

THE EFFECT ON THE NATIONAL SECURITY OF IMPORTS OF CRUDE OIL AND REFINED PETROLEUM PRODUCTS

An Investigation Conducted Under
Section 232 of the Trade Expansion Act of 1962, As Amended



U.S. Department of Commerce
Bureau of Industry and Security

November 1999



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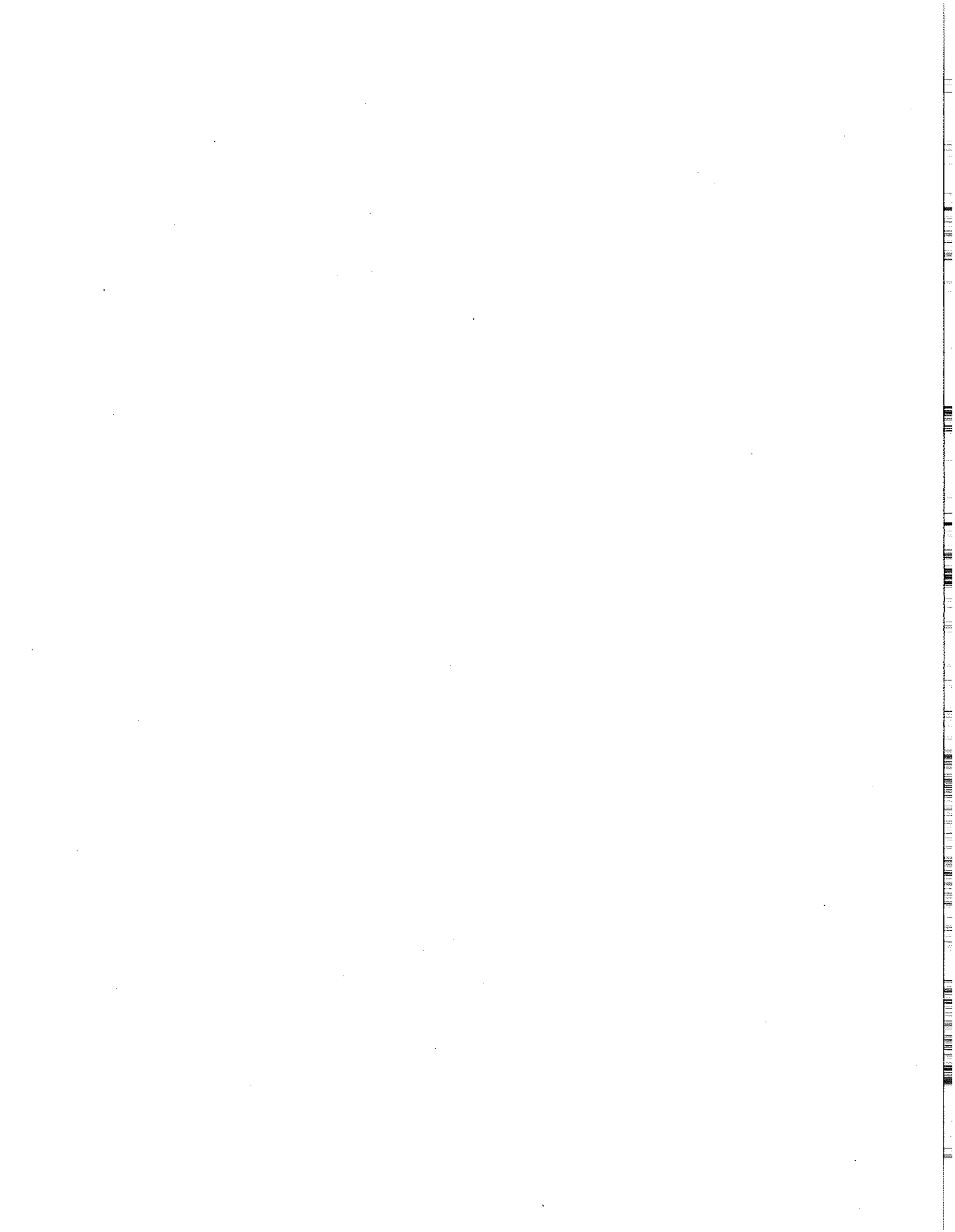
Prepared by

**U.S. Department of Commerce
Bureau of Industry and Security**

November 1999

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EXECUTIVE SUMMARY

Introduction

On March 11, 1999, Senators Domenici, Hutchinson, Inhofe, Nighthorse-Campbell, Roberts, Sessions, Crapo, Nickels, Murkowski, Craig, Burns, McConnell, DeWine, Brownback, and Bunning, in a letter to the President, requested that he take immediate action to address the threat of increasing oil imports to our national security. On March 12, 1999, Senators Bingaman, Breaux, Landrieu, Conrad, Enzi, Lincoln, Lott, Dorgan, Baucus, Murkowski, and Burns, in a letter to Secretary Daley, raised similar concerns and directly requested that the Department of Commerce initiate an expedited review and investigation into the impact of low oil prices and ever increasing oil imports on the United States national security under the authority of Section 232 of the Trade Expansion Act of 1962, as amended. Representative Istook made a similar request.

In their letter to Secretary Daley, the Senators quoted from a 1999 survey by the Independent Petroleum Association of America, which alleged that, since November of 1997, 193,000 marginal oil and gas wells have been shut down with a loss in oil production of 360,000 barrels per day. The Senators stated that 24,000 domestic jobs have already been lost in the oil industry and another 17,000 job cuts are expected. Finally, the Senators addressed the concern that low priced crude oil imports could lead to the permanent loss of a significant portion of the United States domestic oil production capacity and resource base.

On April 28, 1999, the Department of Commerce self-initiated an investigation under Section 232 of the Trade Expansion Act of 1962, as amended, to determine the effects on the national security of imports of crude oil and petroleum products. The investigation focused on two issues. One, are imports of oil and petroleum products threatening to impair the national security of the United States? Two, if a positive finding is found that imports of crude oil and petroleum products do threaten the national security, is a trade adjustment, as provided for under section 232, the appropriate means to address the threat?

Under Section 232, The Department has 270 days from the date of initiation of an investigation to submit a report of findings and recommendations to the President. Based upon an initiation date of April 28, 1999, the Department has until January 29, 2000 to complete its investigation and submit its report to the President.

Methodology

The Department chaired an interagency working group that included the Departments of Energy, Interior, State, Treasury, and Defense, the Office of Management and Budget, and the Council of Economic Advisers. This report is based on a number of agreed-upon economic assumptions including, *inter alia*, crude oil price levels, U.S. crude oil reserves and production rates, economic growth rates, and inflation.

In determining whether petroleum imports threaten to impair the national security, the Department reviewed key factors from the 1994 investigation as a starting point to determine whether they improved or deteriorated. These factors include: 1). Domestic oil reserves; 2). Domestic oil production; 3). Exploration and industry employment; 4). Impact of low oil prices on the economy; 5). Current status of the domestic oil industry; 6). Oil import dependence; 7). Vulnerability to a supply disruption; 8). Foreign policy flexibility; 9). U.S. military requirements; 10). Status of OPEC; 11). Transparency of oil markets; 12). Breakup of the Soviet Union. The Department also reviewed new factors that have emerged since the 1994 investigation, including: 1) Temporary economic decline in East Asia; 2). Iraqi oil exports; and 3). Non-OPEC offshore drilling.

The Department made use of the extensive data and analyses that were already available regarding the current and prospective status of the domestic petroleum industry and the world oil market. In addition, the Department reviewed the Department of Energy's Comprehensive National Energy Strategy, which, issued in April 1998, outlines five major energy goals of the Administration. In view of this extensive body of available data, the Department determined that an industry survey was not necessary. The Department also drew upon the written comments solicited from and provided by interested parties in response to a Federal Register notice published on May 4, 1999 (attached).

Review of Key Factors from the 1994 Investigation

1. Domestic Oil Reserves

- o Since the 1994 investigation, U.S. proven crude oil reserves declined by an estimated 0.5 billion barrels from 23.0 billion barrels in 1993 to 22.5 billion barrels in 1998. The underlying physical reality is that the United States has already developed the bulk of its known and easily accessible low cost deposits and has decided against developing other geological prospects such as the Arctic National Wildlife Refuge and certain portions of the Outer Continental Shelf. The reserves base reflects the structural geological and geophysical reality, given present technology and economics.

2. Domestic Oil Production

- o The production outlook remains essentially the same as in the 1994 investigation. The United States is a high cost producer compared to other countries because it has already depleted its known low cost reserves. U.S. production of crude oil declined by 0.42 million barrels per day (MMB/D) between 1994 and 1998 (from 6.66 to 6.24 MMB/D) and fell below 6 MMB/D in early 1999. To offset this decline in production and increasing consumption, imports have increased dramatically since 1994, rising by 1.64 MMB/D (1998 basis).

3. Exploration and Industry Employment

- o The Department did find some change in U.S. drilling and in oil and gas industry employment between 1994 and early 1999. Levels of employment in the extraction industry varied from a high of 337,000 in 1994 and a low in 1995 of 320,000, but increased again to 339,000 in 1997 and 338,000 in early 1998. Industry commenters provided anecdotal information showing additional steep drops in employment and drilling activity during 1998 and early 1999 due to the oil price decline. In addition, Department of Labor statistics indicate a decrease in extraction industry employment starting in the last half of 1998 (falling from 325,000 to 308,000) and continuing into 1999 (229,000 in January and 291,000 in February). However, the total footage of exploratory drilling, the number of well completions, and the number of rotary rigs in use for oil and gas exploration increased between 1994 and 1998, albeit with significant variations from year to year.
- o Low oil prices are not the only reason for the long term historical decline in industry employment, exploratory drilling, and well completions. U.S. companies are drilling less because they have made substantial gains in total productivity by employing new exploration and drilling technology and by focusing on the most promising geological sites based upon improved geological science and technology. In addition, the high cost of off-shore exploration and drilling, where most of the domestic exploratory activity is occurring today, strongly favors the development and use of advanced seismic mapping and analysis techniques in order to maximize drilling productivity. Companies are also continuing to realize productivity gains due to improvements in operations management.

4. Impact of Low Oil Prices on the Economy

- o The Department found that the economic consequences of low prices resulted in positive benefits to the U.S. economy. Because the United States is a net importer of oil, lower prices on balance helped the economy. The public benefitted from lower prices for transportation fuels and heating oil. For the economy as a whole, low oil prices contributed to a reduction in inflation, a rise in real disposable income, and an increase in the Gross Domestic Product.

5. Current Status of the Domestic Oil Industry

- o Low oil prices starting in November of 1997 and continuing through early 1999 exacerbated the chronic cost-price squeeze problems faced by independent producers who account for the largest share of lower 48 states oil production (40 percent). Consequences for the 7000 independents who operate in the U.S. include: assuming more debt; scaling-down exploration activities; reducing their work force of skilled labor; and shutting-in temporarily or abandoning certain oil and gas producing wells.

- o The impact of low oil prices is particularly hard on small producers operating stripper or marginal wells with an average production of 15 barrels per day or less. These wells, which represent over 300 million barrels of annual production, could be permanently lost during a sustained period of low oil prices and high operating costs.
- o The Department's efforts to analyze the impact of the 1998 price decline on the smaller producers was complicated by the commenters' failure to provide specific economic and technical information. Various commenters argued strongly for the U.S. Government to provide financial incentives to smaller producers, but no company or trade association submitted economic and financial data regarding levels of profitability and tax burden under various oil price scenarios. Nevertheless, the 1998 through early 1999 price drop, although temporary, did have a severe impact on marginal oil and gas wells and raised concerns about the ability of the United States to stabilize domestic oil production and to achieve its natural gas expansion goals. Since the November 1997 price collapse, 136,000 oil wells are believed to have been shut-in (non-producing), representing about 24 percent of all producing oil wells. In addition, 57,000 gas wells are believed to have been shut-in, about 19 percent of all gas wells. This data is based on anecdotal information provided by industry (Independent Petroleum Association of America). Note: About 20 percent of U.S. gas supply ("associated gas") is associated with oil production and is therefore also impacted by low oil prices.

6. Oil Import Dependence

- o The Department found that net U.S. imports have grown from 8.1 MMB/D in 1994 to 9.7 MMB/D in 1998 and currently account for 51 percent of domestic consumption compared to 45 percent in 1994. Imports from Persian Gulf countries, which increased from 1.7 MMB/D in 1994 to 2.1 MMB/D in 1998, currently account for 22 percent of all U.S. petroleum imports. The majority of U.S. imports, over 50 percent, are sourced from reliable Western Hemispheric countries such as Canada, Mexico, and Venezuela.
- o The Department found that the energy provisions of the recent trade agreements between the United States and Canada have enhanced U.S. energy security. Specifically, Article 605 of the North American Free Trade Agreement (NAFTA) provides a number of reciprocal benefits that provide for energy security in the event of a supply interruption. These mutual benefits include: 1) each country will not impose restrictions on the delivery of energy and basic petrochemical supplies during a supply interruption; 2) any shortfall in supply will be shared equally among U.S. and Canadian markets based on historical percentages; 3) each party will not impose higher export prices than those charged domestically; and 4) there will not be a disruption of the prevailing proportion of energy goods supplied, such as, for example, between crude oil and refined products and among different categories of crude oil and refined products. This unprecedented energy cooperation provides significant security

benefits for both nations, and clearly demonstrates that the United States and Canada are developing an integrated and secure North American energy market.

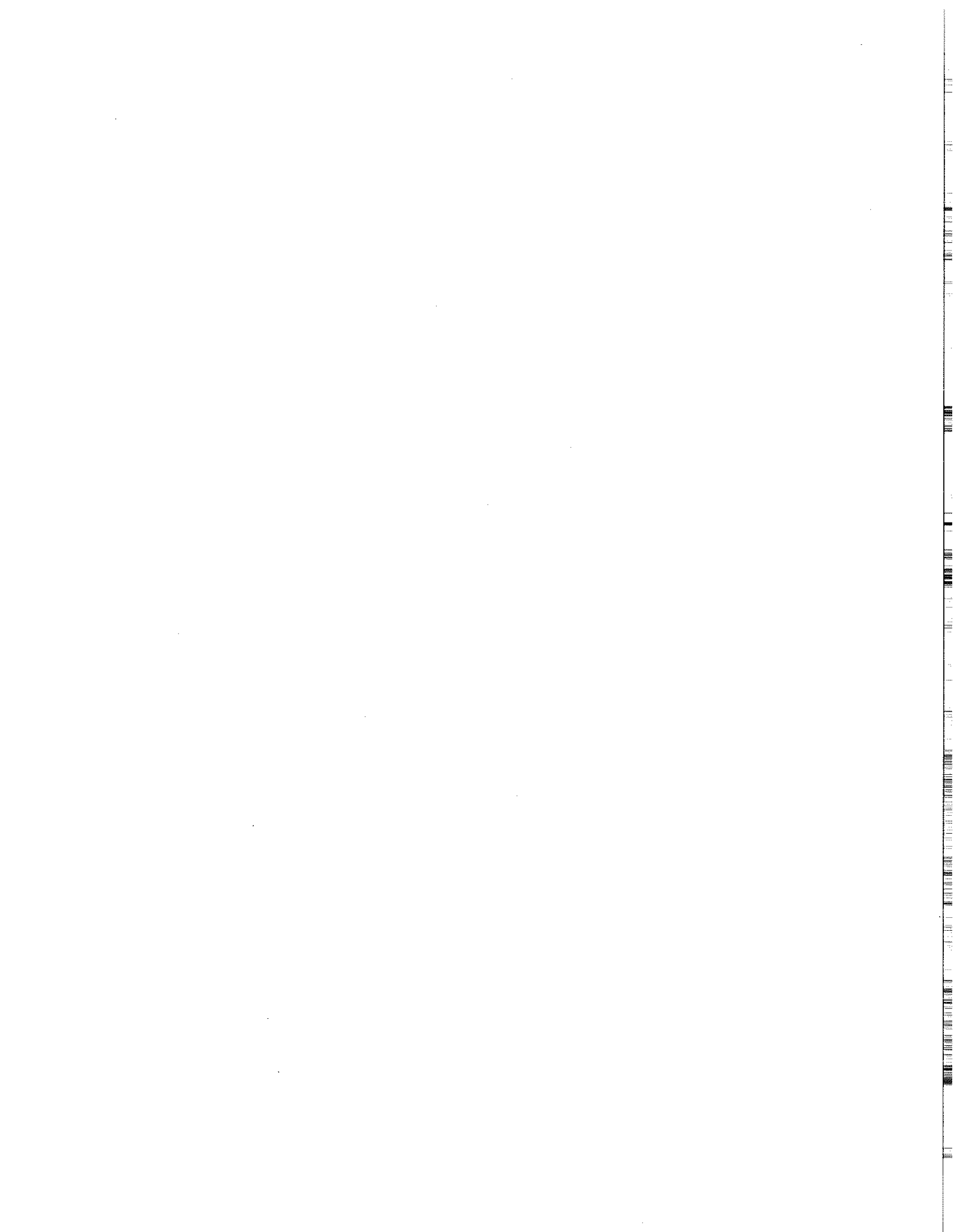
- o U.S. demand for imported oil is expected to continue growing because of declining production by high cost small producers, who account for the largest share of lower 48 states oil production, and continued economic growth. The Energy Information Administration of the U.S. Department of Energy (EIA/DOE) projects that, based on current forecasts, net imports should increase to 12.2 MMB/D by 2005 and account for approximately 58 percent of domestic consumption.
- o To the extent that the United States and other countries import more oil in the future, EIA/DOE projects that they will turn increasingly to OPEC countries located in the Persian Gulf which have the largest amount of known low cost reserves and excess production capacity. The OPEC producers in the Persian Gulf region, representing 42 percent of world crude oil exports in 1994, will account for approximately 49 percent by 2010.

7. Vulnerability to a Supply Disruption

- o The Department found that unresolved socio-political and economic issues in some Persian Gulf countries increase the probability of future supply disruptions in the Persian Gulf region. However, the Persian Gulf's largest producer, Saudi Arabia, has pursued oil policies, including diversification of export routes and maintenance of considerable excess production capacity, that serve to mitigate some of these risks. Disruptions are possible in other regions, but the risks to the United States and other importing countries are comparatively less severe given the magnitude of Persian Gulf production and because oil production facilities elsewhere are not as concentrated as they are in the Persian Gulf.
- o The capability of the United States and the OECD countries to offset a major oil supply disruption has not improved since 1994. The U.S. is still vulnerable because: 1). Most of the spare production capacity is still in the Persian Gulf region; 2). U.S. and OECD government oil stocks today provide less protection from an interruption than was the case in 1988 or 1994; and 3). There is currently no substitute for liquid transportation fuels which account for approximately two-thirds of all oil consumption in the United States. During a major oil supply disruption, there could be substantial economic austerity as a result of the decreased availability of oil. This, in turn, could pose a hardship for the U.S. economy.

8. Foreign Policy Flexibility

- o In both the 1988 and 1994 investigations, the Department found that the dependence of our allies and trading partners on potentially insecure sources of oil might affect their willingness to cooperate with the United States during a major supply disruption.



Some of these concerns are mitigated by the participation of the United States in the International Energy Agency (IEA), which groups together 24 members of the Organization for Economic Cooperation and Development (OECD). The principle purpose of the IEA is to fashion a collective response to energy emergencies, which may include the coordinated release of the emergency oil stocks that all IEA members are required to maintain. However, increased market share forecasted for some OPEC countries, and some Persian Gulf States, over the next 20 years, could make cooperation by some oil consumers more difficult.

9. U.S. Military Requirements

- o The Department of Defense advises the Department that, under current planning scenarios, the United States will be able to meet both its direct and indirect military requirements for petroleum products in the event of two nearly simultaneous major regional conflicts or a major peacetime supply disruption.

10. Status of OPEC

- o Low world oil prices are only partially due to the fact that OPEC members have been unable, until very recently, to coordinate production levels among themselves. The urgent financial requirements of some OPEC members has led them to compete for revenue and market share even if this has meant accepting a lower per-unit price for their oil. However, by mid-1998, declining prices set in motion renewed OPEC efforts to reduce excess oil supplies. For the remaining months of 1998, announced and realized production cuts were not clearly synchronized, and efforts to reduce production had only modest success. More recently, OPEC members have been more effective at reducing world production to increase prices. Ten members of OPEC, excluding Iraq, pledged in March 1999 to cut production by 2.1 MMB/D. The compliance of these ten OPEC members with announced production cuts was about 89 percent in July 1999. Oil prices have steadily increased since then due to these production cuts and stronger overall worldwide demand. The Department of Energy's Energy Information Administration projects that the cost for imported oil (Refiner Acquisition Cost) will be \$22.50 and \$23.50 per barrel, respectively, for November and December of 1999 and average \$21.85 per barrel in 2000.

11. Transparency of Oil Markets

- o The growth of the futures market into a full-fledged commodity market has made crude oil prices more transparent and less subject to manipulation by foreign governments or OPEC. Prices are now determined by the New York Mercantile Exchange (NYMEX), the International Petroleum Exchange (IPE), the Singapore Mercantile Exchange (SIMEX), and other commodity markets. The use of computerized trading, options, and forward contracts has connected crude oil and refined product markets and suppliers more closely than was the case in 1988 or 1994.

However, commodity markets, like all markets, are subject to volatility and have the potential to react in ways which can harm U.S. oil production.

12. Breakup of the Soviet Union

- o The end of the Cold War and the breakup of the Soviet Union has reduced tensions around the world, including the Middle East. The advancement of the Middle East Peace Process has also contributed to a reduction of tensions in the region. Both of these developments have reduced the probability of a conventional war that could have jeopardized access to Middle East oil. In addition, oil production in the former Soviet Union, primarily in the Caspian Sea area, is expected to reach 7.6 MMB/D by 2005 and 13 MMB/D by 2020. Based on projected demand, the region could become a net exporter of oil at approximately 7.9 MMB/D by 2020. These additions to the world oil supply and as well as reduced tensions in the Persian Gulf region help to assure that there will be stable supplies of oil and reasonable oil prices into the future.

Review of New Factors since the 1994 Investigation

The Department also evaluated several new factors which have or will significantly affect worldwide petroleum supply and demand since the 1994 investigation. Foremost among these factors are the following:

1. Economic Decline in East Asia

- o An economic crisis in East Asia started in the summer of 1997 and continued to deepen throughout 1998. This, in combination with the already weak economy in Japan, significantly reduced worldwide demand for crude oil and petroleum products. The economic decline in turn led to sharply reduced worldwide oil prices in 1998 and early 1999 and a significant oversupply of crude. These factors contributed to the decrease in U.S. production seen during the same time period.

2. Iraqi Oil Exports

- o As of August 1, 1999, the United Nations Security Council, within the framework of UN-imposed sanctions on Iraq (mandated by UNSCR 661, August 1990), has established the "Oil-for-Food" program "as a temporary measure to provide for the humanitarian needs of the Iraqi people" (UNSCR 986, April 1995). Thus, the United Nations Security Council, within the framework of UN-imposed sanctions on Iraq, allows, since February 1998, Iraq to export up to \$5.256 billion worth of oil in a six month period, up from \$2 billion per six month period prior to that date. Increased Iraqi oil exports, in total on the order of 2.0 MMB/D, were among the supply and demand variables which led to appreciably lower oil prices for much of 1998 and early 1999. However, the U.S. supports UN efforts to meet the identified humanitarian

needs of the Iraqi people and neither the U.S. nor the UN attempt to influence world oil prices or markets via sanctions regimes.

3. Non-OPEC Offshore Drilling

- o Offshore oil exploration and production projects off the coasts of the United States, South America, Mexico, Eastern Canada, and Western Africa, and in the Gulf of Mexico, the Caspian Sea, and the South China Sea are expected to produce significant volumes of oil and natural gas early in the next century. Because drilling platforms are reserved so far in advance, most of the worldwide projects are proceeding on schedule even at relatively low oil prices. These increased sources, while harmful to U.S. domestic production to the extent that they increase world supplies and therefore possibly lower worldwide oil prices, increase U.S. energy security by broadening the mix of possible exporters beyond the control of individual countries or coalitions.

Conclusion

- o Since the previous Section 232 petroleum finding in 1994, there have been some improvements in U.S. energy security. The continued erosion of external threats to the Middle East and the continued increase in non-OPEC production have enhanced U.S. energy security. Additional discoveries of both inland and offshore oil reserves outside of the Persian Gulf region have at least slowed OPEC's market share growth.
- o Lower oil prices on balance benefit the U.S. economy. However, reduced oil reserves, falling domestic production, and the relatively high cost of U.S. production all point toward a contraction in the U.S. oil extraction industry and increasing dependence on foreign imports. Growing import dependence, in turn, increases U.S. and OECD vulnerability to a supply disruption because non-OPEC non-Persian Gulf sources lack significant excess production capacity. Furthermore, there are at present no substitutes for oil-based transportation fuels.

Finding

The Department finds that petroleum imports threaten to impair the national security.

Recommendations

The Department does not recommend that the President use his authority under Section 232 to adjust oil imports. Ongoing programs and activities crafted by the Administration to improve U.S. energy security based upon other statutes and executive authorities are more appropriate and cost effective than an import adjustment.

Section 232 requires the Secretary of Commerce and the President to recognize the close relationship between the economic welfare of the Nation and U.S. national security. As energy security affects the economic welfare of the United States, energy security must be considered in determining the effects on the national security of petroleum imports.

The Department concurs with the conclusions of the 1994 and 1988 studies that, on balance, the costs to the national security of an oil import adjustment outweigh the potential benefits. For example, an oil import adjustment such as a tariff could result in the loss of a significant number of jobs in many non-petroleum sectors. This, in turn, would reduce real Gross Domestic Product (GDP). An import adjustment would also diminish the competitiveness of our energy-intensive export companies and strain relations with our close trading partners who would most likely seek relief under North America Free Trade Agreement (NAFTA) or World Trade Organization (WTO) rules.

The Clinton Administration recognizes the importance of U.S. energy security. Since 1993, it has pursued the energy policy of reliance on markets to allocate resources with selective government intervention to ensure that certain highly valued societal needs--including the need for energy security, environmental quality, and energy research--are met. The policy recognizes that no cost-effective government action could eliminate U.S. dependence on foreign oil entirely, but that the following supply enhancement, energy conservation, and critical research policies help to preserve our current oil and gas productive capacity and limit that dependence. Accordingly, the Department recommends continuing the policy goals set forth in the Department of Energy's April 1998 Comprehensive National Energy Strategy as described below.

Goal #1 -- Improve the efficiency of the national energy system by making the most productive use of energy resources, enhance overall economic performance, and protect the environment. The Administration is working to achieve a more productive and efficient use of energy resources, including electricity infrastructure, fossil fuel reserves, and productive capacity for clean alternative fuels. The twin goals of comprehensive electricity reform, as detailed in the Comprehensive Electricity Competition Act (CECA) submitted to Congress on April 15, 1999, and increasing energy efficiencies in the transportation, industrial, and housing sectors and in the generation and distribution of electric power maximize the productive use of energy through market competition and technological innovation. When implemented, these measures will result in a more productive and efficient use of energy and a decreased U.S. consumption of oil.

Goal #2 -- Prevent the disruption or decline of world energy supplies and protect the U.S. economy from the harmful effects of a short-term supply interruption or infrastructure failure: The Administration is continuing its strong emphasis on emergency preparedness efforts and the need to stabilize domestic oil production, including: arresting the decline in domestic oil production by 2005; maintaining the readiness of the Strategic Petroleum Reserve (SPR) to respond to threats of disruption in world oil supplies; making unutilized SPR storage capacity

available for the mid- to long-term storage of commercial oil; coordinating responses to supply disruptions through continued cooperation with the member countries of the International Energy Agency (IEA); diversifying sources of oil by working with industry to increase the supplies of oil available to the world market; and ensuring the integrity of the oil and natural gas supply infrastructure with respect to emergency response capabilities.

Goal #3 -- Promote U.S. domestic energy production and use in ways that respect national health & environmental values and improve public health and local, regional, and global environments. The Administration has pursued a balanced program to increase domestic energy production in an environmentally responsible manner by: supporting policies to allow the annual domestic natural gas supply to increase by as much as 6 trillion cubic feet (2.9 MMB/D oil equivalent) by 2010; supporting research, design, and development to promote the use of advanced technologies to recover more oil and gas from existing reservoirs without environmental degradation; supporting the suspension, by the Department of the Interior, of production requirements for stripper wells producing less than 15 barrels per day on federal onshore lands when oil prices are extremely low (this suspension temporarily expired on July 26, 1999, when West Texas Intermediate (WTI) crude stayed above \$15/bbl for 90 days); supporting the Petroleum Technology Transfer Council's ten regional centers and their December 1998 Industry Crisis Action Plan to teach independent operators strategies for improving cost efficiencies and identifying best practices; and accelerating the development and market adoption of environmentally friendly technologies through a combination of increased investments in research, development, and early deployment programs.

The combination of increased natural gas utilization, the increased use of renewable electrical technologies, the accelerated development of biomass liquids fuel technology, and the recovery of more oil and gas from existing reservoirs and the preservation of those reservoirs will collectively reduce oil consumption and limit our dependence on imported oil.

Goal #4 -- Expand future energy choices by pursuing continued progress in science and technology to provide future generations with a portfolio of clean and reasonably priced energy sources. Advances in science and technology are essential in terms of the United States achieving its economic, environmental and energy security objectives. Technological innovation can significantly decrease the domestic finding and development costs for natural gas and oil, thereby preserving and expanding the domestic resource base and improving the economics of extraction. These programs include: accelerating the advanced oil recovery program; increased support for the natural gas supply program, especially for the new emerging resource program in methane hydrates; conducting basic research to provide the foundation for technological breakthroughs that are beneficial to energy development and environmental protection; and continued budgetary increases over current levels for technology partnerships with the private sector.

Goal #5 -- Cooperate internationally on global issues and develop the means to address global economic, security, and environmental concerns. The United States should continue its active and sustained participation in multilateral and regional forums as well as bilateral

contacts with key suppliers, such as our NAFTA partners Canada and Mexico, Norway, Nigeria, Venezuela, Saudi Arabia, and other major oil producers. Achievement of this objective requires: promoting the development of open, competitive international energy markets through U.S. participation in multilateral groups such as the International Energy Agency, the Summit of the Americas Hemispheric Energy Initiative, and the Asian Pacific Economic Council (APEC) energy working group; working with our reliable neighbors in Canada and Mexico to establish an efficient and integrated North American natural gas and electricity system; promoting the development of worldwide crude oil and natural gas transportation networks to move South American, Caspian Basin, and Central Asian oil and natural gas, for example, to world markets to further diversify world energy supplies; and emphasize free trade and the promotion of American exports to help develop the world's free market economy and prevent over reliance on any single region of the world.

Other Issues

Regulatory Reform

The Department of Commerce's Bureau of Export Administration (BXA) is in the process of reviewing its crude oil short supply regulations and identifying reforms that would allow U.S. firms to be on equal footing with their foreign competitors. BXA is reviewing a number of changes, including: 1) creating a license exception to allow the export of crude oil to Canada and Mexico without an individual license; and 2) establishing a license exception to allow the export of California heavy crude oil sold, as part of bunker fuel oil mixtures, to foreign ships visiting U.S. ports. The interagency group recommends that BXA proceed expeditiously with its short supply reform package.

Industry Proposals

During the review, the Department received comments from oil companies and trade associations about several possible modifications to the Federal Tax Code that the commenters believe would provide support for the domestic oil industry. The Department did not evaluate these proposals as part of its Section 232 investigation. Instead, the Department recommends that the National Economic Council evaluate the industry proposals.

SECTION I. BACKGROUND

D. Introduction

On March 11, 1999, Senators Domenici, Hutchinson, Inhofe, Nighthorse-Campbell, Roberts, Sessions, Crapo, Nickels, Murkowski, Craig, Burns, McConnell, DeWine, Brownback, and Bunning, in a letter to the President, requested that he take immediate action to address the threat of increasing oil imports to our national security. On March 12, 1999, Senators Bingaman, Breaux, Landrieu, Conrad, Enzi, Lincoln, Lott, Dorgan, Baucus, Murkowski, and Burns, in a letter to Secretary Daley, raised similar concerns and directly requested that the Department of Commerce initiate an expedited review and investigation into the impact of low oil prices and ever increasing oil imports on the United States national security under the authority of Section 232 of the Trade Expansion Act of 1962, as amended. Representative Istook made a similar request.

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On April 28, 1999, the Department of Commerce self-initiated an investigation under Section 232 of the Trade Expansion Act of 1962, as amended, to determine the effects on the national security of imports of crude oil and petroleum products. The investigation focused on two issues. One, are imports of oil and petroleum products threatening to impair the national security of the United States? Two, if a positive finding is found that imports of crude oil and petroleum products do threaten the national security, is a trade adjustment, as provided for under Section 232, the appropriate means to address the threat?

To solicit public comments, the Department published a notice in the Federal Register on May 4, 1999, announcing its investigation, and requested that public comments be provided to the Department, in writing, by interested parties by June 3, 1999. A copy of the Federal Register notice is provided in Appendix A and a summary of the comments received is provided in Appendix B.

Under Section 232, the Department of Commerce has 270 days from the date of initiation of an investigation to submit a report of findings and recommendations to the President. Based upon an initiation date of April 28, 1999, the Department has until January 29, 2000 to complete its investigation and submit its report to the President.

E. Criteria for Evaluating National Security Threat

Pursuant to Section 705.4 of the National Security Industrial Base Regulations (15 C.F.R. Section 705.4 (1994)), the Department considered the following regulatory criteria in determining the effect of imports on the national security:

- (1) domestic production needed for projected national defense requirements;
- (2) the capacity of domestic industries to meet projected national defense requirements;
- (3) the existing and anticipated availabilities of human resources, products, raw materials, production, equipment and facilities, and other supplies and services essential to the national defense;
- (4) the growth requirements of domestic industries to meet national defense requirements and the supplies and services including the investment, exploration and development necessary to assure such growth;
- (5) the impact of foreign competition on the economic welfare of any domestic industry essential to our national security;
- (6) the displacement of any domestic products causing substantial unemployment, decrease in the revenues to government, loss of investment or specialized skills and productive capacity, or other serious effects; and
- (7) any other relevant factors causing or will cause a weakening of our national economy.

F. Methodology for Interagency Study Process

The Department chaired an interagency working group that included the Departments of Energy, Interior, State, Treasury, and Defense, the Office of Management and Budget, and the Council of Economic Advisers. This report is based on a number of agreed-upon economic assumptions including, *inter alia*, crude oil price levels, U.S. crude oil reserves and production rates, economic growth rates, and inflation.

To determine whether imports of crude oil and refined petroleum products threaten to impair the national security, the Department reviewed the factors examined in the 1994 investigation to determine whether they had improved or deteriorated (see Section II for in-depth analysis). This provided benchmarks against which to assess the relative economic health of the domestic oil industry and our national security. These benchmarks included: 1). Domestic oil reserves; 2). Domestic oil production; 3). Exploration and industry employment; 4). Impact of low oil prices on the economy; 5). Current status of the domestic oil industry; 6). Oil import dependence; 7). Vulnerability to a supply disruption; 8). Foreign policy flexibility; 9). U.S. military requirements; 10). Status of OPEC; 11). Transparency of oil markets; 12). Breakup of the Soviet Union.

The Department then identified and evaluated three new factors that emerged since the 1994 investigation: 1) Temporary economic decline in East Asia; 2). Iraqi oil exports; and 3). Non-OPEC offshore drilling.

In conducting this assessment, the Department relied upon the extensive body of data available on the world oil market and on the U.S. petroleum industry. Specifically, the Department drew heavily from data in the Annual Energy Outlook and other energy related publications and data provided by the Energy Information Administration of the U.S. Department of Energy. In addition, the Department reviewed the Department of Energy's Comprehensive National Energy Strategy, which, issued in April 1998, outlines five major energy goals of the Administration. In view of this extensive body of available data, the Department determined that an industry survey was not necessary. The Department also drew upon written comments by interested parties.

G. Commodities Investigated

The commodities investigated for this study included crude oil and refined petroleum products. Crude oil is listed in the Harmonized Tariff Schedule (HTS) of the United States under HTS classification numbers 27100005-0 (crude oil testing under 25 degrees API) and 27100010-0 (crude oil testing 25 degrees API or more).¹

The following refined petroleum products are listed under these HTS classification numbers:

27100015-0	Motor fuel, including both leaded and unleaded gasoline; naphtha-type jet fuel, and kerosene-type jet fuel.
27100020-0	Kerosene derived from petroleum, shale oil, or both (except motor fuel).
27100025-0 36061000-1	Naphthas derived from petroleum, shale oil, natural gas, or combinations thereof (except motor fuel).
27100045-2	Mineral oil or medicinal-grade derived from petroleum, shale oil, or both.
27100030-0 34031110-3 34031150-3 34031910-0 34031110-3 34031150-3 34031950-1 27100040-0	Lubricating oils and greases derived from petroleum, shale oil, or both, with or without additives.

34031110-3
34031150-3
34031950-1

27100045-2 Mixtures of hydrocarbons not specifically
27121000-0 provided for, derived wholly from petroleum,
27132000-0 shale oil, natural gas, or combinations
27139000-0 thereof, which contain by weight not over
50 percent of any single hydrocarbon compound.

27122000-0 Paraffin and other petroleum waxes.
27129020-0
34049050-0

27040000-2 Petroleum coke.
27131200-0

38011050-0 Asphaltum, bitumen, and limestone rock asphalt.

¹American Petroleum Institute (API) gravity is a scale expressing the density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API and decreases as liquid density increases. It is an accepted standard in the petroleum industry.

SECTION II. CURRENT U.S. ENERGY ASSESSMENT

This section evaluates the national security implications of U.S. dependence on imported oil. As noted in Section I, a multi-step methodology is employed which first reviews the factors the Department examined in 1994 as a starting point to determine whether they improved or deteriorated and then evaluates any new factors which might have emerged since 1994. The Department also drew upon written comments from interested parties and from analyses and data provided by the interagency working group.

Review of Key Factors From the 1994 Investigation

1. Domestic Oil Reserves

United States proven reserves of crude oil declined from 23.0 billion barrels in 1993 to an estimated 22.5 billion barrels in 1998.^{1-4,8} Imports, however, are not directly responsible for the declining resource base. Rather, as the world oil price goes up or down, the economics of U.S. domestic exploration and production become more or less favorable, respectively. Compared to the rest of the world, the United States has only a modest amount of proven reserves (see Table II-1) and has to rely more on secondary and tertiary recovery (more expensive) methods while other producers can rely on just primary and secondary methods and thus have a cost advantage over the United States to develop more reserves.⁵⁻⁶

OPEC, on the other hand, accounts for 77.4 percent of the total world reserves of 1,034 billion barrels. The six Persian Gulf countries have proven oil reserves of 657.9 billion barrels. While proven U.S. reserves declined by approximately 0.5 billion barrels since 1993, OPEC's reserves have increased by 34.3 billion barrels and OPEC reserves in the Persian Gulf area have increased by 9.4 billion barrels.

The reserves situation in the U.S. is not surprising when one considers that the United States was one of the first countries to produce oil; and for many years, was the world's largest producer. Based upon Department of Energy figures, U.S. companies have produced over 181 billion barrels of oil through 1998. The United States is also the most heavily explored petroleum-bearing region in the world. In 1994, approximately 74 percent of all wells drilled worldwide to date were drilled in the United States.⁷ Most additions to the U.S. oil reserve come in the form of adjustments, revisions and extensions of existing oil fields (~ 72 percent) and new reservoir discoveries in old fields (~ 4 percent) rather than from the discovery of new fields (~ 24 percent).⁸

In conclusion, low oil prices contribute to, but are not totally responsible for, the erosion of the U.S. oil reserves base. The underlying physical reality is that the United States has already developed the bulk of its easily accessible low cost reserves and has decided against

developing other geological prospects such as the Arctic National Wildlife Refuge and certain portions of the Outer Continental Shelf. Because the reserves base reflects the structural geological reality, given present technology, oil price increases can at best slow this trend but not reverse it.

2. Domestic Oil Production

The Department finds that the United States is a high cost producer compared to other countries because we have already extracted the bulk of our low cost easily accessible reserves from the most favorable geologic formations. Consequently, U.S. crude oil production has been falling since 1970. Table II-2 shows that crude oil production declined by 3.4 million barrels per day (MMB/D), over the past 28 years, and by 0.42 MMB/D between 1994 and 1998.^{4,9,10}

Consistent with established natural resource extraction practices, U.S. companies exploited the bulk of the known large reserves and then began to develop the smaller and more costly oil deposits. During the last decade, U.S. companies made use of productivity gains resulting from advances in drilling technology and recovery methods, but could not offset the higher per barrel costs associated with smaller, more complex fields and more expensive extraction techniques. The following factors explain why oil production in the U.S. is decreasing:

- o U.S. total production cost (including finding costs, development, lifting, and taxes) of \$9.00 per barrel is high compared with average Middle East costs of \$6.00 per barrel.^{6,7,14}
- o U.S. direct lifting cost of \$3.42 per barrel is also high compared to average Persian Gulf direct lifting costs of \$2.23 per barrel.^{6, 11, 14}
- o U.S. cost to increase production capacity by 1 barrel per day is twice that in the Persian Gulf (\$10,000-\$12,000 in the United States versus \$5,500 in the Persian Gulf).^{6, 11, 14}
- o U.S. per well production rates are extremely low by world standards, averaging 12 barrels per day per well. Middle East production rates are 2,000 to 6,000 barrels of oil per day per well while Mexico and Indonesia are producing at 600 and 200 barrels of oil per day per well, respectively.⁷
- o U.S. proven reserves of 22.5 billion barrels (1998) are very small compared with the 657.9 billion barrels of proven reserves located in the Persian Gulf countries and the 354.3 billion barrels of proven reserves located in other non-Persian Gulf OPEC and non-OPEC countries.¹ The bulk of these newer discoveries are in easily accessible, large fields whereas the remaining U.S. reserves are mostly found in small onshore deposits, expensive offshore deposits, and in Arctic frontier areas.¹⁻⁶

- o Although the United States is estimated to have 162 billion barrels of technically recoverable oil which could be potentially recovered via the application of primary, secondary, and enhanced recovery techniques in existing fields and new wells, a significant portion of this is at risk and may disappear when oil prices decline and well abandonments increase, thereby permanently shutting off access to the resource.¹¹

These circumstances place U.S. producers in a classic "cost-price squeeze" whenever world oil prices decline. Table II-3 shows that the cost of imported crude oil to refiners dropped by nearly 50 percent, from \$26.99 per barrel to \$14.00 per barrel, between 1985 and 1986. The price climbed back to \$21.75 in 1990, largely in response to the Iraq-Kuwait conflict; but fell again to \$15.52 by 1994. Again, after relatively high prices in 1996 averaging \$20.61 per barrel and in 1997 averaging \$18.50 per barrel, in 1998, the price fell to \$12.13, because of decreased demand in Asia during its economic downturn, the increased supply of oil from Iraq under the United Nation's Oil for Food Program, an unusually mild winter, and higher worldwide production.^{4,9,11} Given the recent positive growth in Asian demand and production cutbacks by OPEC and other producers, world oil prices are now forecasted to keep increasing throughout 1999 to a high of \$23.50/barrel in December and to average of \$21.85/barrel in 2000.

This price volatility poses a serious problem for current and projected U.S. production. First, when world oil prices are relatively high (above \$20 per barrel), production by costly marginal wells, which represent a significant portion of the U.S. resource, is profitable. However, as prices dip below this level, more and more U.S. wells become non-economic and are either shut-in temporarily or are abandoned and/or permanently plugged. Low prices also constrain the exploration and development of new reserves. Second, small companies may cut back on operations or go out of business because low profitability makes it difficult for them to attract capital funds for exploration and development. Third, the firms that remain in business are likely to suffer because they lack the cash flow to maintain existing wells, conduct new exploration, or to develop small producing properties.

In addition, because of the high finding and lifting costs in the lower 48 states and because they have the financial strength to go where the economics are best - with lower finding and lifting costs coupled with a greater likelihood of finding large reserves and a lower regulatory and/or tax burden, major integrated firms have continued to shift exploration and development operations to Alaska, Federal offshore, and foreign prospects, sell most of their lower-48 onshore fields to non-integrated independent operators, and rely more heavily on refinery, distribution, and marketing operations for revenues. In its comments, the Independent Petroleum Association of America (IPAA) and the National Stripper Well Association (NSWA) noted that:

"Currently, about 20 percent of domestic production comes from Alaska; about 20 percent comes from the offshore Gulf of Mexico; and about 60 percent comes from the lower 48 onshore -- one third of this from "marginal wells" producing less than 15 barrels per day. Since 1986, investment by major oil companies has shifted to exploration and development targets outside the United States. Within the U.S. majors are now primarily interested in developing Alaska and the deep water offshore. As a result the lower 48 onshore has increasingly become the province of the independents."¹²

Independent companies, being the high cost producers, may lack access to investment capital and depend entirely on delivered oil prices for revenues. As a result of these changes, U.S. companies are increasingly unable to replace proven oil reserves and domestic production continues to decline. Since 1985, domestic production has declined by 2.73 MMB/D and net imports of all petroleum products have increased by 5.4 MMB/D.

In conclusion, the production outlook remains essentially the same as in the 1994 investigation. The United States is a high cost producer compared to other countries because we have already depleted our known low cost reserves. Since 1986, changes in the world oil market leading to temporary periods of low oil prices have repeatedly placed U.S. producers in a cost price squeeze. U.S. production declined substantially and net imports increased. These price fluctuations, in light of the fact that U.S. lower 48 onshore production is high cost, have also undercut U.S. exploration activities and impaired the development of competing energy sources, thereby enabling OPEC to recapture part of the market it lost after the price shocks of the late 1970s.

3. Exploration and Industry Employment

Based on Department of Labor and Energy Information Administration statistics as well as anecdotal evidence provided by several commenters, the Department found some change in U.S. drilling and employment between 1993 and 1999 (see Table II-4):

- o exploratory drilling for oil and gas declined from 135.1 million feet in 1993 to 134.9 million feet in 1998;
- o total oil and gas wells drilled (including dry wells) dropped from 24,736 in 1993 to 22,843 in 1998;
- o the number of rotary rigs in use for oil and gas exploration increased from 754 in 1993 to a high of 1,007 in early 1998; however, rig count decreased by 50 percent to a low of 488 in early 1999 and increased again to 602 in mid-1999; and,
- o total employment for oil and gas extraction fell from 350,000 in 1993 to approximately 338,000 in 1998 and ranged from 229,000 to 291,000 in early 1999.^{11,20}

According to the Department of Energy's EIA, recent low oil prices also had an impact on worldwide exploration and development activity. Only Persian Gulf OPEC nations, with direct lifting costs less than \$2.23 per barrel and development costs (to increase production by one barrel per day) less than \$5,500, saw no decline in activity during this period. In general, onshore drilling fell more sharply than offshore drilling. Offshore rig utilization rates were generally better than 80% of capacity on a worldwide basis despite low prices.¹⁴

The North Texas Oil and Gas Association stated that:

"The drilling rig count, which is probably the most watched barometer of oil and gas activity, hit all-time lows on April 30, 1999, when only 494 rigs were operating. When Commerce made its finding in December 1994, there were 791 rigs operating."¹⁵

Nevertheless, low oil prices are not the only reason for the decline in exploratory drilling activity and well completions. U.S. companies are drilling less because they find more oil per foot drilled than they did in the past. For example, between 1980 and 1997, the U.S. oil industry achieved productivity gains that increased the finding rate from 12.8 barrels of oil and gas per foot drilled to approximately 32 barrels per foot drilled. This same trend is observed in oil equivalents discovered per rotary rig in operation, per well drilled, and per employee (Table II-5). Although notable variations in efficiency occurred between 1980 and 1997, most particularly in 1991 and 1992, the trend is still upward as would be expected as technology improves with time. The U.S. oil and gas industry continue to make substantial gains in total productivity because they employ new exploration, drilling, and production technology and focus on the most promising areas based upon improved geological science and 3D seismic imaging. In conclusion, the Department finds that advances in technology, improvements in operations management efficiency, and low oil price cycles have all contributed to the historical drop in industry employment and, more recently, in drilling activity.¹⁹

Finally, the continuing loss of jobs in the petroleum industry impacts on the university enrollments in geology, petroleum engineering, and related science. The American Petroleum Institute found:

"For example, in 1983 there were 11,000 undergraduates in petroleum engineering in the U.S. By 1996, that number was down to 1,300, and serious personnel shortages reduced the industry's capacity to increase drilling in 1996 and 1997. Likewise, today's cutbacks will generate future personnel shortages when markets begin to recover."¹⁶

4. The Impact of Low Oil Prices on the Economy

The Department found that the economic consequences of low prices resulted in positive benefits to the U.S. economy. Because the United States is a net importer of oil, lower prices on balance helped the economy. The public benefitted from lower prices for transportation fuels and heating oil. For the economy as a whole, these lower prices contributed to a reduction in inflation, a rise in real disposable income, and an increase in the Gross Domestic Product (GDP).

The Department of Energy's Energy Information Administration found that although energy intensity (energy consumed per dollar GDP) is projected to decrease over the next 20 years, total energy consumption is projected to increase 1.1 percent annually for an increase in GDP of 2.1 percent annually.⁴ Lower oil and gas prices decrease the cost to the economy of this growth in energy consumption and gross domestic product. In conclusion, the Department finds that since 1994, low oil prices have yielded large positive benefits to the U.S. economy.

5. Current Status of the Domestic Oil Industry

The Department concluded in its 1994 investigation that low oil prices exacerbated the chronic cost squeeze problem faced by small producers. Since 1994, this market driven situation has continued and it became acute during 1998.

The oil price collapse of late 1997 and 1998 was triggered by a number of factors. The Asian financial crisis, warmer than normal weather, market share competition among OPEC members, and Iraq's re-entry into the oil market resulted in oversupplies of oil at a time of softening demand. The market, in turn, reacted by suppressing prices. This market development placed extreme pressure on domestic oil production, particularly the smaller producers. The 1997/1998 event was unique because it was triggered by supply and demand disequilibrium as opposed to the situation during the 1970s which had its roots in political upheavals and military conflict in the Middle East and the U.S. oil and price allocations system.

The price drop had a serious financial impact on the U.S. oil industry. In its comments, the Petroleum Industry Research Foundation (PIRINC) estimated that the 1998 integrated majors' and independent producers' net income from domestic oil and gas production declined by 63% and 96%, respectively, as compared to 1997.¹⁷ The majors, however, have the requisite refining and related assets such as petrochemicals to help them during periods of low oil prices.

The U.S. integrated majors responded by continuing to reduce the level of their activities in the United States and continued reorienting their scarce capital into foreign exploration. The majors now focus their U.S. activities primarily in developing Alaska and the offshore Gulf of Mexico (Central and Western). As noted in the 1994 investigation, the integrated majors spend well over half of their exploration and development budgets overseas in such areas as

Central Asia, the North Sea, Russia, Latin America, and East Asia. Appendix C contains a review of the U.S. majors foreign petroleum exploration and development activities.

Unlike the major integrated companies, the independent producers' income is directly dependent on the price they receive for their crude oil and natural gas. While major companies have investments in refineries and chemicals to buffet them during periods of low prices, small companies lack such resources and generally lack the capital and technical expertise to engage in large scale offshore and foreign ventures where the economics of extraction are more favorable and hence less susceptible to price fluctuations.

The impact of low oil prices has been especially difficult on the independents who account for the largest share of the lower 48 states oil production (40 percent) and 66 percent of our natural gas production. Production shut-ins are also more likely to occur here because the U.S. contains more marginal wells with high lifting costs, such as those associated with enhanced recovery techniques, heavy oil production, and small volume wells. Consequences for the independents include: assuming more debt; scaling-down exploration activities; reducing their work force of skilled labor; and shutting-in temporarily or abandoning certain producing wells.

As the Department noted in its 1994 investigation, the impact of low oil prices is particularly hard on small marginal producers operating stripper wells. Oil wells with an average production of 15 barrels per day or less are called stripper wells. According to the National Petroleum Council's July 1994 Marginal Well Study (reference 7) and more recent data from the American Petroleum Institute (1998), the U.S. has approximately 436,000 oil wells which produce 15 barrels or less of oil equivalent per day per well. In 1998, these wells were responsible for a total annual production of over 300 million barrels of oil equivalent, representing 25 percent of the total U.S. production for the lower 48 states onshore, and helped to defer the importation of an equivalent amount of oil valued at \$3.6 billion (1998 Importer Acquisition Price).^{6, 7, 11}

The Department agrees with the National Petroleum Council's finding that lower oil prices do potentially endanger these marginal wells and risk the loss of the resource they represent. A variety of operational and market factors can cause these marginal wells to become uneconomic and cause their shut-in or abandonment. These factors are not the same for all regions and in some cases the factors differ within the same region. In 1994, the Council estimated that almost two-thirds of these wells, representing over 200 million barrels of annual production and a considerable portion of the U.S. reserves, could be permanently lost during a sustained period of low oil prices and high operating costs.

The Department's efforts to analyze the impact of the 1998 price decline on the marginal producers were complicated by the commenters' failure to provide specific information on the issue of how many wells are shut-in, but not abandoned, when prices decline and subsequently reopened when prices increase. In this regard, we received no historical data indicating the

number of wells shut-in during the 1986 price drop that were later reopened when prices increased. Although various commenters argued strongly for the U.S. Government to provide financial incentives to small producers, no company or trade association submitted economic and financial data regarding levels of profitability and tax burden under various oil price scenarios.

Low oil prices have two additional impacts on oil and gas production in the lower 48 states:

- o Reduced drilling and well shut-ins jeopardize the goal of stabilizing the decline in domestic oil production. One of the key goals of the Department of Energy's Comprehensive National Energy Strategy is to stabilize domestic oil production and maintain it at 6.0 MMB/D or higher.
- o Reduced drilling limits the opportunity to expand domestic natural gas utilization, a key energy and environmental policy objective.

The inability to stabilize domestic oil production is significant because it would figure heavily in U.S. oil import dependence increasing from 51% in 1998 to 58% by 2005.

The Department's review of developments since 1994 confirms that low oil prices continue to exacerbate the chronic cost-price squeeze problem faced by small producers. In 1998, this problem turned acute for a short period of time and resulted in the shut-in of many wells, both oil and gas, and reduced drilling activity. Although the price drop was temporary, it had a severe impact on marginal oil and gas wells and raised issues concerning the ability of the United States to stabilize domestic oil production and achieve its natural gas expansion goals. Since the November 1997 price collapse, 136,000 oil wells, representing about 24 percent of all U.S. producing wells, and 57,000 gas wells, representing about 19 percent of all U.S. gas wells, are believed to have been shut-in. This is based on anecdotal information provided by industry (Independent Petroleum Association of America). The downturn in the oil industry, during a price collapse, also undermines the U.S.'s ability to meet rising demands for natural gas due to the strong linkage between oil and gas production. Nearly 20 percent of the Nation's gas production is linked directly to the production of oil ("associated gas"). Therefore, for most producers, investment decisions to produce new resources are made on the basis of both oil and gas potential.

6. Oil Import Dependence

The Department found that net U.S. imports of oil have grown from 8.1 MMB/D in 1994 to 9.7 MMB/D in 1998. Table II-6 shows that net oil imports (both crude oil and refined petroleum products) currently account for 51 percent of domestic consumption compared to 45 percent in 1994. Imports from Persian Gulf countries, which increased from 1.73 MMB/D in 1994 to 2.10 MMB/D in 1998, currently account for about 22 percent of U.S. imports.^{4,9}

However, the majority of U.S. imports, over 50 percent, are sourced from reliable Western Hemispheric countries such as Canada, Mexico, and Venezuela. Furthermore, energy provisions of recent trade agreements between the United States and Canada have enhanced U.S. energy security. Specifically, Article 605 of the North American Free Trade Agreement (NAFTA) provides a number of reciprocal benefits that provide for energy security in the event of a supply interruption. These mutual benefits include: 1) each country will not impose restrictions on the delivery of energy and basic petrochemical supplies during a supply interruption; 2) any shortfall in supply will be shared equally among U.S. and Canadian markets based on historical percentages; 3) each party will not impose higher export prices than those charged domestically; and 4) there will not be a disruption of the prevailing proportion of energy goods supplied, such as, for example, between crude oil and refined products and among different categories of crude oil and refined products. This unprecedented energy cooperation provides significant security benefits for both nations, and clearly demonstrates that the United States and Canada are developing an integrated and secure North American energy market.

Based on forecasts by the U.S. Department of Energy's Energy Information Administration, U.S. oil imports can be expected to increase over the next six years.⁴ Between 1998 and 2005, EIA estimates that U.S. production of crude oil will decline by 0.42 MMB/D while consumption of crude oil and refined petroleum products will grow at an annual rate of approximately 1.2% and reach 21.16 MMB/D by 2005. Although natural gas plant liquids, refinery processing gains, and other inputs will replace some of this loss (Table 7), the bulk of it will have to be made up with increased imports. Net imports are expected to increase by 2.48 MMB/D (compared to a 1998 level of 9.69 MMB/D) and reach 12.17 MMB/D by 2005. Imports will account for 58 percent of U.S. petroleum consumption by 2005, up from the present 51%.

	1998 (MMB/D)	2005 (MMB/D)	% Change
Domestic Production of Crude Oil	6.24	5.82	- 6.78%
Domestic Consumption of Crude Oil and Petroleum Products	18.77	21.16	12.95%
Net Imports of Crude Oil and Petroleum Products	9.69	12.17	25.59%

In addition to the above long-term decline in U.S. production and corresponding increase in U.S. imports, the world crude oil market experienced a sharp fluctuation in prices during 1998 and 1999, as prices initially fell in 1998 to levels one-third below 1997 levels and then

increased again in early 1999 back to 1997 levels. The extremely low prices were caused by an unexpected slowdown in the growth of energy demand worldwide and by increases in supply. Consumption failed to meet producer expectations because of the continued recession in Southeast Asia which was much more severe than had been anticipated. Significant reductions in gross domestic product were experienced in Korea, Thailand, and Malaysia. Depression and political chaos struck Indonesia. Japan, Asia's biggest economy, moved from slow or no growth to actual decline. China, although continuing to grow, was hampered by a reduction in trade with its neighbors. As a consequence of these factors, Asian oil demand fell by 100,000 barrels per day in absolute terms and by more than 1 million barrels per day relative to expectations.

Oversupply in the world oil market was further strengthened by a mild winter and lower weather-related demand as well as by Iraq's return to the market as a significant supplier under the United Nation's Oil for Food program. By late 1998 and early 1999, this oversupply was at least partly corrected by increased OPEC and non-OPEC efforts to reduce supply and by a continued decline in U.S. marginal well production.

Although the possibility exists that price declines and recoveries similar to what is described in this report could be repeated in the future, with resulting additional losses in U.S. marginal well production levels, the Department of Energy's Energy Information Administration is projecting that this will not happen and that oil prices will recover over the next several years as oil demand growth in Asia resumes and contributes to a worldwide demand of 84.8 MMB/D by 2005. Although OPEC producers are anticipated to pick up much of this additional demand, non-OPEC sources are expected to remain competitive, especially in the Western Hemisphere and West Africa. Although significant supply disruptions, leading to price shocks as experienced in the early and mid-1970's, are not anticipated over the next two decades, such volatility could still nevertheless occur due to unforeseen political and/or economic events.

In conclusion, demand for oil in the United States is anticipated to increase only moderately over the next twenty years. U.S. production is expected to continue its decline and lead to ever increasing levels of imports. Although the world oil situation appears to be favorable and should still allow the United States to meet its oil requirements, the possibility of significant disruptions to this supply cannot be eliminated.

7. Vulnerability to a Supply Disruption

The Department found that the security of the United States as well as that of the other energy consuming countries depends on its free access to oil at reasonable and predictable prices. Although oil prices are predicted to increase only moderately over the next 20 years at an average rate of 0.9% per year,⁴ this depends on the absence of any significant disruptions to supply. In addition, as can be seen from Table II-8, projected excess production capacity for

the world during the next 20 years, defined as projected production capacity minus projected production, will reside almost entirely within the Persian Gulf (~ 2.8 million barrels per day).

a. Supply Disruptions

The interagency working group reviewed the post-World War II period and found that significant supply disruptions in excess of 1 million barrels per day occurred seven times and lesser disruptions ranging from 100,000 B/D to 700,000 B/D occurred at least six additional times since 1951. Production losses ranged from as little as 300,000 B/D to as much as 4.6 MMB/D.

Types: Table II-9 shows that nine out of thirteen disruptions occurred as a direct result of wars or internal revolutions or power struggles in the Middle East area. The remaining four disruptions occurred due to internal events such as the nationalization of the Iranian oil fields or the Syrian dispute over transit fees or due to damage to production and/or distribution systems in the area.

Location: All significant disruptions occurred in the Middle East/Persian Gulf region.

Magnitude: Over half of the disruptions amounted to 1 million barrels per day or more and lasted from two to nine months. The smallest disruption was 300,000 barrels per day and the largest was 4.6 million barrels per day.

Duration: Only one disruption lasted longer than one year. Most were from two months to six months in duration.

The impact of supply interruptions have varied. Most have not significantly disrupted world markets; however, three interruptions did have major economic implications:

- o The Arab oil embargo following the October 1973 Arab-Israeli War caused a loss of 2.6 MMB/D in world supplies, more than tripled crude oil prices, and contributed to the abrupt reversal in the economies of OECD countries from about 6 percent growth in their Gross Domestic Product (GDP) in 1973 to a GDP decline in 1975.
- o The Iranian Revolution caused losses of 3.5 MMB/D and more than doubled the price of crude oil between late 1978 and early 1980, and OECD members' GDP growth declined from 3.6 percent in 1979 to 1.3 percent in 1980.
- o Iraq's invasion of Kuwait removed 4.6 MMB/D from world production (the largest disruption in history) and caused a more than 170-percent increase in prices between June and October of 1990, but the price increase was short lived because of the availability of surplus crude production capacity in Saudi Arabia and other key producing countries. In contrast to previous disruptions, OECD countries had over 1 billion barrels in strategic

stocks which helped to keep prices in check. Some oil was also released in 1991 at the beginning of the UN-sponsored offensive against Iraq.

There are a number of unresolved regional conflicts in the Persian Gulf which could lead to war. A number of these countries are developing enhanced military capabilities that could again be targeted against regional oil facilities during a conflict. An outbreak of hostilities could result in the destruction of oil production and transportation facilities (e.g., as happened in Kuwait during 1991). These developments, in turn, would eliminate production capacity, tighten supplies, and result in higher prices for consuming countries.

b. Offsets to Supply Disruptions

The risk of a disruption to the United States oil supply is determined by the military, political, and economic situations facing our sources of supply. The level of vulnerability, however, is determined by the degree to which we depend on the imported oil, our ability to find alternative sources of supply to offset the disruption, and sensitivity of domestic economic activity to severe price fluctuations. Potential offsets include the amount of available surplus global oil production capacity and oil inventories (e.g., private and government strategic stocks).

Surplus world production capacity, defined as projected world production capacity minus projected world production, has increased from approximately 2.8 MMB/D in 1990 to 3.2 MMB/D in 1997 and is estimated to be 3.8 MMB/D in 2000. This short-term increase resulted from slower than expected growth in Asia and from unanticipated supplies from Iraq due to the United Nation's Oil for Food program. However, surplus capacity is projected to decrease again by 2010 to approximately 1.8 MMB/D.¹⁴ Furthermore, almost all excess capacity, both currently and projected, resides in the Persian Gulf area and is subject to considerable military, political, and economic risk. Other producers have either declining production capacities or can barely maintain their production levels.

Government-owned or controlled oil stocks in the United States declined slightly since the 1994 Commerce investigation. In 1994, the U.S. Strategic Petroleum Reserve's (SPR) inventory of 580 million barrels provided 77 days of protection based on 1993 net imports of 7.5 MMB/D. The current U.S. Strategic Petroleum Reserve inventory is approximately 564 million barrels providing 58 days of supply at the 1998 import rate of 9.69 MMB/D. In addition, the U.S. economy can also draw on inventories held by the private sector, estimated to provide around 30 days of import replacement. Finally, the Department of Energy has recently decided to increase the SPR by 28 million barrels (i.e., approximately three days of import replacement) under its Royalty Exchange Program.

It is necessary to consider U.S. oil requirements within the wider context of the civilian economy during a major oil supply disruption. For example, the transportation sector would experience many hardships because there are no substitutes for gasoline, diesel, and jet fuel.

Despite conservation and reduced consumption resulting from higher prices, less oil would be available, in the short term, for civilian end uses during a major supply disruption. This, in turn, would pose a hardship for the U.S. economy.

In conclusion, unresolved socio-political and economic problems in some Persian Gulf countries make supply disruptions, especially those of a short duration, a possibility in both the short and long term. Thus, following the 1973 oil embargo, the diversity of supply was enhanced by investments in the North Sea, Alaska, and other less volatile regions. Although disruptions are still possible in these other regions, risks are lower because oil reserves, production, and transportation facilities are less concentrated. In addition, the Persian Gulf's largest producer of oil, Saudi Arabia, has pursued oil policies, including diversification of export routes and maintenance of a considerable excess production capacity, that serve to mitigate some of the inherent risks otherwise found in the region.

Fuel substitution offers only a limited prospect to moderate a supply interruption because oil based gasoline and other transportation products, currently consumed at 12.2 MMB/D, have no substitutes and account for two-thirds of the oil consumed in the United States. During a major oil supply disruption, less oil would be available for civilian end uses and the transportation section, almost entirely dependent on oil based products, would be severely impaired. The resulting price increase, required to balance supply and demand, would then, in the short term, create a major difficulty for the U.S. economy.

Finally, the development of the North Sea gas fields, the Canadian gas pipeline, as well as liquefied natural gas, offers some additional reliable options for substitution in the consumer heating and industrial boiler fuel markets. The availability of excess natural gas production/transportation capacities could facilitate fuel substitution during a supply disruption.

Also, the Administration's recently submitted Comprehensive Electricity Competition Plan should help to further diversify the electricity based energy market and promote the use of alternative and renewable fuels. On the other hand, the substitution prospects for coal and nuclear electric power are limited because of demand, environmental, and regulatory concerns.

8. Foreign Policy Flexibility

In both the 1988 and 1994 investigations, the Department found that the dependence of our allies and trading partners on potentially insecure sources of oil might affect their willingness to cooperate with the United States during a major supply disruption. Some of these concerns are mitigated by the participation of the United States in the International Energy Agency (IEA), which groups together 24 members of the Organization for Economic Cooperation and Development (OECD). The principle purpose of the IEA is to fashion a collective response to energy emergencies, which may include the coordinated release of the emergency oil stocks

that all IEA members are required to maintain. However, increased market share forecasted for some OPEC countries, and some Persian Gulf states, over the next 20 years, could make cooperation by some oil consumers more difficult.

9. U.S. Military Requirements

In both the 1988 and 1994 investigations, the Department of Defense advised the Department that the United States would be able to meet both its direct and indirect military requirements for petroleum during a major conventional war. However, it was noted that significant civilian austerity would be necessary to respond to the decreased availability of oil. Information for 1998 from the Department of Defense (DoD) indicates that direct military consumption of petroleum worldwide is equivalent to 1.6 percent of U.S. domestic consumption. Consumption of aviation fuels represent approximately 12 percent of the U.S. usage.

For comparison, at the height of the cold war, direct consumption for direct military requirements averaged three percent of U.S. consumption. Of this three percent, one-third was procured and consumed overseas in Europe, the Middle East, and Asia where DoD had substantial military forces. Based on input-output analysis completed in the 1980's, indirect consumption, that is energy embedded in weapon systems and other products procured by DoD, approximately equals direct consumption.

Based on this information, the Department of Defense again advises the Department that, based on current planning scenarios, the United States will be able to meet both its direct and indirect military requirements for petroleum products in the event of two nearly simultaneous major regional conflicts or a major peacetime supply disruption.

10. Status of OPEC

Low world oil prices are partially due to fact that OPEC members have been unable, until recently, to coordinate production levels among themselves. The urgent financial requirements of some OPEC members has led them to compete for revenue and market share even if this has meant that they have had to accept lower per-unit prices for their oil. However, by mid-1998, declining prices set in motion renewed OPEC efforts to reduce excess oil supplies. For the remaining months of 1998, announced and realized production cuts were not clearly synchronized, and efforts to reduce production had only modest success. More recently, OPEC members have been more effective at reducing world production to increase prices. Ten members of OPEC, excluding Iraq, pledged in March 1999 to cut production by 2.1 MMB/D. The compliance of these ten OPEC members with announced production cuts was about 89 percent in July 1999. Oil prices have steadily increased since then due to these production cuts and stronger overall worldwide demand. The Department of Energy's Energy Information Administration projects that the cost for imported oil (Refiner Acquisition Cost)

will be \$22.50 and \$23.50 per barrel, respectively, for November and December of 1999 and average \$21.85 per barrel in 2000.

11. Transparency of Oil Markets

The growth in crude oil futures trading has become an increasingly important factor for large scale industrial and utility fuel users who buy futures to augment open-market purchases and as a means of cost averaging. Further, futures trading allows producers a degree of "insurance" against future volatility by selling their product 6-12 months into the future during periods of rising oil prices. Producers tend to sell oil futures as a hedge against the possible short-term low spot market and when crude oil futures prices appear unsustainable. When futures prices go well above a producer's marginal cost of production, it can guarantee a profitable sale.

On July 15, 1999, the New York Mercantile Exchange (NYMEX) set an exchange record in trading 244,742 oil futures contracts surpassing the record of 244,714 contracts made on May 12, 1999. According to NYMEX, volume on crude oil futures contracts is about 17% higher than one year ago, and substantially higher than the very small volume existing in the 1994 market. The growth in NYMEX oil futures trading activity (based on West Texas Intermediate crude prices) has spurred interest in developing crude futures contracts outside the U.S. As such, the NYMEX is proposing a Middle East sour crude futures contracts market based on average daily price swings in Oman and Dubai crudes. To date, this is still in the review process.

12. Breakup of the Soviet Union

The end of the Cold War and the breakup of the Soviet Union has reduced tensions around the world, including the Middle East. The advancement of the Middle East Peace Process has also contributed to the reduction of tensions. This has reduced the probability of a conventional war that could jeopardize access to Middle East oil. On the supply side, the breakup of the Soviet system provides a great opportunity to develop new oil and gas resources in the region.

According to the Department of Energy's Energy Information Administration, oil production in the Former Soviet Union (FSU) is expected to reach 7.6 MMB/D by 2005 and exceed 13 MMB/D by 2020. Much of this growth will occur inside the newly independent states of the Caspian Basin area where regional political uncertainty, export access, and the need to develop open, fair, and transparent investment regimes appear to be the only barriers to the development of vast new sources of oil and gas. In 1999, approximately 650,000 barrels/day of Caspian oil will be exported to world markets. With upgrades, capacity of early routes from Azerbaijan could climb much higher by 2004. Similarly, a new route under construction

from Kazakhstan to the Black Sea coast should be filled to its planned capacity of 1,300,000 barrels/day by 2010. Based on current demand forecasts, by 2020, the FSU will become a net exporter of oil at rate of approximately 7.9 MMB/D. However, full realization of this potential will depend on completion of multiple export pipeline routes, including a main export pipeline to Ceyhan, Turkey.^{4,14}

Review of New Factors since the 1994 Investigation

The Department also evaluated several new factors which have or will significantly affect world wide petroleum supply and demand. Foremost among these factors are the following:

1. Temporary Economic Decline in East Asia

An economic crisis in East Asia started in the summer of 1997 and continued to deepen throughout 1998. This, in combination with the already weak economy in Japan, significantly reduced worldwide demand for crude oil and petroleum products. The economic decline in turn led to sharply reduced worldwide oil prices in 1998 and early 1999 and a significant oversupply of crude. These factors contributed to the decrease in U.S. production seen during the same time period.⁴

2. Iraqi Oil Exports

As of August 1, 1999, the United Nations Security Council, within the framework of UN-imposed sanctions on Iraq (mandated by UNSCR 661, August 1990), has established the "Oil-for-Food" program "as a temporary measure to provide for the humanitarian needs of the Iraqi people" (UNSCR 986, April 1995). Thus, the United Nations Security Council, within the framework of UN-imposed sanctions on Iraq, allows, since February 1998, Iraq to export up to \$5.256 billion worth of oil in a six month period, up from \$2 billion per six month period prior to that date.

Under this program, oil exports from Iraq have steadily increased from 0.7 MMB/D initially to the current rate of approximately 2.0 MMB/D. Recognizing that Iraq would not be able to meet the increased export ceiling of \$5.256 billion permitted under UNSCR 1153 (1998) without improvements to its dilapidated oil infrastructure, the Security Council authorized the import by Iraq of \$300 million worth of oil spare parts and equipment; that authorization has been renewed twice. Increased Iraqi oil exports were among the supply and demand variables which led to appreciably lower oil prices for much of 1998 and early 1999. However, the U.S. supports UN efforts to meet the identified humanitarian needs of the Iraqi people and neither the U.S. nor the UN attempt to influence world oil prices or markets via sanctions regimes.^{4,14,18}

3. Non-OPEC Offshore Drilling

Offshore oil exploration and production projects off the coasts of the United States, South America, Mexico, Eastern Canada, and Western Africa, and in the Gulf of Mexico, the Caspian Sea, and the South China Sea are expected to produce significant volumes of oil and natural gas early in the next century. Because drilling platforms are reserved so far in advance, most of the worldwide projects are proceeding on schedule even at relatively low oil prices. These increased sources, while harmful to U.S. domestic production to the extent that they increase world supplies and therefore possibly lower worldwide oil prices, increase U.S. energy security by broadening the mix of possible exporters beyond the control of individual countries or coalitions.^{4, 14, C1-6}

Conclusions

Since the previous Section 232 petroleum finding in 1994, there have been some improvements in U.S. energy security. The continued erosion of external threats to the Middle East and the continued increase in non-OPEC production have enhanced U.S. energy security. Additional discoveries of both inland and offshore oil reserves outside of the Persian Gulf region have at least slowed OPEC's market share growth. In addition, lower oil prices on balance benefit the U.S. economy.

However, as shown in Table II-10, other factors have eroded since 1994. Reduced oil reserves, falling domestic production, and the relatively high cost of U.S. production all point toward a continual contraction of the U.S. oil industry in favor of overseas investments where exploration and production costs are lower and reserves are increasing. Although large U.S. oil companies have fared fairly well since 1994, small producers continue to show declines. Growing import dependence, in turn, increases U.S. vulnerability to a supply disruption because non-Persian Gulf sources lack excess production capacity; and there are at present no substitutes for the transportation fuels which account for two-thirds of U.S. petroleum consumption.

These factors represent a threat to the national security of the United States. Although the economic decline in East Asia, the unusually warm weather in 1998 and 1999, and the increased oil exports from Iraq led to a temporary world oil supply surplus and enhanced the world's excess production capacity (~ 3 MMB/D), these same factors will tend to drive out marginal producers in the United States and elsewhere and will in the long-term increase OPEC and Persian Gulf market shares and thereby increase the threat to U.S. national security.

TABLE II-1
WORLD CRUDE OIL PROVEN RESERVES, 1993 AND 1998
 (Billion Barrels)

<u>Country</u>	<u>1993</u>	<u>1998</u>	<u>+/-</u>	<u>% share of world reserves in 1998</u>
North America	79.0	75.3	- 4.5	7.3
of which U.S.	23.0	22.5	- 0.5	2.2
Central/South America	74.1	89.5	15.4	8.6
Western Europe	16.6	18.7	2.1	1.8
FSU/Eastern Europe	59.2	59.1	- 0.1	5.7
Middle East	662.9	673.6	10.7	65.1
Africa	62.0	75.4	13.4	7.3
Far East/Oceania	<u>44.6</u>	<u>43.0</u>	<u>- 0.4</u>	4.2
Total	998.3	1,034.7	35.5	
of which is OPEC	766.2	800.5	34.3	77.4
of which is Persian Gulf OPEC	648.5	657.9	9.4	63.6
of which is Middle East OPEC	662.9	661.7	- 1.2	64.0

SOURCES: References 1 and 2.

TABLE II-2
PETROLEUM OVERVIEW, 1970-2005 (MILLION BARRELS PER DAY)

YEAR	CRUDE OIL PRODUCTION	NATURAL GAS PLANT LIQUID PRODUCTION	TOTAL DOMESTIC PRODUCTION	NET CRUDE OIL IMPORTS	NET REFINED PRODUCT IMPORTS	TOTAL NET IMPORTS	PETROLEUM PRODUCTS SUPPLIED
1970	9.64	1.66	11.30	1.06	2.10	3.16	14.70
1973	9.21	1.74	10.95	3.01	3.01	6.02	17.31
1974	8.77	1.69	10.46	3.26	2.64	5.89	16.65
1975	8.37	1.63	10.00	3.89	1.95	5.84	16.32
1980	8.60	1.57	10.17	4.72	1.65	6.37	17.06
1985	8.97	1.61	10.58	2.42	1.87	4.29	15.73
1987	8.35	1.60	9.95	3.91	2.00	5.91	16.67
1990	7.36	1.56	8.92	5.03	2.12	7.15	16.99
1992	7.17	1.73	8.90	5.13	1.80	6.93	17.03
1993	6.85	1.74	8.58	6.69	0.93	7.62	17.24
1994	6.66	1.73	8.39	6.96	1.09	8.05	17.72
1995	6.56	1.76	8.32	7.14	0.75	7.99	17.72
1996	6.46	1.83	8.29	7.40	1.10	8.50	18.31
1997	6.45	1.82	8.27	8.12	1.04	9.16	18.62
1998	6.24	1.75	7.99	8.63	1.06	9.69	18.77
1999	6.02	1.75	7.77	8.70	1.20	9.90	19.23
2000	5.95	1.77	7.72	9.04	1.26	10.30	19.55
2005	5.82	1.98	7.80	9.86	2.31	12.17	21.16

SOURCE: References 4, 9, and 10.

Note: Totals may not equal sum of components due to minor categories such as other crude oil supplies, refinery processing gains, and change in stocks as well as rounding differences. Data for the years 1999, 2000, and 2005 were estimated by the Department of Energy's Energy Information Administration.

TABLE II-3
Refiner Acquisition Costs for Imported Oil 1973-2000

<u>YEAR</u>	<u>\$ VALUE OF IMPORTS</u> <u>\$ PER BARREL (ONS)</u>	
	(Current Dollars)	(Current Dollars)
1973	4.08	...
1974	12.52	24.7
1975	13.93	25.2
1976	13.48	32.2
1977	14.53	42.4
1978	14.57	39.5
1979	21.67	... 56.7
1980	33.89	... 78.6
1981	37.05	76.7
1982	33.55	60.5
1983	29.30	53.2
1984	28.88	56.9
1985	26.99	... 50.5
1986	14.00	... 35.1
1987	18.13	... 42.3
1988	14.57	... 38.8
1989	18.08	... 49.7
1990	21.75	... 61.6
1991	18.70	... 51.4
1992	18.20	... 51.2
1993	16.14	... 51.0
1994	15.52	50.8
1995	17.14	54.4
1996	20.61	72.0
1997	18.50	71.2
1998	12.13	50.5
1999	15.89	
2000	21.85	

SOURCES: References 4 and 9 and U.S. Department of Commerce data.

Note: Data for the years 1999 and 2000 were estimated by the Department of Energy's Energy Information Administration. \$21.85 per barrel value reflects most recent projections.

TABLE II-4
U.S. OIL AND GAS INDUSTRY INDICATORS
1973-1998

Year	Rotary Rigs in Use for Oil & Gas Exploration	Footage Drilled for Oil and Gas (Thousand Feet)	Total Wells Completed (Oil, Natural Gas, Dry Hole Exploratory & Development Wells)	Total Employment (Thousands)	Discoveries of Crude Oil, Natural Gas, and Natural Gas Liquids (MMB oil equivalent) ¹²
1973	1,194	138,223	27,420	274	
1975	1,660	180,494	38,721	329	
1980	2,909	314,654	70,610	560	4,014
1981	3,970	413,112	91,553	692	4,977
1982	3,105	378,295	84,397	708	4,189
1983	2,232	317,986	75,837	598	3,443
1984	2,428	371,392	85,413	606	4,039
1985	1,980	313,045	70,342	583	3,433
1986	964	181,856	40,270	450	2,487
1987	936	162,178	35,320	402	2,270
1988	936	156,354	32,232	400	2,768
1989	869	134,439	27,931	381	2,910
1990	1,010	153,701	31,551	395	3,292
1991	860	143,021	28,895	393	2,160
1992	721	121,124	23,084	353	2,007
1993	754	135,118	24,736	350	2,690
1994	775	124,403	21,507	337	3,254
1995	723	117,078	21,039	320	3,451
1996	779	125,177	22,611	322	3,735
1997	943	148,275	26,195	339	4,745
1998	847	134,887	22,843	338	NA
1999	< 500 Jan - Feb ~ 602 July '99	NA	NA	291 (Feb '99)	NA

Source: References 3, 4, 8, 11, and 13.

TABLE II-5
U.S. OIL AND GAS INDUSTRY INDICATORS
1980-1997

Year	Discoveries of Crude Oil, Natural Gas, and Natural Gas Liquids (million barrels oil equivalent) ¹²	Oil Equivalents Discovered per Foot Drilled (barrels of oil equivalent)	Oil Equivalents Discovered per Rotary Rig in Operation (million barrels oil equivalent)	Oil Equivalents Discovered per Well Drilled (thousand barrels oil equivalent)	Oil Equivalents Discovered per Employee (thousand barrels oil equivalent)
1980	4,014	12.8	1.38	56.8	7.17
1981	4,977	12.0	1.25	54.4	7.19
1982	4,189	11.1	1.35	49.6	5.92
1983	3,443	10.8	1.54	45.4	5.76
1984	4,039	10.9	1.66	47.3	6.67
1985	3,433	11.0	1.73	48.8	5.89
1986	2,487	13.7	2.58	61.8	5.53
1987	2,270	14.0	2.43	64.3	5.65
1988	2,768	17.7	2.96	85.9	6.92
1989	2,910	21.6	3.35	104.2	7.64
1990	3,292	21.4	3.26	104.3	8.33
1991	2,160	15.1	2.51	74.8	5.50
1992	2,007	16.6	2.78	86.9	5.69
1993	2,690	19.9	3.57	108.7	7.69
1994	3,254	26.2	4.20	151.3	9.66
1995	3,451	29.5	4.77	164.0	10.78
1996	3,735	29.8	4.79	165.2	11.60
1997	4,745	32.0	5.03	181.1	14.00

TABLE II-6
U.S. CRUDE OIL AND REFINED PRODUCT IMPORTS
1973-2005
(Thousand Barrels per Day)

Year	Net Imports	OPEC (Persian Gulf)	Non-OPEC	OPEC (Persian Gulf) Percentage	Percent Total Demand
1973	6,025	2,993 (848)	3,263	47.8% (13.6%)	34.8
1983	4,312	1,862 (442)	3,189	36.9% (8.8%)	28.3
1990	7,161	4,296 (1,966)	3,721	53.6% (24.9%)	42.2
1991	6,626	4,092 (1,845)	3,535	53.7% (24.2%)	39.6
1992	6,938	4,092 (1,778)	3,796	51.9% (22.5%)	40.7
1993	7,618	4,273 (1,782)	4,347	49.6% (20.7%)	44.2
1994	8,054	4,247 (1,728)	4,749	47.2% (19.2%)	45.5
1995	7,886	4,002 (1,573)	4,833	45.3% (17.8%)	44.5
1996	8,498	4,211 (1,604)	5,267	44.4% (16.9%)	46.4
1997	9,158	4,569 (1,755)	5,593	45.0% (17.3%)	49.2
1998	9,690	4,808 (2,095)	5,574	46.3% (20.2%)	51.6
1999	9,900	4,891 (2,248)	5,364	47.7% (21.9%)	52.0
2000	10,300	NA	NA	NA	52.5
2005	12,170	NA	NA	NA	57.5

Sources: Reference 4 and 9.

Note: Data for the years 1999, 2000, and 2005 were estimated by the Department of Energy's Energy Information Administration.

TABLE II-7
U.S. OIL OUTLOOK
(Million Barrels Per Day)

	DOMESTIC OIL PRODUCTION	OTHER DOMESTIC INPUTS ^A	NET IMPORTS ^B	TOTAL SUPPLY	PERCENT IMPORTED
1996	6.46	3.35	8.50	18.31	46%
1997	6.45	3.01	9.16	18.62	49%
1998	6.24	2.83	9.69	18.77	51%
2000	5.95	3.32	10.30	19.55	53%
2005	5.82	3.15	12.17	21.13	58%
2010	5.59	3.36	13.70	22.65	60%

^A Includes natural gas plant liquids, refinery processing gain, and other inputs.

^B Includes net product imports.

SOURCE: Reference 4.

Note: Data for the years 2000, 2005, and 2010 were estimated by the Department of Energy's Energy Information Administration.

TABLE II-8
WORLD OIL CONSUMPTION, PRODUCTION,
AND PRODUCTION CAPACITY PROJECTIONS
(MILLION BARRELS PER DAY)

	CONSUMPTION				PRODUCTION				PRODUCTION CAPACITY			
	1996*	2000	2005	2010	1997	2000	2005	2010	1997	2000	2005	2010
United States	18.3	19.5	21.2	22.7	9.5	9.1	9.0	9.0	9.5	9.1	9.0	9.0
Canada	1.8	2.0	2.0	2.1	2.6	2.8	3.0	3.2	2.6	2.8	3.0	3.2
Mexico	1.9	2.0	2.3	2.6	3.4	3.7	3.7	4.0	3.4	3.7	3.7	4.0
Western Europe	13.7	14.4	14.8	15.3	7.0	7.6	7.9	7.7	7.0	7.6	7.9	7.7
Japan	5.9	5.6	5.7	6.0								
Australia	1.2	1.2	1.4	1.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Former Soviet Union	4.4	4.4	4.5	4.7	7.1	7.3	7.6	10.1	7.1	7.3	7.6	10.1
Eastern Europe	1.3	1.6	1.6	1.7	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4
China	3.5	4.6	5.0	6.4	3.2	3.2	3.3	3.5	3.2	3.2	3.3	3.5
India	1.7	1.9	2.6	3.1								
South Korea	2.2	2.1	2.8	3.4								
Other Asia (Pacific Rim)	4.5	5.0	5.1	5.7	2.2	2.3	2.4	3.0	2.2	2.3	2.4	3.0
Central & South America	4.0	4.8	6.3	7.4	3.4	3.8	4.0	4.4	3.4	3.8	4.0	4.4
Africa (& non-OPEC Middle East)	2.4	2.7	3.0	3.5	4.5	4.6	4.8	5.5	4.5	4.6	4.8	5.5
Persian Gulf (Middle East)	4.8	5.2	6.5	7.5	19.6	20.3	25.3	28.1	22.8	23.9	28.1	29.6
Other OPEC					10.2	10.7	12.3	13.4	10.2	10.9	12.6	13.7
(Algeria, Indonesia, Libya, Nigeria, Venezuela)												
Total World	71.5	77.1	84.8	93.5	73.9	76.6	84.5	93.2	77.1	80.4	87.6	95.0
World Excess Capacity									3.2	3.8	3.1	1.8
Persian Gulf Excess Capacity									3.2	3.6	2.8	1.5

Note: Totals may not equal sum of components due to imperfect match between available data and rounding differences. Excess capacity defined as production capacity minus production. Data for the years 2000, 2005, and 2010 were estimated by the Department of Energy's Energy Information Administration. **Source:** Reference 14. *Consumption data for 1996.

TABLE II-9
HISTORICAL REVIEW OF OIL SUPPLY DISRUPTIONS IN THE
PERSIAN GULF AND MIDDLE EAST/MEDITERRANEAN AREA

EVENT	DATE(S)	Oil Supply Shortfall (Million b/d)	DURATION (Months)
Iranian oilfields nationalized following months of unrest and strikes in Abadan area.	March 1951- October 1954	0.7	44
Suez war	November 1956- March 1957	2.0	4
Syria transit fee dispute	December 1966- March 1967	0.7	3
Six Day War	June 1967- August 1967	2.0	2
Libyan price controversy; damage to Tapline	May 1970- January 1971	1.3	9
Algerian-French nationalization struggle	April 1971- August 1971	0.6	5
Unrest in Lebanon; damage to transit facilities	March 1973- May 1973	0.5	2
October Arab-Israeli War; Arab oil embargo	October 1973- March 1974	2.6	6
Civil war in Lebanon; disruption to Iraqi exports	April 1976- May 1976	0.3	2
Damage to Saudi oil fields	May 1977	0.7	1
Iranian revolution	November 1978- April 1979	3.5	6
Outbreak of Iran-Iraq war	October 1980- December 1980	3.3	3
Iraqi invasion of Kuwait; Persian Gulf War	August 1990- October 1990	4.6	3

Source: Reference 11.

TABLE II-10

OVERVIEW OF KEY FACTORS

CHANGES IN FACTORS AFFECTING U.S. ENERGY SECURITYBENCHMARKSIMPROVED WORSENE THE SAME

1994 INVESTIGATION

1. Domestic oil reserves	...	✓	
2. U.S. oil production	...	✓	
3. Oil infrastructure, employment		✓	
4. Impact of low oil prices on the economy	✓		
5. Status of U.S. oil companies		✓ (small firms)	✓ (large firms)
6. Import dependence	...	✓	
7. Import vulnerability			
-world excess production capacity		✓	
-government owned oil stocks		✓	
-interfuel substitution	✓		✓
	(natural gas and electricity)		(all other fuels)
-geopolitical risk of disruption			✓
8. Foreign policy flexibility	...		✓
9. Military requirements	...		✓
10. Status of OPEC			✓
11. Emergence of energy futures market-oil & price transparency	✓		
12. Breakup of the Soviet System	✓		

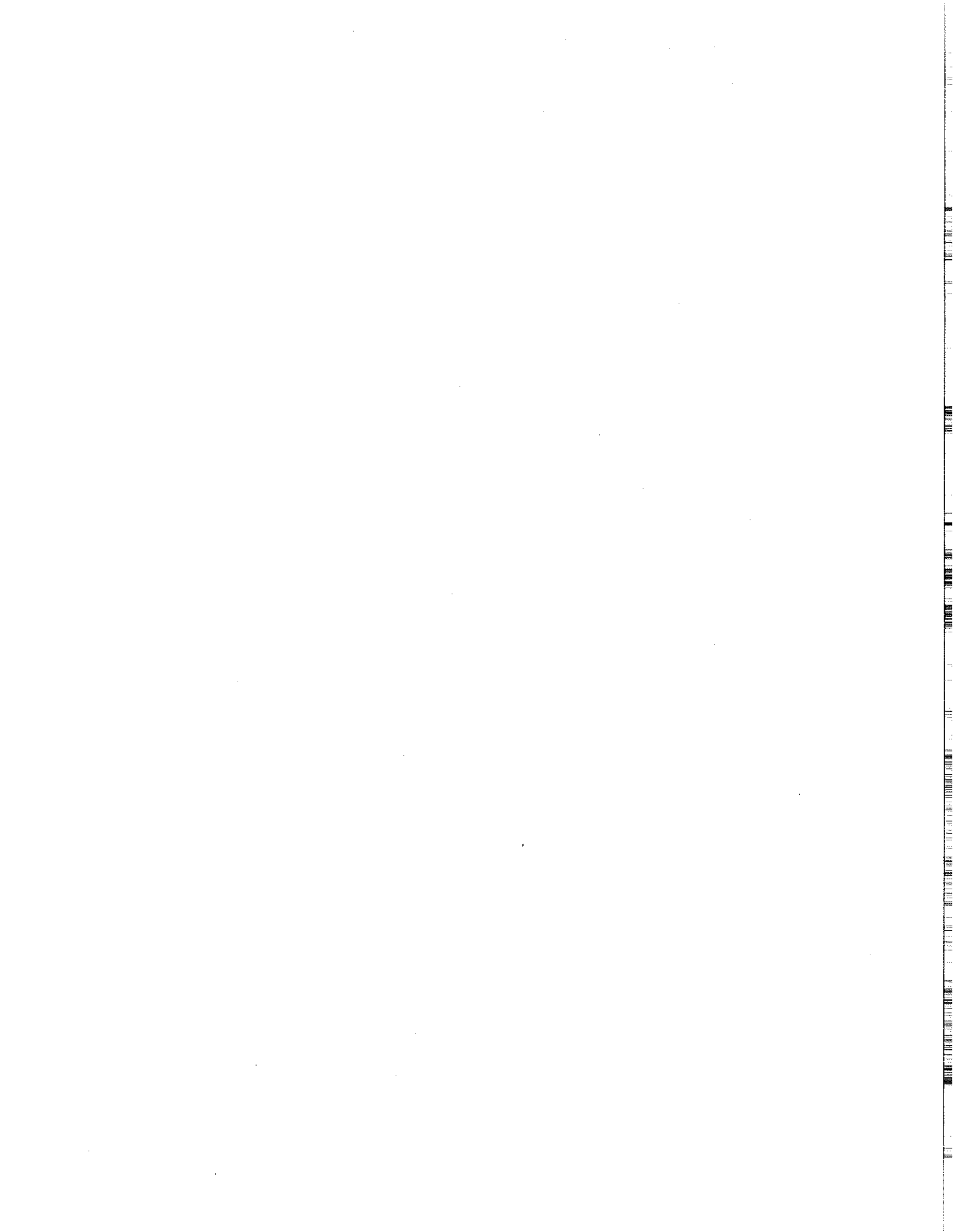
NEW FACTORS - 1999 INVESTIGATION

1. Decreased Demand East Asia	✓ (short term)	✓ (long term)
2. Iraqi Oil Exports		✓
3. Offshore Drilling and other new sources of supply	✓	

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- Written comments provided by George Yates and Danny Biggs on behalf of the Independent Petroleum Association of America and the National Stripper Well Association, respectively, June 3, 1999.
- These numbers were calculated using the historical data in reference 8 for crude oil, dry natural gas, and natural gas liquid reserve additions due to new discoveries (extensions, new field discoveries, and new reservoir discoveries in old fields). Natural gas reserve additions were converted to barrels of oil equivalent by using the conversion factors contained in reference 4 for crude oil to btu (production) and dry natural gas to btu. The specific conversion factor used was 1 billion cubic feet of dry natural gas is equal to 0.177241 million barrels of oil equivalent. One barrel of natural gas liquids was assumed to be equal to 1 barrel of oil.

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- Written comments provided by the North Texas Oil & Gas Association, Wichita Falls, Texas.
- Written comments provided by the American Petroleum Institute, June 3, 1999.
- Written comments provided by the Petroleum Industry Research Foundation, New York, New York, May 1999.
- www.un.org/depts/oip
- President's Council of Economic Advisers has noted that while employment in this sector may have fallen in the past couple of years, aggregate employment has increased. For example, in the five largest oil producing states, aggregate employment has increased over the past two years.
- Memorandum for Robert Alvarez from Raymond Bramucci, U.S. Department of Labor, April 8, 1999.



SECTION III. FINDING AND RECOMMENDATIONS

Since the previous Section 232 Petroleum Finding in 1994, there have been some short-term improvements in U.S. energy security. The continued erosion of Russian economic and military power and the continued increase in non-OPEC production enhanced U.S. energy security. Lower oil prices on balance continue to benefit the U.S. economy. However, continued reductions in exploration activity, lower reserves, falling levels of production, relatively high U.S. exploration and production costs, and low rates of return on investments all point toward a continuing contraction of the U.S. petroleum industry and increasing imports. As the Department noted in its 1994 report, growing import dependence, in turn, increases U.S. vulnerability to a supply disruption because non-OPEC sources lack excess oil production capacity; and there are at present no substitutes for oil-based transportation fuels which account for two-thirds of U.S. petroleum consumption.²

Section 232 requires the Secretary of Commerce and the President to recognize the close relationship between the economic welfare of the nation and U.S. national security. As energy security affects the economic welfare of the United States, energy security must be considered in determining the effects on the national security of petroleum imports.

A. Finding

The Department finds that petroleum imports threaten to impair the national security.

B. Recommendations

In light of the finding that petroleum imports threaten to impair the national security, the Department has the following recommendations:

1. Trade Actions

The Department does not recommend that the President use his authority under Section 232 to adjust imports. The Clinton Administration's other efforts to improve U.S. energy security are more appropriate than an import adjustment.

The Department and the interagency group continue to concur with the conclusions of the 1988 and 1994 Section 232 studies that, on balance, the costs to the national security of an oil import adjustment outweigh the potential benefits.³ For example, an oil import adjustment such as a tariff would likely have an inflationary effect on the economy and could result in the loss of significant jobs in the non-petroleum sectors. This, in turn, would reduce real GDP. An import

adjustment would diminish the competitiveness of energy-intensive export companies and strain relations with close trading partners who may seek an exemption from the adjustment.

2. Clinton Administration Energy Policy

The Clinton Administration recognizes the importance of U.S. energy security. Since 1993, it has pursued the energy policy of reliance on markets to allocate resources with selective government intervention to ensure that certain highly valued societal needs--including the need for energy security, environmental quality, and energy research--are met.⁴ The policy recognizes that no cost-effective government action could eliminate U.S. dependence on foreign oil entirely, but the following supply enhancement, energy conservation, and critical research policies help to preserve our current oil and gas productive capacity and to limit that dependence. Accordingly, the Department recommends continuing the policy goals set forth in the Department of Energy's April 1998 Comprehensive National Energy Strategy as described below.⁵

Goal #1 -- Improve the efficiency of the national energy system by making the most productive use of energy resources, enhance overall economic performance, and protect the environment:

The Administration is working to achieve a more productive and efficient use of energy resources, including electricity infrastructure, fossil fuel reserves, and productive capacity for clean alternative fuels. The primary objectives are:

- o Supporting competitive and efficient electric systems by enacting legislation to promote the establishment of a fully competitive electric system with improved energy efficiency, use of renewable energy sources, and environmental performance.
- o On April 15, 1999, the Administration submitted to the Congress the Comprehensive Electricity Competition Act (CECA). The CECA: 1) encourages States to implement retail competition in the electric power market; 2) protects consumers by promoting competitive markets, enhancing information flows, and outlawing various customer abuses; 3) assures access to a reliable transmission system; 4) removes impediments to competition in areas served by the Federal Power Marketing Administration and the Tennessee Valley Authority; 5) protects the interests of rural and remote communities and Indian tribes; and 6) amends and clarifies existing Federal and State authorities.
- o Developing, by 2010, cost-effective electric power systems which have negligible emissions of conventional pollutants, significantly reduce emissions of CO₂, and generate efficiencies greater than 60% using coal, 75% using natural gas, and 85% in combined heat and power applications (i.e., co-generation).
- o Developing, under the Administration's Partnership for a New Generation of Vehicles, a prototype 80 mpg family car by 2004 and more efficient trucks by 2002.

- o Decreasing, by 2010, energy use per unit output by 25% for the most energy-intensive industries and improving energy efficiencies in new homes and commercial buildings by 50%.
- o Decreasing dependence on foreign oil and reducing air pollution by supporting research in the following critical areas: 1). advanced heat engines; 2). electric and hybrid vehicles; 3). alternative fuels and alternative fuel vehicles; 4). fuels cells and advanced turbine systems; and 5). advanced batteries and energy storage systems for electric vehicles and electric power distribution systems (i.e., demand cycle shifting).

The United States has a critical interest in cutting its reliance on oil imports through improved efficiency and increasing use of domestic renewable energy sources. The twin goals of comprehensive electricity reform and increasing energy efficiencies in the transportation, industrial, and housing sectors and in the generation and distribution of electric power maximize the productive use of energy through market competition and technological innovation. When implemented, these measures will result in a more productive and efficient use of energy and a decreased U.S. consumption of oil imports.

Goal #2 -- Prevent the disruption or decline of world energy supplies and protect U.S. economy from the harmful effects of a short-term supply interruption or infrastructure failure:

The Administration is continuing its strong emphasis on emergency preparedness efforts and the need to stabilize domestic oil production, including:

- o Arresting the decline in domestic oil production by 2005 by working with industry to develop new reservoir imaging and extraction technologies, and supporting environmentally responsible development of leased Federal lands for oil and gas recovery.
- o Maintaining readiness of the Strategic Petroleum Reserve (SPR) to respond to threats of disruption in world oil supplies by working with the Congress to maintain the SPR in drawdown ready status and capable of delivering oil to the market at a sustainable rate of 4.2 million barrels per day (MMB/D) within 15 days of a Presidential directive.
- o Expanding the SPR by adding an additional 28 million barrels of oil under the Department of Energy's Royalty Exchange Program. By law, the U.S. Government owns 12.5% to 16.7% of all oil produced on federal land. By accepting royalties-in-kind rather than in cash, the government can add to the SPR during times of low oil prices without a specific appropriation or budget offset.
- o Making unutilized SPR storage capacity available for the mid- to long-term storage of commercial oil. This Department of Energy program will promote oil stockpiling and increase the size of the SPR inventory by accepting payment in-kind as a fee for storage used by commercial entities.

- o Coordinating responses to supply disruptions through continued cooperation with the member countries of the International Energy Agency (IEA). Acting together, the nations of the IEA could inject into the market approximately 4 to 5 MMB/D of oil from their reserves into the market while governments take other actions to address the cause of the disruption.
- o Diversifying sources of oil by working with industry to increase the supplies of oil available to the world market. Developing new sources may reduce the adverse economic impacts that may be brought on by a cut in supply in any one region. The Administration is currently working to encourage the newly independent countries of the Caspian Sea area and Central Asia to develop open, fair, and transparent investment regimes that will create a favorable climate to develop the area's large oil and gas resource potential.
- o Ensuring the integrity of the oil and natural gas supply infrastructure with respect to emergency response capabilities in coordination with the President's Commission on Critical Infrastructure and other federal agencies by providing recommendations on how best to enhance the security of domestic oil refining, transport, and storage infrastructures as well as the natural gas infrastructures.

Goal #3 -- Promote U.S. domestic energy production and use in ways that respect national health & environmental values and improve public health and local, regional, and global environments:

The Administration has pursued a balanced program to increase domestic energy production in an environmentally responsible manner by:

- o Supporting policies to allow the annual domestic natural gas supply to increase by as much as 6 trillion cubic feet (2.9 MMB/D oil equivalent) by 2010. These policies include the development of improved reservoir imaging and characterization technologies to locate natural gas in deeper and more complex reservoirs and advanced extraction techniques to increase recovery from mature reservoirs.
- o Promoting RD&D to facilitate the use of advanced technologies to recover more oil and gas from reservoirs without significant environmental degradation. The Department of Energy has estimated that the development and use of advanced exploration and extraction technologies can result in more than 400 million barrels of additional cumulative oil production between 1998 and 2005.⁶
- o Providing as much as \$1 million in new federal funding for research and development specifically targeted to small independent oil operators who are facing problems which might be overcome by applying innovative field technologies.
- o Reopening the Department of Energy's (DOE) Reservoir Class Program with up to \$18 million for cost-shared projects. Producers operating three geologic classes will be eligible to

participate in projects applying new technologies such as 4-dimensional seismic modeling, horizontal drilling, and oil flow enhancements.

- o When oil prices drop below \$15/barrel, supporting the Department of the Interior in allowing the suspension of production requirements for stripper wells producing less than 15 barrels per day on federal onshore lands. In 1999, qualified operators were allowed to suspend operations (for up to two years) without losing their leases or having to plug their wells. Rental and minimum royalty payments were also suspended during this time period. This DOI initiative was to remain in effect until February 4, 2001 or until the average price of benchmark West Texas Intermediate (WTI) reached or exceeded \$15 per barrel for 90 consecutive days. DOI's suspension of operations policy ended July 26, 1999, because the WTI had been above \$15/barrel for 90 days.
- o Promoting grass roots assistance to independent oil producers on technical, legal, and business issues by supporting the Petroleum Technology Transfer Council's ten regional centers and their December 1998 Industry Crisis Action Plan to teach independent operators strategies for improving cost efficiencies, identifying best practices, and preventing lease forfeitures.
- o Reducing the cost of the permitting process under DOE's pilot project with the Texas Railroad Commission to allow for the electronic filing and approval of drilling and other oil extraction related permits via the Internet. If the new system is successful in Texas, DOE and the Texas Railroad Commission will encourage other state regulators to use this model and adopt similar all electronic systems.
- o Developing renewable electrical technologies capable of economically doubling non-hydroelectric renewable generation capacity to a total of 25,000 megawatts or more by the year 2010 (a 60% increase over 1997 generation levels), and maintaining the viability of existing hydroelectric power sources. Development of increased renewable electric power generating capacity will contribute to the reduction of non-renewable energy demand by electric utilities.
- o Accelerating the development and market adoption of environmentally friendly technologies through a combination of increased investments in research, development, and early deployment programs. The Department of Energy has estimated that the accelerated development of biomass liquids fuel technology, along with voluntary programs that promote rapid adoption of alternative fuels vehicles, could displace 100 million barrels of oil per year by 2005.
- o Reduce red tape and regulatory burden imposed on domestic oil producers and refiners through federal interagency, state, and industry dialog and action. Provide agencies guidance on how to streamline laws and regulations to reduce burden while preserving the environment and public health.

The combination of increased natural gas utilization, the increased use of renewable electrical technologies, the accelerated development of biomass liquids fuel technology, and the recovery of more oil and gas from existing reservoirs and the preservation of those reservoirs will collectively reduce oil consumption and limit our dependence on imported oil.

Goal #4 -- Expand future energy choices by pursuing continued progress in science and technology to provide future generations with a portfolio of clean and reasonably priced energy sources:

Advances in science and technology are essential in terms of the United States achieving its economic, environmental and energy security objectives. Technological innovation can significantly decrease the domestic finding and development costs for natural gas and oil, thereby preserving and expanding the domestic resource base and improving the economics. These programs include:

- o Continuing the natural gas supply program, especially for the new emerging resource program in methane hydrates.
- o Accelerating the advanced oil recovery program, by supporting RD&D to promote the use of advanced technology by the private sector, to increase the productive capacity of our domestic resources.
- o Conducting applied research to create acceptable alternatives to petroleum-based transportation fuels including converting cellulose in waste and other materials into liquid fuels and obtaining hydrogen and other fuels, both gaseous and liquid, from natural gas and coal.
- o Conducting basic research to provide the foundation for technological breakthroughs that are beneficial to energy development and environmental protection.
- o Intensifying basic research on global climate change and long-term, innovative systems for carbon cycle management and carbon dioxide sequestering.
- o Continued budgetary increases over current levels for technology partnerships with the private sector.

Goal #5 -- Cooperate internationally on global issues and develop the means to address global economic, security, and environmental concerns:

This goal emphasizes the United States development and implementation of appropriate policies and regulations through active and sustained participation in multilateral international and regional forums as well as bilateral contacts with key countries. Achievement of this objective requires:

- o Promoting the development of open, competitive international energy markets through U.S. participation in multilateral groups such as the International Energy Agency, the International Atomic Energy Agency, the Asia Pacific Economic Cooperation Group, and other multilateral institutions. In addition, the United States should continue its existing dialogue with our neighbors in Canada and Mexico and our evolving relationship with the countries of the Former Soviet Union:
 - Working with our neighbors in Canada and Mexico, the Administration looks forward to developing cooperative agreements with the regulatory bodies to promote an efficient and integrated North American natural gas and electricity system.
 - Promoting the development of worldwide crude oil and natural gas transportation networks to move South American, Caspian, and Central Asian, for example, oil and natural gas to world markets and further diversify world energy supplies.
- o Finally, emphasizing free trade and the promotion of American exports helps develop the world's free market economy and prevents over reliance on any single region of the world.

Other issues

Regulatory Reform

The Department of Commerce's Bureau of Export Administration (BXA) is in the process of reviewing its crude oil short supply regulations and identifying reforms that would allow U.S. firms to be on equal footing with their foreign competitors. BXA is reviewing a number of changes, including: 1) creating a license exception to allow the export of crude oil to Canada and Mexico without an individual license; and 2) establishing a license exception to allow the export of California heavy crude oil sold, as part of bunker fuel oil mixtures, to foreign ships visiting US ports. The interagency group recommends that BXA proceed expeditiously with its short supply reform package.

Industry Proposals

During the review, the Department received comments from oil companies and trade associations about several possible modifications to the Federal Tax Code that the commenters believe would provide support for the domestic oil industry. The Department did not evaluate these proposals as part of its Section 232 investigation. Instead, the Department recommends that the National Economic Council evaluate the industry proposals.

REFERENCES

1. Comprehensive National Energy Strategy, United States Department of Energy, April 1998, page 4 (hereafter referred to as Comprehensive National Energy Strategy).
2. 1988 Commerce 232 Report, Section V, pp. 2-5, U.S. Department of Commerce, and 1994 Commerce Section 232 Report, Section III, p. 1, US Department of Commerce.
3. Comprehensive National Energy Strategy, pp. 9-10.
4. Comprehensive National Energy Strategy, pp. 9-30.
5. Comprehensive National Energy Strategy, p. 20.

APPENDIX A

[Federal Register: May 4, 1999 (Volume 64, Number 85)]

[Notices]

[Page 23820-23821]

From the Federal Register Online via GPO Access [wais.access.gpo.gov]

[DOCID:fr04my99-39]

DEPARTMENT OF COMMERCE

Bureau of Export Administration

[Docket No. 990427107-9107-01]

Initiation of National Security Investigation of Imports of Crude Oil and Petroleum Products

AGENCY: Bureau of Export Administration, Commerce.

ACTION: Notice of initiation of national security investigation and request for public comments.

SUMMARY: This notice is to advise the public that an investigation has been initiated under section 232 of the Trade Expansion Act of 1962, as amended (19 U.S.C. 1862), to determine the effects on the national security of imports of crude oil and petroleum products. Interested parties are invited to submit written comments, opinions, data, information, or advice relative to the investigation to the Bureau of Export Administration, U.S. Department of Commerce.

DATES: Comments must be received by June 3, 1999.

ADDRESSES: Written comments (three copies) should be sent to Bernard Kritzer, Manager, Special Projects, Office of Chemical and Biological Controls and Treaty Compliance, Bureau of Export Administration, U.S. Department of Commerce, Room 2093, Washington, D.C., 20230.

FOR FURTHER INFORMATION CONTACT: Scott Hubinger, Senior Policy Analyst, Office of Chemical and Biological Controls and Treaty Compliance, Bureau of Export Administration, U.S. Department of Commerce, (202) 482-3825.

SUPPLEMENTARY INFORMATION:

Background

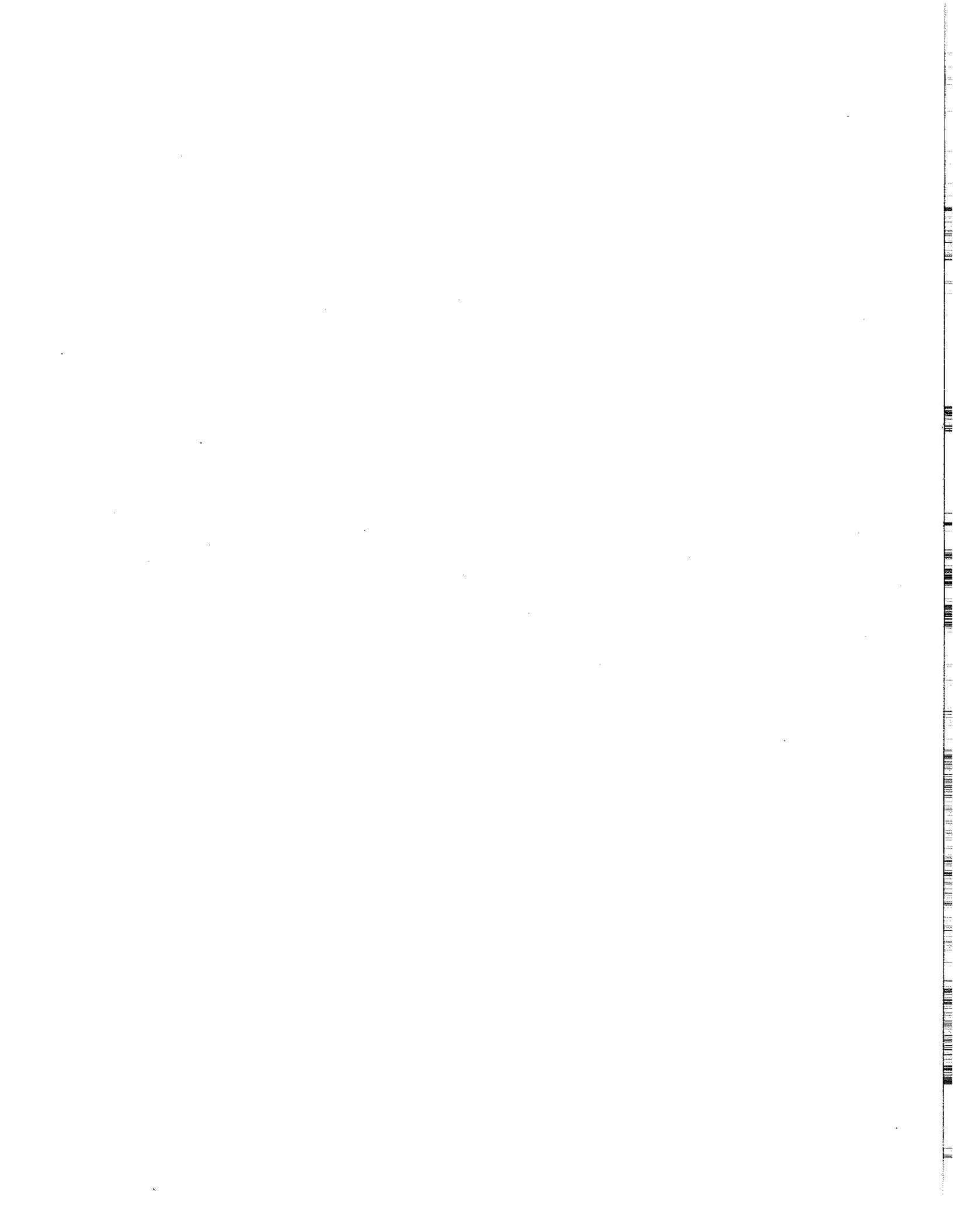
On April 28, 1999, the Department of Commerce initiated an investigation under section 232 of the Trade Expansion Act of 1962, as amended (19 U.S.C. 1862), to determine the effects on the national security of imports of crude oil and petroleum products. The findings and recommendations of the investigation are to be reported by the Secretary of Commerce to the President not later than January 29, 2000.

The imported crude oil and refined petroleum products to be investigated include:

- Crude oil, under 25 degrees API
- Crude oil, 25 degrees API or more
- Motor fuel, including motor gasoline, naphtha-type jet fuel, and kerosene jet fuel
- Motor fuel blending components
- Kerosene derived from petroleum, shale oil, or both, except motor fuel
- Naphthas derived from petroleum, shale oil, natural gas, or combinations thereof, except motor oil
- Fuel oils, under 25 degrees API --Fuel oils, 25 degrees API or more
- Mineral oil of medicinal grade derived from petroleum, shale oil, or both
- Lubricating oils and greases, derived from petroleum, shale oil, or both, with or without additives
- Mixtures of hydrocarbons not specifically provided for, derived wholly from petroleum, shale oil, natural gas, or combinations thereof, which contain by weight not over 50% of any single hydrocarbon compound
- Paraffin and other petroleum waxes
- Petroleum coke
- Bitumen
- Asphaltum, bitumen, and limestone-rock asphalt
- Petroleum gases (natural gas liquids) and other hydrocarbons

This investigation is being undertaken in accordance with part 705 of the National Security Industrial Base Regulations (15 CFR parts 700 to 709) (the "regulations"). Interested parties are invited to submit written comments, opinions, data, information, or advice relevant to this investigation to the Office of Chemical and Biological Controls and Treaty Compliance, U.S. Department of Commerce, no later than June 3, 1999. The Department is particularly interested in comments and information directed to the criteria listed in Sec. 705.4 of the regulations as they affect national security, including the following: (a) Quantity of the article in question or other circumstances related to the importation of the articles subject to the investigation; (b) Domestic production and productive capacity needed for those articles to meet protected national defense requirements; (c) Existing and anticipated availability of human resources, products, raw materials, production equipment, and facilities to produce these items; (d) Growth requirements of domestic industries to meet national defense requirements and/or requirements to assure such growth; (e) The impact of foreign competition on the economic welfare of the domestic industry; and (f) The displacement of any domestic products causing substantial unemployment, decrease in the revenues of government, loss of investment or specialized skills and productive capacity, or other serious effects. All materials should be submitted with three copies. Public information will be made available at the Department of Commerce for public inspection and copying. Material that is national security classified information or business confidential information will be exempted from public disclosure as provided for by Sec. 705.6 of the regulations. Anyone submitting business confidential information should clearly identify the business confidential portion of the submission.

File a statement justifying nondisclosure and reference to the specific legal authority claimed, and provide a non-confidential submission which can be placed in the public file.



Communications from agencies of the United States Government will not be made available for public inspection. The public record concerning this notice will be maintained in the Bureau of Export Administration's Records Inspection Facility, room 6883, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW, Washington, DC 20230, telephone (202) 482-5653. The records in this facility may be inspected and copied in accordance with the regulations published in part 4 of title 15 of the Code of Federal Regulations (15 CFR 4.1 et seq.). Information about the inspection and copying of records at the facility may be obtained from Mr. Henry Gaston, the Bureau of Export Administration's Freedom of Information Officer, at the above address and telephone number.

Dated: April 28, 1999.

R. Roger Majak,
Assistant Secretary for Export Administration.
[FR Doc. 99-11090 Filed 5-3-99; 8:45 am]
BILLING CODE 3510-33-P

APPENDIX B

SUMMARY OF PUBLIC COMMENTS

In response to the Department's request for comments as part of its investigation under Section 232 of the Trade Expansion Act of 1962, as amended (19 U.S.C. 1962), to determine the effects on the national security of imports of crude oil and petroleum products, the Department received 17 comments. Among those submitting comments were foreign governments, trade and professional associations (including those representing petroleum producers, refiners, and distributors of refined petroleum products), companies, research foundations, and individuals. This appendix summarizes those comments.

Most commenters acknowledged the decline in U.S. oil production and our growing dependence on imported oil. The commenters held varying opinions, however, on the significance of this decline on U.S. national security. Some emphasized the role of inexpensive imported oil in the decline of U.S. oil production and cited recent increases in the number of marginal well shut-ins and decreases in industry employment and operating drilling rigs as indicators of this impact. They stated that the availability of low cost foreign oil made it difficult for domestic producers to secure the necessary capital to explore for and develop new reserves. They also stated that periodic declines in domestic production and exploration were destroying the infrastructure of the U.S. petroleum industry by making it more difficult to retain and recruit the necessary technically skilled work force.

However, most commenters opposed the use of import adjustment actions, as provided for under Section 232 of the Trade Expansion Act. They argued that import fees, quotas, or other restrictions would help domestic producers only at a steep cost to other sectors of the U.S. economy. However, most of those who opposed import restrictions were not unsympathetic to other kinds of assistance such as tax incentives, opening additional areas to exploration, royalty relief, etc.

SUBMITTERS OF PUBLIC COMMENTS:

<u>Foreign Governments</u>	<u>BXA FOIA No.</u>	<u>Page No.</u>
Embassy of Canada Ambassador Raymond Chrétien	OIL-022	B-4
Embassy of Mexico Honorable Javier Mancera, Minister	OIL-010	B-4
Embassy of Venezuela Washington, DC	OIL-014	B-5
Province of Alberta, Canada Honorable Dave Hancock Minister of Intergovernmental and Aboriginal Affairs	OIL-021	B-5
<u>Trade and Service Associations</u>	<u>BXA FOIA No.</u>	<u>Page No.</u>
Air Transport Association of America	OIL-019	B-5
American Petroleum Institute	OIL-009	B-6
Independent Fuel Terminal Operators Association Andrea Grant, Counsel	OIL-015	B-7
Independent Petroleum Association of America National Stripper Well Association George Yates, Chairman IPAA Danny Biggs, President NSWA	OIL-017	B-7
New England Fuel Institute John F. Sullivan Executive Vice President and CEO	OIL-011	B-8
North Texas Oil & Gas Association	OIL-018	B-9
Society of Independent Gasoline Marketers of America Collier, Shannon, Rill, & Scott Attorneys-at-Law	OIL-020	B-9
<u>Corporations</u>	<u>BXA FOIA No.</u>	<u>Page No.</u>
CITGO Petroleum Corporation	OIL-013	B-10

David J. Tippeconnic
President & Chief Executive Officer

Irving Oil Corporation
Brian Monkhouse

OIL-012

B-10

Research Foundations

Petroleum Industry Research Foundation, Inc.
John Lichtblau, Larry Goldstein, and Ron Gold

BXA FOIA No.

Page No.

OIL-008

B-10

Private Individuals

Bryan C. M. Chastel De Boinville

Dale W. Steffes

George Mercier

BXA FOIA No.

Page No.

OIL-016

B-11

OIL-007

B-11

OIL-006

B-12

**COMMENTS RECEIVED AS PART OF NATIONAL SECURITY
INVESTIGATION OF IMPORTS OF CRUDE OIL AND
REFINED PETROLEUM PRODUCTS**

Embassy of Canada

Raymond Chrétien, Ambassador

Comments dated May 20, 1999

In his comments, Ambassador Chrétien stressed the importance and size of the U.S.-Canadian trading relationship and the inherent security and reliability of U.S. energy imports from Canada. "Canada has long been properly regarded as the most secure source of imported energy supplies for the United States. The energy provisions of the Canada-U.S. Free Trade Agreement and the NAFTA further enhance the reliability and security of the two-way trade in this sector."

While not wishing to pre-judge the current Section 232 investigation, Ambassador Chrétien also recalled that "the Department's 1994 report on the effects of petroleum imports on national security recommended, inter alia, that the President not use his Section 232 authority to adjust imports, and that the President address oil import concerns through a variety of initiatives, including increased emphasis on free trade and the development of new energy supplies in this hemisphere and other areas friendly to the United States."

Embassy of Mexico

Javier Mancera, Minister

Comments dated June 3, 1999

Minister Mancera expressed the concern of the Mexican Government about the possibility of a U.S. import adjustment under Section 232, and stated the belief that such an action would "harm the economic well being of both countries with long-lasting and unpredictable consequences."

"Mexico believes that no justification exists for the use of measures that constitute exceptions to the multilateral rules of trade, furthermore in a manner which would constitute a means of arbitrary restriction to commercial flows and would inevitably open the door for other Members of the WTO to apply similar exceptions in other cases."

Embassy of Venezuela

Washington, DC

Comments dated June 7, 1999

In comments submitted on the behalf of the Government of Venezuela, the Embassy of Venezuela in Washington, DC, pointed out that "Venezuela and the United States have developed a strong energy relationship that has engendered increasingly broader economic development and investment opportunities in both countries." They emphasized that "Venezuela is not an adversary of domestic U.S. producers, large or small. Rather, Venezuela has a community of interests with U.S. producers in defending oil prices." They further stated that "our common goal is to maintain world oil prices at reasonable levels to permit adequate

returns for producers in the United States as well as in Venezuela, and to make possible the significant investments that will be needed in order to satisfy the growing world-wide demand for oil." Finally, the Embassy of Venezuela recalled that "as one of the world's largest exporters of oil, and the largest foreign supplier of crude oil and petroleum products to the United States, Venezuela has never stopped the flow of its oil, for political or any other reasons, to the United States, or any other market."

Province of Alberta, Canada

Honorable Dave Hancock

Minister of Intergovernmental and Aboriginal Affairs

Comments dated June 3, 1999

In his comments, Minister Hancock recalled that "Alberta has had a long and productive energy relationship with the United States and has always advocated an open trade and investment environment." He further pointed out that "Canada has long been regarded as the most secure source of imported energy supplies for the United States" and that "the energy provisions of the Canada-U.S. Free Trade Agreement and NAFTA further enhance the mutual sense of security with respect to ensuring a reliable two-way flow of energy between our countries." Finally, he recommended that the "investigation focus on national security related to offshore imports only, and that Canada be excluded."

Air Transport Association of America (ATA)

James L. Casey

Vice President and Deputy General Counsel

Comments dated June 4, 1999

In his comments, Mr. Casey emphasized the importance the U.S. airline industry places on the free exercise of the petroleum marketplace and how their ability to serve the flying and shipping public is dependent on that marketplace.

"The operations of our members, and thus their ability to serve the traveling and shipping public, are dependent upon their access to economical sources of kerosene jet fuel. They consequently are vitally interested in any regulatory proceeding that could affect the availability and price of jet fuel." Mr. Casey noted that "costs from import quotas or fees inevitably would be reflected in higher prices to consumers of air transportation services or diminished service, or both. Low-density domestic markets, i.e., smaller communities, would be at particular risk."

American Petroleum Institute (API)

Comments dated June 3, 1999

In their comments, the American Petroleum Institute recognized the gains made by previous Republican and Democratic Administrations in controlling the risk associated with imported oil.

"First, they have recognized that global oil markets are heavily influenced by a small contingent

of low cost producing nations in the Persian Gulf. Second, they have recognized that the supply behavior of those countries is the outcome of market, political, and military circumstances which often give rise to unpredictable supply swings and price volatility, and that explicit energy policy measures are required to manage the economic vulnerability associated with this volatility. Third, they have recognized that the appropriate strategic energy policy is to rely principally on market forces to promote the development and security of alternative supplies. Generally, this policy of primary reliance on markets has been extremely effective in managing what 25 years ago was seen as growing vulnerability to supply disruption and to the use of oil as a political weapon by suppliers intent on subverting U.S. foreign policy goals. Massive new supplies have been developed outside of OPEC, OPEC's market share has been reduced, and new technology has greatly expanded the frontiers of non-OPEC supply."

However, API noted that sharp temporary declines in world oil prices are a threat to U.S. domestic production and, in the long term, to the U.S. economy and national security.

"First, while the temporary decline confers unambiguous short-term benefits to consumers, it also increases the market share of the low cost OPEC producers, setting the stage for potentially higher future prices. Second, the asymmetric response to prices of supply from marginal petroleum producing properties may cause such losses of market to OPEC to be permanent and cumulative even if the price decline is short lived. That is, marginal oil and gas wells are often not easily restarted once the abandonment decision is made. Consequently, a short term price decline may result in a permanent loss of production capacity, and a fluctuating price may lead to progressive deterioration of marginal production capacity."

API does not support the use of a direct trade adjustment to reduce import dependence and in their words "it is not likely that such measures represent a cost effective means to reduce the risks associated with such dependence, and some likelihood that they might even increase them. Such controls would support U.S. domestic prices and protect domestic production, at least temporarily. However, they would also raise energy costs to all consumers and industries in the U.S., while depressing global energy demand and reducing world oil prices, reducing non-OPEC supplies outside the United States."

API does recommend a number of actions to support domestic production. Some of their recommendations are: the provision of low cost emergency loans to smaller independent producers; the provision of royalty relief on properties made marginal by temporary collapses in prices; the provision of blanket extensions of term on leases where an exploration well has been drilled, or where there is a suspension of exploration or production; the provision of temporary tax credits to prevent abandonment of marginal wells during a temporary price collapse; the reduction of the cost, complexity and time required in the permitting processes for oil and gas exploration and development; and the expensing of items such as geological and geophysical (G&G) and lease delay rentals.

Independent Fuel Terminal Operators Association (IFTOA)

Andrea Grant, Counsel

Comments dated June 3, 1999

The Independent Fuel Terminal Operators Association argued that imports of petroleum do not threaten to impair the national security, and accordingly, no adjustment of imports is necessary.

“U.S. dependence on foreign sources, under current situations and for the foreseeable future, does not translate into vulnerability of the United States to disruptions in supply and price volatility. Diverse, secure sources, coupled with the availability of the Strategic Petroleum Reserve and a high gross domestic product, protect the national security.”

However, the IFTOA supports the adoption of alternative measures to provide effective, targeted assistance to U.S. producers who have been hurt by low oil prices.

“Such measures should include: tax credits for marginal well production; special tax treatment for income derived from recovered inactive wells; modification of royalty policies; expansion of oil recovery credit to cover additional recovery techniques; modification of Alternative Minimum Tax to allow carry-back for unused credits and to apply regular tax depreciation schedules; and credit for exploration and development.”

Independent Petroleum Association of America and National Stripper Well Association

George Yates, Chairman IPAA

Danny Biggs, President NSWA

Comments dated June 3, 1999

“In rough terms, U.S. oil production comes from three areas - Alaska, the Gulf of Mexico offshore, and the onshore lower 48 states. Currently, about 20 percent of domestic production comes from Alaska, about 20 percent comes from the Gulf of Mexico offshore, and about 60 percent comes from the onshore lower 48 - one-third of this from ‘marginal wells’ producing less than 15 barrels per day. Since 1986, investment by major oil companies has shifted to exploration and development targets outside the United States. Within the U.S. majors are now primarily interested in developing Alaska and the deep water offshore. As a result the lower 48 onshore has increasingly become the province of the independents. The independents’ share of this production has increased from about 45 percent in the mid-1980s to over 60 percent in 1997.”

The following information submitted by the IPAA and the NSWA in their comments point to the damage they allege has been done to the U.S. oil and gas extraction industry and in particular to independent oil producers due to the recent (low) oil prices: (1) domestic production has dropped below 6 million barrels per day; (2) operating rig counts have hit historic lows - from November 1997 through April 1999, the domestic rig count dropped 50 percent; (3) over 56,000 jobs have been lost in the industry since November of 1997; (4) more than 136,000 oil wells (25 percent of total U.S. wells) and 57,000 gas wells have been shut down; and (5) capital budgets for oil and gas development have been savaged - down 25-30 percent with the biggest cuts in the U.S.

Recommendations by the IPAA and the NSWA to reverse these losses include: (1) a counter cyclical marginal well tax credit; (2) a countercyclical restructuring of the calculation of Alternative Minimum Taxable Income (AMTI); (3) to eliminate limitations on using percentage

depletion in excess of 65 percent of net taxable income, and to allow excess percentage depletion to be carried back against past taxes; (4) to allow for the expensing of geological and geophysical costs and delayed rental payments; (5) to work with the Small Business Administration to use existing authority to provide small business administration loans to oil producers and related industry; (6) to provide a \$500 million guaranteed loan program to back loans provided by private financial institutions to qualified oil and gas producers and the associated oil and gas service industry; (7) allow marginal oil well operators producing on public lands to suspend operations for up to two years without losing their leases; and (8) speed up the processing of permits and applications to operate on public lands.

New England Fuel Institute (NEFI)

John F. Sullivan

Executive Vice President and CEO

Comments dated June 3, 1999

The New England Fuel Institute believes that oil imports do not pose a threat for the following reasons: (1) oil imports come from diverse and far more stable sources than imports during earlier Section 232 investigations; (2) the Strategic Petroleum Reserve provides protection to the economy from a supply disruption; (3) U.S. military requirements in Yugoslavia and elsewhere in the world are being met adequately; and (4) the U.S. economy is doing exceptionally well. They believe that a trade adjustment such as a tariff or quota would: (1) harm the U.S. economy, by slowing growth and reducing employment; (2) make energy-intensive industries less competitive at home and abroad; and (3) damage the independent home heating industry and disproportionally damage the New England economy.

However, NEFI supports targeted assistance to independent domestic producers who have experienced financial difficulties as a result of lower petroleum prices. They stated that "relief for these companies should not come at the expense of the U.S. economy and other segments of the industry."

North Texas Oil & Gas Association

Comments dated June 8, 1999

The North Texas Oil and Gas Association (NTOGA) believes that "every major indicator from the domestic oil and gas industry has declined since Commerce's finding in 1994." They report that "U.S. crude oil production fell to the lowest level in more than 50 years in January of 1999 when only 5.8 million barrels per day were produced," that "the drilling rig count, which is probably the most watched barometer of oil and gas industry activity, hit all-time lows on April 30, 1999, when only 494 rigs were working," that "more than 137,000 oil wells and 57,000 natural gas wells have shutdown since November of 1997," and an "estimated 41,000 lost jobs in the oil industry." They recommend "implementing an environmental equalization fee of \$3 to \$4 per barrel of imported oil and/or petroleum product" to "level the playing field with domestic producers."

Society of Independent Gasoline Marketers of America

R. Timothy Columbus, Counsel
Comments dated June 3, 1999

The Society of Independent Gasoline Marketers of America stated that "the independent gasoline marketer's position in the market is dependent upon the existence of numerous sources of supply, both foreign and domestic. If any of these sources were eliminated by any means, then the position of independent marketers would be severely threatened. If independent marketers disappear, then competition in the wholesale and retail gasoline markets would be restricted and gasoline prices would increase significantly."

They also argued that "the U.S. enjoys an extraordinary secure position, both because of its continued domestic production and its secure sources of supply of crude oil and petroleum products imports." And because "there is a significant distinction between reliance and vulnerability with respect to crude oil import, imports of crude oil do not pose a threat to the national security of the U.S."

CITGO Petroleum Corporation

David J. Tippeconnic
President & Chief Executive Officer
Comments dated June 3, 1999

CITGO, owned by PDV America, Inc., an indirect wholly-owned subsidiary of Petróleos de Venezuela, S.A., the national oil company of Venezuela, stated that "any actions by the President to impose artificial restraints on imports are not warranted by current or foreseeable conditions. Insulation from world markets will fail and would entail costs that are not sustainable in a competitive and interdependent global marketplace. CITGO encourages the Department's investigation to focus attention on the benefits of reforming U.S. energy, tax, and regulatory policies to enable the petroleum industry to continue to effectively meet the nation's energy needs."

Irving Oil Corporation

Brian Monkhouse
Comments dated June 3, 1999

"Irving urges the Department to determine that petroleum imports do not threaten to impair the national security of the United States. Diverse, secure sources of supply, particularly those from Canada, minimize U.S. vulnerability. However, if the Department finds such a threat, certainly no restrictions on imports, particularly those from Canada, should be imposed. Such restrictions would not serve national security objectives, would injure U.S. independent marketers supplied by Canada, and in turn, their customers, and would potentially violate NAFTA."

Petroleum Industry Research Foundation, Inc. (PIRINC)

John Lichtblau, Larry Goldstein, and Ron Gold
Comments dated May 1999.

In their review of prior Section 232 investigations in 1988 and 1995, the Petroleum Industry Research Foundation noted that "neither investigation recommended any direct presidential action to adjust imports, concluding that costs would far exceed benefits." But that in 1988 "the Commerce Department recommended legislative actions to improve domestic supply and add to the SPR and was silent on energy conservation" and that "the 1995 investigation highlighted current Administration policies to promote efficiency and alternatives to oil, but virtually dismissed the supply-side of the equation."

PIRINC expressed the belief that "the current investigation would serve the public interest best if it addressed both supply and demand considerations in formulating its recommendations." They further stated that "any such discussion must start with the recognition that a continued, high level of oil imports is inevitable and not necessarily undesirable. As previous investigations have pointed out, attempts to significantly curtail imports through tariffs or quotas would impose very high costs on the U.S. economy. Moreover, there are more efficient ways of improving oil supply security: diversification of sources, and strategic inventories."

As noted by PIRINC, "the past year however has highlighted an additional concern; the vulnerability of the domestic industry to temporary sharp declines in world oil prices." They go on to say that "while there are strong arguments against protecting the domestic industry from long-term low oil prices, there is a case for recognizing the vulnerability of the industry, and potential, permanent losses of secure supply, from temporary price declines."

To remedy this problem, PIRINC recommends that "Federal royalty policies could be modified to incorporate a sliding scale, with lower rates when prices are depressed and normal rates otherwise." They also recommend that "while there are still opportunities in the onshore lower 48 states, the least mature, and most promising, areas of the country are to found in the Outer Continental Shelf and in Alaska." As they note, although "parts of both, including ANWR, are currently off-limits to the oil industry, permitting environmentally sound exploration and development in these areas was a recommendation of the 1988 investigation. The current prohibitions should not stand in the way of new efforts to reconcile environmental concerns with access to potential new sources of domestic supply."

Bryan C. M. Chastel De Boinville
Comments dated June 1, 1999

"The question of whether national security has been harmed by crude oil imports has been investigated by the Secretary of Commerce again and again. The answer has been made in the affirmative again and again. The situation today is every bit as threatening as at any time in the past, even more so. And yet Sec. 232 has yet to be used to provide an effective remedy. Sometimes administrations fooled themselves into thinking that their energy policies were working; at other times overt politics intervened to prevent remediation."

"It is time to use the statute as Congress intended and protect our nation from even greater danger by directly managing our dependence on oil imports. Sec. 232 restrictions will not be enough to solve the underlying problems, but they are a necessary first step. However, this step should only be taken if the Administration is willing to accept the consequences of this extraordinary remedy,

many of which are harmful, and shows it has the political will to withstand the storm of criticism that action under Sec. 232 will inevitably produce.”

Dale W. Steffes

Comments dated May 13, 1999

Mr. Steffes, president of P&FC, an oil consulting group, stated that “Planning & Forecasting Consultants (P&FC) have designed a National Energy Stability Policy (NESP) for the United States. This NESP will bring greater price and volume stability to the domestic energy industry. This NESP is a ‘market intervention’ to keep the United States from becoming too dependent on foreign energy sources. This national energy stability policy can be privately administered by a Private National Energy Stability Agency (PNESA).”

“This NESP would allow the President to limit the amount of energy imported into the United States to a prescribed percentage. He would set this percentage based on his judgement of the national security implications, the balance of trade considerations and the international economic competitiveness. Our initial recommendation is that the President freeze the total energy imports at today’s current level of 20 percent, with oil being at 50 percent.”

“Limiting the amount of energy imported, will create a dual-price world energy system, one price for the United States and another, lower price for the rest of the world. The party with the right to import this cheaper energy into the U.S. would receive an economic benefit.”

“The beneficial rights to import this cheaper energy will be distributed proportionally to the domestic energy producers on a BTU basis. This policy in effect would subsidize domestic producers, enhancing domestic production.”

Appendix C

International Activities of U.S. Majors

A large number of U.S. integrated firms have shifted their exploration efforts to offshore developments and other countries. For example, Chevron is active in Kazakhstan (6 to 9 billion barrels of crude oil reserves), Angola offshore (projected 1 billion barrels of crude oil), Newfoundland, Canada offshore (expected 650 million barrels of crude oil), United Kingdom North Sea (an estimated 3 trillion cubic feet of natural gas reserves and 145 million barrels of condensate and natural gas liquids), Gulf of Mexico deep water (expected to produce 160 million barrels of crude oil), Western Australia (an estimated 1.3 trillion cubic feet of natural gas reserves), and in Nigeria (an estimated 1999 production rate of 295 million cubic feet of natural gas per day).¹

Phillips Petroleum is replacing its U.S. reserves by conducting exploration operations in 20 countries and is actively producing in Norway, the United Kingdom, Nigeria, Canada, and China as well as in the United States. Phillips' strategy is to increase oil and natural gas reserves while keeping finding and development costs down. They report that their average world-wide finding and development cost for the period of 1992 to 1996 was \$3.79 per barrel of oil equivalent and that they replaced over 118% of their production with new reserves during this same time period.²

Mobil is active in eastern Canada, Nigeria, Equatorial Guinea, Kazakhstan, Turkmenistan, Azerbaijan, Qatar, Venezuela, Peru, Norwegian North Sea, Australia, and in Papua New Guinea. They report additions to proved reserves of 936 million barrels of oil equivalent for a total of 7.2 billion barrels of oil, an 11 year supply at current production rates.³

ARCO's exploration and production activities are focused in the deep water of the Gulf of Mexico, Indonesia, North Africa, the northwest Atlantic Margin (off western Europe), northern South America, and the north slope of Alaska. This company's total international production is currently at 160,000 barrels of crude oil equivalent per day.⁴

Texaco has a highly focused exploration program concentrated in the deep water of the Gulf of Mexico, Latin America, and in West Africa. They currently produce mainly in the U.S., United Kingdom North Sea, Middle East, and in the Pacific Rim. Texaco reports that in 1998, they replaced 166% of their 1998 worldwide oil and gas production with new reserves.⁵

Finally, Exxon has exploration and/or production activities in the United States, Canada, Colombia, Peru, Bolivia, Venezuela, Trinidad, the Netherlands, the United Kingdom, France, Egypt, Niger, Nigeria, the Congo, Angola, Chad, Germany, Norway, Azerbaijan, Kazakhstan, Abu Dhabi, Yemen, Indonesia, Australia, Papua New Guinea, Malaysia, Vietnam, Thailand, China, and in Japan. Exxon reports daily worldwide production rates of 1.6 million barrels of oil and 6.3 billion cubic feet of natural gas.⁶

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