Open-File Report 90-705, 1990. Table 2, page 10-12.

Figure 5. Federal Waters and Lands
(Percent of U. S. Total)



~~considered for tracts which present difficult challenges for production in mature areas such as sub-salt deposits.~~

~~Access to frontier areas should be considered on a regional basis. The Department of Energy has joined with the Department of the Interior, and the Department of Agriculture Forest Service in establishing a Federal Lands Energy Coordinating Groups. The express purpose of these Coordinating Groups will be to ensure that national energy strategies are appropriately considered in leasing decisions related to Federal lands. DOE will participate with the Department of Interior in working groups to consider the technical and scientific issues involved in making decisions about access to these areas. A description of the scope of this process will be developed in a Memorandum of Understanding between the Departments. This Coordinating Group shall ensure energy and environmental inputs in the review of the prior Administration's Five-Year Leasing Plan. That review should be completed by October 1, 1994.~~

~~Incentives such as lower royalties should be considered for the deep water portions of the western and central Gulf of Mexico which would not be developed absent these incentives.~~

~~The Department of the Interior, the Forest Service and the Department of Energy have established an informal interagency energy coordinating group. The group will assemble a full suite of technical and scientific issues to assist Department of the Interior in developing their leasing policies. In addition, the Department of Interior will continue to review its leasing policies in mature areas to ensure these policies are appropriate for changing economic and geologic conditions.~~

The U.S. leads the world in the development of environmentally effective technologies for exploration and development of gas and oil in frontier areas. We should retain this leadership not only for ourselves, but for the planet we share. This base of knowledge contributes to the tools available internationally for environmentally responsible gas and oil development, as other nations push offshore and into the Arctic.

Collaboration with States and Tribes

The States and Federal land management agencies bear a primary responsibility for regulating the gas and oil industry in the areas of resource conservation, environmental protection, and the use of natural gas. Ongoing federal interactions with State organizations, such as the Interstate Oil and Gas Compact Commission, the Ground Water Protection Council, the Energy Council, the National Governors' Association, the National Association of State Energy Offices and the National Association of Regulatory Utility Commissioners should be strengthened. The Federal government will work cooperatively with individual States to identify and resolve key issues constraining gas and oil supply at the State and regional levels.

of Energy and Federal land management agencies ✓

As part of this Initiative, the Department will also forge new partnerships with Tribes to increase domestic gas and oil production on tribal lands. These partnerships will strive to recognize the importance of economic development, environmental preservation, and cultural sensitivity to tribal affairs.

Addressing West Coast ~~Production~~ Constraints

 ✓

Crude oil production from the Alaskan North Slope (ANS) is likely to decline, leaving the West Coast once again a significant importer before the year 2000. To address this problem the Administration proposes ~~removing many of the barriers that inhibit development of California resources by:~~ to:

- Encouraging oil pipeline access for non-integrated producers in California. Most, if not all, of these large pipelines should operate as common carriers by virtue of their settlements in long-standing lawsuits, or their use of rights-of-way granted under the Mineral Leasing Act. Free and open access to transportation assets in the State will help to increase production.
- ~~Working with California stakeholders to develop strategies to permit California refineries to process greater proportions of heavy indigenous crudes. The marginal barrel of oil produced in California today is a heavy crude that requires extensive refinery processing to satisfy the State's high demand for light, low-sulfur transportation fuels. Declining Alaska North Slope supply will make room in refinery "upgrading" units that can process California heavy crude oil.~~
- Conduct a study on the advisability of removing the barriers to exporting crude oil from the Alaskan North Slope (ANS). If ANS production falls as projected in the late 1990's Petroleum Administration for Defense District (PADD) V will again become permanently dependent on imported crude oil. However, permitting ANS exports may result in a tendency to reduce imports by stimulating production on shore in California. ✓

Prepare and Implement a Plan For Production of the Naval Oil Shale Reserves

The Naval Oil Shale Reserves represent a significant natural gas resource that is currently unavailable for production. The Department of Energy will characterize the production potential of the Reserves. In addition, the Department of Energy will work with the Department of Interior and the Office of Management and Budget to ~~and~~ conduct sufficient economic analysis of the options and to prepare a plan for ~~to~~ *leasing* ✓
~~prepare and implement a plan to development~~ of these government owned lands in an environmentally responsible manner that will maximize revenues to the Treasury.

This plan will use the considerable work that has already been done by the Department of Energy, the Bureau of Land Management, the Office of Management

and Budget, and Congress. An aggressive timetable will be set for quick implementation of the plan.

IV. The Question of Oil ImportsNew Interagency Study of the Impacts of Oil Import Dependence

As we pass the twentieth anniversary of the OPEC embargo, which staggered world financial markets, destabilized economic growth, and led to the notorious "gas lines," the U.S. remains vulnerable to oil price shocks and the disruption of its oil supply. Today, the developed world is just as dependent on open access to the Persian Gulf, the locus of most of the world's known oil reserves, as it was two decades ago.

It is also the case that much has changed during the past twenty years, with uncertain implications for our domestic gas and oil industries. While the world hopes that the Mideast has entered a new era of peace and stability, many threats to regional stability still exist. The republics of the Former Soviet Union are slowly opening their doors to gas and oil exploration, but the resource base and production timetable are highly uncertain. Global environmental concerns and constraints are much higher, and more prevalent, than they were 20 years ago. And as always, energy efficiency and new renewable technologies must be poised to deal with the reality of an unevenly distributed and ultimately declining hydrocarbon reserve base.

During the past twenty years, oil imports have accounted for an enormous portion of our trade deficit. Since 1986, oil imports have risen by more than 25 percent, and the Energy Information Administration projects that we will cross the 50 percent net import threshold in 1995 or 1996.¹¹ This trend is shown in Figure 6. In 1992, petroleum provided 41 percent of the energy consumed in the United States and the nation imported 41 percent of its net petroleum supply.¹² The U.S. Office of Technology Assessment has estimated that U.S. imports could rise to levels as high as 70 percent by the year 2000.¹³

Our huge expenditures on oil imports are a major part of our negative balance of trade. Between 1980 and 1992, the U.S. paid to other countries \$742 billion (1987 dollars) to purchase imported crude oil and petroleum products.¹⁴ The potential effect of these imports is to transfer American wealth abroad at a time when public and private investment needs in the U.S. are substantial and growing. Savings from

¹¹Energy Information Administration: Annual Energy Outlook 1993, Table A1, page 81.

¹²Energy Information Administration; Annual Energy Review 1992, Table 1.3 and Table 5.1.

¹³United States Congress, Office of Technology Assessment. U.S. Oil Import Vulnerability. October 1991, page 3.

¹⁴Energy Information Administration; Annual Energy Review 1992, Table 3.3, p. 75.

energy efficiency and the cost-effective substitution of domestic supply for oil imports represent a prospective fiscal stimulus and an investment in our future.—

This Administration recognizes the substantial costs of imported oil to this country and the need to insure that such costs do not increase. We recognize, too, that there are also benefits to the nation from trade and low oil prices. In addition to attempting to better quantify and characterize those costs and benefits, coordination of activities under this initiative with other policies influencing national energy supply and demand are needed to more effectively diminish the current trend toward increased U.S. energy dependency.

In the past, the federal government has too often ignored potential economic and geopolitical risks until they became certainties. In view of our rising import dependence as well as the many facets of economic and political change, it is essential that the nation conduct a broad, long-term re-examination of the full range of global gas and oil market risks and vulnerabilities the U.S. faces over the next twenty years.—

As a result, the DOE will lead an interagency committee, coordinated by the NEC and NSC, to assess the economic, security, and environmental implications of rising U.S. oil import dependence. The assessment should define and characterize the short and long-term economic impacts associated with greater oil import dependence by the United States (including the contribution of oil imports to the loss of jobs and the nation's trade deficit). The assessment will also identify and evaluate the impacts of opportunities for the diversification of oil supply.

Oil imports are a two-edged sword for the United States. On the one hand, they are an enormous boon to the economy as the nation continues to pursue a low cost energy strategy in the face of dwindling low cost domestic supplies. On the other hand, they represent a significant vulnerability. Any sharp adverse change in availability or price would strike deeply at the economy, now considerably more energy-intensive than our major competitors as a result of that low cost strategy.

The question of import risk vs. reward has been a central one in energy policy since the early 1970's. Over those twenty years, we have paid a substantial price for our Persian Gulf reliance, in both economic dislocation and military cost. In the last few years, with real prices back to 1970's levels, concern about imports has taken a back seat. Yet we are approaching the peak level of dependency we reached back then. The Energy Information Administration projects that we will cross the 50% net import threshold sometime within the next three years. The Office of Technology Assessment has estimated that in certain circumstance imports could reach 70% by the year 2000.

These inexorable increases to unprecedented levels focus attention on the need for confidence that imports will indeed constitute inexpensive, reliable, long-run supplies. The geology of the world can assure that, but can the politics and the markets? While the Persian Gulf and environs show some promising geopolitical developments, it is not clear that the trend is unequivocally positive, and events in the region have a tendency toward trend-defying volatility. While OPEC's market strength has declined, the prospective explosion in oil demand posed by a wide array of developing nations going simultaneously through a sustained economic takeoff could change all that.

We must hope the next twenty years on the energy front do not resemble the last. We must also take care to anticipate that future and prepare for it. To that end, the NEC and NSC will jointly coordinate an interagency team, with DOE as lead agency, to look systematically at the risks posed by rising oil imports and at alternative policy options to respond to those risks. The team will have wide participation from agencies with economic and security missions, with an interim report due in a year's time.

V. SUMMARY AND CONCLUSION

During his campaign, President Clinton stated that "a primary goal of the Clinton/Gore National Energy Policy will be reducing the amount of foreign oil consumed in America." The achievement of this ambitious goal will require a coordinated strategy that ranges far beyond policies primarily directed at gas and oil supplies. We must continue to improve our energy efficiency, increase our use of renewable energy resources, increase the use of alternative fuels for transportation, diversify our international sources of supply, and develop new methods of production that promise to reduce costs, pollution and energy use simultaneously.

This coordinated strategy, in turn, must reconcile conflicts between the need for energy supply and environmental preservation. Confrontation predicated on the erroneous belief that these two goals are incompatible has led to much delay, litigation, and frustration, and has threatened to lock up valuable resources that could benefit the nation. While the nation must protect the environmental heritage we hand down to future generations, these values can and must become compatible with careful resource development.

Of equal importance, it is time to acknowledge the fact that the exploration and extraction of fuels is an economically strategic industry. American competitiveness depends on the skills and productivity of American workers. We cannot maintain our present technological and skill-base edge in the international energy markets without a viable domestic gas and oil industry in which to train and deploy workers. Similarly, we cannot increase our technological edge, nor exercise world environmental leadership, if we no longer invest in R&D and produce domestic energy resources in an environmentally sound manner. To safeguard our security, improve our technology and skill base, and exercise environmental leadership, domestic gas and oil supplies must remain a part of this fabric and a full-fledged contributor to the nation's economic future.

THE WHITE HOUSE

WASHINGTON

December 3, 1993

MEMORANDUM FOR DISTRIBUTION

Cc: Bob Rubin
Bo Cutter
Bill White
Kyle Simpson

From: Heather Ross 

Subject: DOE Domestic Natural Gas and Oil Initiative

Following the November 3 deputies meeting on this subject, DOE has repackaged its material into one document, which is enclosed. While substantially rewritten, the text is intended to reflect the agreements reached at that time.

The purpose of this circulation is to provide you with an advance copy of what DOE is planning to release shortly. If you see any significant substantive divergence from our November 3 agreement, please let Kyle Simpson (fax 586-0148) and me (fax 456-2223) know by Monday, December 6.

Thank you for your participation in this review.

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THE DOMESTIC NATURAL GAS AND OIL INITIATIVE

*Energy Leadership
in the World Economy*

"The end goal of this project will be to develop new and expanded opportunities for jobs in the domestic gas and oil industries, while fostering a climate which will increase production from domestic resource bases and reduce our reliance on foreign oil."

**Hazel R. O'Leary
Secretary of Energy**

**April 1993 Announcement of the
Domestic Natural Gas and Oil Initiative**

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THE NEED FOR ACTION

The American people have entrusted this Administration with pursuing public policies that help the private sector generate high-wage jobs and a secure economic future. The Federal Government and American citizens are increasingly realizing that this country must compete internationally for jobs, for investment, and for economic growth. Success in that competition will depend, in part, on explicit strategies that emphasize advances in American technology.

Any discussion of jobs, technology, competitiveness, and economic growth must consider the strategic role of energy. This Initiative was developed with the understanding that economic, energy, and environmental objectives can be compatible, and that all activities affecting energy issues need to be integrated. Implementation of the Energy Policy Act of 1992 and many other new programs and

policies that affect transportation and energy use are currently under way (see box below). A strategic combination of efforts will improve the overall effectiveness of how our Nation produces and uses energy, creates jobs, and enhances the quality of life for all Americans.

Natural gas and oil will remain critical components of energy supply in every nation for the foreseeable future. In 1990, U.S. consumers spent over \$300 billion on natural gas and oil — 5.5 percent of the gross domestic product (Figure 1).¹ Imported oil is a significant factor in this total. The United States, long a dominant producer of oil for domestic consumption, has become a mature producing region. As a result, the Nation is increasingly depending on imports from areas with more readily accessible oil.

Energy Efficiency and Renewable Energy Strategies

Among the most important national energy, environmental, and economic strategies are: to improve the efficiency of the way we utilize natural gas and oil for transportation, industrial, commercial, and residential applications; and to implement policies that allow renewable resources to play a prominent role in the Nation's energy future. This will include more widely adopting waste minimization practices. Within the Department of Energy, overall funding for these activities is estimated to increase by 25 percent in Fiscal Year 1994 over Fiscal Year 1993. Examples of programs benefiting from the increase include the following:

- The **Clean Car Initiative** is dedicated to working with the automobile industry to develop a fuel-efficient car, in order to reduce both our long-run dependence on oil and the associated emission of pollutants.
- The **Climate Change Action Plan** represents the Administration's plan for reducing the growth of gases linked to global warming, with an emphasis on energy efficiency.

- The **Clean Cities Program** and the **Federal Fleet Initiatives** are working to accelerate the introduction of low-pollution alternative fuel vehicles into our urban transportation markets and to reduce the use of oil in transportation.
- The **Natural Gas Utilization Initiative** is focusing DOE's research and development efforts on new and more efficient types of natural gas end-use technologies, such as fuel cells and natural gas appliances, to increase gas use.
- The **Renewable Fuels Programs** are a continuing coordinated effort of the Departments of Energy and Agriculture to explore with industry the cost-effective and environmentally beneficial utilization of agricultural and forestry resources in the manufacture of biofuels and their chemical co-products (e.g., ethanol, methanol, fuel additives, and biodiesel) for transportation, and the generation of electricity for utility applications.

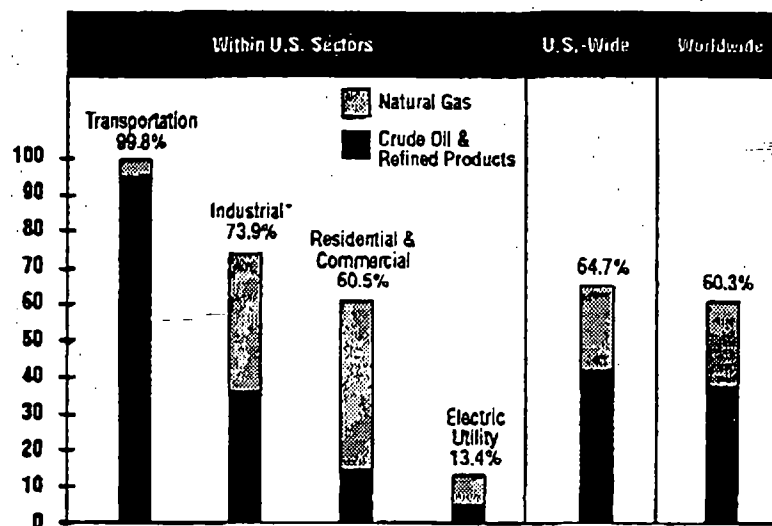
This shift is particularly significant because for over 20 years, costs for imported oil have amounted to more than 60 percent of our trade deficit. Between 1980 and 1992, the United States paid \$742 billion (1987 dollars) to other countries to purchase imported crude oil and petroleum products. In comparison, over the same period Americans paid \$498 billion for imported automobiles. In fact, oil import trends are rising. In 1992, imports accounted for 41 percent of U.S. consumption. The Energy Information Administration projects that by 1995 or 1996 this figure will exceed 50 percent. And by the year 2000, the U.S. Office of Technology Assessment estimates that it could rise to as high as 70 percent.

In the rest of the world, natural gas and oil are equally important commodities, and in some countries they are even more important than in the United States. Worldwide, natural gas and oil will play an ever-increasing role in facilitating economic growth. The developing world will continue to consume increasing amounts of energy. It is hoped that these nations will turn toward renewable and other clean energy sources.

Despite the maturing of the United States as a producing region, the domestic natural gas and oil industry remains an important source of capital formation, technological development, and employment in the American economy. In 1990, the industry invested \$21 billion in infrastructure.² And the industry's reliance on advanced technology, in which American firms traditionally have led the world, has been the driving force in numerous technological innovations. In fact, modern natural gas and oil exploration and production represent the quintessential "high tech" industry.

For example, technologies that use state-of-the-art computer mapping of the subsurface for exploration and production are being enhanced through further development in the natural gas and oil industry today. A case in point is known as three-dimensional (3-D) seismic surveying. This procedure provides high-resolution images of subsurface natural gas and oil deposits, thus enabling more efficient and environmentally sound exploration and development resulting in increased reserves and fewer dry holes.

Figure 1:
1991 Consumption of Natural Gas and Oil as a Percent of Total Energy Consumption
Natural gas and oil represent major portions of the energy consumed in the United States and throughout the world.



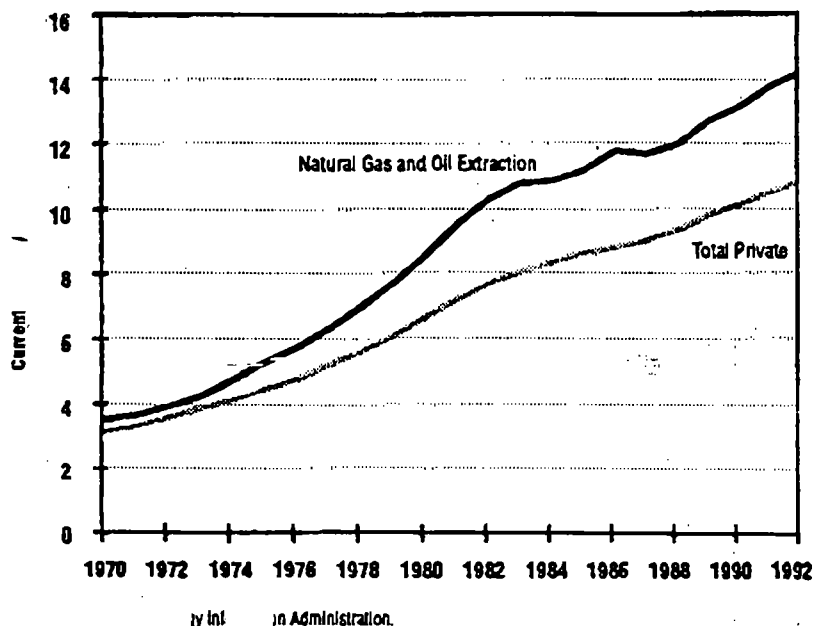
*Includes non-utility electric generation, independent power producers, feedstocks, and other industry users.

Source: Energy Information Administration.

Independent producers, integrated major producers, and the natural gas and oil service industry believe that domestic development and deployment of these and other technologies will lay claim not only to increased domestic production, but also to the creation of high-wage jobs for domestic companies marketing new technologies to our trading partners abroad. Improved technologies will also lead to increased diversification of stable sources of international natural gas and oil supplies. Many foreign nations, such as the former Soviet states, desire to apply our expertise and technology in the production of their resources.

In the long run, the increased productivity of the U.S. natural gas and oil industry will create jobs for Americans. The natural gas and oil industry, including the associated service industries, accounts for nearly 380,000 American jobs. Though this number represents a relatively small fraction of the total U.S. work force, these jobs pay wages 30 percent above those of the average U.S. worker (Figure 2). These are the types of high-skill, high-value jobs this Nation needs.³

Figure 2:
Average Hourly Earnings for the Natural Gas and Oil Extraction Industry
Pay scales in the natural gas and oil extraction industry are 30 percent higher than the wages earned by the average American worker.



As in many other industries, worldwide competition in oil production and exploration is fierce and increasing. If domestic producers are to continue to tap the large remaining resource of U.S. oil to meet a substantial portion of domestic oil needs and compete in world oil markets, advanced technologies must be developed and widely applied. New technologies will also be vital in developing our abundant, underutilized domestic natural gas resources to meet the widely expected increases in demand, to substitute for oil imports, and to support U.S. efforts to reduce greenhouse gas emissions. Most of our economic competitors strongly encourage oil conservation — often by imposing high consumption taxes — in part to reduce their vulnerability to price shocks and interruptions in supply. Americans have preferred to find other strategies to address these problems.

By keeping U.S. technologies on the cutting edge, we ensure that they are the technologies of choice worldwide, thereby maintaining and expanding technology export opportunities and export-related jobs. Increased productivity can make more domestic energy resources economical to develop and can enhance capital formation and availability for further investment. Ultimately, this will increase domestic production and create jobs.

As we move toward the 21st century, our Nation must reduce its dependence on fossil fuels, minimize wastes, preserve natural resources, and protect sensitive environments. This Administration will assert world leadership on these issues. The policies that encourage natural gas and oil exploration, production, and refining will be pursued with these environmental goals in mind and with the understanding that

energy and environmental objectives are compatible. In doing so, the United States will be setting an international standard for environmental protection in the natural gas and oil industry. The industry is poised to research and adopt new technologies that will allow us to expand our base of recoverable domestic natural gas and oil without compromising environmental quality. This progress can be realized in a way that is consistent with the responsible use of natural resources, as expressed in the 1992 Framework Convention on Climate Change. Part of the objective of the Convention was "to enable economic development to proceed in a sustainable manner."

Efforts to enhance the Nation's energy efficiency have to date stopped short of examining issues unique to the exploration, production, and refining of domestic natural gas and oil resources and the particular economic and energy issues posed by our increasing reliance on imported oil. This Initiative specifically addresses these issues in the context of the array of new Federal policies.

Two key overarching goals of this Initiative are enhancing the efficiency and competitiveness of U.S. industry and reducing the trend toward higher imports. These goals take into account new Federal policies that reflect economic needs, including economic growth, deficit reduction, job creation and security, and global competitiveness, as well as the need to preserve the environment, improve energy efficiency, and provide for national security.

The success of this Initiative clearly requires coordinated strategies that range far beyond policies primarily directed at natural gas and oil supplies. Such strategies must seek to achieve a cooperative and effective balance between the public and private sectors and between Federal and State governments. Therefore, this Initiative proposes three major strategic activities:

Strategic Activity I

Increase domestic natural gas and oil production and environmental protection by advancing and disseminating new exploration, production, and refining technologies.

Strategic Activity II

Stimulate markets for natural gas and natural-gas-derived products, including their use as substitutes for imported oil where feasible.

Strategic Activity III

Ensure cost-effective environmental protection by streamlining and improving government communication, decision making, and regulation.

Finally, the Initiative will reexamine the costs and benefits of increased oil imports through a broad new Department of Energy study, coordinated by the National Economic Council and the National Security Council. This study will form the basis for additional actions found to be warranted under the study.

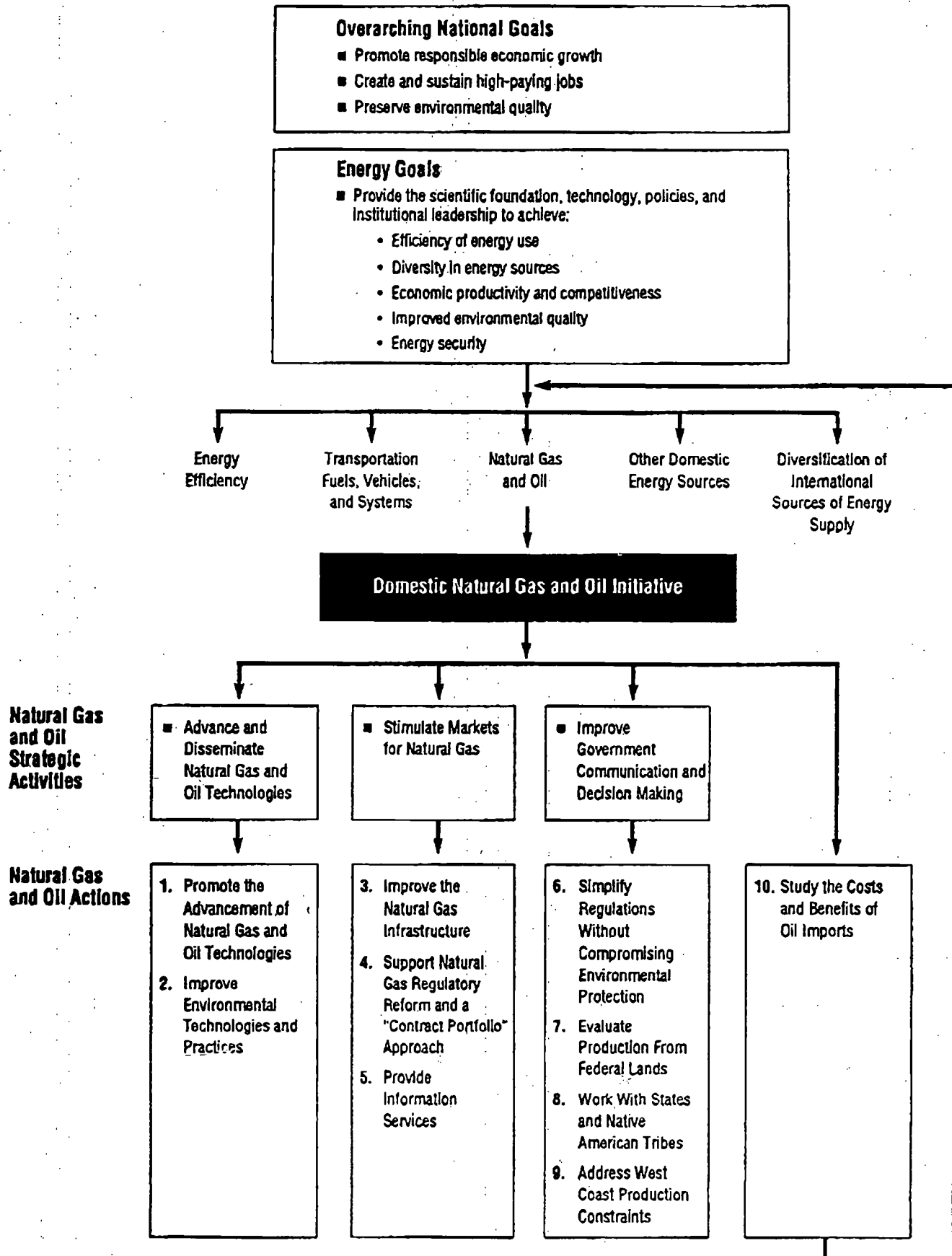
Figure 3 depicts the relationship between the Initiative and the Administration's national goals and strategies. The strategic components and their specific implementation actions, outlined in the following pages and in Table 2 at the end of the document, indicate a clear direction for improving the integration of policies affecting energy issues.

"The Clinton/Gore energy policy stresses developing new ways to use the energy sources we already have — including domestic gas and oil, conservation, efficiency, and exploring alternative and renewable sources."

Bill Clinton
September 1992
Presidential Questionnaire
by People for an
Energy Policy

Figure 3: The Domestic Natural Gas and Oil Initiative Roadmap

The Domestic Natural Gas and Oil Initiative flows directly from the Administration's national and energy goals.



STRATEGIC ACTIVITY I:

ADVANCE AND DISSEMINATE NATURAL GAS AND OIL TECHNOLOGIES

Benefits from advanced natural gas and oil technologies are representative of the impacts desired in the Administration's technology strategy.⁴ By encouraging the use of the most advanced technologies for natural gas and oil production and environmental compliance, these actions bolster progress toward the creation of high-wage employment for U.S. citizens. Investments in technology represent investments in people. Only the superior skills of American workers will keep the domestic natural gas and oil industry at the forefront of international competition for advanced exploration and production services.

This strategic activity is composed of two major actions:

Action 1: Promote the Advancement of Natural Gas and Oil Technologies

DOE will promote technology through a continuum of complementary actions that include:

- Conducting research and development specifically targeting the needs of smaller producers.
- Participating in a Treasury Department review of tax provisions related to certain advanced technologies and marginal producers.
- Directing customer-oriented technology transfer efforts.
- Developing a strategy for expanding natural gas markets and technologies.

Action 2: Improve Environmental Technologies and Practices

DOE will also advance technologies that serve the dual needs of environmental protection and cost-effective regulatory compliance.

Action 1: Promote the Advancement of Natural Gas and Oil Technologies

Multiple activities will support the Administration's efforts to advance the development of natural gas and oil technologies. DOE will work to complement the expenditures of private and public entities.

DOE will directly spearhead the development of several advanced technologies, including computational analysis of geologic or geophysical data to improve drilling success rates, rock drilling systems for natural gas, advanced oil recovery technologies, and analyses of geologic basins to recover bypassed oil.

Additional activities involve developing a natural gas commercialization strategy, establishing a broad technology transfer network, reviewing tax treatments for certain advanced technologies and marginal wells, and using the Naval Petroleum Reserves for technology testing, evaluation, and training.

1.1 Develop an Advanced Computational Technology Initiative

Advanced computing technologies are revolutionizing the search for natural gas and oil. American national defense labs under DOE jurisdiction — specifically Los Alamos, Sandia, and Livermore — historically have created cutting-edge computer technologies that, in turn, have spurred demand for their application in the private sector. America has made a major investment in applying the scientific capability of the National Laboratories to the development of world-class modeling capabilities. National Laboratory scientists and facilities model complex subsurface conditions for both underground nuclear testing and some current natural gas and oil projects.

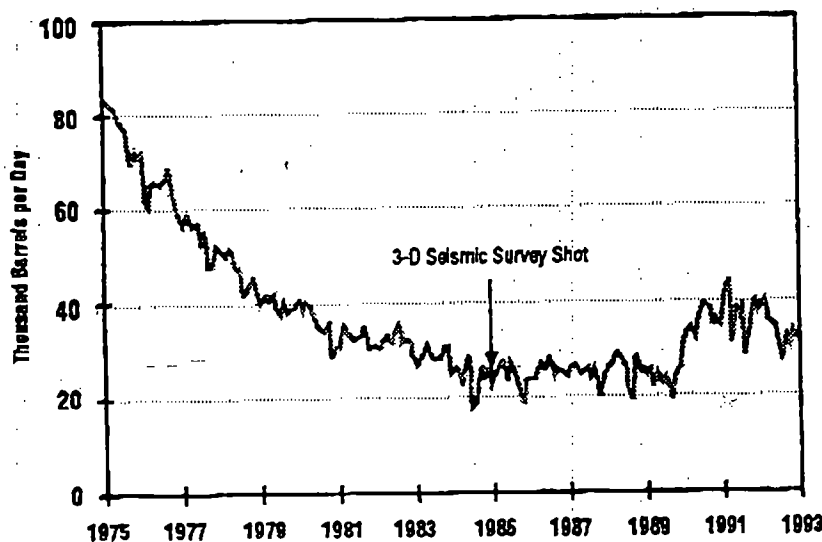
To take maximum advantage of these opportunities, DOE will pursue an Advanced Computational Initiative that will enhance, apply, and transfer technologies developed within DOE's National Laboratories to the industry sectors involved in domestic production. It will improve the competitive stance of domestic natural gas and oil companies, and decrease the Nation's dependence on foreign oil. This program will enable industry to capitalize on the capabilities of the National Laboratories in earth sciences, computer science, fluid dynamics, and mathematics to meet specific industry needs. Driven by this particular attention to the needs of the domestic industry, this effort will use such advanced technologies as 3-D seismic and reservoir simulation and characterization to integrate geologic and engineering data and analyses required for the development of domestic natural gas and oil fields (Figure 4).

The first phase of the Advanced Computational Initiative will be organized under an expansion of the existing Petroleum Technology Partnership, currently operated for DOE's Office of Fossil Energy by Sandia and Los Alamos National Laboratories. Other National Laboratories will be added to the partnership as appropriate. This initiative will be driven by an industry forum, which will review and prioritize all proposals, consistent with applicable procurement rules and procedures.

1.2 Develop Advanced Rock Drilling Systems for Natural Gas

DOE will initiate a comprehensive program for developing advanced drilling systems to ensure future supplies of natural gas to consumers at a reasonable price. Cost-effective drilling methods in medium-to hard-rock natural gas formations at current natural gas prices offer one of the most significant technological challenges for the domestic natural gas industries. The development of advanced underbalanced air drilling and high-efficiency drilling rig retrofit systems will result in more cost-

Figure 4: Impact of 3-D Technology in the Bay Marchand Field, Louisiana
Bay Marchand Field Monthly Average Production History, 1975-Early 1993.



Source: Dwight's Energydata, Inc. via Energy Information Administration.

Prior to 3-D utilization, production in this field had declined to 18,700 barrels a day in November 1985. Using 3-D technology, the decline in production was reversed, and output more than doubled, rising to 45,200 barrels per day by April 1991. Other case studies suggest that where new undrilled reservoir prospects lie adjacent to producing fields, 3-D technology can improve the discovery success rate by as much as 50 percent.

effective development of natural gas supplies. As the centerpiece of this program, DOE will initiate cost-shared development and field testing of these advanced drilling systems.

1.3 Fund Expanded Industry-Driven RD&D for Advanced Oil Recovery Technologies

DOE's existing program of cost-shared field demonstrations and supporting research will be expanded for a six-year period to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment. Currently, demonstration projects are selected in one new geologic class per year, with supporting research funds at or below historical levels. The program will be expanded in five ways:

- Field demonstrations will be increased to address two geologic classes per year.
- Detailed evaluations of past or ongoing projects will be performed (1) to significantly increase information transfer on the most effective techniques for use under specific conditions, and (2) to define technological challenges for each class not currently being addressed.
- Field-based reservoir characterization and innovative recovery process experiments will be conducted, starting with the highest priority classes, to refine advanced technologies tested in the laboratory.
- Supporting research will be expanded to address industry-identified needs.
- More complete information on technology developments will be disseminated.

1.4 Conduct Advanced Geologic Basin Analysis to Target Exploration for Bypassed Natural Gas and Oil

DOE will lead vigorous geologic analyses of oil-bearing basins in order to open up new paths for oil and associated natural gas discovery. In mature regions, yet-to-be-discovered oil reservoirs tend to be relatively small and difficult to identify. The

most effective way to find more of these reservoirs is through geologic analysis, which extrapolates patterns and similarities from one geologically comparable basin to another. Such analyses will be performed by teams that integrate geologists, engineers, and other geoscientists from industry, the States, the U.S. Geological Survey, and other sources.

1.5 Target a Research Program at Specific, Basic Operating Issues of Small Natural Gas and Oil Producers

DOE will add a component to its oil research program that will specifically address the technical needs of smaller independent natural gas and oil producers. Many of the small producers' everyday technical problems, such as those associated with the operation of marginal wells, could benefit from a disciplined scientific approach to production. For example, introducing some basic computer, scientific, or engineering analyses to independents has allowed them to solve problems at a lower cost.

This effort will be a joint program of DOE's Office of Fossil Energy and Office of Energy Efficiency and Renewable Energy, and will be designed to assemble and/or develop improved operating procedures, equipment modifications, and new equipment, as well as the necessary demonstration and marketing of products for small natural gas and oil operators that reduce costs and facilitate regulatory compliance.

This program will not compete with service companies and consultants. Rather, it will use them to commercialize and disseminate new and underutilized oil products. In particular, it will encourage procedure/product field demonstrations and marketing/manufacturing links with product innovators, researchers, and target operators.

The Department of Energy will expand its oil R&D program to increase advanced oil recovery capabilities and reduce the rate of reservoir abandonment.

In the natural gas and oil industry, we have long been leaders in production technologies. We intend to maintain this leadership position.

1.6 Develop a Commercialization Strategy for Natural Gas Technologies

With input from industry and the DOE technology programs, DOE will develop policy guidelines and a strategy for commercializing natural gas technologies.

The strategy will be applied to all sectors of the natural gas system, including exploration and production, delivery and storage, end-use, and environmental improvement technologies. DOE will also develop objectives and strategies for specific technology groups to be incorporated into the annual budgeting cycles.

1.7 Stimulate Development of a Nationwide, Regionally Based Natural Gas and Oil Technology Transfer Network and Assistance Program

DOE will coordinate the development of a comprehensive, nationwide technology transfer network and assistance program. Technology transfer efforts will be especially important in encouraging the 8,000 independent operators in the United States to adopt innovative exploration and production methods. Historically, these operators have led efforts in the exploration of our domestic resource base. Two-thirds of these independents have fewer than 20 employees and cannot individually finance large, long-term R&D programs.⁵

Due to the increased up-front costs associated with new technologies such as advanced computing, some independents have formed associations that reduce the costs of gaining access to new technologies. By encouraging individual firms and these associations to utilize technologies developed by both industry and government, technology transfer efforts can make a critical contribution.

This assistance program will build on the strong core of natural gas- and oil-related technology transfer mechanisms already in place, including formal and informal efforts by industry, service companies, consultants, DOE and National Laboratories, other Federal and State agencies, and universities. It will encourage closer integration and coordination among existing technology transfer mechanisms and information networks, and will further the development of new initiatives to meet client needs not adequately served under existing programs.

DOE will provide initial funding, on a cost-shared basis, for a focused and aggressive program to increase the availability and application of current information and technology throughout the domestic natural gas and oil industry. To the greatest extent possible, DOE will involve service companies, consultants, universities, the State Geological Surveys, other State agencies, professional societies, and existing consortia and industry associations in these programs, in order to take full advantage of existing networks and to encourage the formation of new networks. The program will also increase communication and interaction among the industry and the financial and environmental communities, and will help disseminate environmental compliance technologies discussed in other sections of this Initiative.

1.8 Review Tax Treatment of Geologic and Geophysical Expenditures and Other Tax Provisions

DOE and the Department of Treasury will complete a review of the tax treatment of certain advanced exploration and production techniques in May 1994. Encouraging increased use of advanced exploration and production techniques is one the most important aspects of this Initiative.

The costs and benefits of tax incentives for maintaining production from marginal and stripper wells will also be reviewed by the National Petroleum Council (NPC). An Energy Information Administration (EIA) study entitled "Economic Analysis of Domestic Oil Production," scheduled for completion in February 1994, will provide a thorough foundation for the NPC study to analyze the economic status, needs, and policy issues related to marginal well producers. The NPC study is expected to be completed in June 1994.

1.9 Use the Naval Petroleum Reserves for Advanced Technology Testing, Evaluation, and Training

The Naval Petroleum Reserve (NPR) sites offer opportunities for advanced technology testing, evaluation, and training in new oil field and environmental technologies. The NPR's Casper, Wyoming, office is working closely with the Denver

Regional Office of Energy Efficiency and Renewable Energy to establish a training center for natural gas and oil producers in the Rocky Mountain Region.

New applications that lead to increased production, lower operating costs, and improved environmental compliance costs can be tested at Naval Petroleum Reserve No. 3 in Wyoming, which is owned and operated by DOE. These validated applications could be used in mature, marginally profitable oil fields, and transferred to other fields, potentially increasing domestic oil production by prolonging the life of these fields. The center will serve industry, DOE National Laboratories, and individual inventors through DOE's Energy-Related Inventions Program. In addition, it will serve the academic and other communities, such as Native American Tribal councils, by providing hands-on training opportunities for students and others who need oil field experience.

*Our strategy must
reconcile conflicts
between the needs for
energy supply and
environmental
preservation, and
demonstrate that
environmental
preservation is fully
compatible with
careful resource
development.*

A key objective will be to enhance the capability of natural gas and oil producers and refiners to reduce environmental compliance costs and liabilities and to improve environmental performance.

Action 2: Improve Environmental Technologies and Practices

Domestic natural gas and oil producers and refiners face increasing costs of compliance with environmental regulations. The President has directed Federal agencies to work together and more closely with stakeholders for the benefit of the American people and for the environment.

Toward this end, DOE will conduct an aggressive environmental technology development and demonstration program to enable the domestic natural gas and oil industry to comply more cost-effectively with environmental regulatory requirements. A key aspect of this effort will be coordination with the Environmental Protection Agency (EPA), the Department of the Interior, and other stakeholders.

Additionally, DOE will work to develop coordinating mechanisms with nonprofit organizations whose efforts are focused on advancing environmental technologies.

Two specific environmental protection areas will also be studied with the intention of developing appropriate policies and actions for DOE's role in the research and development of oil spill cleanup and used oil recycling.

2.1 Improve Environmental Compliance Technologies and Practices

The key objective of this action will be to enhance the capability of natural gas and oil producers and refiners to reduce environmental compliance costs and liabilities and to improve environmental performance. As part of this action, DOE, in cooperation with the Environmental Protection Agency, the Department of the Interior, and others, will pursue the following activities:

- Develop a comprehensive strategy for improving environmental compliance technologies and practices, including follow-up to the review of the National Petroleum Council's report on the domestic refining industry, discussed in Action 6.5 of Strategic Activity III.
- Expand research, development, and field testing of cost-effective environmental compliance technologies applicable to natural gas and oil exploration, production, and refining operations.
- Explore efforts to form technology partnerships between industry and the National Laboratories to address environmental issues specific to domestic natural gas and oil exploration, production, and refining operations.
- Support efforts by industry, government, and others to exchange technical information on the environmental aspects of natural gas and oil operations.
- Support individual company activities to establish programs to promote and institutionalize waste reduction.

2.2 Improve Coordination on Environmental Research

With assistance from the Environmental Protection Agency, the Office of Environmental Policy, the Office of Science and Technology Policy, and the Department of the Interior, DOE will work to improve coordination among industry, government, and other stakeholders on environmental research and technology transfer activities related to natural gas and oil exploration, production, and refining. DOE will investigate mechanisms to improve coordination on natural gas and oil environmental research and technology transfer activities. This effort will entail working cooperatively with such nonprofit organizations as the Society of Petroleum Engineers and the Ground Water Protection Council, among others, to improve coordination and technology transfer on specific research topics.

2.3 Explore DOE's Role in Oil Spill R&D

DOE will take a more active role in research and development efforts to improve technologies for preventing and managing oil spills. The Oil Pollution Act of 1990 created the Interagency Coordinating Committee on Oil Pollution Research and identified DOE as a member. DOE will explore the potential for an appropriate contribution in oil spill research and development that will use the capability of the National Laboratories as well as that of industry. This effort will be coordinated with the Coast Guard, which is the lead agency for the Interagency Coordinating Committee on Oil Pollution Research, the Minerals Management Service of the Department of the Interior, and the Environmental Protection Agency. Recommendations for a more active role by DOE in oil spill R&D activities will be made in June 1994.

2.4 Study Used Oil Recycling

There are serious questions about the basic data that define the used oil problem. For example:

- The only data on generation factors are 20 years old.
- In the case of recycling rates for do-it-yourself oil changers, there has been no update since a 1981 DOE survey.
- There are no data on the prevalence of dumping used oil.

Moreover, burning used oil releases lead, cadmium, and other metals into the atmosphere through space heaters that are not currently air-pollution controlled.

DOE will conduct a study to consider various policy alternatives for significantly increasing the recycling of used lubricating oil. Scheduled for completion by 1995, the study will examine such actions as:

- Improving collection data, including used oil reprocessing, re-refining, and disposal statistics.
- Estimating damage from the improper disposal of used oil.
- Estimating future oil recycling, given current EPA rulings and projected oil prices.
- Conducting research on how to remove or render harmless metals in used oil, such as lead and cadmium.

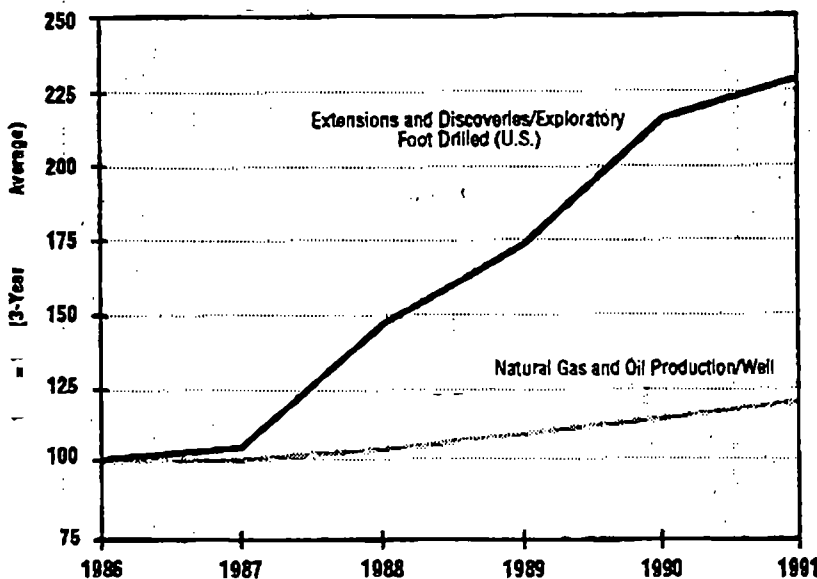
The Department of Energy will conduct an aggressive environmental technology development and demonstration program to enable the domestic natural gas and oil industry to comply more cost-effectively with rapidly evolving environmental regulatory requirements.

STRATEGIC ACTIVITY II: STIMULATE MARKETS FOR NATURAL GAS

Substituting domestically produced natural gas for energy purchased in the form of imported oil provides environmental, economic, and national security benefits to the Nation. The remaining resource base for natural gas now appears to be more abundant and cost-effective to tap than the remaining resource base for domestic oil (Figure 5). Independent studies indicate that the size of the natural gas resource base ensures that natural gas will be available well into the 21st century (Table 1). This activity will help stimulate markets for natural gas in electricity and transportation. These two market sectors have the greatest potential for increasing the use of natural gas.

The Federal Energy Regulatory Commission (FERC) has implemented a number of policies intended to improve competition and service in the natural gas industry in order to expand and enhance natural gas markets. President Clinton has directed DOE to work with the FERC to continue to facilitate the implementation of these reforms and to carefully examine new policies that do not jeopardize the progress the FERC has made to date.

Figure 5:
Indexes of Natural Gas and Oil Productivity
Since 1987, natural gas and oil exploratory drilling yields have more than doubled. Most of this increase in productivity represents the discovery of new natural gas reserves.



Source: Energy Information Administration.

Toward this end, DOE and the FERC will establish an interagency staff working group that will meet on an ongoing basis to discuss policy development and implementation. All consultation and proposed initiatives will be pursued in a manner consistent with the FERC's Independent status under the Department of Energy Organization Act and will not infringe on either the FERC's or DOE's rights and responsibilities under the law.

The President's Climate Change Action Plan includes several initiatives to increase the utilization of natural gas. The strategy includes additional FERC regulatory reforms to encourage increased use of natural gas where it can displace fuels that emit more greenhouse gases. These reforms will include an investigation of current pipeline construction rules, promulgation of incentive rate-making guidelines, and a review of rules regarding the secondary market for pipeline transportation. In addition, this Initiative recognizes the increasingly important role that natural gas could play as a fuel for electric power generation, and the critical role that an efficient transmission system will play in ensuring the penetration of natural gas as a generating fuel.

The Climate Change Action Plan also directs DOE to accelerate the commercialization of high-efficiency natural gas technologies, such as fuel cells, through joint ventures with utilities, research organizations, and technology developers, in order to fund demonstrations and market-entry initiatives. Finally, the Plan recognizes the benefits of reducing nitrogen oxide emissions by using natural gas in utility and industrial boilers, and instructs EPA to use its existing regulatory authority in implementing the Clean Air Act to promote such use on a seasonal basis.

The Administration also recognizes that public utility commissions have jurisdiction over retail electric utilities. Accordingly, this Initiative will establish a program to work with States on a more comprehensive basis to ensure that there are complementary State and Federal policies to achieve the optimal use of natural gas.

This strategic activity consists of three major actions that support these efforts:

Action 3: Improve the Natural Gas Infrastructure

This action addresses weaknesses in the present infrastructure, including the physical capabilities for gathering, transporting, storing, and distributing natural gas, and the capabilities for producing accurate, timely information on natural gas supply and demand.

Action 4: Support Natural Gas Regulatory Reform and a "Contract Portfolio" Approach

This action will focus on improving access to natural gas distribution facilities; boosting the use of natural gas for transportation; and encouraging the removal of subsidies that work against energy efficiency goals, cost-cutting by distributors, and efficient pricing for electricity and natural gas.

Additionally, DOE will work to educate affected stakeholders on new contract approaches that could lead to improved natural gas availability and market performance.

Action 5: Provide Information Services

In support of this Initiative, DOE will improve its ability to develop, collect, and disseminate information on natural gas deliverability and storage, primarily by enhancing the capabilities of the Energy Information Administration and by developing an Energy and Resources Mapping and Information System.

Recoverable Resources	National Petroleum Council 1992	Potential Gas Committee 1990	Gas Research Institute 1992	National Energy Strategy 1990*
Proved Reserves	160	160	160	160
Conventional Resources				
Reserve Appreciation	203	170	150	265
New Fields	413	491	394	315
Total Conventional Resources	616	661	544	580
Nonconventional Resources				
Coalbed Methane	98	88	110	90
Shales	57	---	123	30
Tight Gas	349	---	238	383
Other	15	---	32	---
Total Nonconventional Resources	519	88	503	503
Total Assessed Resource	1135	749	1047	1083
Total Resource	1295	909	1207	1243
Adjust to 1/1/81	---	---	---	35
Total Adjusted Resource	1295	909	1207	1208

* National Energy Strategy, 1990, resource case with substantial technology development.

Source: National Petroleum Council, The Potential for Natural Gas in the United States, December 1992, Volume II - Source and Supply, page 37.

Table 1:
Recoverable Natural Gas Resources in the Lower-48 States: Comparison of Estimates
(Trillion Cubic Feet)

"The Clinton

Administration will

use natural gas as a

major priority. We will

encourage the use of

natural gas for power

generation and

automobile fuel. We

will help create new

distribution systems for

especially to serve

markets."

Bill Clinton
September 1992

Presidential
Questionnaire by People
for an Energy Policy

Action 3: Improve the Natural Gas Infrastructure

Efficient delivery of natural gas from the wellhead to the burner tip depends on a well-functioning physical infrastructure for gathering, transporting, storing, and distributing natural gas, and on an accurate and timely information infrastructure for monitoring natural gas supply and demand (Figure 6).

To help improve the physical infrastructure, DOE will work with the FERC to remove barriers to environmentally sound construction of additional pipeline and storage facilities. DOE will encourage increased access to existing facilities and will accelerate the development and use of advanced technologies in natural gas storage and distribution.

DOE will also support the industry's efforts to improve real-time capabilities for monitoring and modeling natural gas availability and flows, and to match natural gas storage to end-user requirements. Such efforts will be especially important in enabling greater use of natural gas in electric power generation.

DOE, the FERC, and other interested stakeholders will undertake further discussions of the permitting and regulation of the construction of natural gas pipelines. Staff-level discussions of this topic by the DOE/FERC working group will include the Departments of Agriculture and the Interior, as well as other key stakeholders.

3.1 Upgrade State Data Collection and Reporting on Natural Gas Production

This action will create a single information collection point in each State for data on natural gas production and will make State and Federal production information more compatible. Specifically:

- In 1995 two or more States will join in cooperative demonstrations to upgrade their natural-gas-production reporting systems to be compatible with the University of Oklahoma model, with co-funding of hardware and software acquisitions by DOE.

- Evaluation of the successful start-up of these initial systems will result in a plan for implementing similar reporting systems in other natural-gas-producing States. While the objective of this action is not to require absolutely identical reporting systems, we expect systems to be developed by 1996 which ensure compatibility among States.

3.2 Build a National Deliverability Capacity Model

DOE will develop a model for estimating the U.S. capability to deliver natural gas to customers, linking wellhead productive capacity estimates with pipeline capacity on a State-by-State basis. The model is scheduled to be completed in March 1995, through the accomplishment of these activities:

- A personal computer (PC)-based system for use throughout DOE will be developed for the analysis of domestic natural gas deliverability.

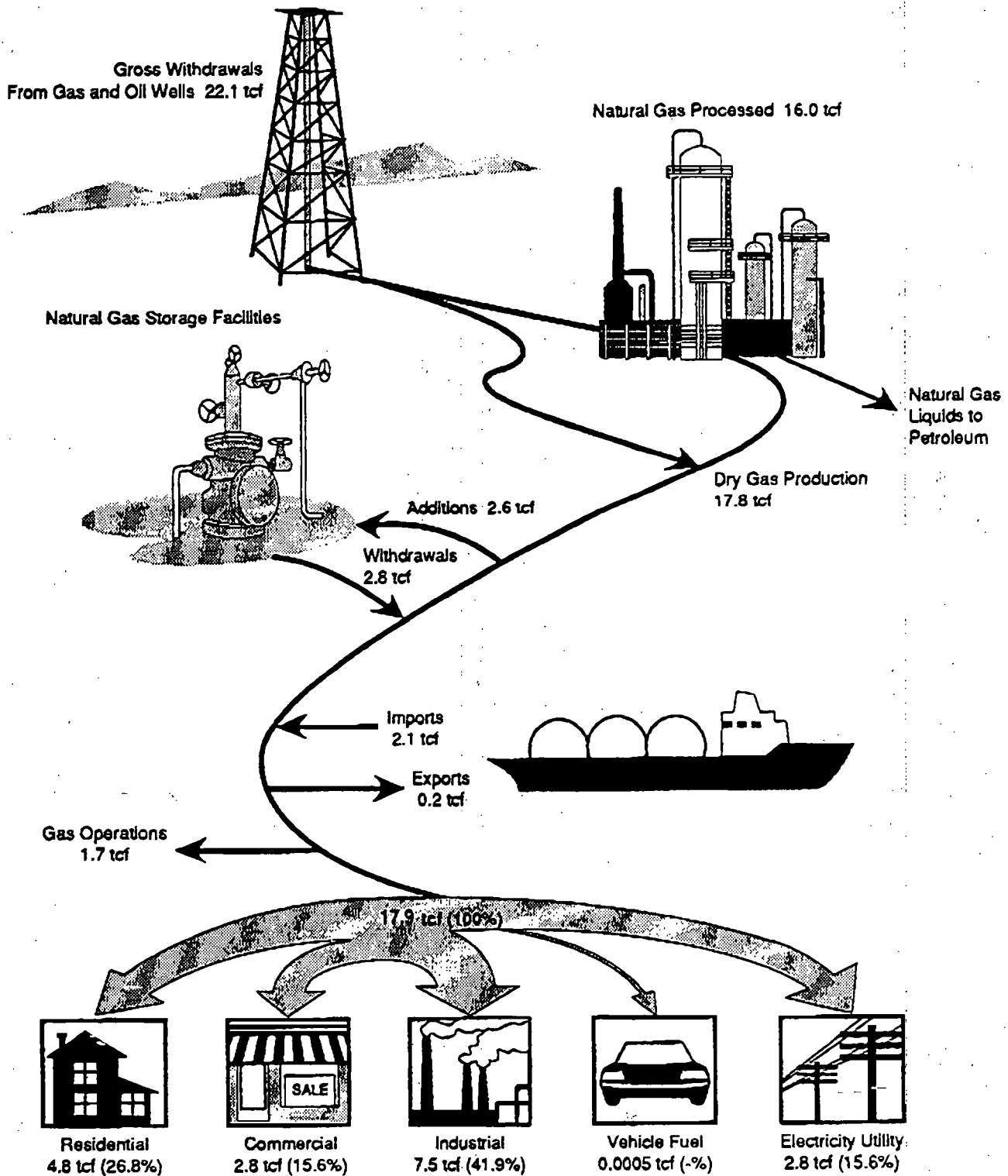
- A study will be conducted using the PC-based system to determine: the Nation's current capability to deliver natural gas; the impacts of projected system expansion, regulations, and contract changes on supply and demand patterns; and the impacts of planned pipeline expansion, including the transportation of liquefied natural gas (LNG) in the future, on the capability of the system.

- The Energy Information Administration will publish and present an annual summary report on the domestic capability for delivering natural gas.

Figure 6: U.S. Natural Gas Supply and Disposition, 1992

Improvement of environmental, energy, and economic benefits will require more efficient production, delivery, and utilization of natural gas.

Trillion Cubic Feet (tcf)



Source: Energy Information Administration.

New and advanced technologies for transporting natural gas will increase deliverability, improve efficiency, reduce operating costs, and streamline gathering and disseminating information.

3.3 Enhance Real-Time Monitoring and Automated Systems

This action will provide new and advanced technologies for transporting natural gas that will increase deliverability, improve efficiency, reduce operating costs, and streamline gathering and disseminating information about natural gas flow and pressure. DOE will take the following steps:

- In conjunction with the implementation of FERC Order No. 636, and in cooperation with the FERC and other Federal agencies, consider enhancing the operation of the secondary market for capacity as a way to foster an efficient and competitive environment and to help reduce the overall cost to end users of natural gas.
- Support the recommendations of the Natural Gas Council to establish a Gas Industry Standards Board in order to develop electronic information-exchange standards that will permit more efficient market transactions.
- Initiate a series of surveys in 1994 to determine the level of communication technology, both hardware and software, that the natural gas industry will require to develop and demonstrate this project regionally.

3.4 Build a System for Assessing Natural Gas Underground Storage Operations

In conjunction with other Federal agencies, DOE will develop an information system for evaluating domestic storage capacity and deliverability of natural gas on a site-specific basis, documenting and assessing new technologies for developing and managing storage, and examining the role of storage in meeting variable demand patterns. This will be achieved by the end of 1994 by taking the following steps:

- Establish a data base of site-specific information on natural gas storage facilities, including geographical and geologic data, capacity, and operational information (number of wells, peak day deliverability), as well as ownership data and monthly data on withdrawal and injection.
- Merge the data base into the EIA Energy and Natural Resource Information Mapping System to allow cross-referencing with pipeline connections, pipeline capacity, and market information.
- Develop a PC-based system for evaluating changes and efficiency gains from the development and use of storage in the national natural gas delivery system.

3.5 Match Natural Gas Storage to End-User Requirements

This effort will identify market areas where new and expanding natural gas capacity can meet increasing industrial and power generation demand. It will also establish the feasibility of alternative natural gas storage methods, provide subsequent field demonstrations, and identify improvements in the system from the alternative natural gas storage reservoir to the burner tip. To achieve this, DOE will:

- Identify strategic market areas for new and growing natural gas capacity; identify, screen, and rank possible underground reservoirs by potential; and complete geologic modeling, engineering design, and cost-to-develop studies by 1996.

- Conduct a feasibility study of alternative natural gas storage methods, such as tight and tight/fractured reservoirs; thin-bedded salt formations; and nonreservoir rock, chambers, and surface facilities by 1996.

- Conduct one or more field natural gas storage demonstrations near power generation facilities to increase the amount of natural gas dedicated to the power generation market by 2000.

3.6 Demonstrate Natural Gas Storage Optimization Technology

To maintain its natural gas storage system capability and reduce overall storage costs, the industry must develop new and improved storage technologies and techniques. DOE will take the following steps toward this end:

- Conduct a natural gas storage optimization project to evaluate new/improved techniques — e.g., propellant fracturing, chemical treatment, and hydraulic stimulation methods — for existing wells. Multiple candidate wells will be selected for field-verification tests by 1995.

- Develop, through cooperative DOE/industry agreements, a methodology to improve field storage technology through geologic modeling and reservoir-simulation studies of selected storage fields. Investigate field development strategies, such as increasing injection/withdrawal rates using horizontal wells, and optimizing surface facilities for reducing development costs as an ongoing process through 2000.

3.7 Improve Natural Gas Storage Effectiveness for Problem Fields

The DOE natural gas storage program will develop and demonstrate new and improved technologies for detecting and inhibiting natural gas migration from the storage area. It will also develop methodologies to reduce other costs associated with managing underground natural gas storage fields. To achieve this, DOE will:

- Conduct a natural-gas-migration study of problem fields, followed by field-verification tests to determine the effectiveness of horizontal wells, surfactant/foams, or other technologies to reduce the costs of natural gas migration by 1996.

- By 1997 perform a natural-gas-trapping study in aquifer storage fields.

- Implement field-verification tests of methods to reduce natural gas migration and trapping by 1998.

3.8 Strengthen and Expand the Clean Cities Program

DOE's Clean Cities Program, formally initiated in September 1993, supports initiatives throughout the country to promote investment in alternative fuels for transportation. The program's objective is to encourage increased State and local, public and private use of — and commitment to use — alternative fuels, particularly in regions with a population base of 250,000 or more.

To achieve recognition as a Clean City, program participants in a region (such as local officials, fuel suppliers, vehicle providers, and representatives of Federal agencies) must commit to specific actions required to increase the use of alternative fuel vehicles. Since the program's inception only three months ago, Atlanta, Philadelphia, Denver, Wilmington, Las Vegas, and Washington, D.C., have been designated as Clean Cities. We believe that this program will be a catalyst for the national goal of replacing 10% of transportation petroleum with alternative fuels by the year 2000.

*The Clean Cities Program
supports initiatives
throughout the country
to promote investment
in alternative fuels for
transportation.*

*Efficient delivery of
natural gas is dependent
on a well-functioning
physical infrastructure
and on an accurate and
timely information
infrastructure.*

This DOE program has been reinforced by recommendations of the Federal Fleet Conversion Task Force, which was created by an April 1993 Executive Order. The Task Force concluded that Clean Cities should be given increased visibility and stature.

The Federal Fleet Conversion Task Force has also made a significant contribution to DOE's alternative fuel activities. This program is designed to convert public and private fleets to alternative fuels, including natural gas and natural-gas-derived fuels, and to coordinate efforts leading to the development of an infrastructure for refueling alternative fuel vehicles. The Task Force has made interim recommendations to the President and is now moving toward final recommendations. One goal, among others, is placing 15,000 alternative fuel vehicles in selected locations during Fiscal Year 1995.

Under this Initiative, DOE will explore methods of strengthening the Clean Cities Program and the activities of the Task Force by linking the two programs. Working with stakeholders, the Office of Energy Efficiency and Renewable Energy and the Office of Policy, Planning, and Program Evaluation will explore synergies between these two alternative fuel activities.

Action 4: Support Natural Gas Regulatory Reform and a "Contract Portfolio" Approach

Federal and State regulators should continue to promote a competitive industry structure. As noted above, changes under way in the private sector and industry restructuring prompted by the work of the FERC are already reducing the costs of information and transactions in natural gas markets.

At the State level, changes in regulations governing the distribution of natural gas and electricity can also lead to improved efficiency in energy use. DOE supports State efforts to revise their electricity, natural gas, and energy conservation pricing policies and regulations. These efforts can help to clarify the true operating costs and lead to greater economic value and a cleaner environment. Recognizing the States' jurisdictional authority in this area, the Administration seeks a cooperative effort among DOE and State utility regulators and energy offices to help foster regulatory reforms that will:

- Improve access to natural gas distribution facilities.
- Encourage efficient pricing for electricity and natural gas.
- Encourage the removal of fuel-specific subsidies that work against energy efficiency goals.
- Encourage State regulations that promote local distribution company efficiency.
- Boost the use of natural gas transportation.

One of the most important topics for this State-Federal dialogue and cooperative effort involves the use of an expanded portfolio of contracts for natural gas distribution companies and end users. New types of contracts and financial instruments can lead to improved natural gas availability and market performance, but only if all parties understand and use these new tools. DOE will expand its fact-based educational activities in these areas without attempting to prescribe specific State or customer contracting policies.

Reform Federal Rate Regulations:

Actions 4.1 through 4.3

DOE and the FERC will jointly monitor the experience of natural gas industry operations under FERC Order No. 636 in the 1993-94 winter heating season. Based on the data developed from the initial implementation, DOE, the FERC, and other members of the Interagency staff working group will begin discussions in the spring of 1994 to undertake the following actions. By the end of the summer of 1994, DOE will produce an issue paper addressing the potential for additional FERC regulatory reforms to enhance the utilization of natural gas.

4.1 Ensure Robust Secondary Markets for Pipeline Capacity

DOE will examine the need to propose to the FERC alternative ways to structure the secondary market for pipeline capacity. The efficient operation of the transportation market will discipline the price of delivered natural gas and will allow customers who own pipeline capacity to avoid some of the costs of excess capacity. A less constrained secondary market may require a new understanding of the FERC's responsibilities under the Natural Gas Act. The development of such mechanisms as electronic bulletin boards and electronic data interchanges should make timely secondary-market information available to all who use the pipeline system.

4.2 Encourage Open Access to the Electric Transmission Grid

Provisions to amend the Federal Power Act included in the Energy Policy Act of 1992 will continue the trend that is leading toward increased access to the electric transmission system and further competition in wholesale power markets. The FERC has responded by issuing policies and inquiries into wholesale transmission pricing, regional transmission groups, and good-faith requests for electric transmission. The FERC has adopted a Final Rule that creates a transmission data base. DOE and other interested Federal agencies will work with the FERC as it continues to establish the rules that govern access to the wholesale electric transmission grid, including the promotion of regional transmission groups.

4.3 Expedite Construction of New Natural Gas Facilities

DOE will work with the FERC to expedite certification of natural gas pipelines. As an initial step, the Office of Management and Budget has approved a proposal by the FERC to implement a program that will allow applicants seeking certification to construct new natural gas pipelines to use third-party contractors to do initial environmental analyses of their projects. This voluntary third-party contracting program will enable the FERC to speed up the processing of certificate applications without compromising the environmental review requirements of the National Environmental Policy Act. Working with the FERC, the Environmental Protection Agency, and other affected Federal agencies, DOE will identify practices that can expedite the economic and environmental review process for certifying new pipelines.

New types of contracts and financial instruments can lead to improved natural gas availability and market performance.

*Federal and State
regulators will continue
to promote a competitive
industry structure.*

Reform State Rate Regulations: Actions 4.4 through 4.9

In support of these actions, DOE will work with utility regulators who are interested in reforms that enhance the industry's competitiveness but who do not necessarily have the required resources to implement such reforms. Issue papers on each State initiative will be produced by the end of 1994. Additionally, DOE will sponsor workshops, submit testimony, produce issue papers, and make presentations at conferences that educate States on the potential benefits of reforms. Through analyses of current reforms under way and pilot programs with interested State commissions and utilities, DOE will provide States with the tools to reshape natural gas pricing. During the pilot programs, DOE will monitor the changes that take place as a result of the program and will present the results as a case study for other States.

4.4 Encourage Open Access for Natural Gas Transporters Through Distributors, to Resolve the "Contract Portfolio" Issue

DOE will work in cooperation with the National Association of Regulatory Utility Commissioners and State regulatory commissions to establish additional pilot regulatory programs in which nondiscriminatory access to the distribution system will be available to customers through third-party merchants. This effort will aim to lessen State regulation of those services over which the distributor has no market power.

In addition, public utility commissions will be encouraged to consider innovative gas contracting mechanisms for local distribution companies and electric utilities – for example, using long-term contracts and permitting local distribution company investments in gas supply.

4.5 Promote the Use of Efficient Natural Gas and Electricity Pricing

This effort will be carried out by working with State regulators who are interested in utilizing marginal cost-pricing for natural

gas and electric services. Electric utilities will be encouraged to consider time-of-use pricing for industrial, commercial, and residential customers. Similarly, seasonal pricing of both the delivery services and the commodity will be encouraged for all classes of natural gas customers.

4.6 Encourage the End of Fuel-Specific Subsidies

DOE and other interested Federal agencies will assist States in their evaluations of integrated resource planning programs, which consider electric, natural gas, and conservation measures simultaneously when determining the most efficient way to meet the needs of customers.

4.7 Foster the Use of Incentive Rate Design

In this effort, DOE will work with State regulators to establish rates that divorce the local distribution company's rates from their costs. Such mechanisms as price caps and indexing will be analyzed to determine each method's applicability. These mechanisms will constrain rates and set minimum service quality standards, while allowing the local distribution company control over its profitability.

4.8 Encourage the Elimination of Regulations That Inhibit the Use of Natural Gas in Vehicles

DOE and State regulators will identify those regulations that may be barriers to achieving the Nation's environmental and energy security goals. Examples of these barriers are regulations that treat natural gas service stations as public utilities, and others that prohibit compressed natural gas vehicles from driving through tunnels. The effort will also address (1) whether the costs of fueling facilities and vehicle conversions should be recovered through natural gas rates, and (2) whether the utility is the best entity to develop this market, or should operate in competition with others.

4.9 Encourage the Use of Natural Gas for Electric Power Generation

The largest potential natural gas market today is directed at natural-gas-fired generation of electricity. DOE and the FERC will

work cooperatively with State regulators to ensure that regulatory policies at both the Federal and the State levels appropriately encourage the use of natural gas by electric generators. For example, the capacity release program under FERC Order No. 636 may lead to a more symbiotic relationship between local distribution companies and their electric generator customers.

Action 5: Provide Information Services

To facilitate all elements of this Initiative, and as a final implementation measure for this strategic activity, DOE will improve its ability to develop, collect, and disseminate information on natural gas deliverability and storage. To complement the proposed strategies to improve deliverability and encourage regulatory reform, DOE will enhance the capability of the Energy Information Administration to collect these data, and will develop an Energy and Resources Mapping and Information System. EIA will work with other agencies and the private sector to provide a coordinating function and to avoid duplication while executing this task.

5.1 Develop an Energy and Resources Mapping and Information System

This action will enable DOE to analyze the geographic implication of energy policies at a State or regional level in order to quickly understand and communicate the potential impacts on energy activities of pending legislation, regulations, or policy decisions promulgated by Congress, other government agencies, or the private sector. It will combine the information system and other existing systems to provide consistent, coherent data and information to facilitate decision making processes.

5.2 Enhance the Energy Information Administration's Natural Gas Storage Data Collection

Under this action, the Energy Information Administration will work with industry to speed up the collection and publication of

natural gas storage data, from a monthly to a weekly publication cycle. If adequate information is not available from the private sector, the Energy Information Administration will conduct the survey. Accelerated publication of natural gas storage data will enhance the efficiency of natural gas trading markets and will improve the likelihood of market stability and growth.

5.3 Develop a "One-Stop-Shopping" Contact List Readily Accessible to a Clearinghouse for the Natural Gas and Oil Industry

During the exploration, development, and production of natural gas and oil, members of the industry often do not know whom in the Federal Government to contact to obtain information on technical or financial assistance. This problem is exacerbated if regulatory compliance or the commercialization of innovative or experimental technologies and techniques is involved.

To reduce the costs of information search and to improve government effectiveness, DOE will establish a Federal program clearinghouse for natural gas and oil producers. The clearinghouse will contain up-to-date contact lists for all Federal assistance and regulatory activities in all agencies. In addition, clearinghouse personnel will be trained to act as facilitators and ombudsmen for natural gas and oil producers, particularly for firms that lack specialized government affairs and regulatory compliance specialists. The clearinghouse and its toll free "800 number" will be publicized extensively through the public contact of Public Affairs' and Energy Information Administration's marketing programs and the marketing programs of other participating agencies.

The clearinghouse and contact lists will be in place in March 1994.

The Department of Energy will improve its ability to develop, collect, and disseminate information on natural gas deliverability and storage.

STRATEGIC ACTIVITY III:

IMPROVE GOVERNMENT COMMUNICATION AND DECISION MAKING

Federal agencies will streamline overly complex regulatory processes, with no compromise in protection of the environment and the public interest.

The report of the National Performance Review challenges Federal agencies to find new ways of problem-solving that emphasize collaboration, empowerment, and greater efficiency. It calls on Federal and State agencies to "eliminate regulatory overkill" and work together with greater coordination and flexibility.

This strategic activity encompasses four specific actions created in the spirit of these Administration priorities:

Action 6: Simplify Regulations Without Compromising Environmental Protection

Federal regulatory agencies and departments will streamline and simplify multi-jurisdictional, multi-layer, and overly complex processes that increase compliance costs, with no compromise in protection of the environment and the public interest.

Action 7: Evaluate Production From Federal Lands

Various agencies and departments will coordinate to ensure that national energy strategies in leasing decisions related to Federal lands, and alternative policies to generate greater leasing interest in mature and deepwater areas of the western and central Gulf of Mexico are appropriately considered. In addition, DOE will work with Congress and other key agencies to prepare and implement a plan for production of the Naval Oil Shale Reserves.

Action 8: Work With States and Native American Tribes

Various agencies and departments will work more closely and cooperatively with States and Tribes on natural gas and oil supply issues.

Action 9: Address West Coast Production Constraints

DOE will work with the Justice Department, the Department of the Interior, and the California Public Utilities Commission to ensure access to central California oil pipelines. The economic, social, and environmental benefits and costs of exporting Alaskan North Slope crude oil will also be examined.

Action 6: Simplify Regulations Without Compromising Environmental Protection

As in other industries, natural gas and oil producers have become subject to many overlapping State and Federal environmental rules which can lead to increased cost. Though these rules are usually created with the best of intentions, the Vice President noted in the National Performance Review that it is time to "put aside our reverence for those good intentions" and focus on implementing regulations with greater flexibility and efficiency to "eliminate regulatory overkill" and to achieve optimal levels of environmental protection at the lowest possible cost.

Fortunately, a wealth of new regulatory solutions and processes is emerging across the United States and around the world. Market-based and multimedia pollution control solutions are under development and, in some cases, are already a matter of law; Federal and State agencies are increasingly using regulatory negotiations and formal collaborative processes; and agencies such as the Federal Energy Regulatory Commission are searching for self-enforcing, market-based processes that eliminate or reduce the need for formal hearings. The following actions reflect the Federal Government's commitment to increasing the productivity and competitiveness of the natural gas and oil industry, without compromising the Administration's goal of environmental protection.

6.1 Streamline State and Federal Regulation

DOE, working with the States and with other Federal agencies, will enhance the efficiency and effectiveness of State and Federal regulatory programs and will reduce undue burdens on the domestic natural gas and oil industry by improving coordination among regulatory agencies, eliminating redundant or unnecessary regulation, and avoiding duplication in State and Federal regulatory programs.

An interagency working group will be created with representatives from DOE, the Federal Energy Regulatory Commission, the Environmental Protection Agency, the Departments of the Interior, Transportation, and Agriculture, and other pertinent Federal agencies to improve coordination on regulatory issues affecting natural gas and oil supply.

DOE will work cooperatively with the States through such organizations as the Interstate Oil and Gas Compact Commission and the National Association of Regulatory Utility Commissioners and with Federal land management agencies to help streamline and integrate State and

Federal regulatory programs. The purpose of these concerted efforts will be to seek out and eliminate duplication in Federal and State regulatory programs, whether in the form of needless paperwork or duplicate permits or hearings. Wherever possible, one-stop permitting and market-based regulatory policies will be encouraged. Efforts will also be focused on expanding opportunities for improved coordination between State and Federal regulatory agencies.

6.2 Enhance State and Federal Regulatory Decision Making Capability

DOE and other Federal agencies will work to enhance the capability of State and Federal agencies to make better regulatory decisions affecting the domestic natural gas and oil industry. Designed to dovetail with the Administration's streamlined process for interagency regulatory review, this action also seeks to minimize interagency rule conflicts and incorporate trade-offs between regulatory impacts.

Collaborative Approaches to Environmental Compliance

Improved communication and closer collaboration among regulators, the regulated community, and other interested parties are enhancing the natural gas and oil industry's efforts to protect the environment cost-effectively. For example:

- In the Gulf of Mexico, at Atlantic Richfield Corporation's Dauphin Island site, early communication with State and local governments and the fishing community avoided unnecessary project delays and resulted in an environmentally superior and economically viable drilling project.
- In Pennsylvania, a collaborative process has been used to establish general National Pollution Discharge Elimination System permits for stripper oil and marginal natural gas wells.
- In Virginia, at the Yorktown refinery, the cooperation of Amoco and the Environmental Protection Agency led to unprecedented new information concerning the structure, effects, and compliance strategies associated with environmental rules.

Through existing research and analysis activities, DOE will support efforts to:

- Increase the availability of sound technical information on the environmental risks associated with natural gas and oil operations, as well as the costs and benefits of alternative regulatory approaches.
- Continue to use and make available the unique capability of DOE to assist State and Federal decision makers in assessing the impacts of environmental and other regulatory actions on natural gas and oil supply.
- Expand ongoing efforts by DOE and other Federal agencies to assist States with research and analysis and with improved data management to support risk-based regulatory decisions affecting the natural gas and oil industry.

"We will use this report in discussions with Environmental Protection Administrator Carol Browner as we work to identify cost-effective ways to meet our Administration's stated environmental objectives. The Department will also coordinate an effort to provide a forum for those involved in this two-year study to have an open dialogue with the Congress, the Environmental Protection Agency, and others within this Administration who play a role in overseeing our Nation's refining industry."

Hazel R. O'Leary
Secretary of Energy

August 30, 1993 — In response to the National Petroleum Council study on the refining industry.

6.3 Progress Beyond Command-and-Control Regulation

The Administration will develop alternative approaches to environmental regulation that balance the cost of regulation against realistic health and environmental risks, establish priorities among the various environmental protection programs in achieving goals, and promote innovative methods of achieving environmental objectives.

A key objective is to demonstrate the feasibility of alternative approaches to conventional, command-and-control environmental regulation that more accurately balance costs and benefits, promote rather than stifle technological innovation, allow for compliance flexibility, and achieve the same or greater levels of environmental benefit at less cost.

DOE will initiate selected alternative regulatory compliance demonstration projects in May 1994 with a project jointly sponsored by DOE and the Department of the Interior on improved safety and environmental management planning for offshore natural gas and oil facilities.

6.4 Enhance Dialogue Through Industry/Government/Public Partnerships

The Administration will promote dialogue and build partnerships among industry, States, the public, and other interested parties to:

- Address regional environmental issues constraining U.S. natural gas and oil resource recovery.
- Avoid unnecessary delays in the regulatory permitting process.
- Resolve outstanding disputes concerning natural gas and oil development.
- Balance the Administration's objectives for environmental protection, energy development, and economic growth.

6.5 Review the Findings and Recommendations of the National Petroleum Council's Report on U.S. Oil Refining

DOE, the Environmental Protection Agency, and other interested Federal agencies will establish a working group to review the findings and recommendations of a two-and-one-half-year comprehensive study on the future of U.S. oil refining undertaken by the National Petroleum Council, an advisory committee to the Secretary of Energy.⁶ The working group will develop a strategy for maintaining a more viable domestic oil refining industry, while maintaining or enhancing current levels of environmental protection through innovative, cost-effective approaches to regulations. The strategy will be used to guide current efforts to strengthen existing research and development programs for oil refining technologies.

DOE will host one or more seminars in which the experts who prepared the refining report present their findings and describe the basis of their analysis to interested stakeholders, government, and Congressional staff. The review of the NPC study and Implementation recommendations will be completed in April 1994.

6.6 Enhance the Scope of the National Petroleum Council

As part of renewing the National Petroleum Council's charter for an additional two years, DOE will increase the number of representatives from consumer, environmental, and end-use groups (such as manufacturers) by 15 to 20 new members. This will bring the total membership to approximately 175 and will broaden the participation of the stakeholders. The current charter expires November 21, 1993. Renewal of the charter is expected to be completed by the end of December 1993.

In addition, the Secretary of Energy will formally commission a National Petroleum Council study of government/industry roles to:

- Disseminate facts about the role of the natural gas and oil industry in the U.S. economy.
- Bring industry, government, and interest groups closer together where disagreements have created barriers.
- Identify ways to settle disputes over natural gas and oil development issues.

Action 7: Evaluate Production From Federal Lands

Our nation's public lands are one of our most precious resources, and they must be safeguarded and preserved for future generations. The United States leads the world in the development of environmentally effective technologies for exploration and development of natural gas and oil in frontier areas. With advanced technologies and careful production practices, our stewardship obligations can be consistent with the production of subsurface resources. These technologies constitute a major portion of the tools available internationally for environmentally responsible natural gas and oil development, as other nations push offshore and into the Arctic.

The following actions are aimed at continued collaboration of Federal land management agencies with State and local stakeholders on the many technical, economic, and environmental challenges they face in developing policies for producing natural gas and oil from Federal lands.

7.1 Continue the Interagency Energy Coordinating Group

DOE, the Department of the Interior, the Department of Agriculture, the Environmental Protection Agency, and the Department of Defense have established an informal interagency energy coordinating group to ensure that national energy strategies are appropriately considered in leasing decisions related to Federal lands.

With advanced technologies and practices, our Nation can produce subsurface resources from public lands while safeguarding and preserving these lands for future generations.

*Advanced technologies
constitute a major
portion of the tools
available internationally
for environmentally
responsible natural gas
and oil development.*

The coordinating group will first assemble a full range of technical and scientific findings to assist the Departments of the Interior and Agriculture in developing their leasing policies. The group will then develop policies that encourage environmentally responsible natural gas production and will reconsider both producer access to public lands and revenue sharing.

The Department of the Interior will work with stakeholders on State and local levels and with local representatives of Federal agencies to attempt to resolve issues of concern raised in connection with development of existing leases. This includes attempting to resolve long-standing questions concerning identification of areas suitable for development and areas warranting permanent protection from natural gas and oil development.

7.2 Develop the Natural Gas and Oil Resources of the Naval Oil Shale Reserves

The Naval Oil Shale Reserves represent a significant natural gas resource that is currently unavailable for production. DOE will work with Congress, the Bureau of Land Management, and the Office of Management and Budget to prepare and implement a plan for the disposition and production of the Reserves.

To develop this plan, DOE will characterize the production potential of the Reserves. The first phase of the program, begun in January 1993, consists of (1) reprocessing seismic data that are available in the DOE archive; (2) acquiring additional, commercially available seismic data; and (3) producing an assessment of the natural gas and oil potential of Naval Oil Shale Reserve Nos. 1, 2, and 3.

DOE will also work with the Department of the Interior and the Office of Management and Budget to conduct economic analyses of the options and to develop a plan for the optimal development of these government-owned lands in an environmentally responsible manner that will maximize revenues to the U.S. Treasury. This plan will use the considerable work that has already been done by DOE, the Bureau of Land Management, the Office of Management and Budget, and Congress. An aggressive timetable will be set for the plan's quick implementation. Assessment of Naval Oil Shale Reserve No. 3 will be completed in January 1994. Assessment of Nos. 1 and 2 will be completed in June 1994.

7.3 Increase Production on the Deepwater Outer Continental Shelf

The United States, including the Outer Continental Shelf (OCS), contains vast resources of natural gas and oil (Figure 7). Federal lands comprise some 727 million acres of property onshore — nearly one-third of the entire land area of the United States.⁷

The deepwater portions of the Gulf of Mexico represent one of the most promising exploration targets within the United States, but the economic and technological development challenges are substantial. Legislation has been proposed that would encourage development in deepwater areas.

The Department of the Interior is currently coordinating a working group to study the issues related to these deepwater incentives, including royalty relief. Interior and DOE have testified before Congress that they would support production incentives for OCS areas available for leasing if appropriate distinctions are made between treatment of existing and potential future leases, and if only those areas are considered that would not otherwise be developed by industry. A recommendation from the Department of the Interior will be completed in December 1993.

In addition, Interior will continue to review its leasing policies in mature areas to ensure they are appropriate for changing economic and technological challenges.

7.4 Assess Options for Developing Marginal Prospects on the Gulf of Mexico Outer Continental Shelf

The legislation before Congress that encourages leasing, exploration, and production from deepwater Gulf of Mexico leases does not address the thousands of shallow water leasing tracts in non-moratoria areas of the Gulf of Mexico Outer Continental Shelf. Many of these blocks have not been exploited because producers believe the potential prospects are small.

The Department of the Interior, with technical consultation from DOE, will assess options for spurring development of

marginal prospects to determine the value of encouraging this shallow water development. A recommendation from Interior will be completed in February 1994.

7.5 Enhance the Ability of Smaller Operators to Meet Outer Continental Shelf Financial Requirements

Provisions of the Oil Pollution Act of 1990 would raise the minimum threshold of financial responsibility for operators on the Outer Continental Shelf from \$35 million to \$150 million. DOE and the Department of the Interior are studying the effects of this increase on smaller companies who will have difficulty meeting the latest financial requirements.

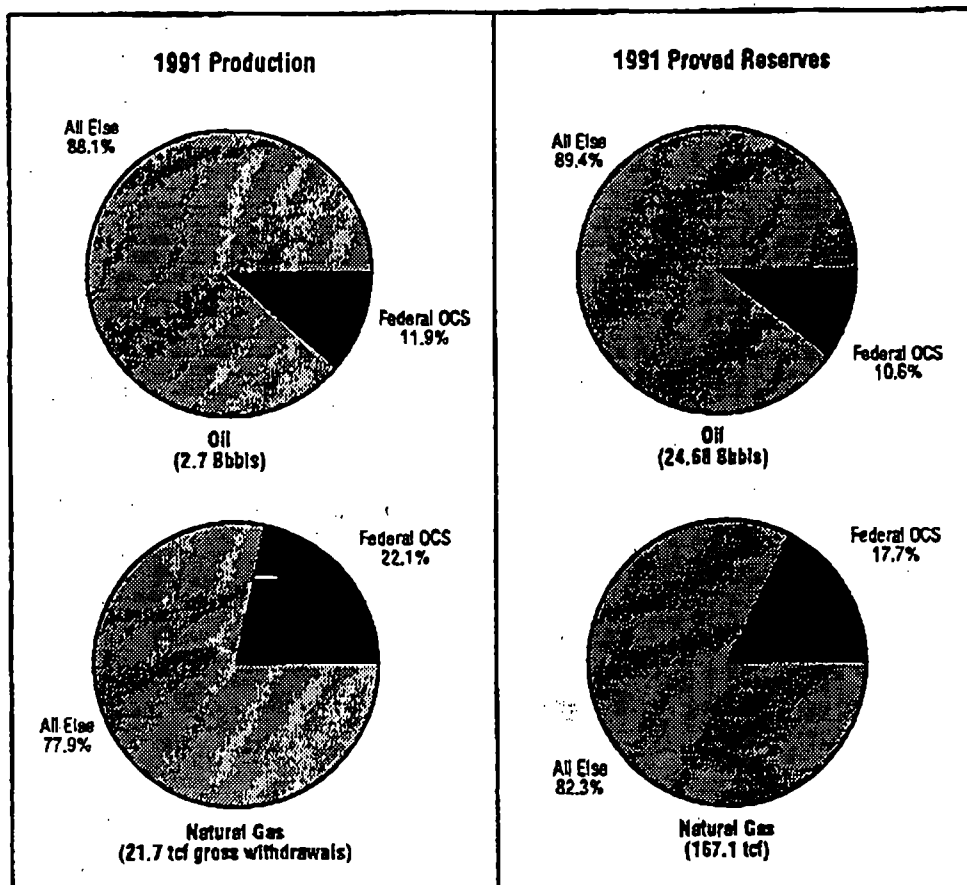


Figure 7:
United States
Production and
Reserves

(Percent of U.S. Total)

A substantial percentage of natural gas and oil activity underlies Federal waters, which include the Outer Continental Shelf.

Bbbls=billion barrels
tcf=trillion cubic feet

Source: Energy Information Administration.

The Federal Government will work cooperatively with individual States to identify and resolve key issues constraining natural gas and oil supply at the State and regional levels.

Pursuant to the implementation of the Oil Pollution Act of 1990, the Minerals Management Service has recently published an Advanced Notice of Proposed Rulemaking on the financial responsibility provisions. The notice is expected to identify several possible options for addressing concerns about these requirements. DOE has asked the National Petroleum Council to quickly analyze the criteria published in the notice, as well as recommend alternative approaches to fulfill the intent of the legislation, while allowing smaller operators to participate. An interim report from the Council is scheduled for December 1993.

Action 8: Work With States and Native American Tribes

States and Federal land management agencies have a primary role in regulating the activities of the natural gas and oil industry relative to resource conservation, environmental protection, and the use of natural gas. The Federal Government will work cooperatively with States, particularly natural gas- and oil-producing States, to develop and implement this Initiative.

DOE will also forge new partnerships with Native American Tribes to increase domestic natural gas and oil production on Tribal lands. These partnerships will strive to recognize the importance of economic development, environmental preservation, and cultural sensitivity to Tribal affairs. This will involve cooperative efforts among DOE, various Interior Department agencies, the Administration for Native Americans, the Council of Energy Resource Tribes, and other Native American organizations and individual Native American Tribes.

8.1 Work With States on the Domestic Natural Gas and Oil Initiative

In June 1993, the Interstate Oil and Gas Compact Commission, the association of the governors of 29 natural gas- and oil-producing States, passed a resolution that broadly supports the Domestic Natural Gas and Oil Initiative. It urges member States to immediately make available all resources at their disposal to assist the Administration in developing workable energy policies.

Federal agencies will strengthen communications with State organizations, such as the Interstate Oil and Gas Compact Commission, the Ground Water Protection Council, the Energy Council, the National Governors' Association, the National Association of State Energy Offices, and the National Association of Regulatory Utility Commissioners. In addition, the Federal Government will work cooperatively with individual States to identify and resolve key issues constraining natural gas and oil supply at the State and regional levels.

8.2 Increase Natural Gas and Oil Production and Environmental Protection on Native American Tribal Lands

Under this action, DOE will help Native American Tribes gain access to energy technology and environmental management assistance by:

- Working with the Administration for Native Americans, the Department of the Interior, the Council of Energy Resource Tribes, other Native American organizations, and individual Tribes to provide internship opportunities at the Strategic and Naval Petroleum Reserves, and to encourage maintenance and operations contractors to do likewise.

- Supporting exploration and production projects proposed by individual Native American Tribes, while developing appropriate information transfer mechanisms that will benefit other Tribes as well.

- Working with the Council of Energy Resource Tribes to build a natural resource management and technical skill base at the Tribal level.

- Seeking opportunities to facilitate and enhance the evolving alliance between Native American Tribes and industry.

- Exercising leadership within the Administration to support and encourage an expanded Bureau of Indian Affairs resource assessment program.

- Continuing to foster basic science and math education for Native American youth.

This action will also deal directly with the issue of possible disproportionate environmental risks borne by minority/low-income populations, as a result of natural gas and oil exploration and production on Native American Tribal lands.

Action 9: Address West Coast Production Constraints

Crude oil production from the Alaskan North Slope is likely to decline, leaving the West Coast once again a significant importer before the year 2000. This action addresses this problem.

9.1 Open Access to Crude Oil Pipelines in California

DOE will work with the Justice Department and the California Public Utilities Commission to ensure that tariffs for central California pipelines are nondiscriminating and reasonable for all users. This effort will encourage oil pipeline access for non-integrated producers in California. Most, if not all, of these large pipelines should operate as common carriers by virtue of their settlements in long-standing lawsuits, or their use of rights-of-way granted under the Mineral Leasing Act. Free and open access to transportation assets in the State will help to increase production.

DOE will also work with the Department of the Interior to enforce the common carrier requirements of the Mineral Leasing Act for pipelines governed by the Department of the Interior.

9.2 Study Barriers to Export of Alaskan North Slope Crude Oil

In conjunction with the Departments of Defense and Transportation, DOE will examine the economic, social, and environmental benefits and costs of exporting Alaskan North Slope (ANS) crude oil. Among other things, the study will consider the relationship between ANS exports and investment in producing and upgrading onshore California heavy crude oils, and the effects on employment in the domestic Jones Act Fleet.

If ANS production falls as projected in the late 1990's, Petroleum Administration for Defense District V will again become permanently dependent on imported crude oil. Permitting ANS exports in the near term will potentially stimulate onshore California production, and could initiate a less volatile transition away from imports in general.

The conclusions of this study will be available in April 1994, in time for discussions concerning the Export Administration Act, which is scheduled for renewal next year.

Crude oil production from the Alaskan North Slope is likely to decline, leaving the West Coast once again a significant importer before the year 2000.

THE QUESTION OF OIL IMPORTS

"All options should be investigated in determining how best to tackle our energy dependence problem."

Bill Clinton
September 1992
Presidential Questionnaire
by People for an
Energy Policy

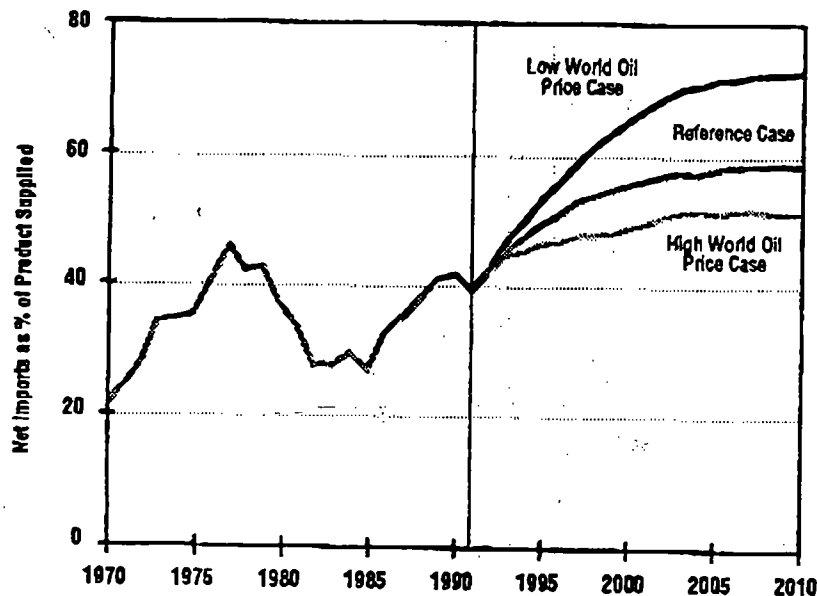
Oil imports are critical to the U.S. economy (Figure 8). The possible disruption of oil imports would have serious repercussions for the transportation, industrial, commercial, and residential sectors (Figure 9). In addition, oil imports represent by far the largest component of the Nation's trade deficit.

10.1 Study the Costs and Benefits of Oil Imports

The National Economic Council and the National Security Council will coordinate an interagency team headed by DOE to assess the near- and long-term economic, environmental, and security implications of rising U.S. dependence on oil imports and the role of the Federal Government in addressing the situation.

The team will also review policy options to reduce oil import vulnerabilities. These options will not undermine our overall economy nor violate trade agreements. The study will link the oil imports issue with policy measures being considered to promote domestic supply, energy efficiency, and pollution reduction. And new approaches will be explored that build on already successful energy security strategies, such as maintaining the Strategic Petroleum Reserve and effective multilateral cooperation.

The study will be completed in December 1994.



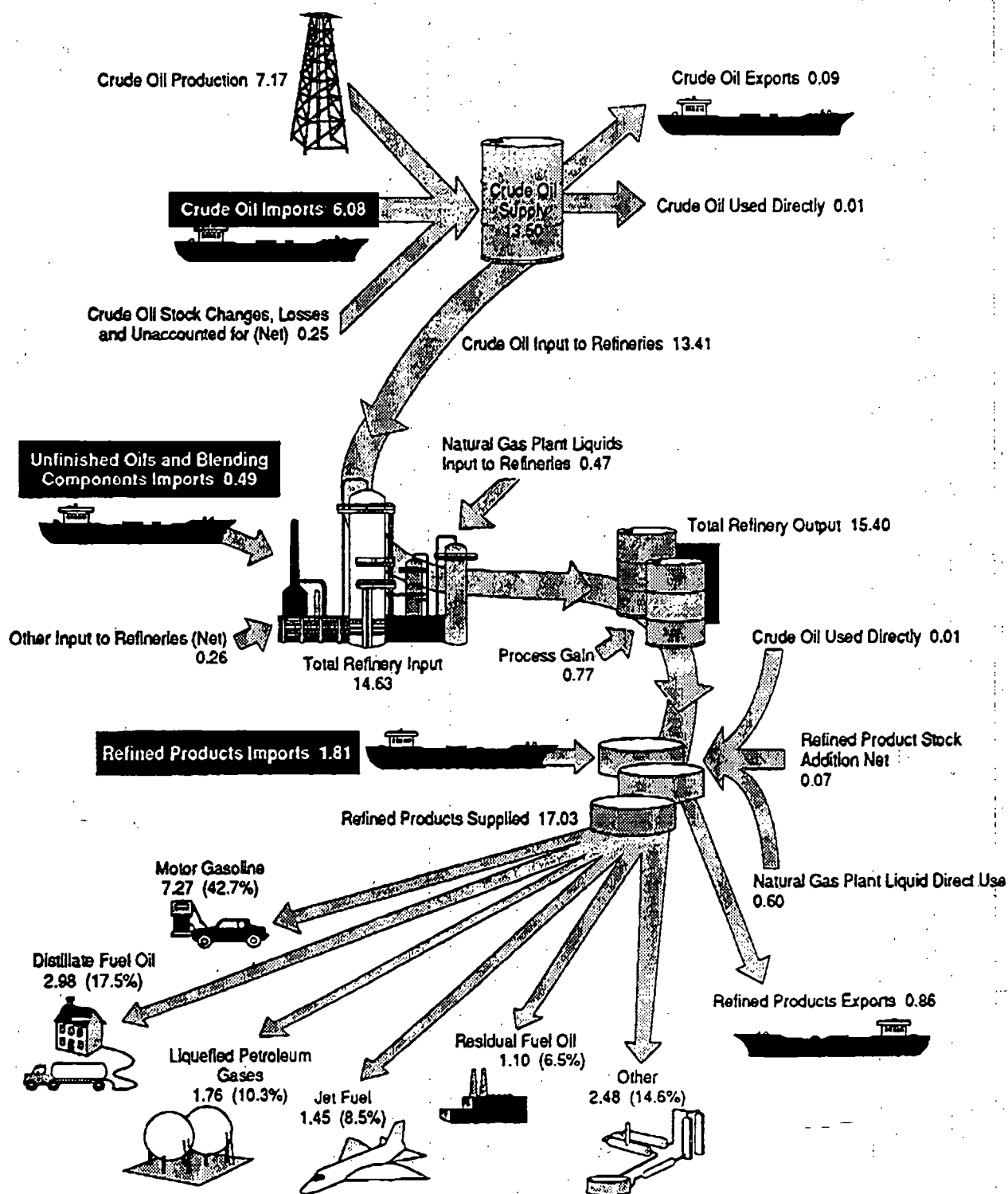
Source: Energy Information Administration.

Figure 8:
U.S. Dependence on Oil: Net Imports
Heavy dependence on imported oil remains a source of vulnerability for the U.S. economy.

Figure 9: U.S. Petroleum Supply and Disposition, 1992

An analysis of the costs and benefits of crude oil imports will require a strategic understanding of the role of petroleum products in the domestic economy.

Million Barrels per Day



ENERGY LEADERSHIP IN THE WORLD ECONOMY

Americans must compete with others in the world for the sale of goods and services. In the natural gas and oil industry, we have long been leaders in production technologies. We intend to maintain this leadership position.

The Domestic Natural Gas and Oil Initiative seeks to preserve the comparative advantage of American firms while helping to reduce imports; to substitute environmentally sound natural gas for less clean fuels; and to ensure that more Americans will enjoy high-wage, high-tech employment. The achievement of these ambitious goals will require a coordinated strategy that ranges far beyond policies primarily directed at natural gas and oil supplies. We must continue to improve our energy efficiency, increase our use of renewable energy resources and alternative fuels for transportation, diversify our international sources of supply, and develop new methods of production that will reduce costs, pollution, and energy consumption simultaneously.

This coordinated strategy, in turn, must reconcile conflicts between the needs for energy supply and environmental preservation. The delay, litigation, and frustration that have resulted from the erroneous belief that these two goals are incompatible have threatened to lock up valuable resources that could benefit the nation. We must eliminate these barriers with actions that demonstrate that environmental preservation is fully compatible with careful resource development.

Of equal importance, we must maintain our present technological and skill-based edge in the international energy markets. This requires a viable domestic natural gas and oil industry in which to train and deploy workers. Similarly, we cannot increase our technological edge, nor exercise world environmental leadership, if we no longer invest in the research, development, production, and refining of domestic energy resources in an environmentally sound manner. If we are to improve our technology and skill base, exercise environmental leadership, and safeguard our security, the domestic natural gas and oil industry must remain a healthy and full-fledged contributor to the Nation's economic future.

"America needs a national energy policy that lets Americans control America's energy future."

Bill Clinton
Summer 1992
Putting People First

Table 2:
Summary of Domestic Natural Gas
and Oil Initiative Implementation Actions

Action	DOE Action	Action by Other Federal Agencies	Legislative Action	Coordinating Agencies
STRATEGIC ACTIVITY I: ADVANCE AND DISSEMINATE NATURAL GAS AND OIL TECHNOLOGIES				
1.0 Promote the Advancement of Natural Gas and Oil Technologies				
1.1 Develop an Advanced Computational Technology Initiative	■	■		
1.2 Develop Advanced Rock Drilling Systems for Natural Gas	■	■		
1.3 Fund Expanded Industry-Driven RD&D for Advanced Oil Recovery Technologies	■	■		
1.4 Conduct Advanced Geologic Basin Analysis to Target Exploration for Bypassed Gas and Oil	■	■		DOI
1.5 Target a Research Program at Specific, Basic Operating Issues of Small Natural Gas and Oil Producers	■	■		
1.6 Develop a Commercialization Strategy for Natural Gas Technologies	■	■		DOC, DOD, State/Tribe
1.7 Stimulate Development of a Nationwide, Regionally Based Natural Gas and Oil Technology Transfer Network and Assistance Program	■	■		
1.8 Review Tax Treatment of Geologic and Geophysical Expenditures and Other Tax Provisions	■	■	■	Treasury
1.9 Use the Naval Petroleum Reserves for Advanced Technology Testing, Evaluation, and Training	■	■		
2.0 Improve Environmental Technologies and Practices				
2.1 Improve Environmental Compliance Technologies and Practices	■	■		DOI, EPA
2.2 Improve Coordination on Environmental Research	■	■		DOC, DOD, DOI, DOT, EPA, State/Tribe
2.3 Explore DOE's Role in Oil Spill R&D	■	■		DOI, DOT, EPA, OMB, State/Tribe
2.4 Study Used Oil Recycling	■	■		DOD, DOT, EPA, State/Tribe
STRATEGIC ACTIVITY II: STIMULATE MARKETS FOR NATURAL GAS				
3.0 Improve the Natural Gas Infrastructure				
3.1 Upgrade State Data Collection and Reporting on Natural Gas Production	■	■		State/Tribe
3.2 Build a National Deliverability Capacity Model	■	■		
3.3 Enhance Real-Time Monitoring and Automated Systems	■	■		FCC, FERC No regulatory action required due to Order 636 implementation
3.4 Build a System for Assessing Natural Gas Underground Storage Operations	■	■		State/Tribe, USDA
3.5 Match Natural Gas Storage to End-User Requirements	■	■		State/Tribe
3.6 Demonstrate Natural Gas Storage Optimization Technology	■	■		State/Tribe
3.7 Improve Natural Gas Storage Effectiveness for Problem Fields	■	■		State/Tribe
3.8 Strengthen and Expand the Clean Cities Program	■	■		DOT, EPA
4.0 Support Natural Gas Regulatory Reform and a "Contract Portfolio" Approach				
Reform Federal Rate Regulations				
4.1 Ensure Robust Secondary Markets for Pipeline Capacity	■	■		FERC
4.2 Encourage Open Access to the Electric Transmission Grid	■	■		FERC, USDA
4.3 Expedite Construction of New Natural Gas Facilities	■	■		EPA, FERC, USDA

Table 2:
continued

Action	DOE Action	Action by Other Federal Agencies	Legislative Action	Coordinating Agencies
Reform State Rate Regulations				
4.4 Encourage Open Access for Natural Gas Transporters Through Distributors, to Resolve the "Contract Portfolio" Issue	■	■	■	State/Tribe
4.5 Promote the Use of Efficient Natural Gas and Electricity Pricing	■	■	■	State/Tribe
4.6 Encourage the End of Fuel-Specific Subsidies	■	■	■	State/Tribe, USDA
4.7 Foster the Use of Incentive Rate Design	■	■	■	State/Tribe
4.8 Encourage the Elimination of Regulations That Inhibit the Use of Natural Gas in Vehicles	■	■	■	State/Tribe
4.9 Encourage the Use of Natural Gas for Electric Power Generation	■	■	■	FERC, State/Tribe
5.0 Provide Information Services				
5.1 Develop an Energy and Resources Mapping and Information System	■	■	■	State/Tribe
5.2 Enhance the Energy Information Administration's Natural Gas Storage Data Collection	■	■	■	FERC, OMB, State/Tribe
5.3 Develop a "One-Stop-Shopping" Contact List Readily Accessible to a Clearinghouse for the Natural Gas and Oil Industry	■	■	■	DOC, DOD, DOI, DOT, EPA, FERC, OMB, State, USDA
STRATEGIC ACTIVITY III: IMPROVE GOVERNMENT COMMUNICATION AND DECISION MAKING				
6.0 Simplify Regulations Without Compromising Environmental Protection				
6.1 Streamline State and Federal Regulation	■	■	■	DOC, DOD, DOI, DOT, EPA, FERC, State/Tribe, USDA
6.2 Enhance State and Federal Regulatory Decision Making Capability	■	■	■	DOI, EPA, State/Tribe
6.3 Progress Beyond Command-and-Control Regulation	■	■	■	DOI, EPA, State/Tribe, USDA
6.4 Enhance Dialogue Through Industry/Government/Public Partnerships	■	■	■	DOI, EPA, State/Tribe, USDA
6.5 Review the Findings and Recommendations of the National Petroleum Council's Report on U.S. Oil Refining	■	■	■	EPA
6.6 Enhance the Scope of the National Petroleum Council	■	■	■	
7.0 Evaluate Production From Federal Lands				
7.1 Continue the Interagency Energy Coordinating Group	■	■	■	DOD, DOI, EPA, State/Tribe, USDA
7.2 Develop Natural Gas and Oil Resources of the Naval Oil Shale Reserves	■	■	■	DOI
7.3 Increase Production on the Deepwater Outer Continental Shelf	■	■	■	DOI
7.4 Assess Options for Developing Marginal Prospects on the Gulf of Mexico Outer Continental Shelf	■	■	■	DOI
7.5 Enhance the Ability of Smaller Operators to Meet Outer Continental Shelf Financial Requirements	■	■	■	DOI
8.0 Work With States and Native American Tribes				
8.1 Work With States on the Domestic Natural Gas and Oil Initiative	■	■	■	DOI, State/Tribe, USDA
8.2 Increase Natural Gas and Oil Production and Environmental Protection on Native American Tribal Lands	■	■	■	DOI, State/Tribe
9.0 Address West Coast Production Constraints				
9.1 Open Access to Crude Oil Pipelines in California	■	■	■	DOI, DOJ, DOT, FERC, State agencies
9.2 Study Barriers to Export of Alaskan North Slope Crude Oil	■	■	■	DOD, DOI, DOT, State/Tribe
THE QUESTION OF OIL IMPORTS				
10.1 Study the Costs and Benefits of Oil Imports	■	■	■	CEA, DOC, DOD, NEC, NSC, OMB, State, Treasury, USTR

NOTE: Industry co-funding or cost-sharing for these actions is expected to be generally at or above 50 percent for projects close to commercialization or in a demonstration phase. Actions which may have a limited group of beneficiaries are expected to be supported by significantly more cost-sharing, or it is unlikely that the actions will be implemented.

KEY TO TABLE 2

CEA = Council of Economic Advisers
DOC = Department of Commerce
DOD = Department of Defense
DOI = Department of the Interior
DOJ = Department of Justice
DOT = Department of Transportation
EPA = Environmental Protection Agency
FCC = Federal Commerce Commission
FERC = Federal Energy Regulatory Commission
NEC = National Economic Council
NSC = National Security Council
OMB = Office of Management and Budget
USDA = U.S. Department of Agriculture
USTR = U.S. Trade Representative

FOOTNOTES

- ¹ Energy Information Administration, U.S. Department of Energy, The Annual Energy Review 1992, Table 3.8, page 85.
- ² American Petroleum Institute, Survey of Oil and Gas Expenditures 1990, November 1991, Table ii, page 2.
- ³ Bureau of Labor Statistics, U.S. Department of Labor, Current Employment Statistics Survey.
- ⁴ President Clinton and Vice President Gore, "Technology for America's Economic Growth: A New Direction to Build Economic Strength," February 22, 1993.
- ⁵ Bureau of the Census, U.S. Department of Commerce, 1987 Census of Mineral Industries, MIC 87-1-13A, Table 1, page 13A-5.
- ⁶ National Petroleum Council, U.S. Petroleum Refining, September 8, 1993.
- ⁷ G. L. Dolton, R. F. Mast, R. A. Crovelli, Estimates of Undiscovered Conventional Resources of Oil and Gas for Federal Lands, and for Indian and Native Lands of the Continental United States, U.S. Geological Survey Open-File Report 90-705, 1990. Table 2, pages 10-12.

DESIGN: Brandegee, Inc., Pittsburgh, Pennsylvania

PHOTOGRAPHY: U.S. Department of Energy, Bruce Wells,
and the Independent Petroleum Association of America