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Report to the Chairman, Subcommittee on Environment, Energy, and Natural Resources, Committee on Government Operations, House of Representatives

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INTERNATIONAL ENERGY AGENCY

Response to the Oil Supply Disruption Caused by the Persian Gulf Crisis

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National Security and
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The Honorable Mike Synar
Chairman, Environment, Energy,
and Natural Resources Subcommittee
Committee on Government Operations
House of Representatives

Dear Mr. Chairman:

The rapid increase in worldwide crude oil prices after Iraq's August 2, 1990, invasion of Kuwait focused renewed attention on how the use of emergency oil stocks held by members of the International Energy Agency (IEA) can mitigate the effects of an oil supply disruption. As requested, we reviewed (1) the IEA's decision on whether to draw down emergency oil stocks in response to the disruption in oil supplies that followed Iraq's invasion of Kuwait, (2) the U.S. policy on restraining oil demand, (3) the U.S. position on domestic sharing of oil supplies in an emergency and oil companies' views on that position, and (4) the extent of Department of Energy (DOE) efforts to educate the American public about U.S. participation in IEA.

Background

IEA was established in 1974 to help coordinate the responses of 21 oil-consuming industrialized countries to oil supply disruptions and other energy-related problems.[1] Under the IEA's emergency oil- sharing program, IEA members agreed to (1) set up contingency measures for reducing their oil demand by at least 7 percent during a supply disruption and (2) retain emergency oil reserves equal to 90 days of net imports. Should oil supplies be disrupted by 7 percent or more, IEA may ask the 21 countries to share their oil supplies under the IEA's emergency oil-sharing system.

Disruptions smaller than 7 percent of oil supplies are not covered by the IEA's emergency oil-sharing system. However, because of the economic damage some past disruptions have caused, the IEA countries agreed to coordinate the actions each country could take to help offset an oil supply shortfall. These actions could include drawing down emergency oil stocks in excess of the 90-day minimum or implementing demand restraint measures.

[1] IEA is headquartered in Paris, France. It consists of the following countries: Australia, Austria, Belgium, Canada, Denmark, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

To increase the likelihood that member countries can satisfy allocation obligations, IEA has long held that members should establish domestic fair sharing. "Fair sharing" refers to a domestic system to ensure that the burden of sharing oil to meet an IEA oil allocation obligation, which arises when the emergency oil-sharing system is activated, is borne proportionately or fairly by all oil companies. In other words, among oil companies operating within an IEA country, no one company is to be disproportionately penalized or benefited because of actions taken to help the country meet its IEA supply obligations.

Results in Brief

On August 9, 1990, IEA members decided that it was not necessary to draw down emergency oil stocks to offset the impact of the oil supply disruption following the August 2 invasion of Kuwait by Iraq. This initial decision has raised questions about whether a drawdown of emergency oil stocks during the early stages of the disruption would have helped to offset the adverse economic effects of the initial high prices for oil. About 5 months later, when the allied forces invaded Iraq, IEA members implemented a contingency plan for a coordinated stock drawdown and other measures in preparation for a potential supply shortfall. This decision represented the first time that IEA member countries took concerted action in response to an oil supply disruption, and they considered it a success.

To meet its IEA commitment to restrain oil demand in an emergency, the United States has long adhered to a policy of relying primarily on market forces. In addition, as a partial substitute for restraining oil demand, the United States supplements this approach by use of the excess oil in the Strategic Petroleum Reserve.[2] Specifically, the United States has on a number of occasions advised IEA that it prefers to let the market determine the price of oil, permitting the price to rise or fall without government restraint. Nevertheless, during the 1990 disruption, the United States called on U.S. oil companies to restrain their price increases.

The U.S. position on domestic sharing of oil supplies in an emergency is that the United States does not need a fair- sharing system. If an oil supply disruption triggers the IEA's emergency oil-sharing system, the United States has advised IEA that it would encourage its oil companies to voluntarily share their oil with other IEA countries. The understanding is that oil companies may replace the shared oil by bidding on Strategic Petroleum Reserve oil. Of eight major U.S. oil-refining companies we

[2]Petroleum stocks maintained by the federal government for use during periods of major supply interruption.

interviewed, four companies supported the need for a fair sharing program, three did not, and one had no opinion.

In 1984, a congressional committee recommended that DOE help ensure that the American public understands the importance of U.S. participation in IEA. However, DOE efforts to implement this recommendation have been limited.

IEA Decision on Drawing Down Emergency Oil Stocks

Responding to the oil supply disruption that resulted from Iraq's 1990 invasion of Kuwait, IEA members met on August 9, 1990, but decided it was not necessary to draw down their emergency oil stocks.[3] IEA believed that an actual shortage in crude oil supplies could be averted because existing supplies in tankers at sea, oil stocks in inventories held by oil companies, and additional production in countries with excess capacity would compensate for the lost oil. In addition, IEA members believed it possible that hostilities would lead to further supply disruptions; therefore, oil stocks should be held in reserve for such a contingency.

After the invasion, West Texas Intermediate crude oil prices rose from $22 per barrel on August 1 to $24 per barrel on August 2 and to $30 per barrel by August 7. Increased demand for oil, market perceptions of future shortages, and expectations of higher future prices fueled this increase. In addition to the invasion, the United Nations-imposed embargo on trade with Iraq and Kuwait interrupted exports of crude oil and petroleum products amounting to 4.3-million barrels per day.[4] According to IEA, this figure was less than the amount needed to trigger the IEA's emergency oil-sharing system. The Iraqi invasion of Kuwait in the third quarter of 1990 resulted in a gross disruption of 4.3-million barrels of oil per day. However, because of increased production, the net loss in oil for that quarter was estimated at 1.8- million barrels per day.[5]

[3]IEA member countries are required to maintain minimum emergency oil stocks equivalent to 90 days of the previous year's net oil imports. These stocks are under government control and are to be used only when IEA activates the emergency oil-sharing system to respond to a supply disruption of 7 percent or more. For smaller disruptions, IEA member countries may only draw down emergency oil stocks in excess of the minimum 90-day requirement.

[4]Iraq invaded Kuwait on August 2, 1990. The United Nations imposed an embargo on oil imports from Iraq and Kuwait on August 6, 1990. The United States deployed troops to Saudi Arabia on August 7, 1990. Desert Storm, the liberating of Kuwait, began on January 17, 1991.

[5]Based on IEA documents, in calculating the magnitude of an oil supply disruption IEA considers such factors as origins, causes, and magnitude of the disruption; probable evolution and duration; general state of the world economy; probable impact on particular countries; current nature and condition of the oil markets; and current available stock levels including the speed at which they can effectively be brought to the marketplace.

On August 29, 1990, the petroleum-exporting countries agreed to increase oil production. At an August 31, 1990, governing board meeting, IEA members again decided not to draw down emergency oil stocks. Nevertheless, throughout the oil supply disruption, IEA continued to examine various response options, assuming oil supply shortfalls of 1.5- million, 2.5-million, and 3.5-million barrels per day in the event of war.

By October 9, the spot price of oil was over $40 per barrel, a 90-percent escalation from August 1 prices.[6] This price rise, however, was mitigated by a drop to $30 per barrel toward the end of October and a fall to $25 per barrel in December 1990.

On January 11, 1991, however, in anticipation of damage to northern Saudi Arabian oil fields and disruptions in Persian Gulf shipping (which IEA believed could lead to economic damage), IEA members agreed to a contingency plan that addressed the shortfall assumption of 2.5-million barrels per day. The plan consisted of drawing down 2-million barrels of oil per day and saving 0.5-million barrels per day through demand restraint and fuel-switching measures. The plan, implemented on January 17, 1991, was particularly important because (1) it was the first time IEA member countries had drawn down stocks in a coordinated fashion and (2) there was no current shortage of oil supplies. In evaluating the implementation of the contingency plan, IEA member countries generally agreed that they had demonstrated solidarity to the world by taking prompt action in anticipation of a disruption. Furthermore, at its June 3, 1991, meeting the IEA's governing board at the ministerial level concluded that the Gulf crisis had tested and proved the value of the IEA's emergency response mechanisms. According to the governing board, this crisis also demonstrated IEA member countries' political will to take concerted action.

Questions About Decision Not to Draw Down Stocks

Since February 1984 the U.S. policy had called for an early and rapid drawdown of Strategic Petroleum Reserve oil during a major oil disruption. This policy replaced the DOE's previous position that the Strategic Petroleum Reserve would be used only as a last resort. The then- Secretary of Energy testified that the new policy would provide "greater and more immediate protection against possible price impacts than any other single action that the federal government can take."

In 1984 IEA members had agreed that for any oil supply disruption that threatened to cause severe economic damage and that amounted to less

[6] "Spot" market prices refer to the price of oil that is not under contract and that can fluctuate daily.

than 7 percent of world supply, they would coordinate an early drawdown of their emergency oil stocks or take comparable actions through reducing demand or switching to alternative fuels. This decision stressed the importance of early action to mitigate serious economic damage.

In May 1988 we testified that (1) the major contribution of emergency oil stocks is to dampen panic buying and excessive price increases during the early phases of a supply disruption and (2) an early drawdown buys time for decisionmakers to assess more fully the size and causes of a disruption and to develop, if appropriate, political or other coping responses.[7]

The increases in the price of oil following Iraq's invasion of Kuwait brought renewed attention to IEA members' emergency oil stocks and the role the stocks play in mitigating an oil supply disruption. Some economists and industry officials believed that the IEA's emergency oil stocks should have been used earlier to offset the supply disruption and the resulting economic impacts. In many ways they considered the August 1990 oil supply disruption to be an ideal case for such an early drawdown. A substantial loss of oil from world production occurred—about 4.3-million barrels per day—and this shortfall could not be made up immediately by increasing oil production elsewhere.

More importantly, the immediate increase in oil prices resulting from the disruption and the IEA's decision not to draw down emergency oil stocks had a serious impact on the economies of some IEA member countries. For example, the disruption caused crude oil prices to nearly double by October. According to DOE's Disruption Impact Simulator Model, this increase resulted in an estimated 0.89 percent decrease in the U.S. gross national product (GNP) during the third quarter of 1990. Further, the model indicated that the increase in oil prices caused an estimated 1.33-percent rise in the U.S. inflation rate and an estimated 0.35-percent hike in the unemployment rate during the same quarter of 1990. The price increase had a similar affect on the economies of other IEA member countries such as Germany and Japan.

Nevertheless, IEA members decided that a price increase in itself did not fulfill the requirements of their 1984 decision, nor did the disruption amount to more than 7 percent of world oil supply. Therefore, in the absence of a physical shortage, IEA members collectively decided not to use emergency oil stocks unless a real danger of a shortfall existed.

[7] Renewal of Authorities for U.S. Participation in the International Energy Program (GAO/T-NSIAD-88-32, May 17, 1988).

The IEA's Deputy Executive Director told us that there was little pressure among IEA members to react to the increase in petroleum prices. A Department of State official we interviewed agreed with the comments of the IEA's Deputy Executive Director. He also said that a likely reason for the IEA's decision was that IEA chose to let market forces work rather than react to price increases through early drawdown of emergency oil stocks.

Potential Benefits of Early Drawdown

DOE's Disruption Impact Simulator Model helps estimate the possible impacts of selected IEA emergency oil stock drawdowns on crude oil prices, GNP, and other economic indicators. As illustrated in table 1, this model indicated that if IEA had drawn down 1.5-million barrels per day during the third quarter of 1990, crude oil prices could have been about $20 per barrel, or almost $5 per barrel lower than the nearly $25-per-barrel rate that existed without an emergency drawdown. If the IEA's drawdown rate had been either 2-million or 2.5-million barrels per day, the DOE model indicated that crude oil prices could have been about $17.50 per barrel, or almost $7.50 per barrel lower.

Table 1: Estimated Price of Oil and Economic Impact After 4.3-Million-Barrels-per-Day Supply Disruption

	IEA daily drawdown rate		
Oil impact	**1.5- million barrels**	**2.0- million barrels**	**2.5- million barrels**
Crude oil (per barrel)	$20.14	$17.50	$17.50
Gasoline (per gallon)	1.21	1.15	1.15
Heating oil (per gallon)	0.88	0.82	0.82
Economic impact (percents)			
Decrease in GNP	0.35	a	a
Increase in unemployment	0.14	a	a
Increase in inflation	0.53	a	a

Notes: Impacts only for the third quarter 1990. There were no oil shortfalls in subsequent quarters as world oil production outpaced world demand.

[a]Not applicable because there were no disruption-related decreases.

Source: DOE's Disruption Impact Simulator Model.

These results must be used cautiously because the DOE model is a simplified tool for analyzing very complex relationships. The model does not explicitly account for market participants' expectations about future events. These expectations may have important economic ramifications in an oil supply disruption. Hence, the model results should be viewed as a rough estimate.

U.S. Demand Restraint Policy

The United States relies primarily on market forces or rising oil prices to reduce oil consumption. As a partial substitute for restraining oil demand, it supplements this approach by drawing down Strategic Petroleum Reserve oil in the event of a supply disruption. This action satisfies the U.S. obligation to IEA.

The stated U.S. policy of relying on market mechanisms to allocate energy resources is based on the belief that any government attempt to administratively allocate oil consumption would cause an inefficient allocation of energy resources and hence economic losses for the country. However, on August 8, 1990, the President asked U.S. oil companies to show restraint by not raising oil prices. In addition, following the President's request, a senior U.S. senator sent telegrams to 11 U.S. oil companies urging them to delay any decision to increase the price of petroleum products until clear and convincing justifications could be presented.

Attacking the problem from a different angle, DOE, in conjunction with the nonprofit Advertising Council, implemented a public information program to reduce U.S. energy consumption. The Department focused its program on the transportation sector, which accounts for 63 percent of U.S. petroleum consumption. According to information provided by its Director of Public Affairs, DOE received $36.6-million worth of free public service media announcements in the fourth quarter of 1990, as shown in table 2.

Table 2: Type and Value of Free Public Service Announcements Received by DOE (October-December 1990)

Media	Value
Television	$519,945
Radio	32,541,250
Newspapers	357,882
Outdoor (e.g., billboards)	3,157,141
Total	**$36,576,218**

Source: DOE.

DOE officials have not estimated the impact of the program on reduced demand for imported oil. According to DOE officials and documents, available data do not permit precise separation of consumer behavior factors attributable to price and other market conditions from factors attributable to DOE's public information program.

U.S. Position on Fair Sharing

Fair sharing is not an IEA legal requirement, but its significance to the effective implementation of IEA allocations is recognized in the IEA's Emergency Management Manual. The manual places responsibility for fair sharing on the individual member governments, recognizing the differences among member governments with respect to competition policies and antitrust laws.

According to DOE officials, the U.S. position on fair sharing has not changed since early 1984. At that time, following a reexamination of the fair-sharing issue, the Secretary of Energy informed Congress that a U.S. domestic fair-sharing program was not needed because (1) companies can seek to replace oil sold by voluntary offers by bidding on the Strategic Petroleum Reserve oil when the government draws down Strategic Petroleum Reserve oil, (2) companies can also seek replacement oil in the market at spot prices and can charge spot prices for their voluntary offers, (3) companies will be strongly encouraged by the U.S. government to make voluntary offers, and (4) companies must contend with the possibility that the U.S. government may issue mandatory supply orders to specific companies if sufficient voluntary offers are not made. The Secretary felt that the companies would prefer making voluntary offers to dealing with government intervention.

In November 1990 the Secretary of Energy told Congress that if the emergency sharing system were triggered, the United States would ordinarily have an allocation right to receive oil rather than an obligation to share oil.

Therefore, he concluded that fair sharing would not be an issue. However, if the United States were to incur an obligation, U.S. policy would be to encourage oil companies to make voluntary offers rather than to put a fair-sharing program in place, according to the Secretary.

Under the IEA's International Energy Program, member countries subject their supplies to an international allocation system using a predetermined formula to share with or receive oil from each other if disruptions exceed 7 percent of their imports.[8] We simulated the activation of the IEA's emergency oil-sharing system using DOE's Disruption Impact Simulator Model, assuming a 4.5-million-barrel-per-day loss of oil exports from Iraq and Kuwait (the disruption level needed to activate the IEA's emergency sharing system) and no increased production. Under this scenario, the United States would have an allocation right to receive approximately 1.15-million barrels of oil per day.

The Secretary of Energy also said, in November 1990, that releasing Strategic Petroleum Reserve oil would motivate companies to make voluntary offers with previously planned imports to countries with allocation rights. He also pointed out that the current practice of price indexing with respect to Strategic Petroleum Reserve crude oil sales reduced the risks involved. According to DOE, price indexing spreads the risk of fluctuating oil prices. For example, if at the time of delivery the spot price of oil is lower than the bid price, price indexing allows an adjustment to be made to reflect market conditions. DOE officials believe that as long as oil companies sell volunteered oil at the market price they should not be adversely affected when they bid on Strategic Petroleum Reserve oil to replace it.

Oil Companies' Views of Fair Sharing

U.S. oil companies have diverse views of the U.S. fair-sharing policy, according to DOE officials. Representatives from four oil-refining companies told us that they see the need for the United States to have a program to assure that voluntary oil-sharing does not impose an unfair burden on participating companies. These representatives stated that guaranteed access to and use of Strategic Petroleum Reserve oil to replace volunteered oil should be a part of such a fair-sharing program to encourage companies to make voluntary offers.

Representatives of three other oil-refining companies did not see a need for a fair-sharing program and suggested that the market should be allowed to

[8]For further information on the emergency sharing system, see Status of U.S. Participation in the International Energy Agency's Emergency Sharing System (GAO/NSIAD-85-99, June 13, 1985).

work unimpeded, thus ensuring an efficient flow of oil. Another oil-refining company representative had no opinion on the fair-sharing issue and said that his company mainly sells oil domestically and therefore should never be called upon to participate in the IEA's emergency oil-sharing program.

The lack of a U.S. fair-sharing program has concerned some oil companies for quite a while. In a February 1985 report we found that 12 of 15 oil companies responding to our survey wanted the federal government to assume or be prepared to assume a role in assuring that voluntary oil sharing does not impose an unfair burden on participating companies.[9] Some suggested that the use of Strategic Petroleum Reserve oil to replace volunteered oil would encourage companies to make such voluntary offers. However, according to DOE, the Department subsequently solicited industry proposals for developing a fair-sharing program but received negligible responses.

Status of DOE'S Action on Previous Congressional Recommendation

In May 1984 the House Committee on Government Operations recommended, among other things, that DOE act to help ensure that the American public fully understands the U.S. policy in the event that an IEA emergency response ever requires the United States to share its oil supplies. The Committee recommended educating the American public on the importance of U.S. participation in IEA.[10] DOE has taken limited action to respond to the Committee's 1984 recommendation.

On September 5, 1990, the House Committee on Government Operations asked DOE to describe what the agency had done over the past years in response to its 1984 recommendation. DOE stated that, given the complex nature of the IEA's emergency oil-sharing system, the best way to educate the public is to involve state energy offices in tests of the system. However, DOE acknowledged that although all state energy offices had been given training and test materials, only a modest number had participated in the 1985 and 1988 tests of the emergency sharing system.

DOE's Office of Public Affairs told us that although the Department may have made no specific effort on this recommendation, DOE has issued a number of press releases over the years regarding U.S. participation in IEA.

[9] Survey of Oil Company Views on Fair Sharing in an International Oil Supply Disruption (GAO/NSIAD-85-45, Feb. 5, 1985). The eight oil companies we contacted for this report were also part of the 1985 survey, and some had changed their positions.

[10] U.S. Congress, House of Representatives, Preparing for the Next Energy Crisis: DOE's Management of the International Oil Sharing Test, 98th Cong., 2nd sess., May 17, 1984, Report 98-786.

In addition, the Office said that it is difficult to develop a public service media campaign to educate the public on this subject.

Our review of DOE press releases from August 1990 to January 1991 showed that while these documents described U.S. participation in IEA meetings and decisions reached, they did not provide specific information on educating the American public on the importance of U.S. participation in IEA. In addition, our review of press releases by the White House indicated it had not provided such information either.

Scope and Methodology

In developing information for this report, we reviewed and analyzed IEA and Departments of State and Energy documents on the oil stocks and demand restraint issues. We interviewed officials of the Departments of State and Energy. We obtained information from IEA officials in Paris, France, about the IEA's deliberations on whether to draw down emergency stocks. We reviewed the IEA's drawdown and contingency plans. To get an indication of the potential benefits of an IEA drawdown, we also used a DOE model, the Disruption Impact Simulator, to estimate the potential impacts of selected IEA drawdowns on crude oil prices, GNP, and other economic indicators. We examined drawdowns of 1.5-million, 2-million, and 2.5-million barrels of oil per day relative to the actual disruption of 4.3- million barrels per day that occurred during the third quarter of 1990. We did not, however, evaluate the model in detail.

We interviewed officials from eight major U.S. oil-refining companies that advise the IEA on petroleum matters to obtain their views on the U.S. position regarding fair sharing.

To review the status of DOE actions to educate the American public about U.S. participation in IEA, we obtained information from appropriate Energy officials and examined DOE press releases issued between August 1990 and January 1991. To determine whether others in the executive branch had performed this role for DOE, we reviewed White House press releases for the same period.

We performed our work from February through November 1991 in accordance with generally accepted government auditing standards.

As requested, we did not obtain written agency comments on this report; however, we discussed our findings with program officials at the Departments of State and Energy and with IEA officials and incorporated their comments where appropriate.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies to the Secretaries of State and Energy and to IEA as well as other interested congressional committees. We will also make copies available to others on request.

Please contact me on (202) 275-4812 if you or your staff have any questions concerning this report. The major contributors to this report are listed in appendix I.

Sincerely yours,

Allan I. Mendelowitz

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