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Long-term Policies Needed to Address
Energy Use and Price Volatility

Statement of
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Before the
Committee on Government Operations
House of Representatives



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Mr. Chairman and Members of the Committee:

We appreciate the opportunity to be here today to assist the Committee in examining issues relating to the oil price increases that have taken place following Iraq's invasion of Kuwait.

As you are aware, Mr. Chairman, along with the gasoline price spike after the Exxon Valdez oil spill and the home heating fuel price increases last winter, this makes the third sharp increase in the price of petroleum products that we have experienced in the past 18 months. Although the United States is in a better position to deal with these price increases than in the 1970s because of increased energy efficiency and the existence of the Strategic Petroleum Reserve (SPR), concerns remain about

- recent trends showing increasing oil consumption,
- increased reliance on imports from the Persian Gulf, and
- the SPR's role in reducing the impact of these incidents.

The nation needs to act immediately to address these trends over the long term. There is an urgent need for this country to develop a national energy strategy that would reduce our dependence on oil and our vulnerability to sudden price increases. We believe that such a strategy is sorely needed and long overdue. A fresh look at policies for drawing down oil from the SPR is also needed to ensure that it is being used as effectively as it can be to offset the severe economic impacts of petroleum price increases. Finally, we need to reemphasize the need for energy efficiency as a way to reduce oil consumption.

RECENT EVENTS ILLUSTRATE THE
CONTINUING VOLATILITY OF ENERGY PRICES

The recent price volatility of crude oil and gasoline is not an isolated event. This is the third sharp increase in consumer prices of one or more petroleum products in the past 18 months. I would like to briefly discuss each of these events, beginning with the current situation.

Energy Prices Reacted to the
Iraqi Invasion of Kuwait

Since Iraqi military forces invaded Kuwait, the United States has experienced sharp increases in crude oil and gasoline prices. World reaction to the invasion--particularly the embargo on trade with both countries imposed by the United Nations Security Council --has interrupted crude oil imports by the United States and other countries. Collectively, in 1989, Iraq and Kuwait produced an average of 4.6 million barrels of oil per day. This represented about 7.8 percent of worldwide oil production. In 1989, the United States imported about 600,000 barrels of oil per day from Iraq and Kuwait, or about 8.4 percent of net U.S. oil imports.

The actual disruption of supplies will not take place until after the tankers that were already en route to the United States have delivered their cargoes--in 30 to 35 days. However, increased demand, perceptions of shortages, and expectations of higher prices resulted almost immediately in increased prices for oil and petroleum products. Between August 1 and August 23 the price for oil futures on the New York Mercantile Exchange increased from \$21 per barrel to almost \$32 per barrel before falling to about \$27 on August 27.

In terms of the amount of oil disrupted, this disruption is larger than the oil shocks of the 1970s. The 1973-74 and 1979

disruptions amounted to 1.6 and 3.7 million barrels per day (MMBD) (or about 3 and 6 percent of world oil production), respectively. The impact on crude prices, thus far, however, has not been as great as the impacts from the disruptions in the 1970s. As a result of the 1973-74 disruption, crude prices went from approximately \$10 a barrel (in 1989 dollars) to \$30 a barrel. The 1979 disruption had a similar impact, and crude prices increased from about \$26 to the equivalent of about \$50 a barrel.

Gasoline Prices Spiked After the Alaskan Oil Spill

The second event occurred in March 1989, when sharp price increases occurred after the tanker Exxon Valdez ran aground in Alaskan waters. After the Exxon Valdez grounded, transport of Alaskan North Slope crude oil was reduced from March 24 through April 6 by about 13 million barrels. That is equivalent to 18 hours of U.S. consumption. However, the uncertainty over Alaskan supplies--about one-fourth of U.S. production--translated into immediate short-term increases in U.S. spot market prices for crude oil of about \$1 a barrel. Spot market prices for gasoline increased by 12 cents a gallon in New York and 50 cents a gallon on the West Coast. Nationwide, retail gasoline prices increased about 10 cents a gallon. By August 1989, the price of crude oil and gasoline dropped back to pre-crisis levels.

Fuel Prices Skyrocketed Last Winter

The third event occurred when the nation experienced sharp increases in heating oil and propane prices last winter. During December 1989, the United States experienced severe cold weather, the coldest in at least 60 years according to the Energy Information Administration (EIA). Many areas of the country, and the northeastern states in particular, were hit hard by the sharp price increases for home heating oil and propane. Nationally, the

average retail price of No. 2 distillate increased 29 percent between November 1989 and January 1990. Propane prices exhibited even more volatility. Wholesale prices at Mont Belvieu, Texas, and Conway, Kansas--two major propane supply points through which a majority of the U.S. domestic supply is marketed and distributed--increased 211 percent and 305 percent, respectively, between December 1, 1989, and January 2, 1990. In February 1990, the price of propane and heating oil fell back to the December 1 level.

INCREASED PRICES HAVE WIDESPREAD
EFFECTS ON THE ECONOMY

The current disruption is affecting not only prices for petroleum products but the economy as a whole. To illustrate the effect of the increased gasoline prices, for example, a survey conducted by the American Automobile Association showed that between August 1 and August 10, average gasoline prices rose almost 18 cents per gallon. Based on EIA's information on gasoline consumption, this means that consumers paid about \$63 million more per day for gasoline on August 10 than on July 31.

Increased oil prices also affect the costs of many other products. Petroleum products provide much of the energy used in both industry and agriculture. Related petrochemical products are used in paints, plastics, and synthetic fibers. Further, if the higher fuel prices continue, they could drive up the prices for many other products because nearly 90 percent of all consumer goods in the United States are transported by truck.

Some economic impacts are already being felt. Within days, several airlines had announced fare increases or surcharges to offset higher fuel costs. As reported in the Wall Street Journal, a 1 cent per gallon increase in the price of jet fuel adds \$160 million to the industry's annual expenses. Because of weak demand, however, the industry may not be able to recover its increased

costs by increasing fares, and some analysts have forecast deficits of \$1 billion for the industry this year.

If the energy price increase is sustained, it will present a challenge to macroeconomic policy. It is possible that the result will be a deterioration in economic performance in all of the major directions--higher inflation, higher unemployment, and lower output. According to various estimates, a \$5 increase in the price of a barrel of oil could result in about a .5 to 1.0 percent reduction in the gross national product, in real terms.

At least in the short term, policies that would reduce the inflation hazards also increase the risks of output losses and higher unemployment. Because we are already in a slow growth economy, some economists predict that the effects of increased energy prices will push the economy into a recession. If a downturn occurs and gathers momentum through increasing pessimism about future economic conditions, the overall costs to the economy could far exceed the direct consequences of the oil price increase. The Federal Reserve should, however, be able to mitigate this sort of outcome by easing monetary policy at the appropriate time. Other targeted policies, such as energy assistance to lower income families affected by higher energy prices, may also need to be considered.

TRENDS IN OIL CONSUMPTION CAUSE CONCERN

Fortunately, Mr. Chairman, the United States is better prepared to respond to the disruption of oil supplies from Iraq and Kuwait than we were to the events in the 1970s. Over the past decade, we have taken a number of steps to improve our energy security, including decreasing our oil consumption and building the SPR. In addition, according to EIA data, there is about 5 MMBD of excess production capacity in the world oil market. This spare

capacity, if brought on-line, could help compensate for the oil supplies that are disrupted.

Unfortunately, however, many of the gains that we have made over the past decade are beginning to erode. For example, oil consumption in the United States and in other Organization for Economic Cooperation and Development (OECD) countries has generally been increasing throughout the latter part of the 1980s. Further, the rate of increase has been higher in the United States than the OECD average. After falling to an average of below 34 MMBD in 1983 following the disruptions of the 1970s, OECD oil consumption increased to more than 37 MMBD in 1989 (a 11-percent increase). U.S. oil consumption has increased by almost 14 percent during the same period--from about 15.2 MMBD in 1983 to 17.3 MMBD in 1989.

If oil prices return to their pre-disruption levels, the global trend toward increased oil consumption is expected to continue at least throughout the rest of this decade, especially in the economies of the Far East that are growing rapidly. For instance, the Department of Energy (DOE) projects that worldwide oil consumption is expected to increase by approximately 1 to 2 percent per year in the early 1990s. If oil prices remain higher, the expected increased consumption should decline. Regardless of the rate of increase, however, petroleum will continue to provide about 40 percent of the United States' total energy consumption for some years to come.

UNITED STATES' DEPENDENCE ON
PERSIAN GULF PRODUCTION WILL INCREASE

If demand for oil by the United States and other petroleum importers continues to rise, it will increase their dependence on the Organization of Petroleum Exporting Countries (OPEC), especially on the countries in the Persian Gulf. In 1989, OPEC supplied 73 percent of the oil imported by OECD countries, the

highest percentage in 5 years. The Persian Gulf nations alone accounted for 45 percent of total OECD oil imports. The United States' dependence on OPEC and the Persian Gulf nations has increased even more dramatically than has OECD's in general. In 1989, OPEC supplied nearly 60 percent of the total oil imported by the United States, as compared to just 42 percent 5 years earlier. Moreover, U.S. dependence on the Persian Gulf oil more than tripled from just 7 percent of total oil imports in 1985 to 26 percent in 1989. Thus, the oil produced by Persian Gulf nations accounted for about 11 percent of the total U.S. consumption in 1989, compared to only 2 percent in 1985.

The Persian Gulf holds both the largest proven oil reserves and the highest surplus production capacity in the world. About 63 percent of the world's proven reserves are located in five Persian Gulf countries: Saudi Arabia, Kuwait, Iran, Iraq, and the United Arab Emirates. In contrast, the United States, the world's largest consumer of oil, has only about 3 percent (27 billion barrels) of the world's proven reserves.

Excess production capacity is also heavily concentrated in Persian Gulf countries. According to EIA statistics, about 76 percent of the world's excess production capacity of 5.0 MMBD is located in Persian Gulf countries (with about 26 percent in Iraq and Kuwait). Less than 10 percent of this capacity is located outside of OPEC. Excess production capacity outside of OPEC is expected to decline from 500,000 barrels per day to 200,000 barrels per day between 1990 and 1995.

QUESTIONS REMAIN ABOUT THE ROLE
THE SPR SHOULD PLAY IN SUCH SITUATIONS

Iraq's invasion of Kuwait again raised the issue of whether the SPR should be used to offset the current supply disruption's effect on the economy. The SPR, authorized by the Energy Policy

and Conservation Act (Public Law 94-163, Dec. 22, 1975), as amended, represents the nation's first line of defense in an oil supply disruption. The Secretary is authorized to draw down the SPR after the President determines that it is required by a "severe energy supply interruption."¹ This is defined in the authorizing legislation as a national energy supply shortage that

- is, or is likely to be, of significant scope and duration, and of an emergency nature;
- may cause major adverse impact on national safety or the national economy; and
- results, or is likely to result, from an interruption in the supply of imported petroleum products, or from sabotage or an act of God.

As of August 1990, approximately 590 million barrels of oil are contained in the SPR. The oil can be drawn down and distributed at a maximum rate of 3.5 MMBD for 90 days. After that time, the rate will decrease as the caverns holding the SPR oil empty. At the maximum rate, the bulk of the oil in the SPR would be drawn down within 200 days.

In 1984, the Secretary of Energy announced a policy of early and rapid drawdown of the SPR during a major oil disruption. This replaced DOE's previous position that the SPR would be used only as a last resort. The Secretary of Energy subsequently testified before the Environment, Energy, and Natural Resources Subcommittee of this Committee that early and rapid drawdown of the SPR will provide

¹The legislation also authorizes the use of the SPR if needed to meet the United States' obligations under the International Energy Program.

"greater and more immediate protection against possible price impacts than any other single action that the federal government can take."

The desirability of drawing down the SPR early was further emphasized in the February 2, 1990, report on an interagency study on the future size of the SPR. One of the factors considered was the uncertainty about using the SPR early when a supply disruption might increase in severity after much of the SPR had been drawn down. The report noted that several studies indicate that "across a large range of probabilities of how events might play out . . . early use of the SPR in a major interruption represents a consistently efficient strategy."

As you are aware, Mr. Chairman, the President decided not to authorize drawing down the SPR to offset the impact of the supply disruption resulting from Iraq's invasion of Kuwait. The reported basis for this decision was that (1) an actual shortage in supplies of crude oil had not developed and (2) the increases in price were not sufficient to justify use of the SPR.

It is difficult for us to evaluate the President's decision without knowing all of the facts upon which the decision was based, such as the likelihood that hostilities would lead to further disruptions. However, the decision does raise some long-term policy issues regarding the severity of disruption that would trigger the SPR's use.

Since 1975, when the Energy Policy and Conservation Act was passed, the world oil market has changed and prices have potentially become more volatile. The price of oil, for example, is now generally based on the spot market price at the time of delivery in the United States, rather than at the time of loading. Further, since the prices set by these markets reflect buyers' and sellers' perceptions of shortages and other market changes, as well

as actual supply and demand, even small supply interruptions may trigger price increases such as we have seen recently.

As the administration's February 1990 report noted, early use of the SPR can help offset the effects of oil crises that are fueled by panic-driven demand. However, in a 1985 report, we noted that many experts were skeptical about the government's ability to use the SPR early because of the difficulty of collecting and interpreting the information needed and the tendency to delay decision making to keep options open as long as possible.² A suggestion to overcome these problems was the adoption of procedures that would result in the automatic release of oil from the SPR when a chosen market indicator, such as the world oil price, shows an oil disruption to be serious. One procedure suggested to accomplish this was the sale, by competitive bidding, of options to buy oil from the SPR at an administratively set "strike price" during a predetermined future time period. The strike price would be a composite price of oil on the world market that, in the government's view, is high enough to warrant the release of oil from the SPR. The purchase of these options would be a way for the oil companies to self-insure against sudden increases in the price of oil. If the market price would rise above the strike price, the holders of options could exercise their options to purchase oil from the SPR at the strike price.

Our report noted that there were a number of technical obstacles that would have to be overcome before such a program could be implemented. The obstacles included determining the appropriate strike price at which the oil would be sold, the period during which the options could be exercised, the portion of the SPR that would be sold this way, and the administrative process for selling the options.

²Evaluation of the Department of Energy's Plan to Sell Oil From the Strategic Petroleum Reserve (GAO/RCED-85-80, June 5, 1985).

LONG-TERM ACTIONS NEEDED

The time is also ripe for consideration of other steps to address our energy dependency over the long term. We support the initiative to develop a national energy strategy and believe that such a strategy is sorely needed and long overdue. The need is evidenced by the trends toward increased energy consumption in the United States and the related concerns for the reliability of energy supplies and environmental protection. Timely completion of the strategy is important because the electric utility industry, the automotive industry, and others in the energy sector will be making decisions about what technologies and energy sources to pursue.

We also believe actions are needed to encourage improvements in energy efficiency to reduce U.S. dependence on oil and its vulnerability to potential oil supply disruptions. Significant gains in energy efficiency, largely attributable to new technologies, have been achieved in the United States since 1972, but continued progress is not certain.

A June 1990 study by the Office of Technology Assessment (OTA) reports that without the energy savings achieved between 1972 and 1985, the U.S. economy would have needed 20 percent more energy in 1985 to produce its output. However, OTA also reported that the 15-year trend of gains in energy efficiency was broken between 1985 and 1988 when energy use increased by 8 percent.

DOE's conservation research and development (R&D) program has contributed to the technology base that brought about improvements in national energy efficiency in the 1970s and early 1980s. The program's R&D successes include advances in fluorescent lights, windows, and industrial processes that are enhancing energy efficiency. However, funding for the program has declined

significantly in the past decade, reflecting a change in federal policies regarding R&D. The program sustained a 56-percent funding cut between 1980 and 1982, from \$346 million to \$152 million.³ In real terms, funding since 1982 has remained at about 50 percent or less of the level in 1980 even though the Congress has generally appropriated about twice the amounts requested by the administration in recent years. In January 1990, the Secretary of Energy said the Department will give increased priority to DOE's conservation program. However, the fiscal year 1991 budget request would reduce funding for the conservation R&D program by about 9 percent compared to the 1990 appropriation. Congress has not yet passed the 1991 appropriations for this program.

We have recommended changes to DOE's planning process for conservation R&D program that we believe would provide executive branch and congressional decision makers with better information upon which to base future funding recommendations and decisions.

CONCLUSION

In conclusion, the nation's ability to protect itself from and mitigate the impact of rapid increases in energy prices remains a matter of major concern. Although the country is better prepared to deal with energy crises than it was in the 1970s--because of the increase in energy efficiency and the existence of strategic reserves to replace lost supplies--concerns remain about the

- recent trends showing increasing oil consumption,
- increased reliance on imports from the Persian Gulf, and
- SPR's role in reducing the impact of these incidents.

³Amounts are expressed in 1982 constant dollars; years cited are fiscal years.

A national energy strategy that specifically addresses these concerns is sorely needed.

This concludes my statement. I would be pleased to respond to any questions you may have.