
Energy Policies and the Experience of the Persian Gulf Crisis

The experience of the Persian Gulf crisis provided the first occasion for testing the usefulness of current policies guiding the release of oil from the Strategic Petroleum Reserve and activating emergency programs of the International Energy Agency (see Box 4). The performance of the SPR and the IEA in that crisis, however, presents serious cause to rethink the design of the nation's basic policies for responding to energy emergencies.

A Look at Government Actions and the Market's Response During the Persian Gulf Crisis

At the outset of the Persian Gulf crisis, the official policy of the U.S. government called for the early, coordinated release of the nation's emergency stocks, stored in the Strategic Petroleum Reserve, to offset that supply loss. That policy continues today.¹ The stated objectives of SPR release were to replace lost supplies and lower oil prices. Early in the crisis, however, the difficulties of deciding whether those actions were necessary or even desirable became apparent.

1. Department of Energy, *Energy Security: A Report to the President* (March 1987), p. 215; and Department of Energy, *United States Policy for Responding to Oil Supply Disruptions* (February 1994).

What the United States Did on Its Own

The first substantive action by the United States in response to the August 2, 1990, invasion of Kuwait by Iraq was to suspend further acquisitions of oil for the Strategic Petroleum Reserve. Measured at purchase rates before August, that step reduced U.S. oil demand by less than 50,000 bbl/day. Although not significant in volume, the action did reduce the demand for oil imports and contributed in a positive, although minor, way to reducing price volatility.

Next, on August 9, President Bush publicly called on U.S. oil companies to exercise restraint in raising the prices of petroleum products. The White House later gave this request more support when the Department of Justice subpoenaed oil companies' records on gasoline pricing.² Although some analysts viewed that action as de facto price control, little evidence exists that gasoline or heating oil prices nationwide changed as a result.³ In fact, the President's action in this case was inconsistent with the U.S. policy of letting the market system work and probably

2. Analyses of the events of this period appear in Philip K. Verleger Jr., "Understanding the 1990 Oil Crisis," *The Energy Journal*, vol. 11, no. 4 (1990); M.A. Adelman, "The 1990 Oil Shock Is Like the Others," *The Energy Journal*, vol. 11, no. 4 (1990); and George Horwich, "Energy Policy, Oil Markets, and the Middle East War: Did We Learn the Lessons of the 1970s?" in J. Dorian and F. Fesharaki, eds., *International Issues in Energy Policy, Development, and Economics* (Boulder, Colo.: Westview Press, 1992).

3. An analysis of the relationship between petroleum price changes and the President's call for restraint by U.S. oil companies appears in Horwich, "Energy Policy, Oil Markets, and the Middle East War."

Box 4.
Economic Highlights of the Persian Gulf Crisis

The United Nations' boycott of Iraqi and Kuwaiti oil in response to Iraq's invasion of Kuwait on August 2, 1990 had the effect of taking a total of 4.3 million barrels per day (bbl/day) of crude oil and petroleum products out of the world market. As a result, the average landed cost of imported oil in the United States went from \$17.65 per barrel in July 1990, to nearly \$31.50 in October. (Landed cost includes the purchase price and transportation costs.) At the outset, oil markets were concerned that any replacement crude oils would be markedly heavier than the lost Iraqi and Kuwaiti supplies.

That loss, which amounted to about 7 percent of a world supply that was just over 60 million bbl/day, was nominally sufficient to activate the International Energy Agency's emergency programs for restraining demand and sharing oil, which are triggered by a 7 percent loss of world supplies. However, in the succeeding months, Saudi Arabia and other countries increased their sales

significantly, and by November 1990, had completely offset the supply lost as a result of the boycott--both in volume and quality. Demand had remained high for light crude oils by refineries in Europe and Asia, which had difficulty in compensating for the loss of Kuwaiti refined products.

From their peak in early October 1990, oil prices fell progressively through the winter and spring of 1991--even before the start of the air and ground wars. Rising oil production worldwide was reaching the market, and a weakening U.S. economy and mild winter were contributing to lower demand. The beginning of the end for the oil crisis came with the mounting success of the Allied air campaign, which began on January 16, 1991. A final price collapse occurred with the immediately apparent success of the Allied ground initiative, which began on February 24, 1991. The United Nations forces declared a unilateral cease fire on February 28, 1991.

exacerbated the supply situation by a small amount, undermined the nation's progress in reducing oil imports, and made prices more volatile. (One Southern California oil company that heeded the President's call encountered a minor supply shortage and gaso-line lines--a natural consequence of price controls.)

The Administration also reacted with concern to the increased exports of petroleum products in the fall of 1990, though it took no actions under available authority to restrict export licenses. The increase in exports of light petroleum products (such as gasoline and jet fuel) at that time, however, was totally consistent with the efficient operation of the market at the time. Refineries in Europe that lost access to light petroleum products from Kuwaiti refineries were experiencing great difficulty in raising their product yields to make up for that loss. (Kuwait was exporting over half of its crude oil at the time in the form of products, primarily to Europe.) In comparison, refineries in the United States were technologically more sophisticated and more capable of adjusting to the changing mix of crude oils and simultaneously increasing the supply of light petroleum products. Thus, had the Administration succeeded in restricting

product exports, world oil supply problems would only have become worse.

Also at the President's direction, the Department of Energy initiated a test sale of SPR oil at the end of September 1990. On September 28, DOE issued a Notice of Sale for up to 5 million barrels of crude oil to be delivered over a 30-day period.⁴ That offer included 2.8 million barrels of high-sulfur (or sour) oil and 2.2 million barrels of low-sulfur (or sweet) oil. Bids were received by October 5, and contracts were awarded on October 18 for almost 4 million barrels. The sale included about 1.7 million barrels of sour oil and 2.1 million barrels of sweet oil. Actual delivery of this smaller amount took place over the next 45 days at an average rate of less than 90,000 bbl/day.

On the whole, the oil industry reacted negatively to the test sale. The test demonstrated a number of problems that indicated DOE was not ready for a full-scale drawdown. Also, many analysts believed

4. Department of Energy, *Strategic Petroleum Reserve Annual/Quarterly and Test Sale Report*, DOE/FE-0220P (February 15, 1991).

that DOE should have conducted a larger sale in a serious effort to bring oil prices down. (Test sales are limited by the Energy Policy and Conservation Act to 5 million barrels.)

Among the most obvious problems, the base reference price for the sour crude oils in the Notice of Sale was too high--only \$0.54 per barrel lower than the price for sweet oils. As a result, DOE sold much less of the sour oil than it had planned. Even after increasing its offering of low-sulfur crude oils beyond the initial level, DOE was not able to sell the entire 5 million barrels it had planned to release. In addition, the U.S. Jones Act restriction that only U.S. tankers and barges could pick up this oil made it difficult for oil companies to locate qualified vessels.

The relative offering of sweet and sour oils was additionally troublesome because it generally approximated the relative volumes DOE had stored based on past expectations of future market needs, not on actual current market needs. The sweet oils in the SPR are generally lighter oils, which yield higher volumes of light petroleum products such as gasoline and jet fuel. It was precisely that type of oil that was thought to be in short supply at the outset of the crisis. By way of explanation, many analysts believed that the lost crude oils were of higher quality than the oils that would replace them, which later turned out not to be the case.⁵ Also, some refiners abroad were having difficulties in meeting the demand for light products with the available crude oils.

Even though the test sale demonstrated that the Strategic Petroleum Reserve could deliver some oil to the market, the fundamental message the test sent to oil market analysts was that the government was not willing to make the oil available even in the face of a 7 percent loss of world supplies and a doubling of world oil prices. After the test sale, the industry greatly discounted the potential contribution of the reserve to restoring the world's supply buffer.

What the International Energy Agency Did

The Governing Board of the International Energy Agency first met on August 9, 1990, to review their options. At that time, the board endorsed activating the agency's Emergency Data System but concluded that the disruption was not severe enough to trigger the Emergency Sharing System. The agency estimated a net loss of oil volumes that reflected expected increases in oil supply from excess production capacity worldwide and from the potential drawdown of nonemergency stocks. Although the market would have responded favorably to a substantial release of emergency reserves, oil traders were relieved that oil sharing was not invoked.

The IEA's Standing Group on Emergency Questions worked throughout the crisis with individual members on measures to be taken in case of further disruptions and on profiles of emergency capabilities. Yet little came of it. Up until the start of military actions, the IEA watched and talked but took no active role in helping to resolve local product imbalances (jet fuel in particular).

In anticipation of imminent military action, the IEA's Governing Board decided on January 11, 1991, to put into place a contingency plan. It had advertised that the plan would increase the available world supply by 2.5 million bbl/day through stock release, restraint on demand, fuel switching, and increased indigenous production (see Table 3). The plan was implemented on January 17, 1991, with the start of the air war.

Nominally, stock drawdown was to account for 80 percent of the total emergency response (2 million bbl/day), with 17 members of the Organization for Economic Cooperation and Development purportedly making stocks available. In reality, any real increase in supply from the stock drawdown in that plan could only have come from the large government-owned stocks of the United States and Germany. The state-owned Japanese National Oil Company also held about 200 million barrels of oil in the fall of 1990 but chose not to release that oil.⁶

5. "Products a Problem Due to Heavier Crude Slate," *Petroleum Intelligence Weekly* (September 3, 1990), p. 4.

6. "Big Strategic Stocks Held Closely Outside US," *Petroleum Intelligence Weekly* (October 15, 1990), p. 1.

Some countries counted on private stock draw-down in response to higher prices, others encouraged private companies to reduce stocks, and still others lowered minimum stock requirements for private companies. But those measures were largely voluntary, and none would have placed more oil in the world market. For example, Japan lowered its requirement for the number of days supply (stocks divided by consumption) that private companies should

hold. But companies could meet that goal by increasing their sales (and imports) rather than reducing stocks--just the opposite of what was wanted.

The remaining 20 percent of the plan (0.5 million bbl/day) was to be met by restraining demand (0.4 million bbl/day), switching fuel (0.1 million bbl/day), and increasing indigenous production. Most of that response, however, was to stem from higher prices

Table 3.
Emergency Response Program Implemented by the Governing Board of the International Energy Agency

Country	Proposed Contribution to Oil Savings (Thousands of barrels per day)				Total
	Stock Drawdown	Demand Restraint	Fuel Switching	Increased Production	
Australia	0	33	0	13	46
Austria	6	5	5	0	16
Belgium	9	18	0	0	27
Canada	0	115	0	0	115
Denmark	11	2	0	0	13
Finland ^a	0	12	0	0	12
France ^a	59	58	9	0	126
Germany	169	18	0	0	187
Greece	9	9	0	0	18
Iceland ^a	0	1	0	0	1
Ireland	5	1	0	0	6
Italy	74	24	32	0	130
Japan	350	0	0	0	350
Luxembourg	0	2	0	0	2
Netherlands	25	7	0	0	32
New Zealand	3	0	1	3	7
Norway	5	7	0	0	12
Portugal	10	2	5	0	17
Spain	0	62	0	0	62
Sweden	0	21	0	0	21
Switzerland	6	12	1	0	19
Turkey	0	20	11	0	31
United Kingdom	120	0	0	0	120
United States	<u>1,125</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,125</u>
All Countries	1,987	429	64	16	2,500

SOURCE: Congressional Budget Office based on data from the International Energy Agency.

a. Not members of the International Energy Agency before the Persian Gulf crisis.

and responses to government information campaigns or requests for restraining demand voluntarily. There was certainly no analytic basis for projecting any particular level of demand savings for these programs. For some nations, previous reductions in demand or increases in production were counted (see Table 4).

Overall, the restraints on demand by the International Energy Agency could not have added any measurable volume to the available world supply of oil. If fully implemented, the IEA contingency plan would actually have increased available supply by only about 1.5 million barrels per day in January 1991--much less than the 2.5 million barrels per day claimed by the agency. And of this smaller amount, 75 percent would have come from the United States.

Within the first hours of the air war, it was immediately apparent that the United Nations' forces would be successful and that Saudi oil supplies were no longer threatened. Accordingly, the IEA's Governing Board decided on January 28, 1991, to keep the contingency plan in effect, but allowed members to carry it out flexibly according to conditions of supply and demand.

From the perspective of the oil market, the available buffer of excess production capacity increased. Prices became less volatile, and the demand for oil for private inventories declined.

With the collapse of oil prices, the IEA members only partially carried out the program, and only a part of the strategic stocks offered by the United States and Germany were taken up. The average price of imported crude oil in February 1991 was \$17.26 per barrel, slightly below the level in July 1990. The United States sold 17.3 million barrels of the 33.75 million barrels offered for sale, and Germany sold about half of the 5 million barrels it pledged, all in diesel and fuel oil.

What the United States Did Within the IEA

In coordination with the International Energy Agency, the U.S. Department of Energy activated its emergency data systems on August 10, 1990. In

addition, the Energy Information Administration instituted a new publication, the *Energy Situation Analysis Report*, which was issued weekly until the first week of March 1991. The availability of solid information on petroleum production, consumption, stocks, and prices--both through data publications and special telephone hotlines--helped to control rumors and reduce uncertainty.

The U.S. government carried out portions of its Federal Emergency Management Plan in September. Among other things, the plan directed federal agencies to change their buildings' thermostat settings to conserve energy. In addition, the Secretary of the Interior authorized increased, emergency production rates for oil wells on government lands, as permitted by the Energy Policy and Conservation Act.

Moreover, DOE launched a major publicity campaign, in conjunction with the Advertising Council, to encourage conservation through voluntary actions. According to the General Accounting Office, the federal government received \$36.6 million worth of free advertising in the fourth quarter of 1990.⁷

Most significantly, on January 16, 1991, President Bush authorized the drawdown and distribution of oil from the Strategic Petroleum Reserve as part of the coordinated contingency plan agreed to by members of the Organization for Economic Cooperation and Development. (The IEA countries at that time were a subset of the OECD membership, with France, Finland, and Iceland not formally in the IEA.)

On January 17, the Department of Energy issued a Notice of Sale for 33.75 million barrels of oil. The notice advertised 11.25 million barrels of low-sulfur oil at a base reference price of \$28.90 per barrel and 22.5 million barrels of high-sulfur oil at a base reference price of \$26.16 per barrel. To meet the U.S. commitment to the IEA of 1.125 million bbl/day, that oil was to be sold within a month, with

7. General Accounting Office, *International Energy Agency: Response to the Oil Disruption Caused by the Persian Gulf Crisis*, GAO/NSIAD-92-93 (1992).

Table 4.
Plans of the Member Countries of the International Energy Agency for
Responding to the Persian Gulf Crisis

Australia	Meet share of 2.5 (46 thousand barrels per day) with price response already taken (no additional plans)
Austria	Meet share of 2.5 with voluntary actions (nothing planned)
Belgium	Nothing additional planned
Canada	Nothing additional planned
Denmark	Meet share (2,000 barrels per day) with energy savings campaign (no additional plans)
Finland	Nothing planned (no capability exists)
France	Meet share of 2.5 with energy savings campaign, reduced speed limits, and lower private stock-holding obligations (total 94,000 barrels per day)
Germany	Meet share of 2.5 with release of 650,000 metric tons of oil products (168,000 tons finally sold)
Greece	Meet share of 2.5 (71,000 tons) with information campaigns, compulsory measures (speed limits and so on) and stock draw (only 20,000 metric tons). No stocks actually drawn.
Iceland	Meet share with information campaign (no additional plans)
Ireland	Meet share of 2.5 with stock draw by national electric utility company (no stocks drawn). Price controls were in effect.
Italy	Meet share of 2.5 with stock draw, fuel switching, temperature reduction (no stocks drawn)
Japan	Meet share of 2.5 with release of 350,000 barrels per day, to be accomplished by lowering company-required holdings by four days supply. Nothing done. No additional plans.
Netherlands	Meet share of 2.5 by selling government stocks. None sold.
New Zealand	Meet share of 2.5 with increased production, draw of private stocks (nothing done)
Norway	Meet share of 2.5 with voluntary demand restraint (no additional plans)
Spain	Meet share of 2.5 with demand restraint measures already taken
Sweden	Meet share of 2.5 with information campaign (nothing done)
Switzerland	Meet share of 2.5 with voluntary demand restraint and reduction of private storage requirement (200,000 tons); 50,000 metric tons actually made available (no data on actual use)
Turkey	Meet share of 2.5 with information campaign and support for utility fuel switching. No additional plans.
United Kingdom	Meet share of 2.5 (120,000 barrels per day) by voluntary private stock draw. Companies asked to release 450,000 metric tons. (Savings calculated from difference between forecast and actual indicates 54,000 metric tons were drawn in February. No additional plans.)

SOURCE: Congressional Budget Office based on information from the International Energy Agency.

delivery taking place over an extended period. On January 25, the agency received bids for a much greater amount, 44.8 million barrels, but not in the proportions offered: 27.9 million barrels for low-sulfur oil, and 16.9 for high-sulfur oil. (The relative volumes the Department of Energy offered reflected the relative volumes the SPR held.)

After the International Energy Agency called for voluntary implementation of the contingency plan, the Department of Energy scaled back its offer. Between February 1 and February 6, DOE awarded contracts for 17.3 million barrels: 14.35 million barrels of low-sulfur oil at \$28.52 per barrel and 2.95 million barrels of high-sulfur oil at \$25.67 per barrel. Deliveries took place between February 5 and March 31, reflecting an average flow rate of 313,000 bbl/day for two months.

The Department of Energy was able to apply some lessons from the test sale in September 1990 to the sale in January 1991. In particular, the Jones Act, requiring that oil moving between U.S. ports be transported in U.S.-flag vessels, was temporarily waived to expedite the SPR distribution. However, although DOE offered a greater price differential on low- and high-sulfur oil, the differential was still not sufficient to attract the level of interest in high-sulfur oil that DOE expected. The difference between the offer and award reflected heavy demand for light, low-sulfur oil (as reflected in the demand for light products) and little demand for heavy, sour oil (as reflected in the glut of heavy products like residual fuel oil).

Identifying Problems with Policy Goals and Implementation

Many analysts were critical of the response by the Department of Energy and the International Energy Agency to the events of the Persian Gulf crisis. Despite nearly two decades of planning, both agencies found themselves back at the drawing board in deciding whether the crisis, which disrupted a large but replaceable share of the world's oil supply, was enough of an emergency to require a government

response. Yet for all of that fretting, no actual evidence of physical shortages in the country emerged. Prices rose quickly but subsequently retreated without the benefit of the government's policy tools for energy emergencies. The U.S. economy was slipping back into recession, but the contribution of higher oil prices to the decline in economic growth did not appear to be great.

The benefit of hindsight makes it easier to criticize government decisions about when and how to respond. The rapid increase in oil prices, coupled with indicators of an economic downturn in the United States, would suggest significant economic benefits from government actions to lower prices. But at the time decisionmakers faced enormous uncertainty about how the Persian Gulf crisis would come out and how long it would last. The crisis could have ended rapidly, in which case the SPR would not have been needed; conversely, it could have dragged on for years, in which case the SPR would not have helped. Moreover, the politics of this situation extended well beyond the economic effects of a loss of oil supplies. For example, because the loss resulted from a United Nations' boycott--spearheaded by the United States--some analysts have argued that a release of SPR oil was justified on the basis of compensating U.S. allies for participating in the boycott and the war effort.⁸

Even given the uncertainties and political constraints on policy in this period, the experience of the crisis highlighted a number of fundamental problems with the policies guiding the use of the SPR and IEA programs and with the programs themselves. Those problems fall into two areas: impediments to carrying out the basic U.S. policy of early, coordinated drawdown of SPR oil; and problems related to the process for selling SPR oil.

What Are the Impediments to Planning for an Early SPR Release?

U.S. policy calls for the early, coordinated release of SPR oil in response to a severe supply disruption. However, the concepts of "early" and "coordinated"

8. Based on a conversation with Lawrence J. Goldstein, President, Petroleum Industry Research Foundation, Inc.

do not mix well in the context of SPR release policy. Significant obstacles exist inside the United States and within the IEA community that make early coordination difficult. The bureaucratic process for decisionmaking itself presents an obstacle. In addition, the parties or countries involved have fundamental differences, including different positions as oil consumers and producers, different degrees of reliance on free markets, and different outlooks for economic growth. All of these factors impede basic recognition of the problem, not to mention any agreement on solutions. Finally, domestic and international indecision on the use or nonuse of emergency reserves merely adds to market uncertainty.

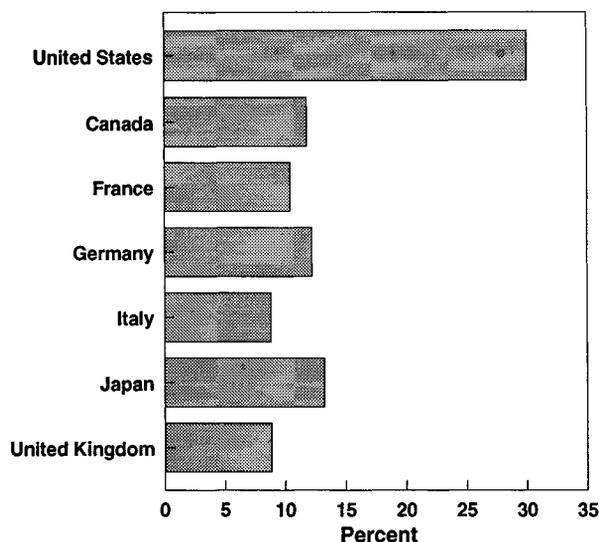
Obstacles to Developing a U.S. Consensus. Among the most basic problems are certain misconceptions about what an SPR release can and should accomplish. Related to that issue are inherent conflicts between the potential price effects of a release and other policy goals.

Lowering oil prices has been the stated, direct objective of U.S. policy for the sale of SPR oil. Yet at the same time, the United States supports relying on the free-market system and rising prices as the most important vehicle for restraining oil demand, raising domestic oil production, and lowering oil imports. In the international arena, higher oil prices during the Persian Gulf crisis were widely seen as necessary to bring forth higher oil production from other countries and even to help Saudi Arabia pay for its defense--hence, a further conflict of goals.

The political side of this dilemma is that the interests of oil producers and oil-producing regions of the United States are pitted against those of oil consumers. Oil producers benefit directly from higher prices; oil consumers are harmed. Those different interests are echoed in the Congress and in the political pressures brought on the Department of Energy and the President in deciding whether to authorize the sale of oil from the Strategic Petroleum Reserve.

Obstacles to Developing an International Consensus. Early coordination is also difficult if other industrialized nations and the United States do not share the same view of the seriousness of a crisis or the economic benefits of a given response. Indeed,

Figure 5.
**Change in Local Gasoline Prices for G7 Nations,
Second Quarter 1990 to Fourth Quarter 1990**



SOURCE: Congressional Budget Office using data from the Organization for Economic Cooperation and Development.

NOTES: Changes are based on quarterly averages.

G7 nations = Group of Seven industrialized countries.

any inability to reach consensus adds to uncertainty in oil markets.

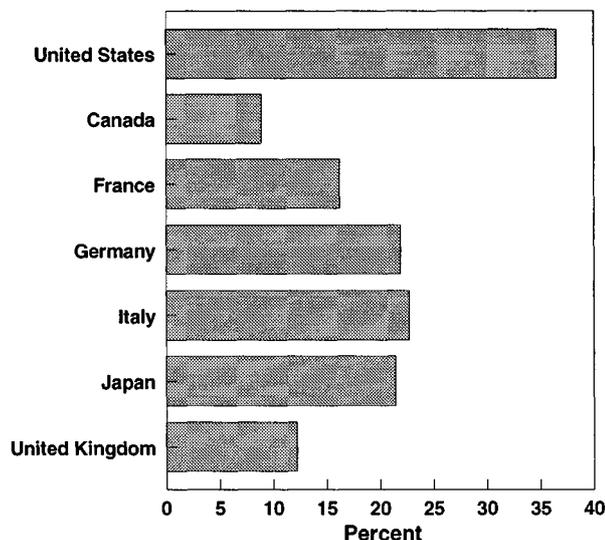
Countries differed as to what to do during the Persian Gulf crisis based on different domestic exposure to oil price increases, states of economic health, levels of dependence on oil supplies from the Persian Gulf, and levels of capability to respond to emergencies. Most important, those differences still persist and suggest future difficulties in establishing an international consensus for response.

Smaller Changes in Oil Product Prices Abroad. First and foremost, retail prices for key petroleum products purchased by consumers increased by a smaller percentage in many countries than in the United States. Hence, other countries may not have sensed the same political urgency as the United States to do something about the price change. That lack of urgency was especially true for gasoline and diesel in the first months of the crisis (see Figures 5 and 6).

The basic reason for this difference is that energy taxes in other industrialized countries are much higher than in the United States. As an arithmetic consequence, a given change in crude oil costs leads to a smaller percentage change in retail prices there (see Figure 7). For residential heating oil, which other countries tax at a lower rate, percentage increases in prices were comparable with those in the United States (see Figure 8). In addition to their general value-added taxes, which increase with oil prices, the larger European countries and Japan all have special excise taxes on consumer oil products. (A supplemental motor fuels tax imposed in Germany in the spring of 1991--to help pay for their contribution to Desert Storm and for reunification--later pushed up their retail gasoline prices even more.)

A second reason for the smaller relative increase in prices abroad was the depreciation of the U.S. dollar against other major currencies during this period. The depreciation and the denomination of world oil prices in U.S. dollars meant that crude oil costs in

Figure 6.
Change in Local Diesel Prices for G7 Nations,
Second Quarter 1990 to Fourth Quarter 1990

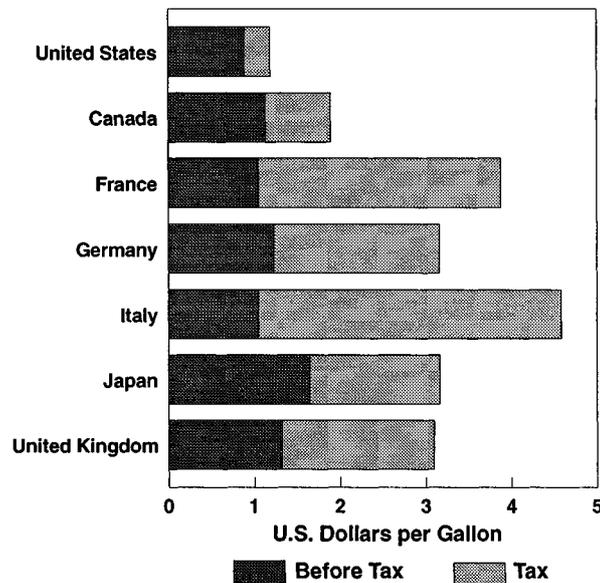


SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

NOTES: Changes are based on quarterly averages.

G7 = Group of Seven industrialized countries.

Figure 7.
Tax Share of Prices on Gasoline Collected by
the G7 Nations, Second Quarter 1990



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

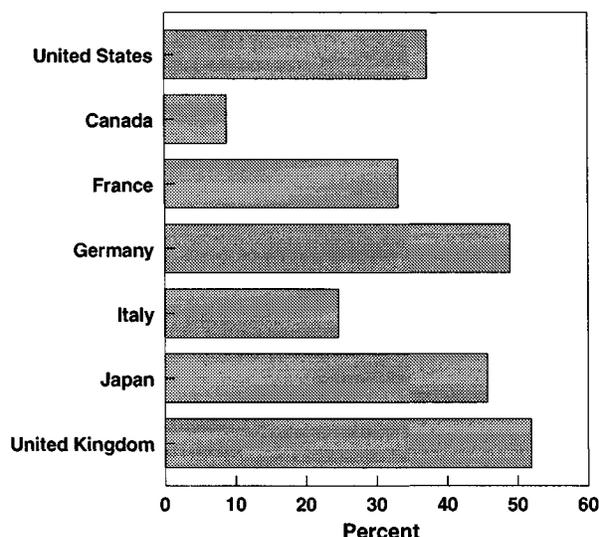
NOTES: Prices for France and Germany are for leaded regular gasoline. Price for Italy is for leaded premium gasoline. All other prices are for unleaded regular gasoline.

G7 = Group of Seven industrialized countries.

local currencies abroad did not increase as much as crude oil costs in the United States (see Figure 9). The depreciation may have stemmed from factors unrelated to the oil crisis--such as rising interest rates in Germany, a consequence of that country's reunification efforts. Regardless of the reason, had the value of the dollar been rising instead of falling, those countries might have felt a greater urgency to act.

Another reason for differences in relative price changes among nations is their different market structures. For example, in markets with less competition, retail prices change less with changes in the costs of raw materials than otherwise. Less competition and less variation in retail prices would most likely be the case in nations where a single, large national oil company dominates sales of refined petro-

Figure 8.
Change in Heating Oil Prices for G7 Nations,
Second Quarter 1990 to Fourth Quarter 1990



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

NOTES: Changes are based on quarterly averages.

G7 = Group of Seven industrialized countries.

leum products. Economies with government price controls or other competitive restrictions would also exhibit less variation in retail prices.

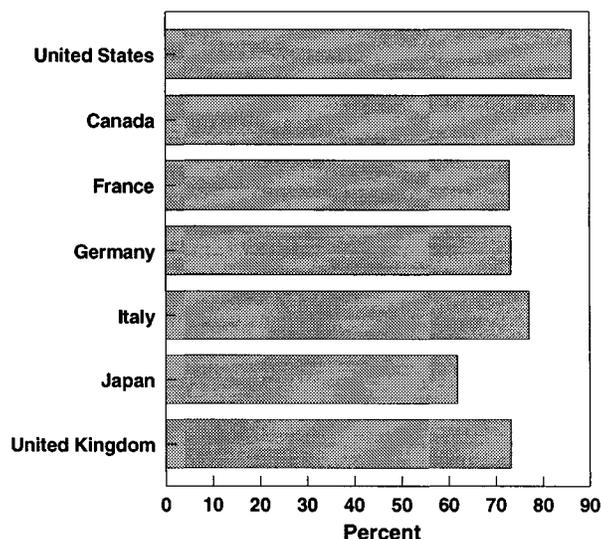
Unresponsive pricing in Japan, for example, diminished any incentives Japanese consumers had to reduce purchases of petroleum products.⁹ Those prices reflected a market dominated by a few large firms, a tradition of administered pricing, and the industrial policy of the government. In addition, restrictions in Japan on petroleum product imports--designed to protect Japanese refiners from world competition--hampered the efforts of Japanese consumers to find the products they needed in world markets. Although the use of jet fuel for military purposes increased, world demand for the product

9. The competitive structure of oil markets in Japan are discussed in Philip K. Verleger Jr., *Adjusting to Volatile Energy Prices* (Washington, D.C.: Institute for International Economics, November 1993).

changed little because of the offsetting loss of demand in civil aviation. That loss, in turn, was precipitated by the public's diminished appetite for air travel in view of the terrorist threat.

An important consequence of the smaller percentage changes in prices for motor fuels in Europe and Japan was that consumers there did not reduce their consumption of petroleum by as much as did U.S. consumers, and the net oil imports of those nations did not drop as much (see Figure 10). Indeed, Japan and the European members of the Organization for Economic Cooperation and Development actually increased their oil consumption during the fall of 1990 (see Figure 11). The large drop in U.S. oil imports occurred as much because of an increased drawdown in stocks as because of falling consumption (see Figure 12). In contrast, Japan and several European nations increased oil imports, in part to

Figure 9.
Change in Crude Oil Prices in Local Currencies
for G7 Nations, July 1990 to October 1990



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

NOTES: Changes are based on monthly averages for free-on-board (FOB) crude oil delivered to the United States. FOB is the cost of oil, loaded on ship, at the port of export.

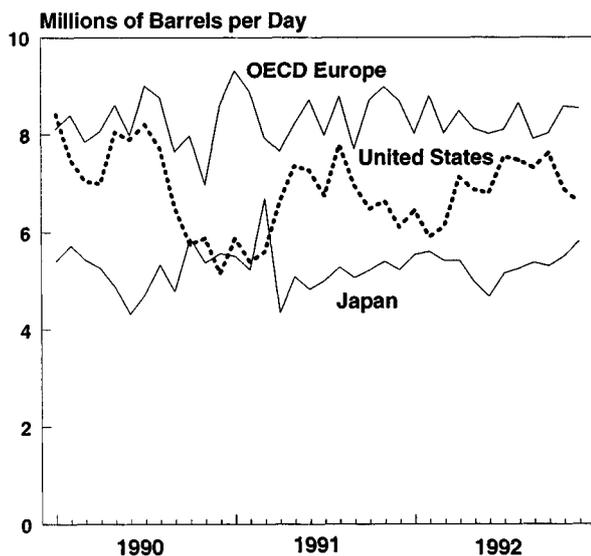
G7 = Group of Seven industrialized countries.

sustain oil stocks at an essentially constant level throughout the crisis.

In any country where retail prices do not rise despite increases in crude oil prices and where industry's efforts focus on building stocks for speculative or precautionary reasons, supply will not balance demand and consumers will have difficulty finding oil products. In that environment, political interest in imposing constraints on demand, requiring businesses to draw down oil stocks, or sharing the remaining oil with other countries is likely to be weak.

Different Underlying Economic Conditions. A second reason other countries may have had less incentive to take emergency actions relates to local differences in economic growth and weather. Countries experiencing severe winter weather or high economic growth are less likely to want to share remaining available supplies.

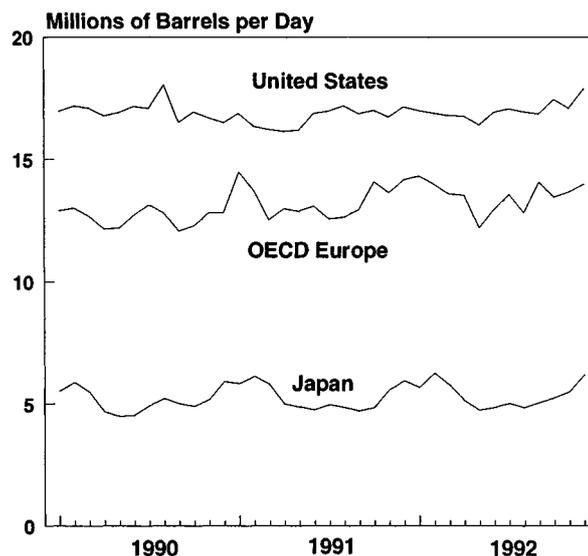
Figure 10.
Net Oil Imports of OECD Countries, 1990-1992



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

NOTE: OECD = Organization for Economic Cooperation and Development.

Figure 11.
Oil Consumption by OECD Countries, 1990-1992



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

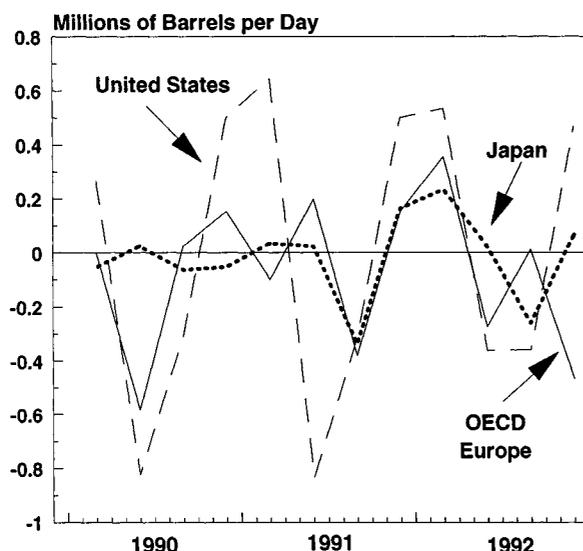
NOTES: Changes are based on quarterly averages for free-on-board (FOB) crude oil delivered to the United States. FOB is the cost of oil, loaded on ship, at the port of export.

OECD = Organization for Economic Cooperation and Development.

During the fall of 1990 and the winter of 1991, the weather was much milder in the United States than in Europe.¹⁰ Also, the U.S. economy was dipping into recession, while the major industrialized economies of Europe and Japan remained healthy. Growth in real gross domestic product in the European Community was 3.0 percent in 1990 and 0.8 percent in 1991; in Japan, 4.8 percent and 4.0 percent in the same years; and in the United States, 1.2 percent and negative 0.7 percent, respectively. Although the Congressional Budget Office has identified the rise in oil prices as helping to tip a teetering United States economy into recession, other industri-

10. Energy Information Administration, *Energy Situation Analysis Report* (February 13, 1991, and February 19, 1991). Weather in the United States in the fourth quarter of 1990 was unseasonably mild, and weather in Europe in the first quarter of 1991 was unseasonably cold.

Figure 12.
Drawdown of Oil Stocks by OECD Countries,
1990-1992



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

NOTE: OECD = Organization for Economic Cooperation and Development.

alized nations did not perceive the same threat to their economies.¹¹

In any case, U.S. requirements for oil were declining in the autumn of 1990 for economic reasons beyond rising prices, while in Europe and Japan oil requirements were rising. Growing consumer demand in Europe and Japan was a consequence of economic growth, relatively severe weather, administered prices, and possibly consumer stockpiling.

In sum, it was much easier for the United States to argue for restraining demand in the face of falling domestic demand. Also, despite the disruption of world supplies, Japan and some European nations did not feel the full consequence of the loss of oil supply.¹² Falling oil consumption and drawdown of

stocks in the United States helped to ensure adequate supplies for the rest of OECD and to moderate the total price increase.¹³

Greater Long-Term Dependence on Individual Oil Exporters. A third reason exists that various countries may have had different views on whether or how to respond to the Persian Gulf crisis--namely, the differences in their dependence on imported oil in general and Persian Gulf oil suppliers in particular (see Figure 13).

The absolute dependence on imports (as a share of total oil use) is not as relevant for determining economic losses from a supply disruption as is the technological dependence--the ability to reduce imports by using less energy or switching to other forms of energy when oil prices rise. Yet countries with long-standing commercial ties with oil exporters were reluctant to risk antagonizing those suppliers by invoking policies that would reduce oil prices.

Little or No Emergency Preparedness. Fourth, some countries may have been reluctant to take action simply because they had no way to deal with the problem. Only three members of the International Energy Agency maintain large government-owned, strategic stocks of crude oil or petroleum products: the United States, Germany, and Japan. Other governments have small volumes of product stocks, primarily held by government-owned utilities. As indicated by the actions of individual countries participating in the International Energy Agency's contingency plan in January 1991, a handful of other countries have imposed storage requirements on private companies, and the rest maintain programs calling for voluntary restraint on oil consumption. Relying on changes in utility stocks or private storage requirements or on advertising campaigns does not, however, constitute real emergency preparedness.

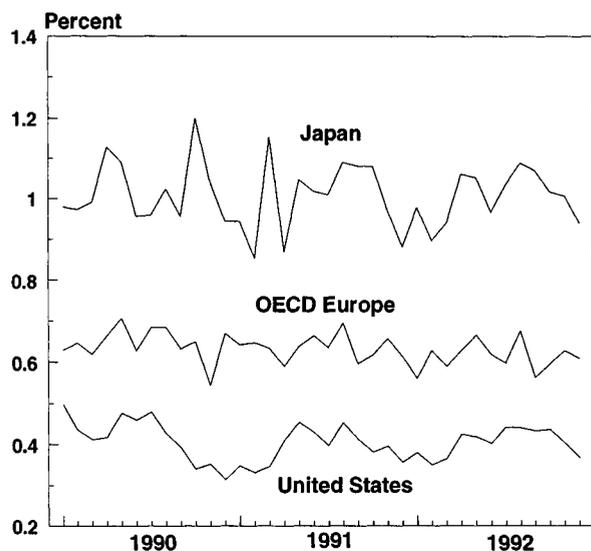
In particular, emergency reserves of oil that are privately held will not be available to increase world supply if the owners have wholly or partially integrated that oil with their supply systems. In that case, those stocks have merely displaced other pri-

11. Council of Economic Advisers, *Economic Report of the President* (February 1994).

12. Subsequent problems in Japan with high domestic prices for jet fuel and heating kerosene were largely a consequence of restrictions on petroleum product imports--designed to protect the domestic refining industry--and the domestic hoarding of oil supplies, as evidenced by the stock buildup.

13. International Energy Agency, Governing Board and Management Committee, "The Gulf Crisis of 1990/91, the IEA Response and Lessons for IEA Emergency Preparedness" (IEA, Paris, December 2, 1991).

Figure 13.
Net Oil Imports by OECD Countries as a Share of Oil Use, 1990-1992



SOURCE: Congressional Budget Office based on data from the Organization for Economic Cooperation and Development.

NOTE: OECD = Organization for Economic Cooperation and Development.

vate stocks. Moreover, volumes of oil that countries define as available stocks to meet their IEA commitment of a 90-day supply may not actually be available for emergency distribution. (For example, Turkey has counted Iraqi crude oil sitting in pipelines that cross Turkey toward its stock commitment.)

How the SPR Sales Process Adds to Market Uncertainty

Inaction by the U.S. government and the International Energy Agency on the release of emergency oil reserves in the early months of the Persian Gulf crisis made sense, given a policy of letting oil prices rise to restrain demand and stimulate oil production. It may also have made sense given the lack of information about the ultimate duration and severity of the crisis. Nevertheless, virtually every step the United States and the International Energy Agency took in response to the management of emergency reserves and demand reduction simply added to uncertainty in the oil markets.

For example, the IEA Governing Board met in early August 1990 but failed to act when everyone expected it to. The U.S. test sale of SPR oil in September 1990 was counterproductive, in part because the market expected a full-scale release and in part because problems with the test indicated that DOE was not prepared for a full-scale drawdown.¹⁴ The IEA contingency plan for making 2.5 million bbl/day in additional supply available was largely window dressing. Even the solid part of the plan--the sale of government-owned stocks by the United States and Germany--was vague in not specifying how much oil for how long. Moreover, once the flow started, the demand for this additional supply was negligible, thereby exacerbating the downward movement in oil prices that followed the success of the allied military effort.

Part of the problem had to do with the obstacles to early coordination discussed above. But problems with the SPR sales process itself also added to market uncertainty. In particular, the process is inherently backward looking, which contributes to making wrong and ill-timed decisions, and the process also fails to work through the market to gain maximum effect.¹⁵

Backward-Looking Decisions to Release Oil. Altogether, the process for making decisions to release oil and the contractual procedure for selling oil resulted in an ill-timed release of total supplies and difficulties in selling the desired mix of crude oils.

The bureaucratic process of recording oil prices, evaluating them, and deciding what to do will unavoidably entail delays. As a result, the government must rely on past market conditions in deciding how much and what kinds of SPR oil to sell. More significant, when oil prices are going up and down rapidly, government decisions will almost always be out of step with current conditions.

14. "Test Sale of Oil Reserves Reveals Major Problems," *Oil Daily*, December 10, 1990, p. 1.

15. Department of Energy, *Strategic Petroleum Reserve, Annual/Quarterly and Test Sale Report*, DOE/FE-0220P (February 15, 1991). A DOE evaluation of the 1991 SPR drawdown appears in *Strategic Petroleum Reserve, Quarterly Report*, DOE/FE-0220P-1 (May 15, 1991). The General Accounting Office prepared a critique of the DOE and IEA response to the Gulf crisis in *International Energy Agency: Response to the Oil Disruption Caused by the Persian Gulf Crisis*, GAO/NSIAD-92-93 (1992).